Khandesh College Education Society's

COLLEGE OF ENGINEERING & MANAGEMENT, JALGAON

Metrics No: 2.2.1

Title: Fast learners and slow learners

INDEX

K.C.E. SOCIETY'S
COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JAL
First Year Engineering Department
Academic Year 2018-19 SEM – II

FE
Slow
learner 2018-1

DATE: 22/03/2019

Important Notice

All First Year Engineering students are hereby inform that, students who secured less than 8 marks in MID SEM exam are considered as a slow learner and for improvement of their result remedial lectures will be conducted from 25/03/2019 of each subject as per the remedial lecture timetable. So, kindly attend remedial lectures and complete the activities given by subject teacher.

The list of students is attached.

HOD
Dr.Mrs. S.R.Patil

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., Jalgaon

FIRST YEAR ENGINEERING DEPARTMENT

REMEDIAL LECTURES TIME TABLE

SEM : II YEAR : 2018 - 19 W.E.F. : 25/03/2019

CLASS : F.E.DIV A CLASS ROOM NO. 004

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
8:00 TO 9:00	EM	M-II	EM	CP	CP	M-II
4:00 TO 5:00	EC	EC	CP	EC	M-II	EM

CLASS : F.E.DIV B/C CLASS ROOM NO. 005

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
8:00 TO 9:00	EG	M-II	M-II	EP	EP	EG
4:00 TO 5:00	CS	CS	EP	EEE	M-II	EEE

TIME TABLE COORDINATOR	HOD
MR.S.M.JAMBHAIKAR	DR. MRS. S.R.PATIL

KCES's COEIT, JALGAON
MID TEST EXAM-MARCH-19 MARKSHEET
BRANCH-COMPUTER SEM-II 2018-19

Sr.No.	PRN NO.	NAME OF STUDENT	Engg.Math-II	Commu.Skill	Engg.Phy.	Enery evs.Engg.	Engg. Graphics	Average
			BTBS201	BTHM204	BTBS202	BTES205	BTES203	
1	2151062018112451000l	DHANDE SEJAL MAHENDRA	22	18	20	18	20	20
2	21510620181124510002	MORE SHITAL RAVINDRA	18	16	18	16	19	17
3	21510620181124510003	BHAVSAR RITIKA SUNIL	20	18	18	18	20	19
4	21510620181124510004	JOSHI KAUSTUBH SURENDRA	9	8	8	8	17	10
5	21510620181124510005	WARULE DEVESH PANDURANG	17	18	20	17	18	18
6	21510620181124510006	PATIL VAISHNAVI KIRAN	20	18	20	16	18	18
7	21510620181124510007	PATIL JAYVEERSING KAILASHSING	16	13	15	9	18	14
8	21510620181124510008	MAHAJAN GAYATRI ANIL	18	15	16	13	18	16
9	21510620181124510009	KADAM VIVEK AVINASH	20	17	18	16	19	18
10	21510620181124510010	SURVE HARSHADA MUKESH	17	18	20	17	18	18
11	21510620181124510011	THORAT MEGHA BHUPENDRA	20	17	20	17	19	19
12	21510620181124510012	PATIL HARSHAL YASHWANT	16	17	20	17	19	18
13	21510620181124510013	BANSAL LIPAKSHI RAJESH	13	17	20	18	20	18
14	21510620181124510014	PATIL GUNJAN AMBALAL	3	10	14	10	9	9
15	21510620181124510015	MARATHE KIRTI JITENDRA	20	17	20	17	19	19
16	21510620181124510016	SARODE SMITA VASUDEV	18	17	18	15	18	17
17	21510620181124510017	BORHADE AKSHAY SANJAY	4	6	16	4	12	8
18	21510620181124510018	MAHAJAN SAKSHI VILAS	20	16	20	19	18	19
19	21510620181124510019	ANNADATE MOHINI ANIL	20	15	20	14	19	18
20	21510620181124510020	SHAH KAJAL	20	17	19	18	18	18
21	21510620181124510021	BARI BHUSHAN SUNIL	4	3	11	2	10	6
22	21510620181124510022	SARASWAT SHUBHAM MAHAVIR	20	17	19	14	18	18
23	21510620181124510023	SALUNKHE CHETAN RAJENDRA	20	16	15	11	18	16
24	21510620181124510024	MAHAJAN AMOL UMESH	9	6	13	9	17	11
25	21510620181124510025	BHAMRE RAJASHRI RAVINDRA	18	17	17	15	18	17
26	21510620181124510026	CHAVAN RAJASHRI ADHAR	15	16	16	12	17	15
27	21510620181124510027	CHAUDHARI DARSHANA GOVINDA	16	18	17	12	16	16
28	21510620181124510028	KHADKE RAJASHRI BALIRAM	19	17	18	11	19	17
29	21510620181124510029	PAWAR HARSHADA SURYAKANT	11	16	19	15	17	16
30	21510620181124510030	MARATHE PRITAM RAVINDRA	9	4	9	6	16	9

31	21510620181124510031	KHADKE HITESHI HEMANT	18	14	16	14	16	16
32	21510620181124510032	SHIMPI PIYUSH GOPAL	11	16	10	18	18	15
33	21510620181124510033	PATIL SHWETA SHRAVAN	20	18	AB	18	20	15
34	21510620181124510040	MAHAJAN HARSHAD VILAS	11	12	8	8	7	9
35	21510620181124510041	JAWALE HARSHAL KHUSHAL	4	7	8	8	10	7
36	21510620181124510043	KHODAPE PRIYANKA BHIKA	20	16	19	17	19	18
37	21510620181124510044	PATIL AISHVARYA ARUN	20	18	18	14	19	18
38	21510620181124510045	CHAUDHARI TEJAL VITTHAL	20	18	20	14	19	18
39	21510620181124510046	MORE SHARDA DNYANESHWAR	20	18	19	19	18	19
40	21510620181124510047	CHAUDHARI JAGRUTI NARAYAN	20	18	19	18	18	19
41	21510620181124510048	CHAUDHARI PRAFULL SUNIL	9	16	18	15	19	15
42	21510620181124510052	PATIL TANUJA GAJANAN	17	14	18	8	18	15
43	21510620181124510060	MAHAJAN VASUDHA VISHWAS	10	17	20	18	17	16
44	21510620181124510061	PAWAR HRISHIKESH DNYANESHWAR	AB	AB	AB	AB	AB	0
45	21510620181124510070	NEHETE CHETAN ANIL	6	5	8	4	11	7
46	21510620181124510074	PATIL SHASHANK BHAIYA	15	16	17	13	13	15
47	21510620181124510081	PATIL PRATIK PRATAP	6	9	2	8	9	7
48	21510620181124511001	GAWTE MAYURI HARIDAS	19	15	20	19	19	18
49	21510620181124511002	SONAWANE MOHINI MADHUKAR	15	15	9	15	11	13

Mid Sem Exam Co Cordinator
Mr.K.B.Patil

Exam Cordinator
Mr.H.A.WANI

HOD FE
Dr.S.R.Patil

KCES's COEIT, JALGAON
MID TEST EXAM-MARCH-19 MARKSHEET
BRANCH-ELECTRICAL SEM-II 2018-19

Sr.No.	PRN NOS	NAME OF STUDENT	Engg.Maths-II	Commu.Skill	Engg.Phy.	Enery EVS.Engg.	Engg. Graphics	Average
			BTBS201	BTHM204	BTBS202	BTES205	BTES203	
1	21510620181129310001	Dayma Nilesh Kailash	15	16	9	14	12	13
2	21510620181129310002	PATIL CHETAN TULSHIDAS	12	18	19	16	19	17
3	21510620181129310003	YOMIT BHARAT CHOPADE	0	9	9	14	20	10
4	21510620181129310004	Pawar Sanjana Ishwar	17	16	15	13	20	16
5	21510620181129310005	Bonde Mayur Sanjay	20	16	17	16	20	18
6	21510620181129310006	PATIL SHUBHAM DNYANESHWAR	14	10	17	15	20	15
7	21510620181129310007	BARI NILESH TUKARAM	AB	AB	AB	AB	AB	0
8	21510620181129310008	Yeole Himanshu Madhukar	1	12	5	11	15	9
9	21510620181129310009	Patil Harshal Samadhan	9	17	14	14	19	15
10	21510620181129310010	Varade Puja Sunil	10	13	11	11	10	11
11	21510620181129310011	Sonawane Vishal Devidas	AB	AB	AB	AB	AB	0
12	21510620181129310012	Sonawane Vishal Devidas	0	3	4	2	6	3
13	21510620181129310013	Patil Bhagyashri Umakant	17	16	17	9	13	14
14	21510620181129310014	Sapkale Pradip Akash	2	2	5	1	6	3
15	21510620181129310015	Patil Dipak Kishor	4	0	5	3	10	4
16	21510620181129310016	Narkhede Devendra Nivrutti	4	10	15	15	12	11
17	21510620181129310061	PIYUSH VILASJI TIWARI	8	17	12	12	20	14

Mid Sem Exam Co Cordinator
Mr.K.B.Patil

Exam Cordinator
Mr.H.A.WANI

HOD FE
Dr.S.R.Patil

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KCES's COEIT, JALGAON
MID TEST EXAM-MARCH-19 MARKSHEET
BRANCH-MECHANICAL SEM-II 2018-19

SR.NO.	PRN NO.	NAME OF STUDENT	Maths-II	Engg.Chemistry	Engg.Machanics	Comp.Progg.in c	Average
			BTBS201	BTBS202	BTES203	BTES204	
1	21510620181161210001	VAIBHAV VINOD CHAUDHARI	13	15	20	14	16
2	21510620181161210002	MOHIT MAHENDRASINGH PATIL	10	10	12	11	11
3	21510620181161210003	Prajak Sapkale	7	8	10	11	9
4	21510620181161210004	Khan Faisal Abrar	6	10	8	8	8
5	21510620181161210005	Gayakwad Pravin Kishor	11	15	10	10	12
6	21510620181161210006	Patel Sanket Rajendra	16	13	20	10	15
7	21510620181161210007	Sapkale Bhushan	10	12	13	8	11
8	21510620181161210008	Chaudhari Vivek Suresh	19	17	19	13	17
9	21510620181161210069	Patil Nayana Ravindra	17	17	19	17	18
10	21510620181161210070	Jadhav Dipali Kishor	10	15	9	11	11
11	21510620181161210009	CHAUDHARI PRATHMESH SANTOSH	15	13	20	16	16
12	21510620181161210010	Solanke Nachiket Raviraj	14	13	13	17	14
13	21510620181161210011	Rana Lohit Narayan	12	15	17	11	14
14	21510620181161210012	Valvi Viewing Bharat	19	14	20	12	16
15	21510620181161210013	Chaudhari Gaurav Prakash	8	8	20	8	11
16	21510620181161210014	Sutar Nikhil Gopal	7	8	12	6	8
17	21510620181161210015	Patil Bhushan Rajendra	5	6	8	7	7
18	21510620181161210016	Pathan Salman Anwar	AB	AB	AB	AB	0
19	21510620181161210017	chaudhari dhiraj sunil	14	13	11	8	12
20	21510620181161210018	Akshay Kailas Sonawane	9	14	20	8	13
21	21510620181161210019	Savale Gaurav Suresh	5	4	AB	AB	2
22	21510620181161210067	Magare aadesh dhanraj	7	13	8	14	11

Mid Sem Exam Co Cordinator
Mr.K.B.Patil

Exam Cordinator
Mr.H.A.WANI

HOD FE
Dr.S.R.Patil

KCES's COEIT, JALGAON
MID TEST EXAM-MARCH-19 MARKSHEET
BRANCH-ENTC SEM-II 2018-19

Sr.No.	PRN NOS	NAME OF STUDENT	Engg.Maths-II	Commu.Skill	Engg.Phy.	Enery evs.Engg.	Engg. Graphics	Average
			BTBS201	BTHM204	BTBS202	BTES205	BTES203	
1	21510620181137210001	Aswar Sneha Sunil	4	18	14	8	20	13
2	21510620181137210002	Kharche Ganesh Manohar	16	17	15	16	19	17
3	21510620181137210003	Pardeshi Sagar Sanjay	20	17	17	11	16	16
4	21510620181137210004	Mahajan Jayesh Sunil	17	17	18	15	20	17
5	21510620181137210005	Fegade Vishal Sunil	20	18	20	17	19	19
6	21510620181137210006	purkar dipak rajendra	20	17	20	15	19	18
7	21510620181137210007	Patil Chetan Bhagwat	3	13	11	10	14	10
8	21510620181137210008	Patil Aarchana Abhiman	11	16	19	11	11	14
9	21510620181137210009	Khalse Vaishali Dnyaneshwar	8	13	17	10	15	13
10	21510620181137210010	Patil Rajeshwari Surendra	9	14	16	9	16	13
11	21510620181137210017	Derekar Komal Ganesh	18	14	20	10	20	16
12	21510620181137210049	Patil Abhijeet Bhagwan	6	9	11	11	17	11
13	21510620181137210054	Pawar Kalyani Sanjay	14	12	15	12	18	14

Mid Sem Exam Co Cordinator
Mr.K.B.Patil

Exam Cordinator
Mr.H.A.WANI

HOD FE
Dr.S.R.Patil

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (MECH) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject Engg. Math - II

Attendance Slow learner

ROLL NO	NAME					
DATES OF REM. LECTURE		28/03	29/03	30/03	02/04	05/04
4	Khan Faisal Abrar	P	P	P	P	P
16	Sutar Nikhil Gopal	P	P	P	P	P
17	Patil Bhushan Rajendra	P	P	P	P	P
18	Pathan Salman Anwar	P	P	P	P	P
21	Savale Gaurav Suresh	P	P	P	P	P

Subject teacher **H.O.D.**

Mrs. S. R. Patil

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (MECH) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject Engg. Math-II

Attendance Slow learner

ROLL NO	NAME	09/04	12/04	16/04	20/04	23/04
DATES OF REM. LECTURE		P	P	P	P	P
4	Khan Faisal Abrar	P	P	P	P	P
16	Sutar Nikhil Gopal	P	P	P	P	P
17	Patil Bhushan Rajendra	P	P	P	P	P
18	Pathan Salman Anwar	P	P	P	P	P
21	Savale Gaurav Suresh	P	P	P	P	P

Subject teacher
S.M. Jamshaikar

H.O.D. MPatil

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (MECH) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject Engg. mech.

Attendance Slow learner

ROLL NO	NAME	25/03	27/03	30/03	01/04	03/04
DATES OF REM. LECTURE		28/03	P	P	P	P
4	Khan Faisal Abrar	P	P	P P	P	A
16	Sutar Nikhil Gopal	P	P	P	P	P
17	Patil Bhushan Rajendra	P P	P	P	P	P
18	Pathan Salman Anwar		P	P	P	A
21	Savale Gaurav Suresh	P	P	P	P	P

Subject teacher
A. S. Koli

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (MECH) SEM- II ACADEMIC YEAR 2018-19

Subject Engg. mech.

Attendance Slow learner

ROLL NO	NAME	08/04	10/04	15/04	18/04	20/04
DATES OF REM. LECTURE		P	P	P	P	P
4	Khan Faisal Abrar	P	P	P	P	P
16	Sutar Nikhil Gopal	P	P	P	P	P
17	Patil Bhushan Rajendra	P	P	P	P	P
18	Pathan Salman Anwar	P	P	P	P	P
21	Savale Gaurav Suresh	P	P	P	P	P

Subject teacher **H.O.D.**

A.S. Koli

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (MECH) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject CP

Attendance Slow learner

ROLL NO	NAME					
DATES OF REM. LECTURE		27/03	28/03	29/03	03/04	04/04
4	Khan Faisal Abrar	P	P	P	P	P
16	Sutar Nikhil Gopal	P	P	P	P	P
17	Patil Bhushan Rajendra	P	P	P	P	P
18	Pathan Salman Anwar	P	P	P	P	P
21	Savale Gaurav Suresh	P	P	P	P	P

Subject teacher
Rupali Zambre.

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (MECH) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject CP

Attendance Slow learner

ROLL NO	NAME					
DATES OF REM. LECTURE		05/04	10/04	11/04	12/04	18/04
4	Khan Faisal Abrar	P	P	P	P	P
16	Sutar Nikhil Gopal	P	P	P	P	P
17	Patil Bhushan Rajendra	P	P	P	P	P
18	Pathan Salman Anwar	P	P	P	P	P
21	Savale Gaurav Suresh	P	P	P	P	P

Subject teacher
Rupali Combre

H.O.D. APatil

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (MECH) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject Engg. chem

Attendance Slow learner

ROLL NO	NAME					
DATES OF REM. LECTURE		25/03	26/03	28/03	01/4	02/04
4	Khan Faisal Abrar	P	P	P	P	P
16	Sutar Nikhil Gopal	P	P	P	A	P
17	Patil Bhushan Rajendra	P	P	P	P	P
18	Pathan Salman Anwar	P	P	P	P	P
21	Savale Gaurav Suresh	P	P	P	P	P

Subject teacher

SRK

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (MECH) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject Engg. Mech.

Attendance Slow learner

ROLL NO	NAME	06/04	08/04	09/04	11/04	
DATES OF REM. LECTURE						
4	Khan Faisal Abrar	P	P	P	P	
16	Sutar Nikhil Gopal	P	P	P	P	
17	Patil Bhushan Rajendra	P	P	P	P	
18	Pathan Salman Anwar	P	P	P	P	
21	Savale Gaurav Suresh	P	P	P	P	

Subject teacher SRK

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (COMP) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject Engg. Maths- II

Attendance Slow learner

ROLL NO	NAME	26/3	27/3	28/3	2/4	3/4
DATES OF REM. LECTURE						
17	Borhade Akshay Sanjay	P	P	P	A	P
21	Bari Bhushan Sunil	P	P	A	P	P
35	Jawale Harshal Khushal	P	A	P	P	P
44	Pawar Hrishikesh Dnyaneshwar	P	P	P	P	P
45	Nehete Chetan Anil	P	P	P	P	P
47	Patil Pratik Pratap	P	P	P	P	P

Subject teacher

S.M.Jambhalkar

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (COMP) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject Engg maths II

Attendance Slow learner

ROLL NO	NAME	5/4	9/4	10/4	12/4	16/4
DATES OF REM. LECTURE						
17	Borhade Akshay Sanjay	P	P	P	P	P
21	Bari Bhushan Sunil	P	P	P	P	P
35	Jawale Harshal Khushal	P	P	P	P	P
44	Pawar Hrishikesh Dnyaneshwar	P	P	P	P	P
45	Nehete Chetan Anil	P	P	P	P	P
47	Patil Pratik Pratap	P	A	P	P	P

Subject teacher
S.M. Jambhatkar

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (COMP) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject Engg phy.

Attendance Slow learner

ROLL NO	NAME	27/3	28/3	28/3	3/4	5/4
DATES OF REM. LECTURE						
17	Borhade Akshay Sanjay	A	P	P	P	A
21	Bari Bhushan Sunil	P	P	A	P	P
35	Jawale Harshal Khushal	P	P	P	P	P
44	Pawar Hrishikesh Dnyaneshwar	P	P	P	P	P
45	Nehete Chetan Anil	P	P	P	P	P
47	Patil Pratik Pratap	P	P	P	P	P

Subject teacher
Mrs. M. B. chaudhari

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (COMP) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject Engg phy

Attendance Slow learner

ROLL NO	NAME	5/4	10/4	11/4	12/4	18/4
DATES OF REM. LECTURE						
17	Borhade Akshay Sanjay	P	A	P	P	P
21	Bari Bhushan Sunil	P	P	P	P	P
35	Jawale Harshal Khushal	P	P	P	P	P
44	Pawar Hrishikesh Dnyaneshwar	P	P	P	P	A
45	Nehete Chetan Anil	P	P	P	P	P
47	Patil Pratik Pratap	P	P	A	P	P

Subject teacher
mrs. m.B. chaudhari

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (COMP) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject CS

Attendance Slow learner

ROLL NO	NAME					
DATES OF REM. LECTURE		25/3	26/3	1/4	2/4	8/4
17	Borhade Akshay Sanjay	P	P	P	P	P
21	Bari Bhushan Sunil	P	P	P	P	P
35	Jawale Harshal Khushal	P	P	P	P	P
44	Pawar Hrishikesh Dnyaneshwar	P	P	P	P	A
45	Nehete Chetan Anil	A	A	P	P	P
47	Patil Pratik Pratap	P	P	P	P	P

Subject teacher
N.A.chavdhari

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (COMP) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject E.G.

Attendance Slow learner

ROLL NO	NAME					
DATES OF REM. LECTURE		25/3	30/3	1/4	8/4	15/4
17	Borhade Akshay Sanjay					
21	Bari Bhushan Sunil	P	P	P	A	P
35	Jawale Harshal Khushal	P	A	P	P	P
44	Pawar Hrishikesh Dnyaneshwar	P	P	A	P	P
45	Nehete Chetan Anil	P	P	P	P	P
47	Patil Pratik Pratap	P	P	P	P	P

Subject teacher
A.S. koli

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (COMP) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject EEE

Attendance Slow learner

ROLL NO	NAME	28/3	30/3	5/4	11/4	18/4
DATES OF REM. LECTURE						
17	Borhade Akshay Sanjay	P	P	P	P	P
21	Bari Bhushan Sunil	P	P	P	P	P
35	Jawale Harshal Khushal	A	P	P	P	P
44	Pawar Hrishikesh Dnyaneshwar	P	A	P	P	P
45	Nehete Chetan Anil	P	P	P	P	A
47	Patil Pratik Pratap	P	P	P	P	P

Subject teacher
Mr. G. S. Sanamse

H.O.D. DPatil

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (ELECT/ETC) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject Engineering · Maths – II

Attendance Slow learner

ROLL NO	NAME	26/3	27/3	29/3	2/4	3/4
DATES OF REM. LECTURE						
7	Bari Nilesh Tukaram	P	P	P	A	P
8	Yeole Himanshu Madhukar	P	A	P	P	P
11	Sonawane Vishal Devidas	P	P	P	P	P
12	Sonawane Vishal Devidas	P	P	P	P	P
14	Sapkale Pradip Akash	P	P	P	P	A
15	Patil Dipak Kishor	P	P	P	P	P

Subject teacher
Dr. S. R. Patil

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (ELECT/ETC) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject Engineering Maths-II

Attendance Slow learner

ROLL NO	NAME	5/4	9/4	10/4	12/4	16/4
DATES OF REM. LECTURE						
7	Bari Nilesh Tukaram	P	A	P	P	P
8	Yeole Himanshu Madhukar	P	P	P	P	A
11	Sonawane Vishal Devidas	P	P	P	P	P
12	Sonawane Vishal Devidas	P	P	P	P	P
14	Sapkale Pradip Akash	P	P	P	P	P
15	Patil Dipak Kishor	P	P	P	P	P

Subject teacher
Dr. S. R. Patil

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (ELECT/ETC) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject EEE [energy & env.)

Attendance Slow learner

ROLL NO	NAME	28-3	30-3	4/4	11/4	18/4
DATES OF REM. LECTURE						
7	Bari Nilesh Tukaram	P	P	P	P	A
8	Yeole Himanshu Madhukar	P	P	P	P	P
11	Sonawane Vishal Devidas	A	A	P	P	P
12	Sonawane Vishal Devidas	P	P	P	A	P
14	Sapkale Pradip Akash	P	P	P	P	P
15	Patil Dipak Kishor	P	P	P	P	P

Subject teacher
Mr. V. R. Kothoke

H.O.D.

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (ELECT/ETC) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject CS

Attendance Slow learner

ROLL NO	NAME	25/3	26/3	1/4	2/4	3/4
DATES OF REM. LECTURE						
7	Bari Nilesh Tukaram	P	P	P	P	A
8	Yeole Himanshu Madhukar	P	P	P	P	P
11	Sonawane Vishal Devidas	P	P	P	P	P
12	Sonawane Vishal Devidas	P	A	P	P	P
14	Sapkale Pradip Akash	A	P	P	P	P
15	Patil Dipak Kishor	P	P	P	P	P

Subject teacher
M. A. Chaudhari

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (ELECT/ETC) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject Eng. Graphics

Attendance Slow learner

ROLL NO	NAME	25/03	30/03	1/04	08/04	15/04
DATES OF REM. LECTURE						
7	Bari Nilesh Tukaram	P	P	P	P	P
8	Yeole Himanshu Madhukar	P	P	P	P	P
11	Sonawane Vishal Devidas	P	P	P	P	P
12	Sonawane Vishal Devidas	A	P	P	P	P
14	Sapkale Pradip Akash	P	P	A	P	A
15	Patil Dipak Kishor	P	P	P	P	P

Subject teacher
Mr. Dhiraj Patil

H.O.D.

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (ELECT/ETC) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject Engineering. Physics.

Attendance Slow learner

ROLL NO	NAME	5·4	10·4	11·4	12·4	18·4
DATES OF REM. LECTURE						
7	Bari Nilesh Tukaram	P	P	P	P	P
8	Yeole Himanshu Madhukar	P	P	P	A	A
11	Sonawane Vishal Devidas	P	P	P	P	P
12	Sonawane Vishal Devidas	P	P	P	P	P
14	Sapkale Pradip Akash	P	P	P	P	P
15	Patil Dipak Kishor	A	P	P	P	P

Subject teacher
Mrs. M.B. Chaudhari

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (ELECT/ETC) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject Engineering Physics.

Attendance Slow learner

ROLL NO	NAME	27·3	28·3	29·3	3·4	4·4
DATES OF REM. LECTURE						
7	Bari Nilesh Tukaram	P	A	P	P	P
8	Yeole Himanshu Madhukar	P	P	P	P	P
11	Sonawane Vishal Devidas	P	P	P	P	P
12	Sonawane Vishal Devidas	P	P	P	P	P
14	Sapkale Pradip Akash	P	P	A	P	P
15	Patil Dipak Kishor	P	P	P	P	P

Subject teacher
Mrs. M. B. Chaudhari

H.O.D.

K.C.E. SOCIETY'S
COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JALGAON
First Year Engineering Department
Academic Year 2018-19 SEM – I

DATE: 20/10/2018

Important Notice

All First Year Engineering students are hereby inform that, students who secured less than 8 marks in MID SEM exam are considered as a slow learner and for improvement of their result remedial lectures will be conducted from 22/10/2018 of each subject as per the remedial lecture timetable. So, kindly attend remedial lectures and complete the activities given by subject teacher.

The list of students is attached.

HOD
Dr.Mrs. S.R.Patil

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., Jalgaon

FIRST YEAR ENGINEERING DEPARTMENT

REMEDIAL LECTURES TIME TABLE

SEM : I YEAR : 2018 - 19 W.E.F. : 22/10/2018

CLASS : F.E.DIV A **CLASS ROOM NO. 004**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
8:00 TO 9:00	M-I	EEE	EP	EEE	M-I	EG
4:00 TO 5:00	EP	EP	M-I	CS	EG	CS

CLASS : F.E.DIV B/C **CLASS ROOM NO. 005**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
8:00 TO 9:00	EC	M-I	EM	EC	CP	M-I
4:00 TO 5:00	EM	EC	CP	CP	M-I	EM

TIME TABLE COORDINATOR	HOD
MR.S.M.JAMBHAIKAR	DR. MRS. S.R.PATIL

KCES's COEIT, JALGAON
MID TEST EXAM-OCT-18 MARKSHEET
BRANCH-COMPUTER

Sr.No.	PRN	Name of Student	Maths-I	Engg.Chemistry	Engg.Machanics	Basic Comp.Progg.	Average
1	21510620181124510001	DHANDE SEJAL MAHENDRA	19	18	20	19	19
2	21510620181124510002	MORE SHITAL RAVINDRA	16	16	10	18	15
3	21510620181124510003	BHAVSAR RITIKA SUNIL	18	20	15	20	18
4	21510620181124510004	JOSHI KAUSTUBH SURENDRA	6	10	10	12	10
5	21510620181124510005	WARULE DEVESH PANDURANG	18	18	17	17	18
6	21510620181124510006	PATIL VAISHNAVI KIRAN	20	20	18	20	20
7	21510620181124510007	PATIL JAYVEERSING KAILASHSING	11	13	14	12	13
8	21510620181124510008	MAHAJAN GAYATRI ANIL	19	13	17	14	16
9	21510620181124510009	KADAM VIVEK AVINASH	19	18	18	15	18
10	21510620181124510010	SURVE HARSHADA MUKESH	15	16	18	14	16
11	21510620181124510011	THORAT MEGHA BHUPENDRA	8	13	14	16	13
12	21510620181124510012	PATIL HARSHAL YASHWANT	11	18	12	18	15
13	21510620181124510013	BANSAL LIPAKSHI RAJESH	18	20	11	17	17
14	21510620181124510014	PATIL GUNJAN AMBALAL	6	6	9	6	7
15	21510620181124510015	MARATHE KIRTI JITENDRA	19	13	15	19	17
16	21510620181124510016	SARODE SMITA VASUDEV	10	15	13	9	12
17	21510620181124510017	BORHADE AKSHAY SANJAY	10	10	15	10	11
18	21510620181124510018	MAHAJAN SAKSHI VILAS	20	12	17	18	17
19	21510620181124510019	ANNADATE MOHINI ANIL	16	16	14	13	15
20	21510620181124510020	SHAH KAJAL	14	16	15	15	15
21	21510620181124510021	BARI BHUSHAN SUNIL	10	7	13	5	9
22	21510620181124510022	SARASWAT SHUBHAM MAHAVIR	16	15	12	19	16
23	21510620181124510023	SALUNKHE CHETAN RAJENDRA	16	15	17	18	17
24	21510620181124510024	MAHAJAN AMOL UMESH	13	10	16	12	13

25	21510620181124510025	BHAMRE RAJASHRI RAVINDRA	16	19	17	16	17
26	21510620181124510026	CHAVAN RAJASHRI ADHAR	8	14	8	9	10
27	21510620181124510027	CHAUDHARI DARSHANA GOVINDA	7	16	17	15	14
28	21510620181124510028	KHADKE RAJASHRI BALIRAM	12	13	17	12	14
29	21510620181124510029	PAWAR HARSHADA SURYAKANT	8	16	15	11	13
30	21510620181124510030	MARATHE PRITAM RAVINDRA	11	9	16	11	12
31	21510620181124510031	KHADKE HITESHI HEMANT	16	17	12	15	15
32	21510620181124510032	SHIMPI PIYUSH GOPAL	11	15	11	15	13
33	21510620181124510033	PATIL SHWETA SHRAVAN	19	20	17	19	19
34	21510620181124510040	MAHAJAN HARSHAD VILAS	8	7	9	8	8
35	21510620181124510041	JAWALE HARSHAL KHUSHAL	8	9	12	8	9
36	21510620181124510043	KHODAPE PRIYANKA BHIKA	13	19	8	16	14
37	21510620181124510044	PATIL AISHVARYA ARUN	18	12	11	19	15
38	21510620181124510045	CHAUDHARI TEJAL VITTHAL	18	12	14	19	16
39	21510620181124510046	MORE SHARDA DNYANESHWAR	17	20	15	18	18
40	21510620181124510047	CHAUDHARI JAGRUTI NARAYAN	19	20	16	18	18
41	21510620181124510048	CHAUDHARI PRAFULL SUNIL	13	12	13	11	12
42	21510620181124510052	PATIL TANUJA GAJANAN	14	16	9	16	14
43	21510620181124510060	MAHAJAN VASUDHA VISHWAS	8	18	4	9	10
44	21510620181124510061	PAWAR HRISHIKESH DNYANESHWAR	AB	AB	AB	AB	0
45	21510620181124510070	NEHETE CHETAN ANIL	7	7	5	14	8
46	21510620181124510074	PATIL SHASHANK BHAIYA	8	17	10	10	11
47	21510620181124510081	PATIL PRATIK PRATAP	7	4	9	9	7
48	21510620181124511001	GAWTE MAYURI HARIDAS	19	20	18	16	18
49	21510620181124511002	SONAWANE MOHINI MADHUKAR	8	9	16	9	11

KBPatil

SRPatil

KCES's COEIT, JALGAON
MID TEST EXAM-OCT-18 MARKSHEET
BRANCH-MECHANICAL

SR.NO.	PRN NOS	NAME OF STUDENT	Engg.Maths-I	Commu.Skill	Engg.Phy.	Enery evs.Engg.	Engg. Graphics	Average
1	21510620181161210001	VAIBHAV VINOD CHAUDHARI	15	15	15	16	18	16
2	21510620181161210002	MOHIT MAHENDRASINGH PATIL	9	10	14	19	17	14
3	21510620181161210003	Prajak Sapkale	8	9	14	15	17	13
4	21510620181161210004	Khan Faisal Abrar	10	11	12	14	13	12
5	21510620181161210005	Gayakwad Pravin Kishor	14	17	14	20	14	16
6	21510620181161210006	Patel Sanket Rajendra	13	9	14	17	13	13
7	21510620181161210007	Sapkale Bhushan	11	13	13	16	13	13
8	21510620181161210008	Chaudhari Vivek Suresh	12	14	15	20	10	14
9	21510620181161210069	Patil Nayana Ravindra	17	13	14	16	14	15
10	21510620181161210070	Jadhav Dipali Kishor	14	12	13	14	14	13
11	21510620181161210009	CHAUDHARI PRATHMESH SANTOSH	12	12	11	14	17	13
12	21510620181161210010	Solanke Nachiket Raviraj	9	11	AB	14	15	10
13	21510620181161210011	Rana Lohit Narayan	15	12	13	17	15	14
14	21510620181161210012	Valvi Viewing Bharat	17	15	15	17	14	16
15	21510620181161210013	Chaudhari Gaurav Prakash	14	13	10	12	14	13
16	21510620181161210014	Sutar Nikhil Gopal	1	8	9	8	11	7
17	21510620181161210015	Patil Bhushan Rajendra	1	9	11	6	10	7
18	21510620181161210016	Pathan Salman Anwar	AB	AB	AB	AB	AB	0
19	21510620181161210017	chaudhari dhiraj sunil	10	13	11	15	17	13
20	21510620181161210018	Akshay Kailas Sonawane	11	9	11	16	12	12
21	21510620181161210019	Savale Gaurav Suresh	7	8	6	15	10	9
22	21510620181161210067	Magare aadesh dhanraj	8	12	12	16	13	12

KBP.

KCES's COEIT, JALGAON
MID TEST EXAM-OCT-18 MARKSHEET
BRANCH-ENTC

Sr.No.	PRN NOS	NAME OF STUDENT	Maths-I	Engg.Chemistry	Engg.Machanics	Basic Comp.Progg.	Average
1	2151062018113721000l	Aswar Sneha Sunil	18	14	5	13	13
2	21510620181137210002	Kharche Ganesh Manohar	15	17	11	16	15
3	21510620181137210003	Pardeshi Sagar Sanjay	13	17	14	17	15
4	21510620181137210004	Mahajan Jayesh Sunil	17	12	17	18	16
5	21510620181137210005	Fegade Vishal Sunil	18	19	18	20	19
6	21510620181137210006	purkar dipak rajendra	18	17	18	18	18
7	21510620181137210007	Patil Chetan Bhagwat	12	12	8	10	11
8	21510620181137210008	Patil Aarchana Abhiman	8	11	11	10	10
9	21510620181137210009	Khalse Vaishali Dnyaneshwar	12	10	11	14	12
10	21510620181137210010	Patil Rajeshwari Surendra	8	15	10	7	10
11	21510620181137210017	Derekar Komal Ganesh	19	15	7	14	14
12	21510620181137210049	Patil Abhijeet Bhagwan	8	11	14	8	10
13	21510620181137210054	Pawar Kalyani Sanjay	15	15	7	14	13

S. R. Patil

KCES's COEIT, JALGAON
MID TEST EXAM-OCT-18 MARKSHEET
BRANCH-ELECTRICAL

Sr.No.	PRN	NAME OF STUDENT	Maths-I	Engg.Chemistry	Engg.Machanics	Basic Comp.Progg.	Average
1	2151062018112931 0001	Dayma Nilesh Kailash	17	14	AB	13	11
2	21510620181129310002	PATIL CHETAN TULSHIDAS	15	17	17	17	17
3	21510620181129310003	YOMIT BHARAT CHOPADE	12	6	14	9	10
4	21510620181129310004	Pawar Sanjana Ishwar	16	18	7	16	14
5	21510620181129310005	Bonde Mayur Sanjay	20	18	17	20	19
6	21510620181129310006	PATIL SHUBHAM DNYANESHWAR	20	15	11	19	16
7	21510620181129310007	BARI NILESH TUKARAM	AB	AB	AB	AB	0
8	21510620181129310008	Yeole Himanshu Madhukar	6	9	2	9	7
9	21510620181129310009	Patil Harshal Samadhan	10	14	7	17	12
10	21510620181129310010	Varade Puja Sunil	10	18	6	17	13
11	21510620181129310011	Sonawane Vishal Devidas	AB	AB	AB	AB	0
12	21510620181129310012	Sonawane Vishal Devidas	1	5	7	6	5
13	21510620181129310013	Patil Bhagyashri Umakant	19	15	14	13	15
14	21510620181129310014	Sapkale Pradip Akash	6	6	4	5	5
15	21510620181129310015	Patil Dipak Kishor	6	8	0	5	5
16	21510620181129310016	Narkhede Devendra Nivrutti	AB	11	4	4	5
17	21510620181129310061	PIYUSH VILASJI TIWARI	17	14	15	7	13

Patil
S.R. Patil

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (COMP.) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject Engineering Mechanics

Attendance Slow learner

ROLL NO	NAME	22.10	24.10	27/10	29/10	31.10
DATES OF REM. LECTURE						
14	Patil Gunjan Ambalal	P	P	P	P	P
34	Mahajan Harshad Vilas	P	P	P	P	P
44	Pawar Hrishikesh Dnyaneshwar	A	A	P	P	P
45	Nehete Chetan Anil	P	P	P	P	P
47	Patil Pratik Pratap	P	P	A	P	P

Subject teacher
Mr. M.D. Salunkhe

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (COMP.) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject Engineering Mechanics

Attendance Slow learner

ROLL NO	NAME	3.11	12.11	14/11	17/11	19/11
DATES OF REM. LECTURE						
14	Patil Gunjan Ambalal	A	P	P	P	P
34	Mahajan Harshad Vilas	P	P	P	P	P
44	Pawar Hrishikesh Dnyaneshwar	P	P	P	P	P
45	Nehete Chetan Anil	P	A	P	P	P
47	Patil Pratik Pratap	P	P	A	P	P

Subject teacher
Mr. M. D. Salunkhe

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

LASS : FE (MECH) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject Eng. Math- I

Attendance Slow learner

ROLL NO	NAME	22/10	24/10	26/10	29/10	31/10
DATES OF REM. LECTURE		P	P	P	P	P
16	Sutar Nikhil Gopal	P	P	P	P	A
17	Patil Bhushan Rajendra	P	P	P	P	P
18	Pathan Salman Anwar	P	P	P	P	P

Subject teacher
S.M. Jambhaskar

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

LASS : FE (MECH)   SEM- I   ACADEMIC YEAR 2018-19

Subject Engg. Math – I

Attendance Slow learner

ROLL NO	NAME	2/11	12/11	14/11	16/11	19/11
DATES OF REM. LECTURE		P	P	P	P	P
16	Sutar Nikhil Gopal	P	P	P	P	P
17	Patil Bhushan Rajendra	P	P	P	P	P
18	Pathan Salman Anwar	P	P	P	P	A

Subject teacher
S.M. Jamkhaidar

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

LASS : FE (MECH) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject Engg. Physics

Attendance Slow learner

ROLL NO	NAME	31/10	12/11	13/11	14/11	19/11
DATES OF REM. LECTURE		P	P	P	P	P
16	Sutar Nikhil Gopal	P	P	P	P	P
17	Patil Bhushan Rajendra	P	P	P	P	A
18	Pathan Salman Anwar	P	P	P	P	P

Subject teacher
Mrs. M.B Chaudhari

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

LASS : FE (MECH) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject Engg. Phy.

Attendance Slow learner

ROLL NO	NAME	22/10	23/10	24/10	29/10	30/10
DATES OF REM. LECTURE		P	P	P	P	A
16	Sutar Nikhil Gopal	P	P	P	P	P
17	Patil Bhushan Rajendra	P	P	P	P	P
18	Pathan Salman Anwar	P	P	P	P	P

Subject teacher
Mr. N. N. Markoni

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : FE (MECH) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject Engg. Graphics

·Attendance Slow learner

ROLL NO	NAME	26/10	27/10	2/11	03/11	16/11
DATES OF REM. LECTURE		P	P	P	P	P
16	Sutar Nikhil Gopal	P	P	P	P	A
17	Patil Bhushan Rajendra	P	P	P	P	A
18	Pathan Salman Anwar	P	P	P	P	P

Subject teacher
Mr. M.D Salunkhe

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

LASS : FE (MECH) SEM- I ACADEMIC YEAR 2018-19

Subject FEE

Attendance Slow learner

ROLL NO	NAME	23/10	25/10	30/10	1/11	12/11
DATES OF REM. LECTURE		P	P	P	P	P
16	Sutar Nikhil Gopal	P	P	P	P	P
17	Patil Bhushan Rajendra	P	P	P	P	A
18	Pathan Salman Anwar	P	P	P	P	P

Subject teacher

Mr. S. S. Saranse

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

LASS : FE (MECH) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject CS

Attendance Slow learner

ROLL NO	NAME	25/10	27/10	1/11	3/11	25/11
DATES OF REM. LECTURE		P	P	P	P	P
16	Sutar Nikhil Gopal	P	P	P	P	P
17	Patil Bhushan Rajendra	P	P	P	P	P
18	Pathan Salman Anwar	P	P	P	P	P

Subject teacher

Mr. B. S. Patil

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (COMP.) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject EC

Attendance Slow learner

ROLL NO	NAME	22/10	23/10	25/10	29/10	30/10
DATES OF REM. LECTURE						
14	Patil Gunjan Ambalal	A	P	P	P	P
34	Mahajan Harshad Vilas	P	A	A	P	A
44	Pawar Hrishikesh Dnyaneshwar	P	P	P	P	P
45	Nehete Chetan Anil	P	P	P	P	A
47	Patil Pratik Pratap	P	P	P	P	P

SRK
Subject teacher
S.R.K.

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (COMP.) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject EC.

Attendance Slow learner

ROLL NO	NAME	1/11	12/11	13/11	15/11	19/11
DATES OF REM. LECTURE						
14	Patil Gunjan Ambalal	P	P	A	P	P
34	Mahajan Harshad Vilas	P	A	P	P	P
44	Pawar Hrishikesh Dnyaneshwar	P	P	P	P	A
45	Nehete Chetan Anil	A	P	P	P	P
47	Patil Pratik Pratap	P	P	P	P	P

Subject teacher
S.R.K.

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (COMP.) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject computer Prog-Inc.

Attendance Slow learner

ROLL NO	NAME	24-10	25-10	26-10	31-10	1-11
DATES OF REM. LECTURE'						
14	Patil Gunjan Ambalal	P	P	P	A	P
34	Mahajan Harshad Vilas	P	P	P	P	P
44	Pawar Hrishikesh Dnyaneshwar	A	A	A	P	P
45	Nehete Chetan Anil	P	P	P	P	P
47	Patil Pratik Pratap	P	P	P	P	P

Subject teacher
Rupali Zambre.

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (COMP.) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject comp. prog in C.

Attendance Slow learner

ROLL NO	NAME	2·11	14·11	15-11	16·11	21·11
DATES OF REM. LECTURE						
14	Patil Gunjan Ambalal	P	A	P	P	P
34	Mahajan Harshad Vilas	P	P	P	P	P
44	Pawar Hrishikesh Dnyaneshwar	A	P	P	P	P
45	Nehete Chetan Anil	P	P	P	P	P
47	Patil Pratik Pratap	P	P	P	P	A

Subject teacher
Rupali Zambre

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (COMP.) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject Engineering Maths - I

Attendance Slow learner

ROLL NO	NAME	23/10	26/10	27/10	30/10	2-11
DATES OF REM. LECTURE						
14	Patil Gunjan Ambalal	P	P	P	P	P
34	Mahajan Harshad Vilas	P	P	P	A	P
44	Pawar Hrishikesh Dnyaneshwar	P	A	P	P	P
45	Nehete Chetan Anil	P	P	P	P	A
47	Patil Pratik Pratap	P	P	P	P	P

Subject teacher
S M. Jamkhaled

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (COMP.)   SEM- I   ACADEMIC YEAR 2018-19

Subject Engineering Maths.

Attendance Slow learner

ROLL NO	NAME	3/11	13/11	16/11	17.11	24-11
DATES OF REM. LECTURE						
14	Patil Gunjan Ambalal	P	A	P	P	A
34	Mahajan Harshad Vilas	P	P	P	P	P
44	Pawar Hrishikesh Dnyaneshwar	P	P	P	P	P
45	Nehete Chetan Anil	P	P	A	P	P
47	Patil Pratik Pratap	P	P	P	P	P

Subject teacher
S.M. Jambhekar

H.O.D.

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (ELECT/ETC) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject Engg. Maths - I

Attendance Slow learner

ROLL NO	NAME					
DATES OF REM. LECTURE		23/10	26/10	27/10	30/10	2/11
7	Bari Nilesh Tukaram	P	P	P	P	P
8	Yeole Himanshu Madhukar	P	A	P	P	P
11	Sonawane Vishal Devidas	P	P	A	P	P
12	Sonawane Vishal Devidas	P	P	P	P	A
14	Sapkale Pradip Akash	P	P	P	P	P
15	Patil Dipak Kishor	P	P	P	P	P
16	Narkhede Devendra Nivrutti	P	P	P	P	P

Subject teacher
Mrs. S.R. Patil

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (ELECT/ETC) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject Engg maths -I **Attendance Slow learner**

ROLL NO	NAME					
DATES OF REM. LECTURE		3/11	12/11	16/11	17/11	24/11
7	Bari Nilesh Tukaram	P	P	P	P	P
8	Yeole Himanshu Madhukar	P	P	P	P	P
11	Sonawane Vishal Devidas	P	P	P	P	A
12	Sonawane Vishal Devidas	A	P	P	A	P
14	Sapkale Pradip Akash	P	A	A	P	P
15	Patil Dipak Kishor	P	P	P	P	P
16	Narkhede Devendra Nivrutti	P	P	P	P	P

Subject teacher
Mrs. S.R. Patil

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (ELECT/ETC) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject Engg mech

Attendance Slow learner

ROLL NO	NAME					
DATES OF REM. LECTURE		22/10	24/10	27/10	29/10	31/10
7	Bari Nilesh Tukaram	P	P	P	P	P
8	Yeole Himanshu Madhukar	P	P	P	P	P
11	Sonawane Vishal Devidas	P	P	P	P	P
12	Sonawane Vishal Devidas	A	P	P	P	P
14	Sapkale Pradip Akash	P	P	A	P	P
15	Patil Dipak Kishor	P	P	P	P	P
16	Narkhede Devendra Nivrutti	P	A	P	A	P

Subject teacher
Mr. M. D. Salunkhe

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (ELECT/ETC) SEM- I ACADEMIC YEAR 2018-19

Subject Engg Math

Attendance Slow learner

ROLL NO	NAME					
DATES OF REM. LECTURE		3/11	12/11	14/11	17/11	19/11
7	Bari Nilesh Tukaram	P	P	P	P	P
8	Yeole Himanshu Madhukar	P	P	P	P	P
11	Sonawane Vishal Devidas	P	P	P	A	P
12	Sonawane Vishal Devidas	A	P	P	P	P
14	Sapkale Pradip Akash	P	P	P	P	A
15	Patil Dipak Kishor	P	P	P	P	P
16	Narkhede Devendra Nivrutti	P	P	P	P	P

Subject teacher
Mr. M.D. Salunkhe

H.O.D.

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (ELECT/ETC) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject Engg. chem

Attendance Slow learner

ROLL NO	NAME					
DATES OF REM. LECTURE		22/10	23/10	25/10	29/10	30/10
7	Bari Nilesh Tukaram	P	P	P	P	P
8	Yeole Himanshu Madhukar	P	P	P	P	P
11	Sonawane Vishal Devidas	P	P	P	P	P
12	Sonawane Vishal Devidas	A	A	A	A	P
14	Sapkale Pradip Akash	P	P	P	P	P
15	Patil Dipak Kishor	P	P	P	P	P
16	Narkhede Devendra Nivrutti	P	P	P	P	P

Subject teacher **H.O.D.**

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (ELECT/ETC) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject Engg chem

Attendance Slow learner

ROLL NO	NAME					
DATES OF REM. LECTURE		1/11	12/11	13/11	15/11	19/11
7	Bari Nilesh Tukaram	P	P	P	P	P
8	Yeole Himanshu Madhukar	P	P	P	P	P
11	Sonawane Vishal Devidas	P	P	P	P	P
12	Sonawane Vishal Devidas	A	P	P	P	P
14	Sapkale Pradip Akash	P	P	P	P	P
15	Patil Dipak Kishor	P	P	P	P	P
16	Narkhede Devendra Nivrutti	P	P	P	P	P

Subject teacher

H.O.D.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (ELECT/ETC) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject CP

Attendance Slow learner

ROLL NO	NAME					
DATES OF REM. LECTURE		24/10	6/10	26/10	31/10	1/11
7	Bari Nilesh Tukaram	P	P	P	P	P
8	Yeole Himanshu Madhukar	P	P	P	P	P
11	Sonawane Vishal Devidas	P	P	P	P	A
12	Sonawane Vishal Devidas	P	P	P	P	P
14	Sapkale Pradip Akash	P	P	A	P	P
15	Patil Dipak Kishor	A	P	P	P	P
16	Narkhede Devendra Nivrutti	P	P	P	P	P

Subject teacher
Rupali Zambre

H.O.D.

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : FE (ELECT/ETC) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject CP

Attendance Slow learner

ROLL NO	NAME					
DATES OF REM. LECTURE		2/11	14/11	15/11	16/11	21/11
7	Bari Nilesh Tukaram	P	P	P	P	P
8	Yeole Himanshu Madhukar	P	P	P	A	P
11	Sonawane Vishal Devidas	P	A	P	P	A
12	Sonawane Vishal Devidas	A	P	A	P	P
14	Sapkale Pradip Akash	P	P	P	P	P
15	Patil Dipak Kishor	P	P	P	P	P
16	Narkhede Devendra Nivrutti	P	A	P	P	P

Subject teacher
Rupali Zambre

H.O.D.

K.C.E. SOCIETY'S
COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JALGAON
First Year Engineering Department
Academic Year 2018-19 SEM – II

DATE: 22/03/2019

Important Notice

All First Year Engineering students are hereby inform that, students who secured 16 and more than 16 marks in MID SEM exam are considered as a fast learner students and following activities will be conducted by First Year Engineering Department. So, kindly attend all the activities conduct by department.

Schedule of activities
1] Group Discussion- 1/4/2019
2] Videos (NPTEL)- 23/4/2019
3] Classroom Presentation- 16/4/2019

HOD
Dr.Mrs. S.R.Patil

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

FIRST YEAR DEPARTMENT

CLASS : All Branch SEM- II ACADEMIC YEAR 2018-19

Attendance Fast learner

	Title of activity	Group Discussion	NPTEL v	Classroom practice
	Date of activity	11/4/19	23/4/19	16/4/2019
	Mechanical			
ROLL NO	NAME	Activity 1	Activity 2	Activity 3
1	Vaibhav Vinod Chaudhari	P	P	P
8	Chaudhari Vivek Suresh	P	A	P
9	Patil Nayana Ravindra	P	P	P
11	Chaudhari Prathmesh Santosh	P	P	P
14	Valvi Viewing Bharat	P	P	P
	Extc			
2	Kharche Ganesh Manohar	P	P	P
3	Pardeshi Sagar Sanjay	P	P	P
4	Mahajan Jayesh Sunil	P	P	P
5	Fegade Vishal Sunil	P	P	P
6	Purkar Dipak Rajendra	P	P	P
11	Derekar Komal Ganesh	A	P	P
	Computer			
1	Dhande Sejal Mahendra	P	P	P
2	More Shital Ravindra	P	P	P
3	Bhavsar Ritika Sunil	P	P	P
5	Warule Devesh Pandurang	P	P	P
6	Patil Vaishnavi Kiran	P	P	P
8	Mahajan Gayatri Anil	P	P	P
9	Kadam Vivek Avinash	P	P	P
10	Surve Harshada Mukesh	P	P	P
11	Thorat Megha Bhupendra	P	P	P
12	Patil Harshal Yashwant	P	P	A
13	Bansal Lipakshi Rajesh	A	P	P
15	Marathe Kirti Jitendra	P	A	P
16	Sarode Smita Vasudev	P	P	P
18	Mahajan Sakshi Vilas	P	P	P
19	Annadate Mohini Anil	P	P	P
20	Shah Kajal	P	P	P
22	Saraswat Shubham Mahavir	P	P	P
23	Salunkhe Chetan Rajendra	P	P	P
25	Bhamre Rajashri Ravindra	P	P	P
27	Chaudhari Darshana Govinda	P	P	P
28	Khadke Rajashri Baliram	P	P	P
29	Pawar Harshada Suryakant	A	P	P
31	Khadke Hiteshi Hemant	P	P	P
36	Khodape Priyanka Bhika	P	P	P
37	Patil Aishvarya Arun	P	P	A
38	Chaudhari Tejal Vitthal	P	P	P
39	More Sharda Dnyaneshwar	P	P	P
40	Chaudhari Jagruti Narayan	P	P	P
43	Mahajan Vasudha Vishwas	P	P	P
48	Gawte Mayuri Haridas	P	P	P
	Electrical			
2	Patil Chetan Tulshidas	P	P	P
4	Pawar Sanjana Ishwar	P	P	P
5	Bonde Mayur Sanjay	P	P	P

co-ordinator FBPatil

HOD

K.C.E. SOCIETY'S
COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JALGAON
First Year Engineering Department
Academic Year 2018-19 SEM - I

DATE: 20/10/2018

Important Notice

All First Year Engineering students are hereby inform that, students who secured 16 and more than 16 marks in MID SEM exam are considered as a fast learner students and following activities will be conducted by First Year Engineering Department. So, kindly attend all the activities conduct by department.

Schedule of activities
1] Group Discussion- 13/11/2018
2] Videos (NPTEL)- 13/11/2018
3] Classroom Presentation-14/11/2018

Patil

HOD
Dr.Mrs. S.R.Patil

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
FIRST YEAR DEPARTMENT

CLASS : All Branch SEM- I ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

Title of activity		Group Discussion	NPTEL	Classroom presenting
Date of activity		19/11/18	13/11/18	15/11/18
Mechanical				
ROLL NO	NAME	Activity 1	Activity 2	Activity 3
1	Vaibhav Vinod Chaudhari	P	P	P
5	Gayakwad Pravin Kishor	P	P	P
14	Valvi Viewing Bharat	P	P	P
Exte				
4	Mahajan Jayesh Sunil	P	P	P
5	Fegade Vishal Sunil	P	P	P
6	Purkar Dipak Rajendra	P	P	P
Computer				
1	Dhande Sejal Mahendra	P	P	P
3	Bhavsar Ritika Sunil	P	P	P
5	Warule Devesh Pandurang	P	P	P
6	Patil Vaishnavi Kiran	P	P	P
8	Mahajan Gayatri Anil	A	P	A
9	Kadam Vivek Avinash	P	P	P
10	Surve Harshada Mukesh	P	P	P
13	Bansal Lipakshi Rajesh	P	P	P
15	Marathe Kirti Jitendra	P	P	P
18	Mahajan Sakshi Vilas	P	A	P
22	Saraswat Shubham Mahavir	P	P	P
23	Salunkhe Chetan Rajendra	P	P	P
25	Bhamre Rajashri Ravindra	P	P	P
33	Patil Shweta Shravan	P	P	P
38	Chaudhari Tejal Vitthal	P	P	P
39	More Sharda Dnyaneshwar	P	P	P
40	Chaudhari Jagruti Narayan	P	P	P
48	Gawte Mayuri Haridas	P	P	P
Electrical				
2	Patil Chetan Tulshidas	P	P	P
5	Bonde Mayur Sanjay	P	P	P
6	Patil Shubham Dnyaneshwar	A	P	P

Coordinator 1 Coordinator 2 Coordinator 3

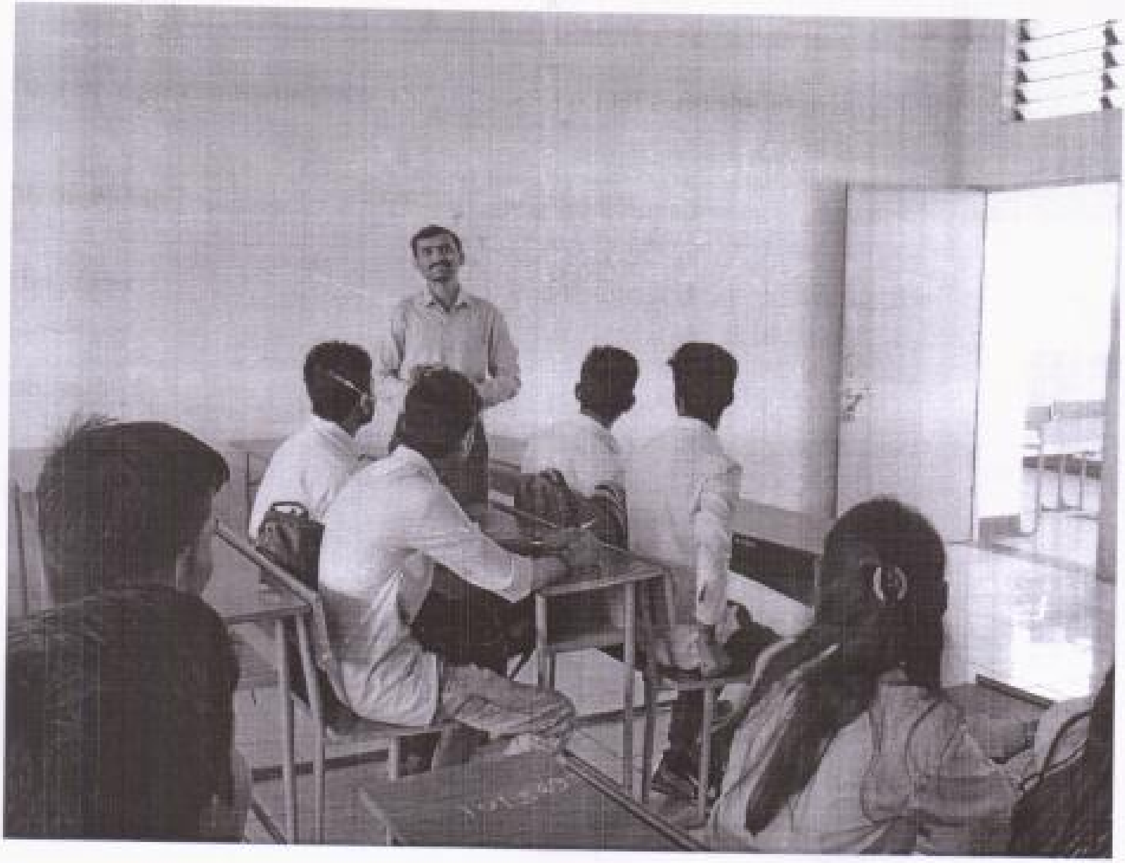
H.O.D.
FE

KCES's College of Engineering & IT JalgaonActivity Report
Activity Report

Name of The Activity : Class room Presentation Fast learners			
Date:	16/04/2019	**Participants profile:**	FE Students

Objective for conducting activity	➢ To Develop the learning ability of the students
Methodology	➢ Presentation
Out Come	➢ Developed the learning ability with presentation skill.

Photos:

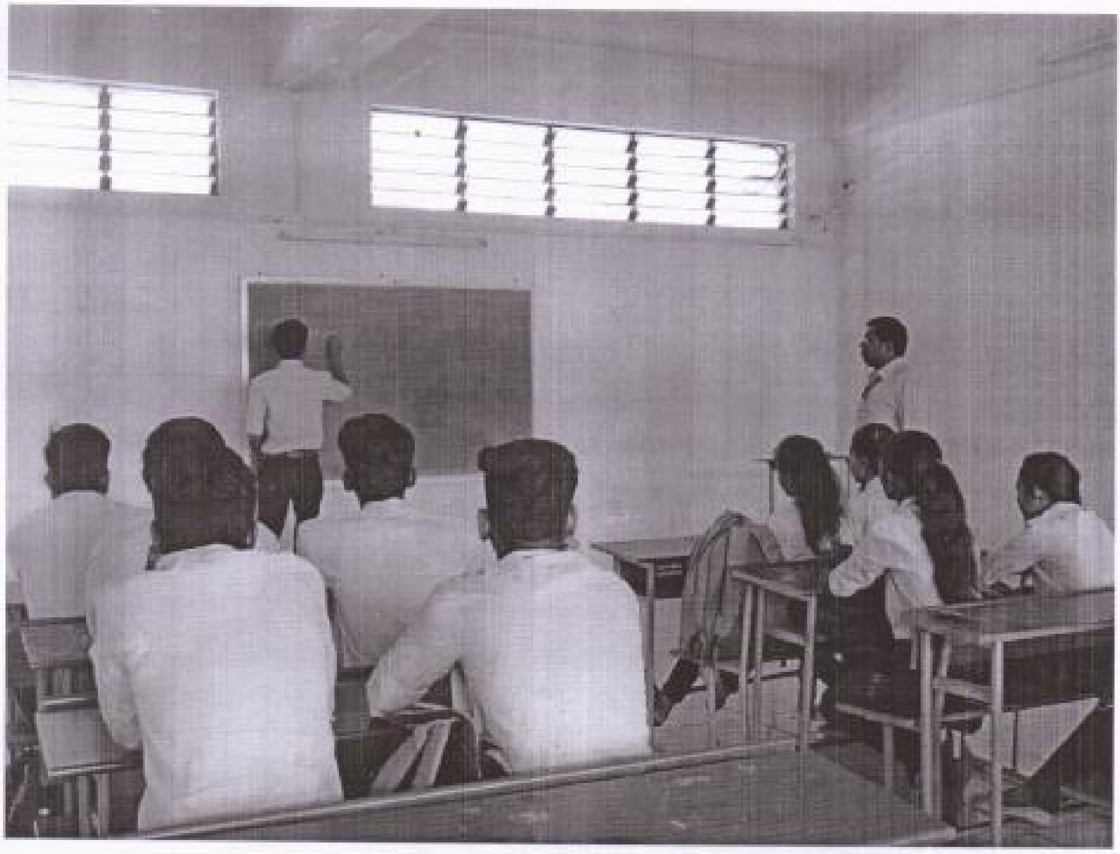


KCES's College of Engineering & IT JalgaonActivity Report
Activity Report

Name of The Activity : Class room Presentation Fast learners			
Date:	**14/11/2018**	**Participants profile:**	FE Students

Objective for conducting activity	➢ To Develop the learning ability of the students
Methodology	➢ Presentation
Out Come	➢ Developed the learning ability and presentation skill.

Photos:



KCES's College of Engineering & IT JalgaonActivity Report

Activity Report

Name of The Activity: NPTEL Videos of English Language.			
Date:	**13/11/2018**	**Participants profile:**	FE Students

Objective for conducting activity	➢ To provide extra information to the fast learners.
Methodology	➢ Videos/ Lectures
Out Come	➢ Students got extra Educational information .

Photos:

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KCES's College of Engineering & IT JalgaonActivity Report

Activity Report

KCES's College of Engineering & IT JalgaonActivity Report
Activity Report

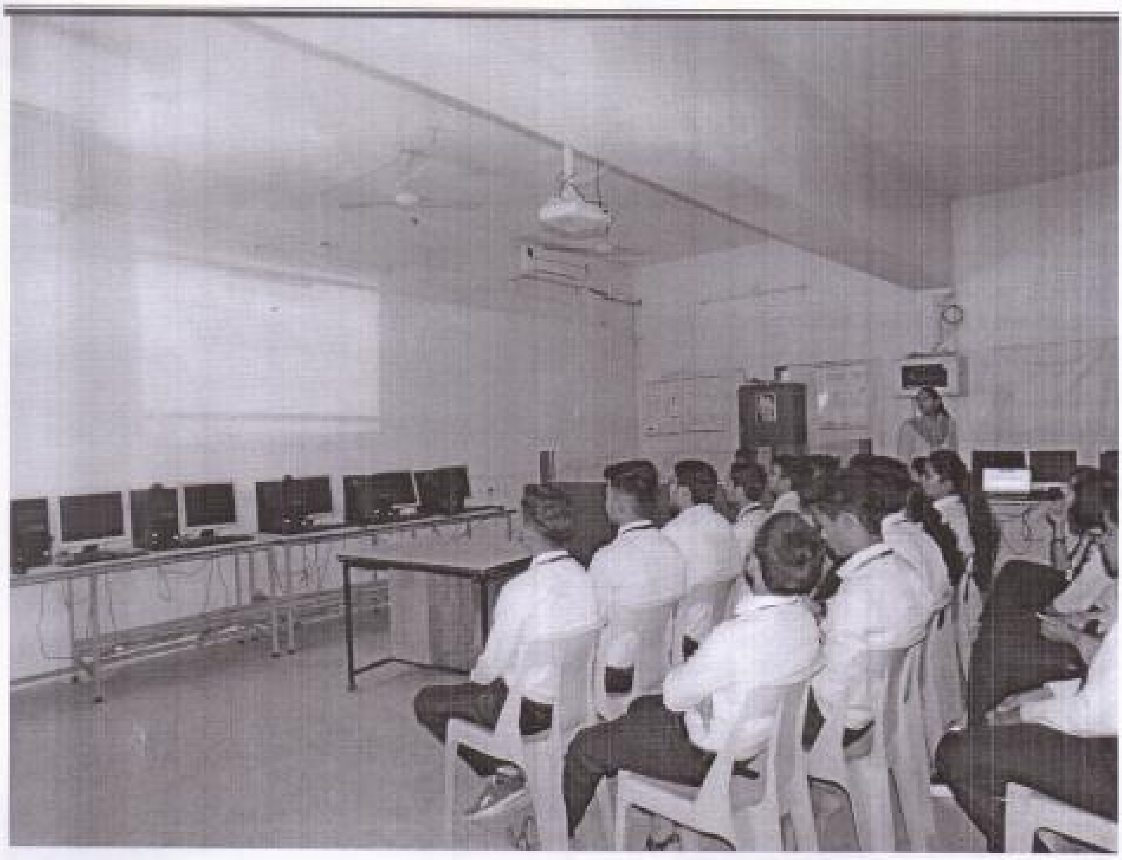
Name of The Activity : NPTEL Videos for Fast learners			
Date:	**29/04/2019**	**Participants profile:**	FE Students

Objective for conducting activity	➢ To provide extra information to the fast learners.
Methodology	➢ Videos/ Lectures
Out Come	➢ Students got extra knowledge of subject .

Photos:

KCES's College of Engineering & IT JalgaonActivity Report

Activity Report



KCES's College of Engineering & IT JalgaonActivity Report
Activity Report

Name of The Activity : Group discussion Presentation Fast learners			
Date:	**19/11/2018**	**Participants profile:**	FE Student

Objective for conducting activity	➢ Group discussion with fast learner other than syllabus topics.
Methodology	➢ Group discussion
Out Come	➢ Group discussion with student and solve problem related on question papers. ➢ Discussion with students other than syllabus topic.

Photos:

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Activity Report

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KCES's College of Engineering & IT JalgaonActivity Report
Activity Report

Name of The Activity : Group Discussion Fast learners			
Date:	11/04/2019	**Participants profile:**	FE Students

Objective for conducting activity	➢ To extra activity for fast learners students
Methodology	➢ Group Discussion
Out Come	➢ Discuss problem on communication skill. ➢ Discuss on how to overcome fear of English speaking.

Photos:

Co

K.C.E. SOCIETY'S

COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

DEPARTMENT OF COMPUTER ENGINEERING & IT

Academic Year 2018-19 SEM – II

DATE: 05/ 03 /2019

Important Notice

Remedial lectures have been arranged for the students having less than 8 marks in Unit Test-1. Subject wise schedule for remedial lectures will be displayed on notice board.

ISE Coordinator

Mrs. Leena R. Waghulde

Minal

HOD

Mrs. Minal. T. Kolhe

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., Jalgaon

DEPARTMENT OF COMPUTER/IT ENGINEERING

REMEDIAL TIME TABLE

SEM : II YEAR : 2018-19 W.E.F. : 07 - 03 - 2019

CLASS : TE (COMP) **CLASS ROOM NO. 205**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
09:00 TO 10:00						OS
10:00 TO 11:00						DBMS
11:00 TO 11:45	**RECESS 1**					
11:45 TO 12:45						OOMD
12:45 TO 1:45						ADA
1:45 TO 2:00	**RECESS 2**					
02:00 TO 03:00					OS	OOMD
03:00 TO 04:00		ADA			DBMS	MIS

SUBJECT	**THEORY**
OS	MINAL KOLHE
DBMS	DIPTI PATIL
[illegible]	POOJA NAVAL
OOMD	LEENA WAGHULDE
ADA	AVINASH SURYAWANSHI

CLASS TEACHER	TIME TABLE INCHARGE	HOD COMP
Ms. DIPTI PATIL	Ms.POOJA NAVAL Ms. HARSHA TALELE	Mrs.MINAL KOLHE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – II
REMEDIAL ROLL LIST

CLASS : TE COMP

ROLL NO.	NAME
2	BAIG ZEESHAN AHMAD KHALIL
3	BAVISKAR SHUBHAM PRAMOD
4	BORSE BHAGYSHRI VILAS
5	CHAUDHARI PRATIKSHA VINOD
8	CHAUDHARI VAISHALI SHIVLA
9	CHIKNE PRATHAMESH GANESH
10	DESHMUKH TRUPTI MADHUKAR
11	GIRNARE CHETAN ASHOK
12	GOSAVI SHITAL BHARAT
14	KANKARIYA PRASHANSA NAGINCHAND
15	KULKARNI PIYUSH RAJESH
16	MAHAJAN SACHIN SURESH
17	MAHAJAN RAJASHRI NAMDEO
18	MARUMARDANE RAKSHADA KAILAS
19	PANDAV SHUBHANGI PRALHAD
21	PATIL JITENDRA RAJU
22	PATIL PAVAN BANDU
23	PATIL PRACHI BHAGAWANSING
25	PATIL VISHAKHA NANASAHEB
32	PATIL PRIYANKA SAHEBRAO
33	PATIL RITESH MANOHAR
34	PATIL YUGANDHAR BHASKAR
35	PINJARI SAHIL ARIF
37	SARASWATHARSHITAMAHAVIR
39	TALOLE SNEHAL ANIL
40	THAKUR SAYALI JAGADISH
41	THORAT PRIYANKA RAJENDRA
43	VINCHURKAR VAIBHAVEE VIVEKANAND
44	VISPUTE LALIT JAGADISH
45	VISPUTE SHWETA ASHOK
47	WANKHEDE RAHUL SUKLAL
48	ZOPE DHANASHRI RAMESH

HOD
MRS. MINAL T. KOLHE

Slow Learn

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – II
MARK SHEET - ISE I

CLASS :TE COMPUTER **MARKS: 20**

ROLL NO.	NAME	ADA	MIS	OOMD	DBMS	OS
		ISE 1	ISE 1	ISE 1	ISE 1	ISE 1
1	BADGUJAR BHAGYASHRI ANIL	17	14	17	9	12
2	BAIG ZEESHAN AHMAD KHALIL	AB	AB	10	AB	AB
3	BAVISKAR SHUBHAM PRAMOD	AB	12	10	AB	AB
4	BORSE BHAGYSHRI VILAS	1	9	13	AB	12
5	CHAUDHARI PRATIKSHA VINOD	AB	13	10	11	11
6	CHAUDHARI KAJAL SHASHIKANT	17	12	10	10	10
7	CHAUDHARI PRIYANKA DIGAMBAR	17	15	13	11	9
8	CHAUDHARI VAISHALI SHIVLA	17	14	14	AB	10
9	CHIKNE PRATHAMESH GANESH	AB	8	AB	3	5
10	DESHMUKH TRUPTI MADHUKAR	16	13	20	AB	10
11	GIRNARE CHETAN ASHOK	AB	AB	AB	9	9
12	GOSAVI SHITAL BHARAT	11	9	AB	16	12
13	GURAV NEHA AJAY	18	13	17	8	14
14	KANKARIYA PRASHANSA NAGINCHAND	AB	12	11	AB	16
15	KULKARNI PIYUSH RAJESH	AB	4	16	1	9
16	MAHAJAN SACHIN SURESH	AB	AB	AB	12	9
17	MAHAJAN RAJASHRI NAMDEO	4	10	13	12	17
18	MARUMARDANE RAKSHADA KAILAS	8	13	13	1	10
19	PANDAV SHUBHANGI PRALHAD	0	15	14	AB	12
20	PATIL JANHAVI PRADIP	14	15	19	9	14
21	PATIL JITENDRA RAJU	AB	15	11	8	8
22	PATIL PAVAN BANDU	AB	AB	AB	AB	AB
23	PATIL PRACHI BHAGAWANSING	2	10	8	9	13
24	PATIL VAISHNAVI ASHOK	15	16	20	19	18
25	PATIL VISHAKHA NANASAHEB	9	12	AB	0	10
26	PATIL CHHAYA YASHWANT	11	13	11	9	15
27	PATIL DEEPIKA DAYARAM	11	14	10	8	14
28	PATIL DIVYA DILIP	9	13	15	10	10
29	PATIL JAGRUTI SHIVAJI	15	15	15	8	12
30	PATIL KAVITA BALU	12	10	12	10	14
31	PATIL NUTAN SANJAY	8	15	12	13	15
32	PATIL PRIYANKA SAHEBRAO	AB	14	11	6	14
33	PATIL RITESH MANOHAR	AB	8	AB	AB	AB
34	PATIL YUGANDHAR BHASKAR	AB	AB	12	AB	AB
35	PINJARI SAHIL ARIF	AB	AB	10	AB	AB
36	PINJARI YASMIN BABULAL	18	14	20	16	18
37	SARASWATHARSHITAMAHAVIR	12	15	15	2	15
38	SONAWANE MANALI VIJAY	9	15	10	13	13
39	TALOLE SNEHAL ANIL	2	12	10	9	9
40	THAKUR SAYALI JAGADISH	AB	AB	14	AB	12
41	THORAT PRIYANKA RAJENDRA	11	10	13	3	14
42	VANDOLE TEJAL MANOJ	18	15	20	13	18
43	VINCHURKAR VAIBHAVEE VIVEKANAND	4	9	13	8	14
44	VISPUTE LALIT JAGADISH	AB	9	11	4	13
45	VISPUTE SHWETA ASHOK	AB	AB	AB	AB	AB
46	WAGHODE PRIYANKA SHRIKRISHNA	18	15	20	18	16
47	WANKHEDE RAHUL SUKLAL	AB	8	11	4	9
48	ZOPE DHANASHRI RAMESH	AB	11	8	11	10

ISE COORDINATOR
MRS. LEENA R. WAGHULDE

HOD
MRS. MINAL T. ROCHE

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K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – II

MARKS SHEET FOR SLOW LEARNERS AFTER ISE –I

CLASS : TE COMP **MARKS: 20**

ROLL NO.	NAME	ADA
2	BAIG ZEESHAN AHMAD KHALIL	AB
3	BAVISKAR SHUBHAM PRAMOD	AB
4	BORSE BHAGYSHRI VILAS	1
5	CHAUDHARI PRATIKSHA VINOD	AB
9	CHIKNE PRATHAMESH GANESH	AB
11	GIRNARE CHETAN ASHOK	AB
14	KANKARIYA PRASHANSA NAGINCHAND	AB
15	KULKARNI PIYUSH RAJESH	AB
16	MAHAJAN SACHIN SURESH	AB
17	MAHAJAN RAJASHRI NAMDEO	4
18	MARUMARDANE RAKSHADA KAILAS	8
19	PANDAV SHUBHANGI PRALHAD	0
21	PATIL JITENDRA RAJU	AB
22	PATIL PAVAN BANDU	AB
23	PATIL PRACHI BHAGAWANSING	2
32	PATIL PRIYANKA SAHEBRAO	AB
33	PATIL RITESH MANOHAR	AB
34	PATIL YUGANDHAR BHASKAR	AB
35	PINJARI SAHIL ARIF	AB
39	TALOLE SNEHAL ANIL	2
40	THAKUR SAYALI JAGADISH	AB
43	VINCHURKAR VAIBHAVEE VIVEKANAND	4
44	VISPUTE LALIT JAGADISH	AB
45	VISPUTE SHWETA ASHOK	AB
47	WANKHEDE RAHUL SUKLAL	AB
48	ZOPE DHANASHRI RAMESH	AB

ROLL NO.	NAME	MIS
2	BAIG ZEESHAN AHMAD KHALIL	AB
11	GIRNARE CHETAN ASHOK	AB
15	KULKARNI PIYUSH RAJESH	4

16	MAHAJAN SACHIN SURESH	AB
22	PATIL PAVAN BANDU	AB
34	PATIL YUGANDHAR BHASKAR	AB
35	PINJARI SAHIL ARIF	AB
40	THAKUR SAYALI JAGADISH	AB
45	VISPUTE SHWETA ASHOK	AB

ROLL NO.	NAME	OOMD
9	CHIKNE PRATHAMESH GANESH	AB
11	GIRNARE CHETAN ASHOK	AB
12	GOSAVI SHITAL BHARAT	AB
16	MAHAJAN SACHIN SURESH	AB
22	PATIL PAVAN BANDU	AB
25	PATIL VISHAKHA NANASAHEB	AB
33	PATIL RITESH MANOHAR	AB
45	VISPUTE SHWETA ASHOK	AB

ROLL NO.	NAME	DBMS
2	BAIG ZEESHAN AHMAD KHALIL	AB
3	BAVISKAR SHUBHAM PRAMOD	AB
4	BORSE BHAGYSHRI VILAS	AB
8	CHAUDHARI VAISHALI SHIVLA	AB
10	DESHMUKH TRUPTI MADHUKAR	AB
14	KANKARIYA PRASHANSA NAGINCHAND	AB
19	PANDAV SHUBHANGI PRALHAD	AB
22	PATIL PAVAN BANDU	AB
25	PATIL VISHAKHA NANASAHEB	0
32	PATIL PRIYANKA SAHEBRAO	6
33	PATIL RITESH MANOHAR	AB
34	PATIL YUGANDHAR BHASKAR	AB
35	PINJARI SAHIL ARIF	AB
37	SARASWATHARSHITAMAHAVIR	2
40	THAKUR SAYALI JAGADISH	AB
41	THORAT PRIYANKA RAJENDRA	3
44	VISPUTE LALIT JAGADISH	4
45	VISPUTE SHWETA ASHOK	AB
47	WANKHEDE RAHUL SUKLAL	4

ROLL NO.	NAME	OS
2	BAIG ZEESHAN AHMAD KHALIL	AB
3	BAVISKAR SHUBHAM PRAMOD	AB
9	CHIKNE PRATHAMESH GANESH	5
22	PATIL PAVAN BANDU	AB
33	PATIL RITESH MANOHAR	AB
34	PATIL YUGANDHAR BHASKAR	AB
35	PINJARI SAHIL ARIF	AB
45	VISPUTE SHWETA ASHOK	AB

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – II

MARKS SHEET FOR FAST LEARNERS AFTER ISE –I

CLASS : TE COMP **MARKS: 20**

ROLL NO.	NAME	ADA
1	BADGUJAR BHAGYASHRI ANIL	17
6	CHAUDHARI KAJAL SHASHIKANT	17
7	CHAUDHARI PRIYANKA DIGAMBAR	17
8	CHAUDHARI VAISHALI SHIVLA	17
13	GURAV NEHA AJAY	18
36	PINJARI YASMIN BABULAL	18
42	VANDOLE TEJAL MANOJ	18
46	WAGHODE PRIYANKA SHRIKRISHNA	18

ROLL NO.	NAME	MIS
NILL		

ROLL NO.	NAME	OOMD
1	BADGUJAR BHAGYASHRI ANIL	17
10	DESHMUKH TRUPTI MADHUKAR	20
13	GURAV NEHA AJAY	17
20	PATIL JANHAVI PRADIP	19
24	PATIL VAISHNAVI ASHOK	20
36	PINJARI YASMIN BABULAL	20
42	VANDOLE TEJAL MANOJ	20

ROLL NO.	NAME	DBMS
24	PATIL VAISHNAVI ASHOK	19
46	WAGHODE PRIYANKA SHRIKRISHNA	18

ROLL NO.	NAME	OS
17	MAHAJAN RAJASHRI NAMDEO	17
24	PATIL VAISHNAVI ASHOK	18
36	PINJARI YASMIN BABULAL	18
42	VANDOLE TEJAL MANOJ	18

ISE COORDINATOR HOD

MRS. LEENA R. WAGHULDE MRS. MINAL T. KOLHE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
partment Of Computer Engineering & I.T.
Academic Year 2018-2019 SEM – II
REMEDIAL LECTURES AFTER IE-I

TE COMPUTER

SUB- OPERATING SYSTEM

ROLL NO.	NAME OF STUDENTS	DATES														
		8|3	9|3	15|3	18|3	22|3	23|3	29|3	30|3	5|4	6|4					
1	BAIG ZEESHAN AHMAD KHALIL	P	P	A	P	P	P	A	P	P	A					
2	BAVISKAR SHUBHAM PRAMOD	P	A	P	P	P	A	P	P	P	P					
3	CHIKNE PRATHAMESH GANESH	P	A	P	A	P	P	P	A	P	P					
4	PATIL PAVAN BANDU	A	P	P	P	P	P	P	P	P	A					
5	PATIL RITESH MANOHAR	P	P	P	P	A	P	A	P	P	P					
6	PATIL YUGANDHAR BHASKAR	P	A	A	P	P	P	P	P	A	P					
7	PINJARI SAHIL ARIF	P	P	P	P	P	P	P	P	P	P					
8	VISPUTE SHWETA ASHOK	P	P	P	A	P	P	A	P	P	P					

SUBJECT INCHARGE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

partment Of Computer Engineering & I.T.
Academic Year 2018-2019 SEM – II
REMEDIAL LECTURES AFTER TSE - I

TE COMPUTER

SUB- DATABASE MANAGEMENT SYSTEM

ROLL NO.	NAME OF STUDENTS	DATES														
		8/3	9/3	15/3	16/3	22/3	23/3	29/3	30/3	5/4	6/4					
1	BAIG ZEESHAN AHMAD KHALIL	P	P	P	P	P	P	P	P	P	P					
2	BAVISKAR SHUBHAM PRAMOD	P	P	A	P	P	P	A	P	A	A					
3	BORSE BHAGYSHRI VILAS	P	P	P	P	P	A	P	P	P	P					
4	CHAUDHARI VAISHALI SHIVLA	P	P	P	A	P	P	P	P	P	P					
5	DESHMUKH TRUPTI MADHUKAR	P	P	P	P	P	P	A	P	P	P					
6	KANKARIYA PRASHANSA NAGINCHAND	P	P	P	P	P	P	P	P	P	P					
7	PANDAV SHUBHANGI PRALHAD	A	P	P	P	P	P	P	P	P	P					
8	PATIL PAVAN BANDU	P	P	P	P	P	P	P	P	P	P					
9	PATIL VISHAKHA NANASAHEB	P	P	P	P	P	P	P	P	A	P					
10	PATIL PRIYANKA SAHEBRAD	P	P	P	P	P	P	P	P	P	P					
11	PATIL RITESH MANOHAR	P	P	P	P	P	P	P	P	P	P					
12	PATIL YUGANDHAR BHASKAR	P	P	P	A	P	P	P	P	P	P					
13	PINJARI SAHIL ARIF	P	P	P	P	P	A	P	P	P	A					
14	SARASWATHARSHITAMAHAVIR	P	P	P	P	P	P	P	P	P	P					
15	THAKUR SAYALI JAGADISH	P	P	P	P	P	P	P		P	P					
16	THORAT PRIYANKA RAJENDRA	P	P	P	P	P	P	P	P	P	P					
17	VISPUTE LALIT JAGADISH	P	P	P	P	P	P	P	P	P	P					
18	VISPUTE SHWETA ASHOK	P	P	P	P	P	P	P	P	P	P					
19	WANKHEDE RAHUL SUKLAL	P	P	P	P	P	P	P	P	P	P					

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
partment Of Computer Engineering & I.T.
Academic Year 2018-2019 SEM – II
REMEDIAL LECTURES AFTER ISE-I

TE COMPUTER

SUB- MANAGEMENT INFORMATION SYSTEM

ROLL NO.	NAME OF STUDENTS	DATES														
		9/3	16/3	23/3	30/3	6/4										
1	BAIG ZEESHAN AHMAD KHALIL	P	P	P	P	P										
2	GIRNARE CHETAN ASHOK	P	P	P	P	P										
3	KULKARNI PIYUSH RAJESH	P	P	P	P	P										
4	MAHAJAN SACHIN SURESH	P	A	P	P	P										
5	PATIL PAVAN BANDU	P	P	P	A	P										
6	PATIL YUGANDHAR BHASKAR	P	P	A	P	P										
7	PINJARI SAHIL ARIF	P	P	P	P	P										
8	THAKUR SAYALI JAGADISH	A	P	P	P	A										
9	VISPUTE SHWETA ASHOK	P	P	P	P	P										

SUBJECT INCHARGE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
epartment Of Computer Engineering & I.T.
Academic Year 2018-2019 SEM – II
REMEDIAL LECTURES AFTER ISE-I

TE COMPUTER

SUB- OBJECT ORIENTED MODELING DESIGN

ROLL NO.	NAME OF STUDENTS	DATES														
		9\3	9\3	16\3	16\3	23\3	23\3	30\3	30\3	6\4	6\4					
1	CHIKNE PRATHAMESH GANESH	P	P	P	A	P	A	P	P	A	P					
2	GIRNARE CHETAN ASHOK	P	P	P	P	P	P	P	P	P	P					
3	GOSAVI SHITAL BHARAT	A	P	P	P	P	P	P	P	P	P					
4	MAHAJAN SACHIN SURESH	P	P	P	P	P	P	A	P	P	A					
5	PATIL PAVAN BANDU	P	P	P	P	P	P	P	P	P	P					
6	PATIL VISHAKHA NANASAHEB	P	P	P	P	P	P	P	A	P	P					
7	PATIL RITESH MANOHAR	P	P	P	A	P	A	P	P	P	P					
8	VISPUTE SHWETA ASHOK	P	P	P	P	P	P	P	P	P	A					

SUBJECT INCHARGE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
partment Of Computer Engineering & I.T.
Academic Year 2018-2019 SEM – II
REMEDIAL LECTURES AFTER ISE-I
TE COMPUTER

SUB- ANALYSIS AND DESIGN OF ALGORITHM

ROLL NO.	NAME OF STUDENTS	DATES														
		9/3	12/3	16/3	19/3	23/3	26/3	30/3	2/4	6/4	9/4					
1	BAIG ZEESHAN AHMAD KHALIL	P	P	P	P.	P	A	P	P	P	P					
2	BAVISKAR SHUBHAM PRAMOD	P	P	P	P	P	P	P	P	P	P					
3	BORSE BHAGYSHRI VILAS	P	P	P	P	P	P	P	P	P	P					
4	CHAUDHARI PRATIKSHA VINOD	P	P	P	P	P	P	P	P	P	P					
5	CHIKNE PRATHAMESH GANESH	P	P	P	P	P	P	P	P	P	P					
6	GIRNARE CHETAN ASHOK	P	P	P	A	P	P	P	P	P	P					
7	KANKARIYA PRASHANSA NAGINCHAND	P	P	P	P	P	P	P	A	P	P					
8	KULKARNI PIYUSH RAJESH	P	P	P	P	P	P	P	P	P	P					
9	MAHAJAN SACHIN SURESH	A	P	P	P	P	P	P	P	P	P					
10	MAHAJAN RAJASHRI NAMDEO	P	P	P	P	P	P	P	P	P	P					
11	MARUMARDANE RAKSHADA KAILAS	P	P	P	P	P	P	P	P	P	P					
12	PANDAV SHUBHANGI PRALHAD	P	P	P	P	P	P	P	P	P	P					
13	PATIL JITENDRA RAJU	P	P	P	P	P	P	P	P	P	P					
14	PATIL PAVAN BANDU	P	P	P	P	P	P	P	P	P	P					
15	PATIL PRACHI BHAGAWANSING	P	P	P	P	P	P	P	P	P	P					
16	PATIL PRIYANKA SAHEBRAO	P	P	P	A	P	P	P	P	P	P					
17	PATIL RITESH MANOHAR	P	P	P	P	P	P	P	P	A	P					
18	PATIL YUGANDHAR BHASKAR	P	P	P	P	P	P	P	P	P	P					
19	PINJARI SAHIL ARIF	P	P	P	P	P	P	P	P	P	P					
20	TALOLE SNEHAL ANIL	P	P	P	P	P	P	P	P	P	P					
21	THAKUR SAYALI JAGADISH	P	P	P	P	P	P	P	P	P	A					
22	VINCHURKAR VAIBHAVEE VIVEKANAND	P	P	P	P	P	A	P	P	P	P					
23	VISPUTE LALIT JAGADISH	P	P	P	P	P	A	P	P	P	P					

24	VISPUTE SHWETA ASHOK	P	P	P	P	P	P	P	P	P	P					
25	WANKHEDE RAHUL SUKLAL	P	P		P	P	P	P	P	P	P					
26	ZOPE DHANASHRI RAMESH	P	P	A	P	P	P	P	P	P	A					

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SUBJECT INCHARGE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – II

REMEDIAL ROLL LIST

CLASS :BE COMP

ROLL NO.	NAME
1	CHAUDHARI KOMAL S.
7	AHIRRAO AISHWARYA S.
10	CHAUDHARI NEHA
14	PATIL CHETAN B.
21	SHELAKE RASIKA D.
22	SONAWANE HARSHA
23	TAYADE LEENA S.
24	WAGH GAURAV S.
29	PAHURKAR MADHURI
31	PATIL AKSHAY
41	THORAT PRIYANKA RAJENDRA
43	VINCHURKAR VAIBHAVEE VIVEKANAND
44	VISPUTE LALIT JAGADISH
45	VISPUTE SHWETA ASHOK
47	WANKHEDE RAHUL SUKLAL
48	ZOPE DHANASHRI RAMESH

HOD
MRS. MINAL T. KOLHE

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., Jalgaon

DEPARTMENT OF COMPUTER/IT ENGINEERING

REMEDIAL TIME TABLE

SEM : II	YEAR : 2018-19	W.E.F. : 07 - 03 - 2019

CLASS : BE COMP	**CLASS ROOM NO.206**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
09:00 TO 10:00						CD
10:00 TO 11:00						DWM
11:00 TO 11:45	**RECESS 1**					
11:45 TO 12:45						SMQA
12:45 TO 1:45						MOB COMPUTING
1:45 TO 2:00	**RECESS 2**					
02:00 TO 03:00				CD	SMQA	
03:00 TO 04:00				DWM	MOB COMPUTING	

SUBJECT	THEORY
D	PRIYANSHI BORASE
DWM	HARSHA TALELE
SMQA	LEENA WAGHULDE
MOBILE COMPUTING	PRIYANSHI BORASE
PROJECT-II	

CLASS TEACHER	TIME TABLE INCHARGE	HOD COMP
MRS. PRIYANSHI BORASE	Ms.POOJA NAVAL Ms. HARSHA TALELE	Mrs.MINAL KOLHE

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K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – II

MARK SHEET - ISE I

CLASS : BE COMP **MARKS: 20**

Slow Lear

ROLL NO	NAME	CD	MOB COMPUTING	SMQA	DWM
		ISE 1	ISE 1	ISE 1	ISE 1
1	CHAUDHARI KOMAL S.	13	AB	AB	18
2	CHAUDHARI YUVRAJ A.	14	17	18	19
3	KALE BHAVANA S.	15	11	9	16
4	NARKHEDE NEHA B.	16	10	17	12
5	PATIL SHRADDHA S.	17	16	18	16
6	SUTAR YAMINI U.	14	14	17	15
7	AHIRRAO AISHWARYA S.	12	17	AB	14
8	BIRARI PRIYANKA R.	11	15	13	10
9	CHAUDHARI ARUNA S.	15	18	16	15
10	CHAUDHARI NEHA	14	AB	AB	14
11	CHAUDHARI RAJNANDINI	12	11	16	12
12	KALE JITESHRI S.	13	15	17	12
13	PARDESHI KANCHAN K.	12	16	8	13
14	PATIL CHETAN B.	AB	AB	AB	AB
15	PATIL CHHAYA G.	13	15	17	12
16	PATIL MEGHA A.	11	11	10	12
17	PATIL PRATIKSHA S.	14	17	15	18
18	PATIL ROHINI N.	16	10	10	15
19	PATIL SWATI Y.	9	13	9	14
20	PAWAR AISHWARYA S.	15	16	8	13
21	SHELAKE RASIKA D.	11	15	AB	16
22	SONAWANE HARSHA	15	AB	6	11
23	TAYADE LEENA S.	9	AB	0	8
24	WAGH GAURAV S.	17	6	14	12
25	WANI PRANJALI S.	18	14	18	18
26	WANKHEDE MONALI S.	11	12	9	16
27	YEOLE HARSHAL S.	10	15	9	10
28	JADHAV ARJUN J.	15	12	15	10
29	PAHURKAR MADHURI	AB	AB	AB	AB
30	MAVCHI RIBKA FATTESING	9	12	10	8
31	PATIL AKSHAY	AB	12	9	10
32	NERKER SHUBHAM	8	9	9	8
33	SURYAWANSHI RAJENDRA	11	11	14	14
34	PATIL BHUSHAN	10	15	12	13

ISE COORDINATOR
MRS. LEENA R. WAGHULDE

HOD
MRS. MINAL T. KOLHE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – II

MARKS SHEET FOR SLOW LEARNERS AFTER ISE –I

CLASS : BE COMP **MARKS: 20**

ROLL NO.	NAME	CD
14	PATIL CHETAN B.	AB
29	PAHURKAR MADHURI	AB
31	PATIL AKSHAY	AB

ROLL NO.	NAME	MOB. COMPUTING
1	CHAUDHARI KOMAL S.	AB
10	CHAUDHARI NEHA	AB
14	PATIL CHETAN B.	AB
22	SONAWANE HARSHA	AB
23	TAYADE LEENA S.	AB
24	WAGH GAURAV S.	6
29	PAHURKAR MADHURI	AB

ROLL NO.	NAME	SMQA
1	CHAUDHARI KOMAL S.	AB
7	AHIRRAO AISHWARYA S.	AB
10	CHAUDHARI NEHA	AB
14	PATIL CHETAN B.	AB
21	SHELAKE RASIKA D.	AB
22	SONAWANE HARSHA	6
23	TAYADE LEENA S.	0
29	PAHURKAR MADHURI	AB

ROLL NO.	NAME	DWM
14	PATIL CHETAN B.	AB
29	PAHURKAR MADHURI	AB

ISE COORDINATOR
MRS. LEENA R. WAGHULDE

HOD
MRS. MINAL T. KOLHE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

Department Of Computer Engineering & I.T.

Academic Year 2018-19 SEM – II

MARKS SHEET FOR FAST LEARNERS AFTER ISE –I

CLASS : BE COMP **MARKS: 20**

ROLL NO.	NAME	CD
5	PATIL SHRADDHA S.	17
24	WAGH GAURAV S.	17
25	WANI PRANJALI S.	18

ROLL NO.	NAME	MOB. COMPUTING
2	CHAUDHARI YUVRAJ A.	17
7	AHIRRAO AISHWARYA S.	17
9	CHAUDHARI ARUNA S.	18
17	PATIL PRATIKSHA S.	17

ROLL NO.	NAME	SMQA
2	CHAUDHARI YUVRAJ A.	18
5	PATIL SHRADDHA S.	18
6	SUTAR YAMINI U.	17
12	KALE JITESHRI S.	17
15	PATIL CHHAYA G.	17
25	WANI PRANJALI S.	18

ROLL NO.	NAME	DWM
1	CHAUDHARI KOMAL S.	18
2	CHAUDHARI YUVRAJ A.	19
17	PATIL PRATIKSHA S.	18
25	WANI PRANJALI S.	18

ISE COORDINATOR
MRS. LEENA R. WAGHULDE

HOD
MRS. MINAL T. KOLHE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON - 425001
artment Of Computer Engineering & I.T.
Academic Year 2018-2019 SEM – II
REMEDIAL LECTURES AFTER ISE – I

BE COMPUTER/IT

SUB- COMPILER DESIGN

ROLL NO.	NAME OF STUDENTS	DATES														
		7\3	9\3	14\3	16\3	21\3	23\3	28\3	30\3	4\4	6\4					
14	PATIL CHETAN B.	P	P	P	P	P	P	P	P	P	P					
29	PAHURKAR MADHURI	P	P	P	A	P	A	A	P	P	P					
31	PATIL AKSHAY	A	P	P.	P	P	P	P	A	P	P					

SUBJECT INCHARGE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON - 425001
I ment Of Computer Engineering & I.T.
Academic Year 2018-2019 SEM – II
REMEDIAL LECTURES AFTER : ISE -I

BE COMPUTER

SUB- DWM

ROLL NO.	NAME OF STUDENTS	DATES														
		7\3	9\3	14\3	16\3	21\3	23\3	28\3	30\3	4\4	9\4					
14	PATIL CHETAN B	P	P	P	P	P	P	P	P	P	P					
29	PAHURKAR MADHURI	P	A	P	A	P	A	P	P	P	P					

SUBJECT INCHARGE

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artment Of Computer Engineering & I.T.
Academic Year 2018-2019 SEM – II
REMEDIAL LECTURES AFTER ET-I

BE COMPUTER

SUB- SMQA

ROLL NO.	NAME OF STUDENTS	DATES														
		8/3	9/3	15/3	16/3	22/3	23/3	29/3	30/3	5/4	6/4					
1	CHAUDHARI KOMAL S.	P	P	P	P	P	A	P	P	P	P					
7	AHIRRAO AISHWARYA S.	P	P	P	P	P	P	P	P	P	P					
10	CHAUDHARI NEHA	P	P	P	P	P	+	A	P	A	P					
14	PATIL CHETAN B.	P	P	P	P	P	P	P	P	P	P					
21	SHELAKE RASIKA D.	P	A	P	P	P	P	P	P	P	P					
22	SONAWANE HARSHA	P	P	P	P	P	P	P	P	P	P					
23	TAYADE LEENA S.	P	P	P	P	P	P	P	P	P	P					
29	PAHURKAR MADHURI	P	P	P	P	P	P	P	P	P	P					

SUBJECT INCHARGE

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Department Of Computer Engineering & I.T.
Academic Year 2018-2019 SEM – II
REMEDIAL LECTURES AFTER ISE-1

BE COMPUTER

SUB- MOBILE COMPUTING

ROLL NO.	NAME OF STUDENTS	DATES														
		8/3	9/3	15/3	16/3	22/3	23/3	29/3	30/3	5/4	6/4	6/4	14/4			
1	CHAUDHARI KOMAL S.	P	P	P	P	P	A	P	P	P	P	P	P			
10	CHAUDHARI NEHA	P	A	P	P	P	P	P	P	P	A	P	P			
14	PATIL CHETAN B.	P	P	P	A	P	P	P	P	P	P	P	P			
22	SONAWANE HARSHA	P	P	P	P	P	P	P	P	P	P	P	P			
23	TAYADE LEENA S.	P	P	P	P	P	P	P	P	P	P	P	A			
24	WAGH GAURAV S.	P	P	P	P	P	P	P	P	P	P	P	P			
29	PAHURKAR MADHURI	P	P	P	P	P	P	P	P	P	A	A	P			

SUBJECT INCHARGE

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Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – II

FAST LEARNER ROLL LIST

CLASS : TE COMP

Fast Learne

ROLL NO.	NAME
1	BADGUJAR BHAGYASHRI ANIL
6	CHAUDHARI KAJAL SHASHIKANT
7	CHAUDHARI PRIYANKA DIGAMBAR
8	CHAUDHARI VAISHALI SHIVLA
10	DESHMUKH TRUPTI MADHUKAR
13	GURAV NEHA AJAY
17	MAHAJAN RAJASHRI NAMDEO
20	PATIL JANHAVI PRADIP
24	PATIL VAISHNAVI ASHOK
36	PINJARI YASMIN BABULAL
42	VANDOLE TEJAL MANOJ
46	WAGHODE PRIYANKA SHRIKRISHNA

HOD
MRS. MINAL T. KOLHE

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Department Of Computer Engineering & I.T.

Academic Year 2018-19 SEM – II

FAST LEARNER ACTIVITY

CLASS: TE COMPUTER

DATE: 2/04/2019

ROLL NO.	NAME OF STUDENT	ACTIVITY 1 (12/03/2019)		ACTIVITY 2(23/03/2019)		ACTIVITY 3 (29/03/2019)	
		TOPICS	REMARKS	TOPICS	REMARKS	TOPICS	REMARKS
1	BADGUJAR BHAGYASHRI ANIL	Analysis of algorithms	Completed	quiz provides Multiple Choice Questions (MCQs) related to C Programming Framework	Completed	Facebooking : A time pass actitivity	Completed
6	CHAUDHARI KAJAL SHASHIKANT	Sorting Algorithm	Completed		Completed		Completed
7	CHAUDHARI PRIYANKA DIGAMBAR	Genetic Algorithm	Completed		Completed		Completed
8	CHAUDHARI VAISHALI SHIVLA	Data Structure basics	Completed		Completed		Completed
10	DESHMUKH TRUPTI MADHUKAR	UML	Completed		Completed		Completed
13	GURAV NEHA AJAY	ER diagram	Completed		Completed		Completed
17	MAHAJAN RAJASHRI NAMDEO	Introduction to Memory Management	Completed		Completed		Completed
20	PATIL JANHAVI PRADIP	Class Diagram	Completed		ABSENT	Increasing number of Engineering Coleges is a boon to Society	Completed
24	PATIL VAISHNAVI ASHOK	Deadlocks	Completed		Completed		Completed
36	PINJARI YASMIN BABULAL	CPU Scheduling	Completed		Completed		Completed
42	VANDOLE TEJAL MANOJ	Examples of Scheduling Algorithm	Completed		Completed		Completed
46	WAGHODE PRIYANKA SHRIKRISHNA	Normalization.	Completed		Completed		Completed

ACTIVITY 1 (12/03/2019) : Fast learners were motivated to refer some extra out of syllabus advancements in the subject. (Mode: Lecture)

ACTIVITY 2 (23/03/2019) : Programming Quiz

ACTIVITY 3 (29/03/2019): Group discussion topics for students

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Department Of Computer Engineering & I.T.

Academic Year 2018-19 SEM – II

FAST LEARNER ACTIVITY

CLASS: TE COMPUTER DATE: 12/03/2019

ROLL NO.	NAME OF STUDENT	ACTIVITY I	
		TOPICS	REMARKS
1	BADGUJAR BHAGYASHRI ANIL	Analysis of algorithms	Completed
6	CHAUDHARI KAJAL SHASHIKANT	Sorting Algorithm	completed
7	CHAUDHARI PRIYANKA DIGAMBAR	Genetic Algorithm	completed
8	CHAUDHARI VAISHALI SHIVLA	Data Structure basics	completed
10	DESHMUKH TRUPTI MADHUKAR	UML	completed
13	GURAV NEHA AJAY	ER diagram	completed
17	MAHAJAN RAJASHRI NAMDEO	Introduction to Memory Management	completed
20	PATIL JANHAVI PRADIP	Class Diagram	completed
24	PATIL VAISHNAVI ASHOK	Deadlocks	completed
36	PINJARI YASMIN BABULAL	CPU Scheduling	completed
42	VANDOLE TEJAL MANOJ	Exapmles of Scheduling Algorithm	completed
46	WAGHODE PRIYANKA SHRIKRISHNA	Normalization.	completed

ACTIVITY I : Fast learners were motivated to refer some extra out of syllabus advancements in the subject. (Mode: Lecture)

COORDINATOR

MRS. LEENA R. WAGHULDE

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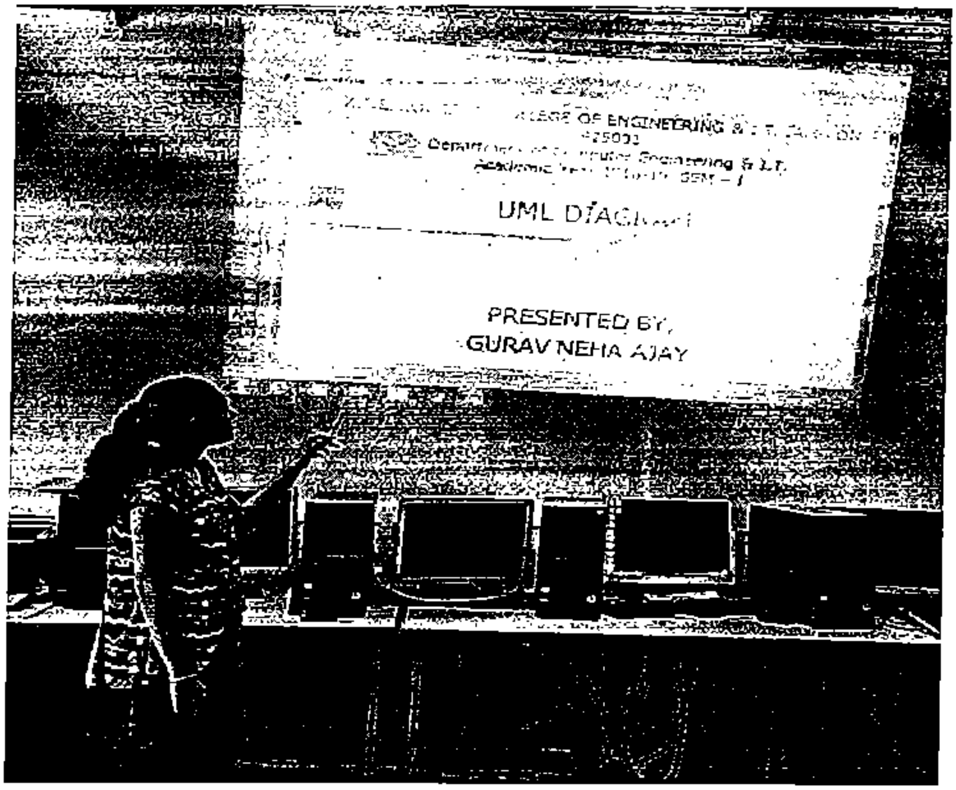
KCES's College of Engineering & IT Jalgaon

Activity Report

Name of The Activity : Fast Learner Activity 1 (SEM I)			
Date:	**20/09/2018**	**Participants profile:**	Faculties Students

Objective for conducting activity	➢ Fast learner were motivated to refer some extra out of syllabus advancements in the subject.
Methodology	➢ Lecture was given by students.
Out Come	➢ Development of students skills and knowledge.

Photos:



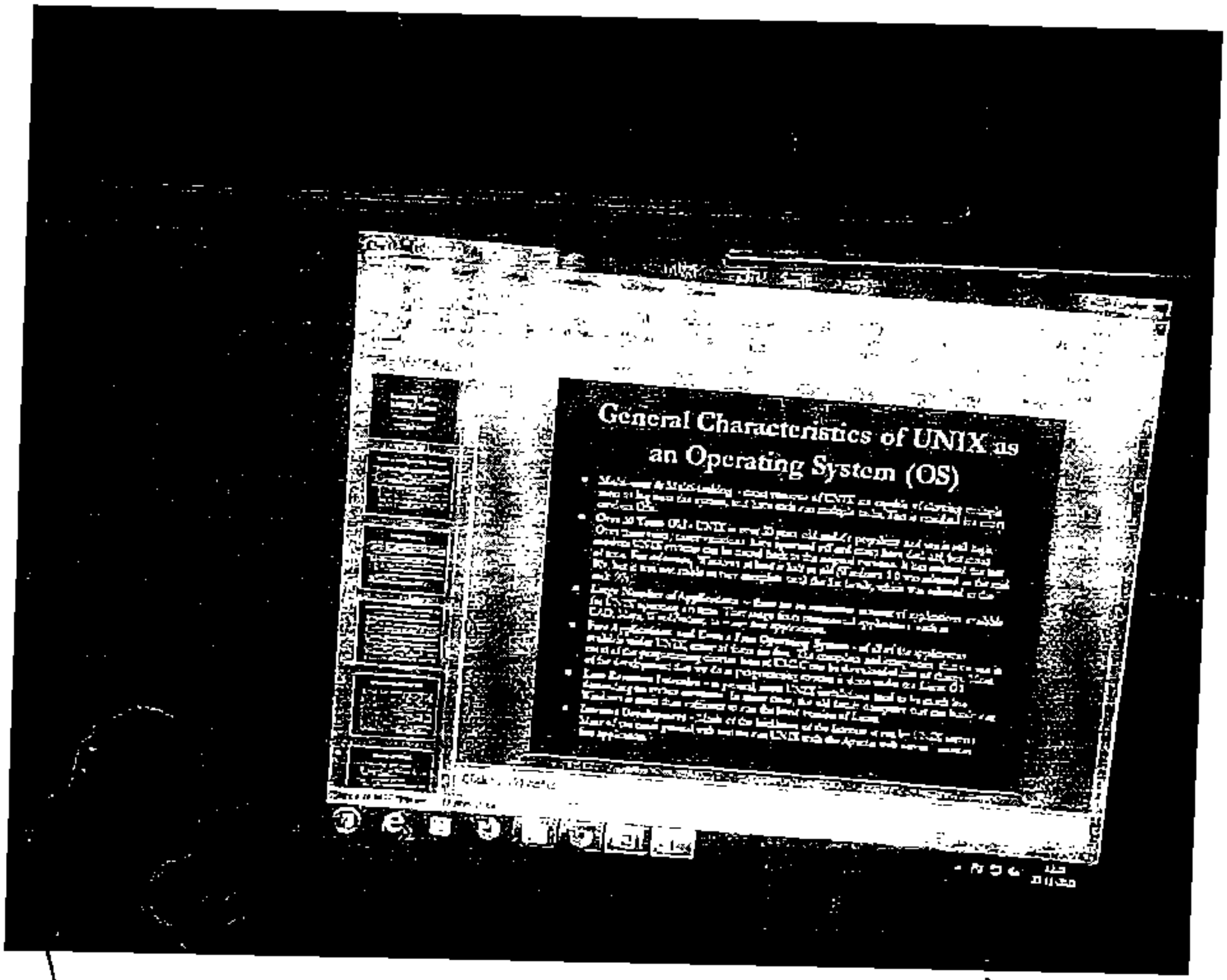
Co-ordinator **HOD**

KCES's College of Engineering & IT Jalgaon
Activity Report

Name of The Activity : Fast Learner Activity 1 (TE COMP –SEM 1)			
Date:	**16/03/2019**	**Participants profile:**	Faculties Students

Objective for conducting activity	➢ Fast learner were motivated to refer some extra out of syllabus advancements in the subject.
Methodology	➢ Lecture was given by students.
Out Come	➢ Development of students skills and knowledge.

Photos:



General Characteristics of UNIX as an Operating System (OS)

Co-ordinator

HOD

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JALGAON – 425001
Department of Computer Engineering & I.T.
Academic Year 2018-19 SEM – I

Analysis of algorithms

PRESENTED BY,
BADGUJAR BHAGYASHRI ANIL

Design and Analysis of Algorithms

- *Analysis:* predict the cost of an algorithm in terms of resources and performance
- *Design:* design algorithms which minimize the cost

The problem of sorting

Input: sequence $\langle a_1, a_2, \ldots, a_n \rangle$ of numbers.

Output: permutation $\langle a'_1, a'_2, \ldots, a'_n \rangle$ such that $a'_1 \le a'_2 \le \cdots \le a'_n$.

Example:

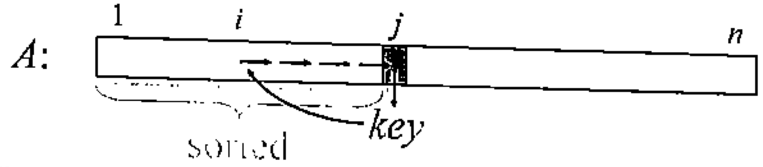
Input: 8 2 4 9 3 6

Output: 2 3 4 6 8 9

Insertion sort

"pseudocode"

```
INSERTION-SORT (A, n)      ⊳ A[1 . . n]
   for j ← 2 to n
        do key ← A[j]
           i ← j – 1
           while i > 0 and A[i] > key
                do A[i+1] ← A[i]
                   i ← i – 1
           A[i+1] = key
```



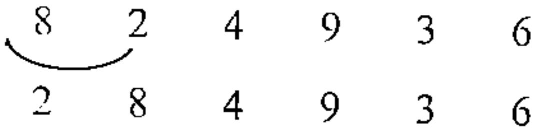
Example of insertion sort

8 2 4 9 3 6

Example of insertion sort

8 2 4 9 3 6

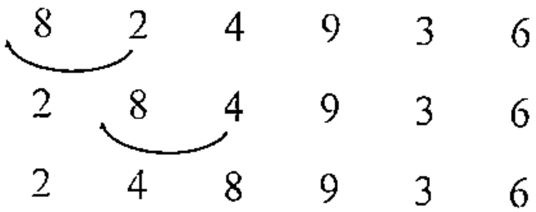
Example of insertion sort



8 2 4 9 3 6

2 8 4 9 3 6

Example of insertion sort

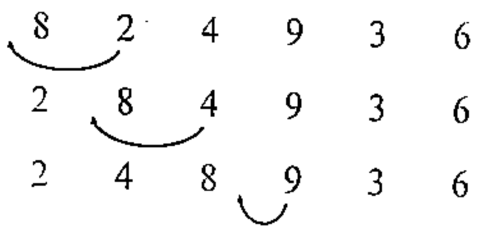


8 2 4 9 3 6

2 8 4 9 3 6

2 4 8 9 3 6

Example of insertion sort

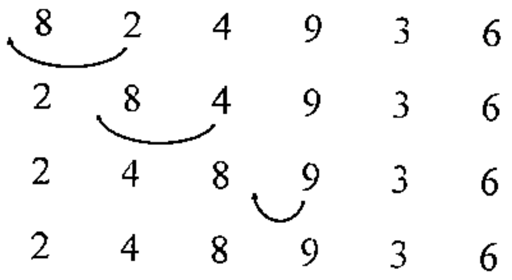


8 2 4 9 3 6

2 8 4 9 3 6

2 4 8 9 3 6

Example of insertion sort



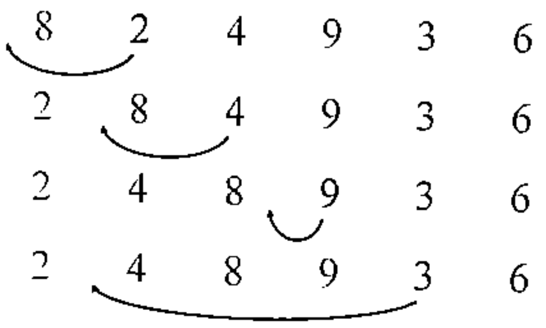
8 2 4 9 3 6

2 8 4 9 3 6

2 4 8 9 3 6

2 4 8 9 3 6

Example of insertion sort



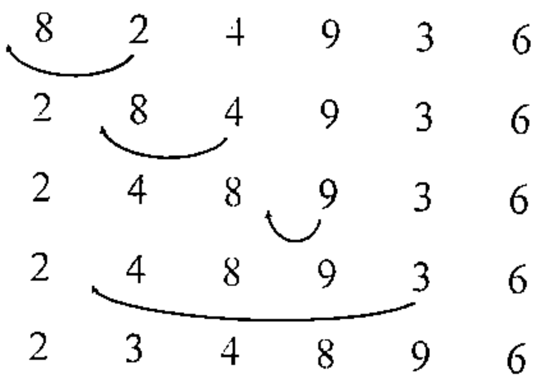
8 2 4 9 3 6

2 8 4 9 3 6

2 4 8 9 3 6

2 4 8 9 3 6

Example of insertion sort



8 2 4 9 3 6

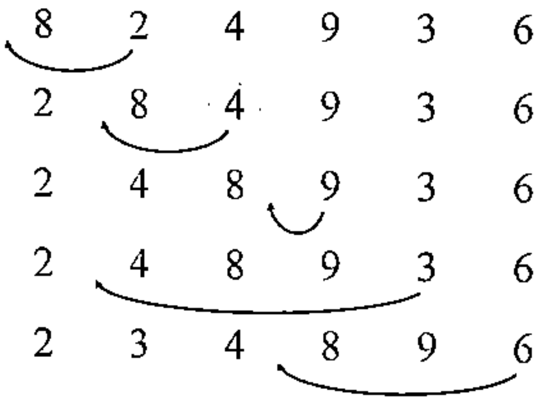
2 8 4 9 3 6

2 4 8 9 3 6

2 4 8 9 3 6

2 3 4 8 9 6

Example of insertion sort



8 2 4 9 3 6

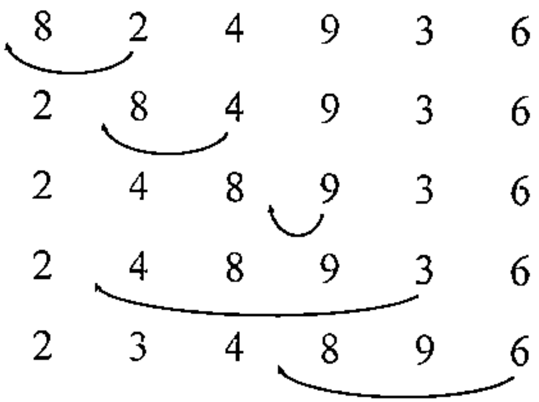
2 8 4 9 3 6

2 4 8 9 3 6

2 4 8 9 3 6

2 3 4 8 9 6

Example of insertion sort



8 2 4 9 3 6

2 8 4 9 3 6

2 4 8 9 3 6

2 4 8 9 3 6

2 3 4 8 9 6

2 3 4 6 8 9 *done*

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Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – II

FAST LEARNER ACTIVITY

CLASS: TE COMPUTER

DATE: 23/05/2019

ROLL NO.	NAME OF STUDENT	ACTIVITY 1	
		TOPICS	REMARKS
1	BADGUJAR BHAGYASHRI ANIL	quiz provides Multiple Choice Questions (MCQs) related to C Programming Framework	✓
6	CHAUDHARI KAJAL SHASHIKANT		✓
7	CHAUDHARI PRIYANKA DIGAMBAR		✓
8	CHAUDHARI VAISHALI SHIVLA		✓
10	DESHMUKH TRUPTI MADHUKAR		✓
13	GURAV NEHA AJAY		✓
17	MAHAJAN RAJASHRI NAMDEO		✓
20	PATIL JANHAVI PRADIP		✓
24	PATIL VAISHNAVI ASHOK		✓
36	PINJARI YASMIN BABULAL		✓
42	VANDOLE TEJAL MANOJ		✓
46	WAGHODE PRIYANKA SHRIKRISHNA		✓

ACTIVITY 2: Programming Quiz

COORDINATOR
MRS. LEENA R. WAGHULDE

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Khandesh College Education Society's
College of Engineering & Information Technology,Jalgaon
Department of Computer Engineering & IT

10/10

Name of Student: Vandole Tejal
Roll No:--42--
Class:--TE--

FAST LEARNER ACTIVITY 2

Q 1 - What is the output of the following program?

```
#include<stdio.h>
main()
{
   register int x = 5;
   int *p;
   p=&x;
   x++;
   printf("%d",*p);
}
```

A - Compile error
B - 5
C - 6
D - Garbage value

Q 2 - What is the following program doing?

```
#include<stdio.h>
main()
{          FILE *stream=fopen("a.txt",'r');
}
```

A - Trying to open "a.txt" in read mode
B - Trying to open "a.txt" in write mode.
C - "stream" is an invalid identifier
D - Compile error

Q 3 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  int a[3] = {2,1};
    printf("%d", a[a[1]]);
}
```

A - 0
B - 1
C - 2
D - 3

Q 4 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  fprintf(stdout,"Hello, World!");
}
```

A - Hello, World!

B - No output

C - Compile error

D - Runtime error

Q 5 - What is the built in library function to compare two strings?

A - string_cmp()

B - strcmp()

C - equals()

D - str_compare()

Q 6 - How to round-off a value “5.77” to 6.0?

A - ceil(5.77)

B - round-off(5.77)

C - round-up(5.77)

D - floor(5.77)

Q 7 - Which of the following is a logical operator?

A - !

B - &&

C - ||

D - All of the above

Q 8 - Why to use fflush() library function?

A - To flush all streams and specified streams

B - To flush only specified stream

C - To flush input/output buffer

D - Invalid library function

Q 9 - The correct order of evaluation for the expression “z = x + y * z / 4 % 2 – 1”

A - * / % = + -

B - / * % - + =

C - - + = * % /

D - * / % + - =

Q 10 - The library function strrchr() finds the first occurrence of a substring in another string.

A - Yes

B - Strstr()

C - strchr()

D - strnset()

Khandesh College Education Society's
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Department of Computer Engineering & IT

10/10

Name of Student: Waghode Priyanka
Roll No:--46--
Class:--TE-----

FAST LEARNER ACTIVITY 2

Q 1 - What is the output of the following program?

```
#include<stdio.h>
main()
{
   register int x = 5;
   int *p;
   p=&x;
   x++;
   printf("%d",*p);
}
```

[✓ A - Compile error]
B - 5
C - 6
D - Garbage value

Q 2 - What is the following program doing?

```
#include<stdio.h>
main()
{          FILE *stream=fopen("a.txt",'r');
}
```

A - Trying to open "a.txt" in read mode
B - Trying to open "a.txt" in write mode.
C - "stream" is an invalid identifier
[✓ D - Compile error]

Q 3 - What is the output of the following program?

```
#include<stdio.h>
main()
{
 int a[3] = {2,1};
   printf("%d", a[a[1]]);
}
```

A - 0
[✓ B - 1]
C - 2
D - 3

Q 4 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  fprintf(stdout,"Hello, World!");
}
```

[✓ A - Hello, World!]
B - No output
C - Compile error
D - Runtime error

Q 5 - What is the built in library function to compare two strings?
A - string_cmp()
[✓ B - strcmp()]
C - equals()
D - str_compare()

Q 6 - How to round-off a value “5.77” to 6.0?
[✓ A - ceil(5.77)]
B - round-off(5.77)
C - round-up(5.77)
D - floor(5.77)

Q 7 - Which of the following is a logical operator?
A - !
B - &&
C - ||
[✓ D - All of the above]

Q 8 - Why to use fflush() library function?
[✓ A - To flush all streams and specified streams]
B - To flush only specified stream
C - To flush input/output buffer
D - Invalid library function

Q 9 - The correct order of evaluation for the expression “z = x + y * z / 4 % 2 – 1”
A - * / % = + -
B - / * % - + =
C - - + = * % /
[✓ D - * / % + - =]

Q 10 - The library function strrchr() finds the first occurrence of a substring in another string.
A - Yes
[✓ B - Strstr()]
C - strchr()
D - strnset()

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Department of Computer Engineering & IT

10/10

Name of Student: Pinjari Yasmin B.

Roll No:--36

Class:--TE comp.

FAST LEARNER ACTIVITY 2

Q 1 - What is the output of the following program?

```
#include<stdio.h>

main()
{
   register int x = 5;

   int *p;
   p=&x;
   x++;
   printf("%d",*p);
}
```

[✓ A - Compile error]

B - 5

C - 6

D - Garbage value

Q 2 - What is the following program doing?

```
#include<stdio.h>

main()
{
  FILE *stream=fopen("a.txt",'r');
}
```

A - Trying to open "a.txt" in read mode

B - Trying to open "a.txt" in write mode.

C - "stream" is an invalid identifier

[✓ D - Compile error]

Q 3 - What is the output of the following program?

```
#include<stdio.h>

main()
{
  int a[3] = {2,1};

  printf("%d", a[a[1]]);
}
```

A - 0

[✓ B - 1]

C - 2

D - 3

Q 4 - What is the output of the following program?

```
#include<stdio.h>

main()
{
  fprintf(stdout,"Hello, World!");
}
```

[✓ A - Hello, World!]

B - No output

C - Compile error

D - Runtime error

Q 5 - What is the built in library function to compare two strings?

A - string_cmp()

[✓ B - strcmp()]

C - equals()

D - str_compare()

Q 6 - How to round-off a value "5.77" to 6.0?

[✓ A - ceil(5.77)]

B - round-off(5.77)

C - round-up(5.77)

D - floor(5.77)

Q 7 - Which of the following is a logical operator?

A - !

B - &&

C - ||

[✓ D - All of the above]

Q 8 - Why to use fflush() library function?

[✓ A - To flush all streams and specified streams]

B - To flush only specified stream

C - To flush input/output buffer

D - Invalid library function

Q 9 - The correct order of evaluation for the expression “z = x + y * z / 4 % 2 – 1”

A - * / % = + -

B - / * % - + =

C - - + = * % /

[✓ D - * / % + - =]

Q 10 - The library function strrchr() finds the first occurrence of a substring in another string.

A - Yes

[✓ B - Strstr()]

C - strchr()

D - strnset()

⑩

Khandesh College Education Society's
College of Engineering & Information Technology,Jalgaon
Department of Computer Engineering & IT

Name of Student: Badgujar Bhagyashri
Roll No:--1----
Class:--T. E---

FAST LEARNER ACTIVITY 2

Q 1 - What is the output of the following program?

```
#include<stdio.h>
main()
{
   register int x = 5;
   int *p;
   p=&x;
   x++;
   printf("%d",*p);
}
```

[✓ A - Compile error]
B - 5
C - 6
D - Garbage value

Q 2 - What is the following program doing?

```
#include<stdio.h>
main()
{          FILE *stream=fopen("a.txt",'r');
}
```

A - Trying to open "a.txt" in read mode
B - Trying to open "a.txt" in write mode.
C - "stream" is an invalid identifier
[✓ D - Compile error]

Q 3 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  int a[3] = {2,1};
    printf("%d", a[a[1]]);
}
```

A - 0
B - 1
C - 2
[✓ D - 3]

Q 4 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  fprintf(stdout,"Hello, World!");
}
```

[✓ A - Hello, World!]
B - No output
C - Compile error
D - Runtime error

Q 5 - What is the built in library function to compare two strings?
A - string_cmp()
[✓ B - strcmp()]
C - equals()
D - str_compare()

Q 6 - How to round-off a value “5.77” to 6.0?
[✓ A - ceil(5.77)]
B - round-off(5.77)
C - round-up(5.77)
D - floor(5.77)

Q 7 - Which of the following is a logical operator?
A - !
B - &&
C - ||
[✓ D - All of the above]

Q 8 - Why to use fflush() library function?
[✓ A - To flush all streams and specified streams]
B - To flush only specified stream
C - To flush input/output buffer
D - Invalid library function

Q 9 - The correct order of evaluation for the expression “z = x + y * z / 4 % 2 – 1”
A - * / % = + -
B - / * % - + =
C - - + = * % /
[✓ D - * / % + - =]

Q 10 - The library function strrchr() finds the first occurrence of a substring in another string.
A - Yes
[✓ B - Strstr()]
C - strchr()
D - strnset()

Khandesh College Education Society's
College of Engineering & Information Technology,Jalgaon
Department of Computer Engineering & IT

8/10

Name of Student: Chaudhari Kajal
Roll No:---6---
Class:--TE------

FAST LEARNER ACTIVITY 2

Q 1 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  register int x = 5;
  int *p;
  p=&x;
  x++;
  printf("%d",*p);
}
```

[✓ A - Compile error]
B - 5
C - 6
D - Garbage value

Q 2 - What is the following program doing?

```
#include<stdio.h>
main()
{        FILE *stream=fopen("a.txt",'r');
}
```

A - Trying to open "a.txt" in read mode
B - Trying to open "a.txt" in write mode.
C - "stream" is an invalid identifier
[✓ D - Compile error]

Q 3 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  int a[3] = {2,1};
    printf("%d", a[a[1]]);
}
```

A - 0
[✓ B - 1]
C - 2
D - 3

Q 4 - What is the output of the following program?

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```
#include<stdio.h>
main()
{
  fprintf(stdout,"Hello, World!");
}
```

[✓ A - Hello, World!]
B - No output
C - Compile error
D - Runtime error

Q 5 - What is the built in library function to compare two strings?

A - string_cmp()
[✓ B - strcmp()]
C - equals()
D - str_compare()

Q 6 - How to round-off a value “5.77” to 6.0?

[✓ A - ceil(5.77)]
B - round-off(5.77)
C - round-up(5.77)
D - floor(5.77)

Q 7 - Which of the following is a logical operator?

A - !
B - &&
[✓ C - ||]
D - All of the above

Q 8 - Why to use fflush() library function?

A - To flush all streams and specified streams
[✓ B - To flush only specified stream]
C - To flush input/output buffer
D - Invalid library function

Q 9 - The correct order of evaluation for the expression “z = x + y * z / 4 % 2 – 1”

A - * / % = + -
B - / * % - + =
C - - + = * % /
[✓ D - * / % + - =]

Q 10 - The library function strrchr() finds the first occurrence of a substring in another string.

A - Yes
[✓ B - Strstr()]
C - strchr()
D - strnset()

Khandesh College Education Society's
College of Engineering & Information Technology,Jalgaon
Department of Computer Engineering & IT

10/10

Name of Student: Chaudhari Priyanka
Roll No:--7---
Class:--TE----

FAST LEARNER ACTIVITY 2

Q 1 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  register int x = 5;
  int *p;
  p=&x;
  x++;
  printf("%d",*p);
}
```

[✓ A - Compile error]
B - 5
C - 6
D - Garbage value

Q 2 - What is the following program doing?

```
#include<stdio.h>
main()
{          FILE *stream=fopen("a.txt",'r');
}
```

A - Trying to open "a.txt" in read mode
B - Trying to open "a.txt" in write mode.
C - "stream" is an invalid identifier
[✓ D - Compile error]

Q 3 - What is the output of the following program?

```
#include<stdio.h>
main()
{
 int a[3] = {2,1};
   printf("%d", a[a[1]]);
}
```

A - 0
[✓ B - 1]
C - 2
D - 3

Q 4 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  fprintf(stdout,"Hello, World!");
}
```

[✓ A - Hello, World!]

B - No output

C - Compile error

D - Runtime error

Q 5 - What is the built in library function to compare two strings?

A - string_cmp()

[✓ B - strcmp()]

C - equals()

D - str_compare()

Q 6 - How to round-off a value “5.77” to 6.0?

[✓ A - ceil(5.77)]

B - round-off(5.77)

C - round-up(5.77)

D - floor(5.77)

Q 7 - Which of the following is a logical operator?

A - !

B - &&

C - ||

[✓ D - All of the above]

Q 8 - Why to use fflush() library function?

[✓ A - To flush all streams and specified streams]

B - To flush only specified stream

C - To flush input/output buffer

D - Invalid library function

Q 9 - The correct order of evaluation for the expression “z = x + y * z / 4 % 2 – 1”

A - * / % = + -

B - / * % - + =

C - - + = * % /

[✓ D - * / % + - =]

Q 10 - The library function strrchr() finds the first occurrence of a substring in another string.

A - Yes

[✓ B - Strstr()]

C - strchr()

D - strnset()

Khandesh College Education Society's
College of Engineering & Information Technology,Jalgaon
Department of Computer Engineering & IT

Name of Student: chaudhari Vaishali
Roll No:---8--
Class:---TE----

7/10

C

FAST LEARNER ACTIVITY 2

Q 1 - What is the output of the following program?

```
#include<stdio.h>
main()
{
   register int x = 5;
   int *p;
   p=&x;
   x++;
   printf("%d",*p);
}
```

[✓ A - Compile error]
B - 5
C - 6
D - Garbage value

Q 2 - What is the following program doing?

```
#include<stdio.h>
main()
{          FILE *stream=fopen("a.txt",'r');
}
```

A - Trying to open "a.txt" in read mode
B - Trying to open "a.txt" in write mode.
C - "stream" is an invalid identifier
[✓ D - Compile error]

Q 3 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  int a[3] = {2,1};
    printf("%d", a[a[1]]);
}
```

A - 0
[✓ B - 1]
C - 2
D - 3

Q 4 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  fprintf(stdout,"Hello, World!");
}
```

A - Hello, World!
B - No output
C - Compile error
D - Runtime error

Q 5 - What is the built in library function to compare two strings?
A - string_cmp()
B - strcmp()
C - equals()
D - str_compare()

Q 6 - How to round-off a value "5.77" to 6.0?
A - ceil(5.77)
B - round-off(5.77)
C - round-up(5.77)
D - floor(5.77)

Q 7 - Which of the following is a logical operator?
A - !
B - &&
C - ||
D - All of the above

Q 8 - Why to use fflush() library function?
A - To flush all streams and specified streams
B - To flush only specified stream
C - To flush input/output buffer
D - Invalid library function

Q 9 - The correct order of evaluation for the expression "z = x + y * z / 4 % 2 – 1"
A - * / % = + -
B - / * % - + =
C - - + = * % /
D - * / % + - =

Q 10 - The library function strrchr() finds the first occurrence of a substring in another string.
A - Yes
B - Strstr()
C - strchr()
D - strnset()

Khandesh College Education Society's
College of Engineering & Information Technology,Jalgaon
Department of Computer Engineering & IT

Name of Student: Deshmukh Trupti
Roll No:--10---
Class:-TE-------

FAST LEARNER ACTIVITY 2

Q 1 - What is the output of the following program?

```
#include<stdio.h>
main()
{
   register int x = 5;
   int *p;
   p=&x;
   x++;
   printf("%d",*p);
}
```

[✓ A - Compile error]
B - 5
C - 6
D - Garbage value

Q 2 - What is the following program doing?

```
#include<stdio.h>
main()
{          FILE *stream=fopen("a.txt",'r');
}
```

A - Trying to open "a.txt" in read mode
B - Trying to open "a.txt" in write mode.
C - "stream" is an invalid identifier
[✓ D - Compile error]

Q 3 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  int a[3] = {2,1};
    printf("%d", a[a[1]]);
}
```

A - 0
[✓ B - 1]
C - 2
D - 3

Q 4 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  fprintf(stdout,"Hello, World!");
}
```

A - Hello, World!
B - No output
C - Compile error
[✓ D - Runtime error]

Q 5 - What is the built in library function to compare two strings?
A - string_cmp()
[✓ B - strcmp()]
C - equals()
D - str_compare()

Q 6 - How to round-off a value "5.77" to 6.0?
A - ceil(5.77)
[✓ B - round-off(5.77)]
C - round-up(5.77)
D - floor(5.77)

Q 7 - Which of the following is a logical operator?
A - !
[✓ B - &&]
C - ||
D - All of the above

Q 8 - Why to use fflush() library function?
A - To flush all streams and specified streams
[✓ B - To flush only specified stream]
C - To flush input/output buffer
D - Invalid library function

Q 9 - The correct order of evaluation for the expression "z = x + y * z / 4 % 2 – 1"
[✓ A - * / % = + -]
B - / * % - + =
C - - + = * % /
D - * / % + - =

Q 10 - The library function strrchr() finds the first occurrence of a substring in another string.
[✓ A - Yes]
B - Strstr()
C - strchr()
D - strnset()

Khandesh College Education Society's
College of Engineering & Information Technology,Jalgaon
Department of Computer Engineering & IT

Name of Student: Gurav. Nehal
Roll No:--13----
Class:--T.E.----

FAST LEARNER ACTIVITY 2

Q 1 - What is the output of the following program?

```
#include<stdio.h>
main()
{
   register int x = 5;
   int *p;
   p=&x;
   x++;
   printf("%d",*p);
}
```

A - Compile error
B - 5
C - 6
D - Garbage value

Q 2 - What is the following program doing?

```
#include<stdio.h>
main()
{          FILE *stream=fopen("a.txt",'r');
}
```

A - Trying to open "a.txt" in read mode
B - Trying to open "a.txt" in write mode.
C - "stream" is an invalid identifier
D - Compile error

Q 3 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  int a[3] = {2,1};
    printf("%d", a[a[1]]);
}
```

A - 0
B - 1
C - 2
D - 3

Q 4 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  fprintf(stdout,"Hello, World!");
}
```

A - Hello, World!

B - No output

C - Compile error

D - Runtime error

Q 5 - What is the built in library function to compare two strings?

A - string_cmp()

B - strcmp()

C - equals()

D - str_compare()

Q 6 - How to round-off a value “5.77” to 6.0?

A - ceil(5.77)

B - round-off(5.77)

C - round-up(5.77)

D - floor(5.77)

Q 7 - Which of the following is a logical operator?

A - !

B - &&

C - ||

D - All of the above

Q 8 - Why to use fflush() library function?

A - To flush all streams and specified streams

B - To flush only specified stream

C - To flush input/output buffer

D - Invalid library function

Q 9 - The correct order of evaluation for the expression “z = x + y * z / 4 % 2 – 1”

A - * / % = + -

B - / * % - + =

C - - + = * % /

D - * / % + - =

Q 10 - The library function strrchr() finds the first occurrence of a substring in another string.

A - Yes

B - Strstr()

C - strchr()

D - strnset()

Khandesh College Education Society's
College of Engineering & Information Technology,Jalgaon
Department of Computer Engineering & IT

10/10

Name of Student: Mahajan Rajashri
Roll No:--17----
Class:--S.E-----

FAST LEARNER ACTIVITY 2

Q 1 - What is the output of the following program?

```
#include<stdio.h>
main()
{
   register int x = 5;
   int *p;
   p=&x;
   x++;
   printf("%d",*p);
}
```

A - Compile error
B - 5
C - 6
D - Garbage value

Q 2 - What is the following program doing?

```
#include<stdio.h>
main()
{         FILE *stream=fopen("a.txt",'r');
}
```

A - Trying to open "a.txt" in read mode
B - Trying to open "a.txt" in write mode.
C - "stream" is an invalid identifier
D - Compile error

Q 3 - What is the output of the following program?

```
#include<stdio.h>
main()
{
 int a[3] = {2,1};
   printf("%d", a[a[1]]);
}
```

A - 0
B - 1
C - 2
D - 3

Q 4 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  fprintf(stdout,"Hello, World!");
}
```

A - Hello, World!

B - No output

C - Compile error

[✓ D - Runtime error]

Q 5 - What is the built in library function to compare two strings?

A - string_cmp()

B - strcmp()

C - equals()

[✓ D - str_compare()]

Q 6 - How to round-off a value “5.77” to 6.0?

A - ceil(5.77)

B - round-off(5.77)

C - round-up(5.77)

[✓ D - floor(5.77)]

Q 7 - Which of the following is a logical operator?

A - !

B - &&

C - ||

[✓ D - All of the above]

Q 8 - Why to use fflush() library function?

A - To flush all streams and specified streams

B - To flush only specified stream

[✓ C - To flush input/output buffer]

D - Invalid library function

Q 9 - The correct order of evaluation for the expression “z = x + y * z / 4 % 2 – 1”

A - * / % = + -

B - / * % - + =

C - - + = * % /

[✓ D - * / % + - =]

Q 10 - The library function strrchr() finds the first occurrence of a substring in another string.

A - Yes

[✓ B - Strstr()]

C - strchr()

D - strnset()

Khandesh College Education Society's
College of Engineering & Information Technology,Jalgaon
Department of Computer Engineering & IT

Name of Student: Patil Jani
Roll No:--20---
Class:-TE-------

FAST LEARNER ACTIVITY 2

Q 1 - What is the output of the following program?

```
#include<stdio.h>
main()
{
   register int x = 5;
   int *p;
   p=&x;
   x++;
   printf("%d",*p);
}
```

A - Compile error
B - 5
C - 6
D - Garbage value

Q 2 - What is the following program doing?

```
#include<stdio.h>
main()
{          FILE *stream=fopen("a.txt",'r');
}
```

A - Trying to open "a.txt" in read mode
B - Trying to open "a.txt" in write mode.
C - "stream" is an invalid identifier
D - Compile error

Q 3 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  int a[3] = {2,1};
    printf("%d", a[a[1]]);
}
```

A - 0
B - 1
C - 2
D - 3

Q 4 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  fprintf(stdout,"Hello, World!");
}
```

[✓ A - Hello, World!]

B - No output

C - Compile error

D - Runtime error

Q 5 - What is the built in library function to compare two strings?

A - string_cmp()

[✓ B - strcmp()]

C - equals()

D - str_compare()

Q 6 - How to round-off a value "5.77" to 6.0?

[✓ A - ceil(5.77)]

B - round-off(5.77)

C - round-up(5.77)

D - floor(5.77)

Q 7 - Which of the following is a logical operator?

A - !

B - &&

C - ||

[✓ D - All of the above]

Q 8 - Why to use fflush() library function?

[✓ A - To flush all streams and specified streams]

B - To flush only specified stream

C - To flush input/output buffer

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Q 9 - The correct order of evaluation for the expression "z = x + y * z / 4 % 2 – 1"

A - * / % = + -

B - / * % - + =

C - - + = * % /

D - * / % + - =

Q 10 - The library function strrchr() finds the first occurrence of a substring in another string.

A - Yes

[✓ B - Strstr()]

C - strchr()

D - strnset()

$\frac{10}{10}$

Khandesh College Education Society's
College of Engineering & Information Technology,Jalgaon
Department of Computer Engineering & IT

Name of Student: Patil Vaishnavi
Roll No:-24-

Class:---TE---

FAST LEARNER ACTIVITY 2

Q 1 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  register int x = 5;
  int *p;
  p=&x;
  x++;
  printf("%d",*p);
}
```

[✓ A - Compile error]
B - 5
C - 6
D - Garbage value

Q 2 - What is the following program doing?

```
#include<stdio.h>
main()
{        FILE *stream=fopen("a.txt",'r');
}
```

A - Trying to open "a.txt" in read mode
B - Trying to open "a.txt" in write mode.
C - "stream" is an invalid identifier
[✓ D - Compile error]

Q 3 - What is the output of the following program?

```
#include<stdio.h>
main()
{
 int a[3] = {2,1};
   printf("%d", a[a[1]]);
}
```

A - 0
[✓ B - 1]
C - 2
D - 3

Q 4 - What is the output of the following program?

```
#include<stdio.h>
main()
{
  fprintf(stdout,"Hello, World!");
}
```

A - Hello, World!

B - No output

C - Compile error

D - Runtime error

Q 5 - What is the built in library function to compare two strings?

A - string_cmp()

B - strcmp()

C - equals()

D - str_compare()

Q 6 - How to round-off a value "5.77" to 6.0?

A - ceil(5.77)

B - round-off(5.77)

C - round-up(5.77)

D - floor(5.77)

Q 7 - Which of the following is a logical operator?

A - !

B - &&

C - ||

D - All of the above

Q 8 - Why to use fflush() library function?

A - To flush all streams and specified streams

B - To flush only specified stream

C - To flush input/output buffer

D - Invalid library function

Q 9 - The correct order of evaluation for the expression "z = x + y * z / 4 % 2 – 1"

A - * / % = + -

B - / * % - + =

C - - + = * % /

D - * / % + - =

Q 10 - The library function strrchr() finds the first occurrence of a substring in another string.

A - Yes

B - Strstr()

C - strchr()

D - strnset()

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – II

FAST LEARNER ACTIVITY

CLASS: TE COMPUTER **DATE:** 29/03/2019

	ROLL NO.	NAME OF STUDENT	ACTIVITY ~~3~~ 5	
			TOPICS	REMARKS
Team A	1	BADGUJAR BHAGYASHRI ANIL	Facebooking : A time pass actitivity	V. Good.
	6	CHAUDHARI KAJAL SHASHIKANT		Improve skill
	7	CHAUDHARI PRIYANKA DIGAMBAR		speak loudly
Team B	8	CHAUDHARI VAISHALI SHIVLA		Poor Confidence
	10	DESHMUKH TRUPTI MADHUKAR		ok
	13	GURAV NEHA AJAY		V. Good.
Team A	17	MAHAJAN RAJASHRI NAMDEO	Increasing number of Engineering Coleges is a boon to Society	OK.
	20	PATIL JANHAVI PRADIP		Poor performance
	24	PATIL VAISHNAVI ASHOK		Knowledgo good but improve com
Team B	36	PINJARI YASMIN BABULAL		V. Good.
	42	VANDOLE TEJAL MANOJ		V. Good,
	46	WAGHODE PRIYANKA SHRIKRISHNA		Speak loudly.

ACTIVITY 3: Group discussion topics for students

COORDINATOR
MRS. LEENA R. WAGHULDE

HOD
MRS. MINAL T. KOLHE

KCES's College of Engineering & IT Jalgaon

Activity Report

Name of The Activity : Fast Learner Activity 3 (BE COMP –SEM I)			
Date:	29/03/2019	**Participants profile:**	Faculties Students

Objective for conducting activity	➢ Group discussion generates a creative thinking in all participants, something beyond the obvious answers and solution to a specific problem.
Methodology	➢ Group Discussion was taken by students who are fast learner in all subjects.
Out Come	➢ Improves confidence in public speaking platform

Co-ordinator

HOD

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

Department Of Computer Engineering & I.T.

Academic Year 2018-19 SEM – II

FAST LEARNER ROLL LIST

CLASS : BE COMP

ROLL NO.	NAME
1	CHAUDHARI KOMAL S.
2	CHAUDHARI YUVRAJ A.
2	CHAUDHARI YUVRAJ A.
5	PATIL SHRADDHA S.
6	SUTAR YAMINI U.
7	AHIRRAO AISHWARYA S.
9	CHAUDHARI ARUNA S.
12	KALE JITESHRI S.
15	PATIL CHHAYA G.
17	PATIL PRATIKSHA S.
24	WAGH GAURAV S.
25	WANI PRANJALI S.

HOD

MRS. MINAL T. KOLHE

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K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – II
FAST LEARNER ACTIVITY

CLASS: BE COMPUTER

DATE:

ROLL NO.	NAME OF STUDENT	ACTIVITY 1 (16/03/2019)		ACTIVITY 2(23/03/2019)	
		TOPICS	REMARKS	TOPICS	REMARKS
1	CHAUDHARI KOMAL S.	Application of Case-Based Teaching and Learning	Completed	AI and Robotics	Completed
2	CHAUDHARI YUVRAJ A.	Network Integration	Completed	Prepare International Paper	Paper Published
5	PATIL SHRADDHA S.	Challenges of Mobile Computing	Completed	Prepare International Paper	Paper Published
6	SUTAR YAMINI U.	Deep Learning	Completed	Prepare International Paper	Paper Published
7	AHIRRAO AISHWARYA S.	Presenting Software Metrics Indicators	Completed	Robotics	Completed
9	CHAUDHARI ARUNA S.	Internet of Things.	Completed	Prepare International Paper	Paper Published
12	KALE JITESHRI S.	Implementing Tools for Software Quality Assurance	Completed	Prepare International Paper	Completed
15	PATIL CHHAYA G.	Software reuse	Completed	IOT	Completed
17	PATIL PRATIKSHA S.	Building Knowledge For AI Agents With Reinforcement	Completed	Data Stucture	Completed
24	WAGH GAURAV S.	Neural Network Classifier	Completed	Networking	Completed
25	WANI PRANJALI S.	Data Mining	Completed	Prepare International Paper	Paper Published

ACTIVITY 1 (16/03/2019) : Fast learners were motivated to refer some extra out of syllabus advancements in the subject. (Mode: Lecture)

ACTIVITY 2 (23/03/2019): Study different referneee paper and prepare for international paper.

HOD

MRS. MINAL T. KOLHE

Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – II

FAST LEARNER ACTIVITY

CLASS: BE COMPUTER

DATE: 16/03/2019

ROLL NO.	NAME OF STUDENT	ACTIVITY 1	
		TOPICS	REMARKS
1	CHAUDHARI KOMAL S.	Appn of teaching & learning	Completed
2	CHAUDHARI YUVRAJ A.	Network integration	Done
5	PATIL SHRADDHA S.	Mobile computing	Done
6	SUTAR YAMINI U.	Deep learning	Done
7	AHIRRAO AISHWARYA S.	S/W metrics Indicators	AB
9	CHAUDHARI ARUNA S.	IOT	Done
12	KALE JITESHRI S.	Tools for S/W quality Assurance	Done
15	PATIL CHHAYA G.	S/W reuse	Done
17	PATIL PRATIKSHA S.	AI	Done
24	WAGH GAURAV S.	Classifiers	Done
25	WANI PRANJALI S.	Data Mining	Done

ACTIVITY 1 : Fast learners were motivated to refer some extra out of syllabus advancements in the subject. (Mode: Lecture)

COORDINATOR

MRS. LEENA R. WAGHULDE

HOD

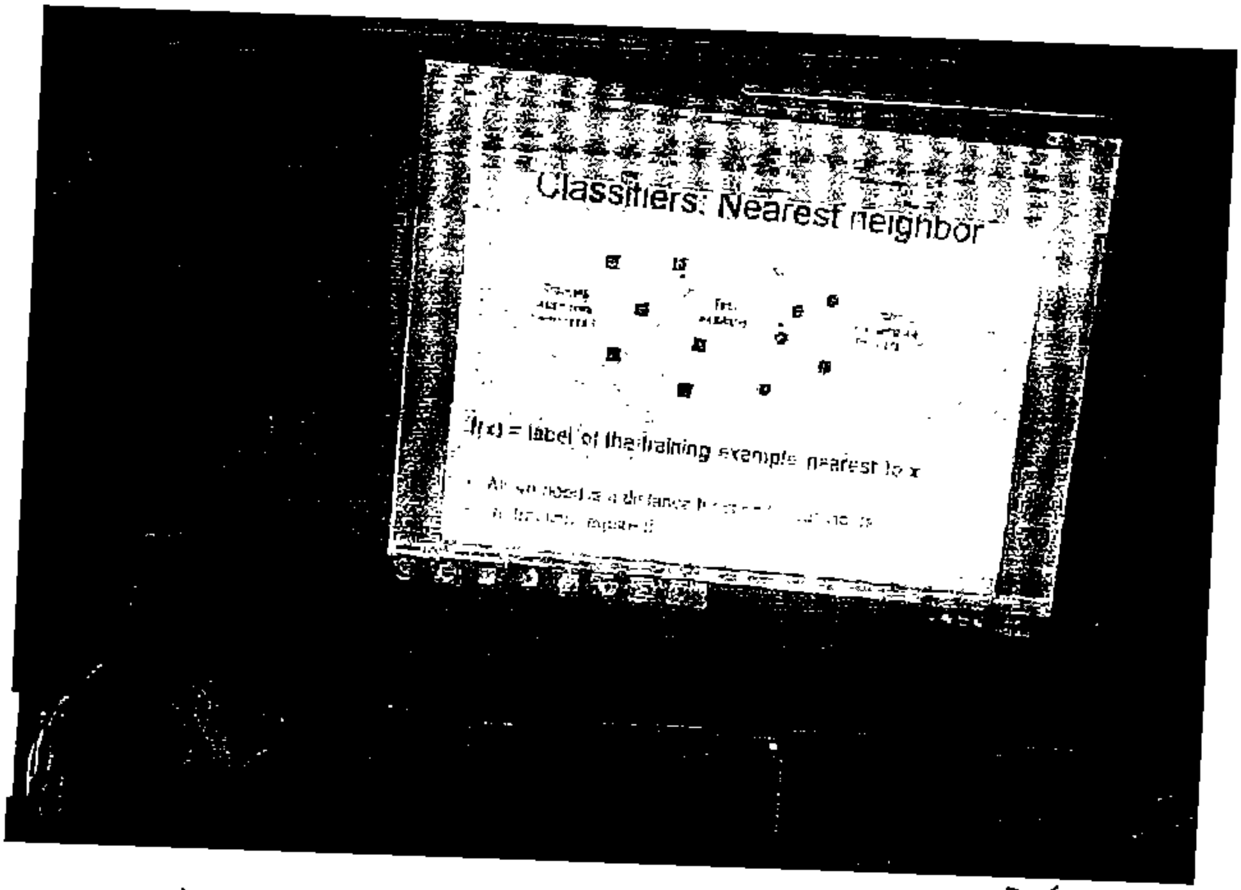
MRS. MINAL T. KOLHE

KCES's College of Engineering & IT Jalgaon
Activity Report

Name of The Activity : Fast Learner Activity 1 (BE COMP –SEM I)			
Date:	**16/03/2019**	**Participants profile:**	Faculties Students

Objective for conducting activity	➢ Fast learner were motivated to refer some extra out of syllabus advancements in the subject.
Methodology	➢ Lecture was given by students.
Out Come	➢ Development of students skills and knowledge.

Photos:



Classifiers: Nearest neighbor

$f(x)$ = label of the training example nearest to x

Co-ordinator

HOD

Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – II

FAST LEARNER ACTIVITY

CLASS: BE COMPUTER **DATE:** 25/03/2019

ROLL NO.	NAME OF STUDENT	ACTIVITY 2	
		TOPICS	REMARKS
1	CHAUDHARI KOMAL S.	Robotics .	Completed
2	CHAUDHARI YUVRAJ A.	Prepare International paper.	
5	PATIL SHRADDHA S.	prepare International paper.	
6	SUTAR YAMINI U.	study Reference papers	
7	AHIRRAO AISHWARYA S.	IOT .	
9	CHAUDHARI ARUNA S.	Prepare Journal paper	
12	KALE JITESHRI S.	Prepare Journal paper	
15	PATIL CHHAYA G.	Image processing	
17	PATIL PRATIKSHA S.	Web design .	
24	WAGH GAURAV S.	Prepare International paper.	
25	WANI PRANJALI S.	prepare paper .	

ACTIVITY 2: Study different refernece paper and prepare for international paper.

COORDINATOR

MRS. LEENA R. WAGHULDE

HOD

MRS. MINAL T. KOLHE

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EduHub Portal using Star Rating System

Yuvraj Chaudhari
Computer Engineering
K.C.E.S's. College of Engineering & IT
Jalgaon, India

Shraddha Patil
Computer Engineering
K.C.E.S's. College of Engineering & IT
Jalgaon, India

Gaurav Wagh
Computer Engineering
K.C.E.S's College of Engineering & IT
Jalgaon, India

Harsha V. Talele
Computer Engineering
K.C.E.S's College of Engineering & IT
Jalgaon, India

ABSTRACT

EduHub portal is a web-based application which helps end user to find any particular type of institute such as school, colleges, any private classes with searching criteria like preferred location, subject and news. The increasing searching of institutes and changing scenario of the environment today has made more people to search for better career and potential. This situation has prompted many to move to education hub portals to look for the ways that has been accepted and fully useful in institute searching. Education hub portal brings information together from diverse source in a uniform way. Updates to the members about recent changes in any information which is an additional feature. In EduHub portal latest scripting technologies like HTML, CSS, java script and PHP are used. Unique feature of review blog for posting reviews has been added. In this portal Star rating system is use by using jQuery and Ajax to user can rating any institutes by knowing its features and facilities such as infrastructure, staff members, etc. In this portal use MySQL database to store all institutes information.

Keywords

Web Portal, Database, MySQL, Educational Directory, Star Rating System

1. INTRODUCTION

A key feature of the ongoing growth of the Worldwide Web over the past five years has been a proliferation of web portals that focus on supporting school education. While many such sites require subscription and registration, there are large numbers that deliver services free of charge to anyone with Internet access [1]. A Web Portal is a collection of Web forms, Web pages, images, videos, text and other forms of digital assets that is hosted on one or several web servers. It is basically a Website and a part Web Application, as it would be providing services and information to users easily, regarding the latest institute news, all details such as what is about, facilities, courses, staff or team members also its infrastructure photos gallery, etc. This application provides information about the all institutes who are register and the news of given institute which are add, update by that institute. Also, in this institute can display its current, upcoming events which are organise by that institute and also this event display can access by given institute.

This Portal would be handled by an institute administration itself and also main admin who maintain this portal. With the help of this web application user can access all details of require institutes by sign up account in portal.

In this portal, user can add review about that institute which he visits that institute. Also, in this, main feature for user as he can also review by Star Rating System using MySQL. In Star Rating System rating out of five stars but in this portal arrange rating by staff of institutes, rating by its infrastructure, etc and also overall rating. Then calculate the average rating and submit it as review.

In this EduHub Portal, any institute can add their institute such as any college, any schools, any private classes in which hobby classes, sport, etc. Once any institute add their institute, then request send to main admin. Then as long as main admin verifies it unless that institute display on user interface. This is the feature of this web application.

Also, in this portal, institute who are register and verify that institute can create job vacancy advertise into their user display with their display. It means user can access all details of require institute and also its job vacancies. This Project will be developed using OPEN SOURCE technologies such XAMMP developed from WAMP (Windows Apache MySQL and PHP).

2. LITERATURE SURVEY

The main idea behind this work is in the coding and the layout of each and every page which ultimately decides the outcome of the web site. The Design and Accessibility of a page is related to the Front-end of the Web site, which is an experience any user will have while navigating through the web site but the Coding part of it is something the Programmer has to diligently take care of, as it will dictate the robustness and the flow of the entire website. A lot of issues arise when using various Scripting languages simultaneously to code certain part of the pages and their interoperability. Each language is powerful and unique in its own way. So, combing them to optimize the output is a challenge. Various issues such as Redundancy, Security issues, Code Optimization, effective modeling, etc. Here are some research papers which address the various issues and optimization techniques in the building and designing of a website using the various languages used to code them.

Pratibha S. Yalagi, Chaitrali S. Dangare [2], developed E-Cl!k Portal aims to layout a web portal for institutes the place all the facilities will be provided on line for quite a number of things like E-Submission, E-Alerts, E-Learning, E-Examination, E-Records, E-Result, etc. This portal gives beneficial facilities for college students and faculties who desire to get right of entry to the portal at desk of one click on sitting anywhere. We are designing a net portal E-Cl!k for our institute, which will supply facilities such as submission, handouts, notice, results, records, examinations, and so on to students.

Ofoegbu E. O, Fayemiwo M. A., Omisore M. O., Olanrewaju P. O. [3], proposed and described a net portal architecture for implementation in non-public universities in Nigeria. two The waterfall mannequin used to be adopted as the methodology of desire where it prescribes a systematic approach to software program improvement which helps to truly outline each the person and system requirements, the portal proposed was once developed the usage of various development equipment such as WAMP applications where the Windows platform is the operating gadget on which the portal runs, Apache is the server, while MySQL was used for the database and PHP as the scripting language. A mannequin of the portal used to be designed the usage of modelling equipment such as Data Flow Diagram (which blanketed student level statistics glide diagram, lecturer level data float diagram, administrator level data float diagram) and the Use Case Diagram.

Anand Singh, Aishwary Shukla, Maulik Sharma, Rahul Yadav, Vidyadhari Singh [4], increase placement Web Portal is a system which pursuits at imparting an easy and automatic gadget for conducting placements at some point of Campus Recruitment Drive. If placement procedure is performed manually, then a lot of additional paperwork wishes to be done; it requires a lot of time. This system will eradicate all guide work, by means of automating the facts collection procedure, conduction of tests, showing of results, as properly as, storing it, notifying the eligible students via. Email and SMS, exhibiting the listing of eligible college students etc. They have been used sentimental analysis in this portal that assessment is completed automatically and a bar format is generated indicating positive, terrible and impartial ideas of the college students about the tests. Resume builder use to standardized structure will be served on the portal and college students will simply have to enter their capabilities in the respective matters and that's it. All students' facts will be available in the database. Report Generation use to analysis of Placed students, Un-placed students, department wise placement will be reachable through this tool.

Prof. Omkar. S. Vaidya, Mr. Tanmoy Bakshi [5] design and construct a Web portal for the university department. This Web portal will consist of more than a few interlinked net pages comprising of a variety of kinds of records and things to do catering to the needs of the department. Crucially, it serves to decrease the communication gap between the school and the students by way of imparting a variety of offerings and functions such as an open discussion board for discussion, sharing of category notes, event news, effects and database of journal publications as nicely as generating timetables. They aim to accomplish this the usage of the brand-new scripting applied sciences like HTML, CSS, java script and PHP.

Saurabh Walia and Satinderjit Kaur Gill have designed a Framework for Web based Student file Management in [6] exclusively for Colleges and Universities. The statistics framework is essential in gathering all records also records of all team of workers or section in one association to be in one spot. The framework is typically given extremely accommodating errand that will supplant the human as to maintain it in document as the stock or distinctive purposes. To outline a supportive framework with a specific cease, aim to make simplicity to the client, the framework is created by using utilizing Xampp Server interfacing with database that is the usage of 'PHP' language as the dialect or guideline of the framework. The proposed framework is a standalone framework. This framework cantered on recording and updating the information. It is moreover given file on the different hand printed document to the patron in the framework which will make the repute of the pupil less difficult to be checked. This new framework utilized database concept to keep all the facts which related with vicinity application forms. This framework focused round database concept which is more solid. All learner information will be kept in a dedicated database. By utilising this database idea, a few issues, for example, data misfortune and harm may want to be slayed away from. This framework moreover targeted to make a easy checking students' status. By making use of this framework, staffs can test the students' fame quicker in time contrasted with the current framework. Hence, the personnel can lessen protecting up time in place to take a look at all the files like some time recently. The different target is the difficulty that identified with looking and upgrading the information. Staffs can pursuit and upgrade the data methodically. This framework will provide a few capacities, for example, searching and overhauling so as to assist the staffs to manipulate the information applications.

3. EXISTING SYSTEM

Currently we have many websites (e.g. www.shikha.com, www.carrer360.com, etc) which have identical feature of offering institutes details. They provide many functions to interact users. The biggest limitation/problems with these web sites are not user pleasant and person have to end up paid member of websites and also if they favour to locate some pastimes type classes institutes then, they have to fail it. Even institutes web sites restrict to only education associated find out about no different mastering things to do is not included. But in this portal, there is no longer such restrict to user and user can easily get entry to related direction and additionally have privileges to access it. User is not only limited to view some popular institutes but it additionally consists of all kinds of small and large institutes (e.g. dancing, guitar learning, mehandi, etc.)

4. PROPOSED SYSTEM

Our EduHub Education Directory Project will help the any institute to transmit their details to the user. The user who want to search institute about any subject will able to get all the information regarding courses, offers, events, news, etc. Admin panel will also able to edit the login display panel of institute and user etc. Admin can add an institute, delete the institute, can give special permission. Admin can schedule classes, their events date and time. User can get information of any institute under them require filtration such as preferred location, course, etc. Admin can add their institute by selecting categories such as course, medium, etc.

For user section, they can get any particular institute's details, news, events, job vacancies such as placement session details, upcoming companies in particular month, their criteria, their venue details and many more and other information regarding their campus. The user section will also include review and blogs sections.

5. IMPLEMENTATION

The basic requirements for the design of the Education Directory are: Every user in this case institute should have their own identity first Registration and second Login facility called as institute admin. The institute admin can update their information and can add events, news, job vacancies. The user can access the information and avail services as per his/her need.

5.1 User Module

In this module, user can view all details information of needed institutes. User can add institute as a favourite. In this module, news section, different events section and job vacancy should display. User can add review in review block and rate particular institutes.

5.2 Institute Admin Module

In this module, an institute which want to add in this portal, they can add by registration and login. By selecting categories of institutes and filling appropriate details which are in registration form it will request to server to verify it. Institute admin can update their information by this module.

5.3 Server Side

The Server end deals with Server hosting the web pages. Since, this is a Dynamic Website; a Server should be capable of handling User requests. PHP programming language will be used to script and code the Server. In server side as long as, main admin verifies an institute after it display on user interface. Also, main admin can add, update, delete any institute.

5.4 Database

Since, Our Web Portal will be an interaction of User Profiles; the data of the registered Users have to be stored on a database for Application, Management and Security Purposes. MySQL is an effective tool for Database Management System (DBMS). In our database there are total twenty tables such as institute_admin, institute details, etc. In this project we categorized institute as college, school and classes.

5.5 Form Validation

Form validation normally used to occur at the server, after the client had entered all the necessary data and then pressed the Submit button. If the data entered by a client was incorrect or was simply missing, the server would have to send all the data back to the client and request that the form be resubmitted with correct information. This was really a lengthy process which used to put a lot of burden on the server. JavaScript provides a way to validate form's data on the client's computer before sending it to the web server. Form validation generally performs two functions.

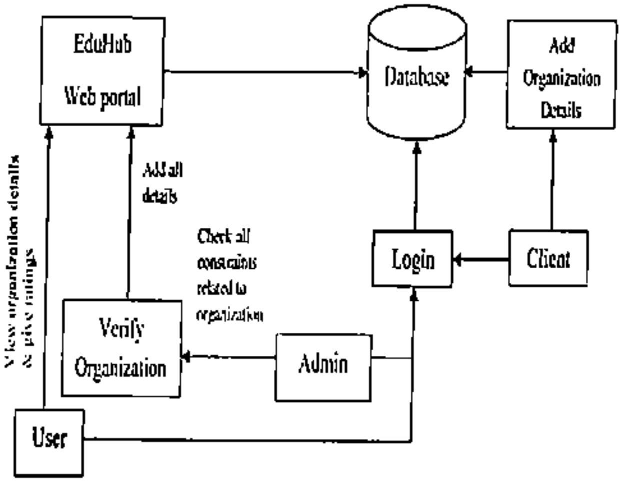


Fig 1: Block Diagram of Portal

5.6 Star Rating System

In this, calculate star ratings for display on Education Hub Portal. The intent is to use a simple calculation which permits quit users to visualize Institutions performance in the shape of star ratings. In general, the star ranking is clearly the suggest rating divided through 20, to get a star rating on a 0-5 scale. Questions observe the identical logic, but are slightly more complicated due to the different survey response scales. Due to the small range of feasible values (i.e. 0-5). In big name rating system, there is response scale conversion shown in following table.

Table I. Response Scale

	Very Poor	Poor	Fair	Good	Very Good
Score	0	25	50	75	100

Consider some questions will be arise for rating such as:

1. Administrative System.
2. Faculty Qualifications.
3. Institutional Features.
4. Students' characteristics were set in the questionnaire, which revealed the quality of current education.
5. Name of University.

Above questions have several response scales. For the purpose of calculating star ratings, we use the following conversions in order to calculate scores on a 0-100 scale:

Table II. Star rating Scale

	No*	Yes*
Score	0	100

The conversion of yes/no items depends on which response is the most favorable option.

To illustrate this calculation, consider the example below:

Table III. Example of star rating

Institute	A	B	C	D	E	Mean Score	Star Rating (Mean / 20)
Q1	50	75	100	100	75	80	4.00
Q2	50	0	25	100	100	55	2.75
Q3	75	75	75	100	75	80	4.00
Summary Rating							3.58

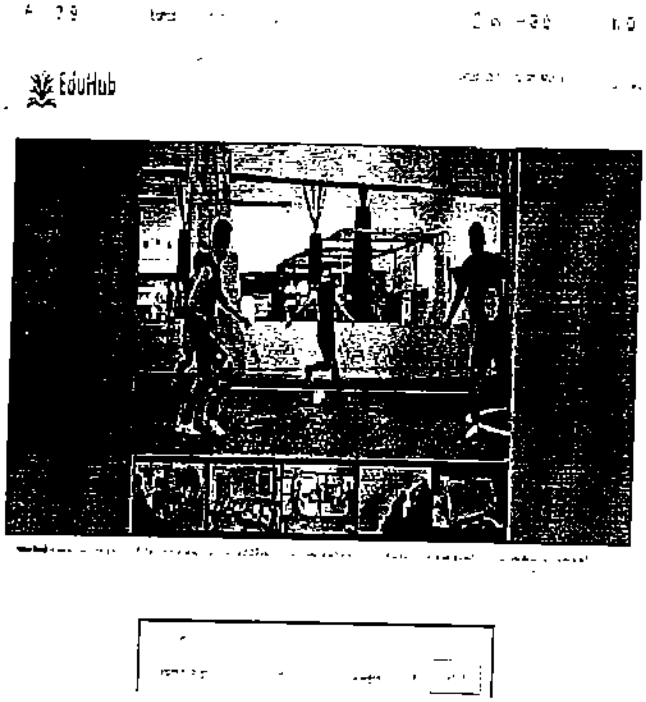
$$Provider\ Mean\ Score\ for\ Question\ 1 = \frac{50+75+100+75}{5} = 80 \quad (1)$$

$$Provider\ Star\ Rating\ Question\ 1 = \frac{80}{20} = 4\ Stars \quad (2)$$

$$Provider\ Summary\ Star\ Rating = \frac{4+2.75+4}{3} = 3.58\ Stars \quad (3)$$

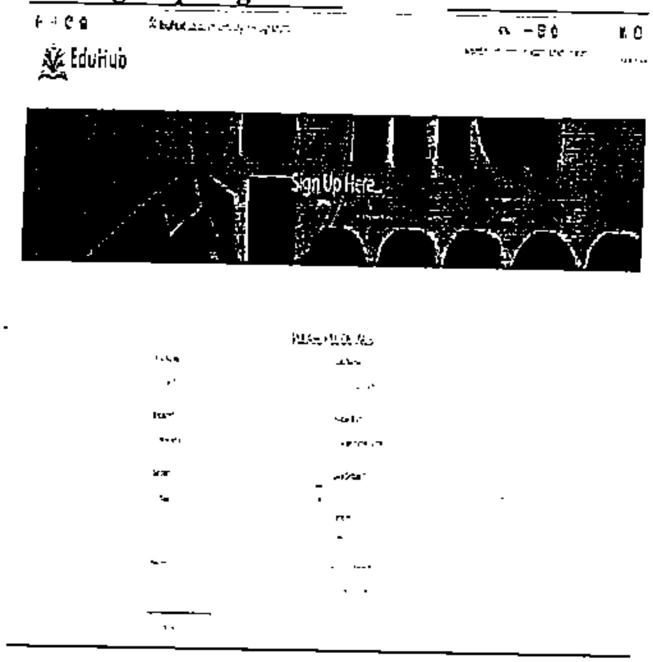
6. RESULT

6.1 Home page



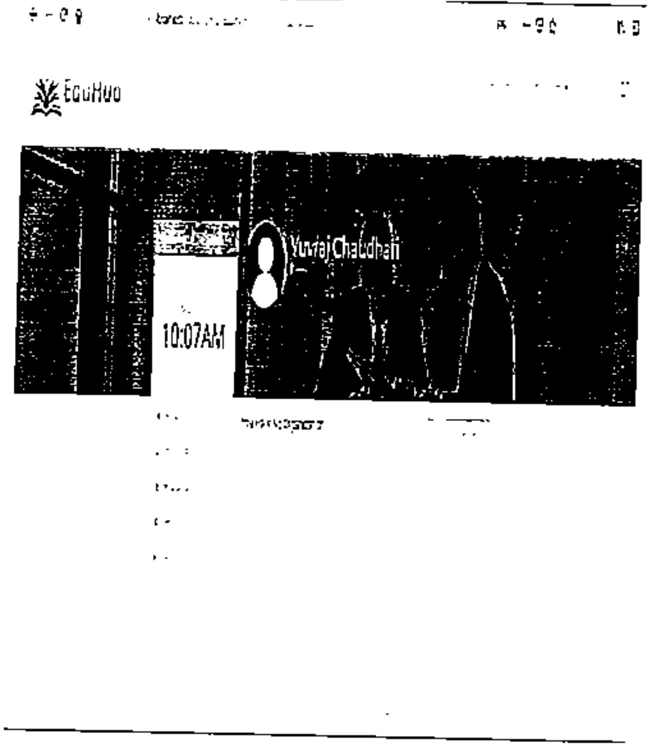
In this home page, some slider images be taken, also at top two options are given. One is Log In for those whose sign up is already completed and second is Sign Up to new user. Below the slider images there is institutes search block in which three sections are given such as what are you looking for, location, and categories colleges, school and classes.

6.2 Sign Up Page



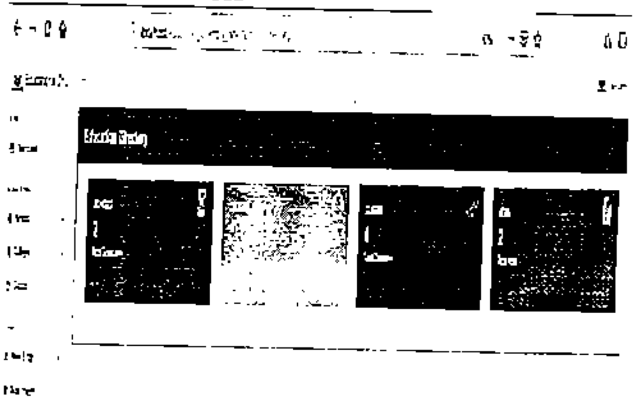
In sign up page, if a new user wants to add new institute or give reviews and that user has not created their login password then it is mandatory for user to sign up. For signing up, user should have to fill their details.

6.3 After Login Page



In this page, if user wants to add institute then he/she will have to first login and then can add institute. Then a dashboard will appear that include details like Profile settings, My organization and logout.

6.4 Admin Panel



In Admin Panel, the dashboard gives the total counting of institutes which are categorize as schools, colleges and classes. In this panel, the appeared institutes were verified by admin.

7. CONCLUSION

In this paper we proposed an approach for implementation of a web portal for online education directory. Web portal brings information together from diverse source in a uniform way. Portal is implemented through integration of services and applications that enables collaboration and communication among users in e-education system, realization of all institute activities, as well as adaptive functionalities. This paper introduced a web portal in which convenient looking out filtration of any kind of institute.

Future researches are directed toward improving adaptation mechanism and automation of adaptation process. We will bring all institutes from our country on web portal and provides e-education facilities.

8. REFERENCES

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K.C.E. SOCIETY'S

COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

DEPARTMENT OF COMPUTER ENGINEERING & IT

Academic Year 2018-19 SEM – I

DATE: 06 / 09 /2018

Important Notice

Remedial lectures have been arranged for the students having less than 8 marks in Unit Test-1. Subject wise schedule for remedial lectures will be displayed on notice board.

ISE Coordinator

Mrs. Leena R. Waghulde

HOD

Mrs. Minal. T. Kolhe

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., Jalgaon

DEPARTMENT OF COMPUTER/IT ENGINEERING

REMEDIAL TIME TABLE

SEM : I YEAR : 2018-19 W.E.F. : 08/09/2018

CLASS : TE (COMP) **CLASS ROOM NO. (Morning: 205 Afternoon:206)**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
9:00 TO 10:00						SP
:00 TO 11:00						CN
11:00 TO 11:10	RECESS 1					
11:10 TO 12:10						POM
12:10 TO 1:10						SE
1:10TO 1:45	RECESS 2					
1:45 TO 2:45				FLAT	CN	FLAT
2:45 TO 3:45				SP	POM	SE

SUBJECT	NAME OF FACULTY
SP	PRADNYA VIKHAR
CN	MINAL KOLHE
SE	MINAL KOLHE
POM	HARSHA CHAVAN
FLAT	LEENA WAGHULDE

CLASS TEACHER	TIME TABLE INCHARGE	HOD-COMP
Ms. HARSHA CHAVAN	Ms.POOJA NAVAL Ms.HARSHA TALELE	Mrs.MINAL KOLHE

Department Of Computer Engineering & I.T.

Academic Year 2018-19 SEM – I

MARK SHEET - ISE I

CLASS :TE COMPUTER **MARKS: 20**

ROLL NO.	NAME	FLAT	POM	SP	CN	SE
		ISE 1	ISE 1	ISE 1	ISE I	ISE 1
1	BADGUJAR BHAGYASHRI A.	11	11	8	14	15
2	CHAUDHARI KAJAL S.	13	10	14	9	13
3	CHIKNE PRATHMESH G.	9	9	5	7	4
4	GURAV NEHA A.	13	13	14	8	9
5	MARUMARDANE RAKSHADA	8	11	10	8	9
6	PATIL DIVYA D.	14	15	13	11	14
7	PATIL JAGRUTI S.	10	14	14	4	13
8	SARSWAT HARSHITA M.	8	15	15	10	12
9	THORAT PRIYANKA R.	12	11	15	11	12
10	VINCHULKAR VAIBHAVI V.	12	9	AB	9	10
11	VANDOLE TEJAL M.	19	16	13	10	15
12	THAKUR SAYALI J	11	12	11	9	10
13	PINJARI YASMIN B.	16	15	15	11	11
14	WAGHODE PRIYANKA S.	18	15	13	9	16
15	CHAUDHARI VAISHALI S.	8	11	14	8	12
16	PATIL KAVITA B.	4	10	14	9	15
17	PATIL VAISHNAVI A.	16	15	14	12	12
18	PATIL JANHAVI P.	9	14	13	10	15
19	TALOLE SNEHAL A.	3	6	6	8	4
20	PATIL VISHAKHA N.	3	11	8	8	1
21	VISPUTE SWETA A.	AB	AB	AB	AB	AB
22	PATIL PRIYANKA S.	AB	10	5	9	10
23	SONAWANE MANALI V.	8	12	12	10	14
24	PATIL RITESH M.	AB	AB	8	AB	6
25	KULKARNI PIYUSH R.	AB	AB	AB	AB	0
26	PATIL NUTAN S.	4	8	8	5	9
27	KANKARIYA PRSHANSA N.	AB	12	8	8	10
28	ZOPE DHANASHRI R.	AB	9	10	8	AB
29	GOSAVI SHITAL B.	AB	AB	8	3	AB
30	BORASE BHAGYASHRI V.	AB	8	8	4	9
31	CHAUDHARI PRATIKSHA V.	4	8	11	4	9
32	BAIG ZEESHAN A.	AB	AB	AB	AB	AB
33	PANDAV SHUBHANGI PRALHAD	AB	8	8	6	AB
34	PATIL DEEPIKA DAYARAM	4	12	14	9	12
35	MAHAJAN RAJASHRI N.	12	11	15	8	10
36	MAHAJAN SACHIN S.	AB	AB	AB	AB	AB
37	PATIL PRACHI B.	3	11	8	5	9
38	VISPUTE LALIT J.	4	AB	AB	6	2
39	WANKHEDE RAHUL S.	AB	AB	AB	10	AB
40	PATIL JITENDRA	AB	9	4	4	5
41	PINJARI SAHIL A.	AB	AB	AB	AB	AB
42	BAVISKAR SHUBHAM P	AB	10	8	8	13
43	PATIL CHHAYA	9	9	9	9	13
44	PATIL PAVAN	AB	AB	AB	AB	AB
45	CHAUDHARI PRIYANKA D.	AB	AB	AB	AB	15
46	DESHMUKH TRUPTI M.	12	AB	13	9	15
47	GIRNARE CHETAN ASHOK	AB	AB	AB		AB
48	PATIL YUGANDHAR B.	AB	AB	AB		2

ISE COORDINATOR
MRS. LEENA R. WAGHULDE

HOD
MRS. MINAL T. KOLHE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – I

MARKS SHEET FOR SLOW LEARNERS AFTER ISE -I

CLASS : TE COMP MARKS: 20

ROLL NO.	NAME OF STUDENTS	FLAT
19	TALOLE SNEHAL A.	3
20	PATIL VISHAKHA N.	3
21	PATIL KAVITA B.	3
21	CHAUDHARI PRATIKSHA V.	4
24	PATIL RITESH M.	4
25	KULKARNI PIYUSH R.	4
26	PATIL NUTAN S.	4
27	VISPUTE SWETA A.	4
27	KANKARIYA PRSHANSA N.	AB
28	PATIL PRIYANKA S.	AB
28	ZOPE DHANASHRI R.	AB
29	GOSAVI SHITAL B.	AB
30	BORASE BHAGYASHRI V.	AB
32	BAIG ZEESHAN A.	AB
33	PANDAV SHUBHANGI PRALHAD	AB
34	PATIL DEEPIKA DAYARAM	AB
36	MAHAJAN SACHIN S.	AB
37	PATIL PRACHI B.	AB
38	VISPUTE LALIT J.	AB
39	WANKHEDE RAHUL S.	AB
40	PATIL JITENDRA	AB
41	PINJARI SAHIL A.	AB
42	BAVISKAR SHUBHAM P	AB
44	PATIL PAVAN	AB
45	CHAUDHARI PRIYANKA D.	AB
47	GIRNARE CHETAN ASHOK	AB
48	PATIL YUGANDHAR B.	AB

ROLL NO.	NAME OF STUDENTS	POM
19	TALOLE SNEHAL A.	6
21	VISPUTE SWETA A.	AB
24	PATIL RITESH M.	AB
25	KULKARNI PIYUSH R.	AB
29	GOSAVI SHITAL B.	AB
32	BAIG ZEESHAN A.	AB
36	MAHAJAN SACHIN S.	AB
38	VISPUTE LALIT J.	AB
39	WANKHEDE RAHUL S.	AB
41	PINJARI SAHIL A.	AB
44	PATIL PAVAN	AB
45	CHAUDHARI PRIYANKA D.	AB
46	DESHMUKH TRUPTI M.	AB
47	GIRNARE CHETAN ASHOK	AB
48	PATIL YUGANDHAR B.	AB

ROLL NO.	NAME OF STUDENTS	SP
3	CHIKNE PRATHMESH G.	5
10	VINCHULKAR VAIBHAVI V.	AB
19	TALOLE SNEHAL A.	6
21	VISPUTE SWETA A.	AB
22	PATIL PRIYANKA S.	5
25	KULKARNI PIYUSH R.	AB
32	BAIG ZEESHAN A.	AB
36	MAHAJAN SACHIN S.	AB
38	VISPUTE LALIT J.	AB
39	WANKHEDE RAHUL S.	AB
40	PATIL JITENDRA	4
41	PINJARI SAHIL A.	AB
44	PATIL PAVAN	AB
45	CHAUDHARI PRIYANKA D.	AB
47	GIRNARE CHETAN ASHOK	AB
48	PATIL YUGANDHAR B.	AB

ROLL NO.	NAME OF STUDENTS	CN
3	CHIKNE PRATHMESH G.	7
7	PATIL JAGRUTI S.	4
21	VISPUTE SWETA A.	AB
24	PATIL RITESH M.	AB
25	KULKARNI PIYUSH R.	AB
26	PATIL NUTAN S.	5
29	GOSAVI SHITAL B.	3
30	BORASE BHAGYASHRI V.	4
31	CHAUDHARI PRATIKSHA V.	4
32	BAIG ZEESHAN A.	AB
33	PANDAV SHUBHANGI PRALHAD	6
36	MAHAJAN SACHIN S.	AB
37	PATIL PRACHI B.	5
38	VISPUTE LALIT J.	6
40	PATIL JITENDRA	4
41	PINJARI SAHIL A.	AB
44	PATIL PAVAN	AB
45	CHAUDHARI PRIYANKA D.	AB
47	GIRNARE CHETAN ASHOK	AB
48	PATIL YUGANDHAR B.	AB

ROLL NO.	NAME OF STUDENTS	SE
3	CHIKNE PRATHMESH G.	4
19	TALOLE SNEHAL A.	4
20	PATIL VISHAKHA N.	1
21	VISPUTE SWETA A.	AB
24	PATIL RITESH M.	6
25	KULKARNI PIYUSH R.	0
28	ZOPE DHANASHRI R.	AB
29	GOSAVI SHITAL B.	AB
32	BAIG ZEESHAN A.	AB
33	PANDAV SHUBHANGI PRALHAD	AB
36	MAHAJAN SACHIN S.	AB
38	VISPUTE LALIT J.	2
39	WANKHEDE RAHUL S.	AB
40	PATIL JITENDRA	5
41	PINJARI SAHIL A.	AB
44	PATIL PAVAN	AB
47	GIRNARE CHETAN ASHOK	AB
48	PATIL YUGANDHAR B.	2

ISE COORDINATOR
MRS. LEENA R. WAGHULDE

HOD
MRS. MINAL T. KOLHE

Teaching – 7.5.1 – F14 – 0

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K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – I

REMEDIAL ROLL LIST

CLASS : TE COMP

ROLL NO.	NAME OF STUDENTS
3	CHIKNE PRATHMESH G.
7	PATIL JAGRUTI S.
10	VINCHULKAR VAIBHAVI V.
19	TALOLE SNEHAL A.
19	TALOLE SNEHAL A.
20	PATIL VISHAKHA N.
21	VISPUTE SWETA A.
22	PATIL PRIYANKA S.
24	PATIL RITESH M.
25	KULKARNI PIYUSH R.
26	PATIL NUTAN S.
27	VISPUTE SWETA A.
28	PATIL PRIYANKA S.
29	GOSAVI SHITAL B.
30	BORASE BHAGYASHRI V.
31	CHAUDHARI PRATIKSHA V.
32	BAIG ZEESHAN A.
33	PANDAV SHUBHANGI PRALHAD
34	PATIL DEEPIKA DAYARAM
36	MAHAJAN SACHIN S.
37	PATIL PRACHI B.
38	VISPUTE LALIT J.
39	WANKHEDE RAHUL S.
40	PATIL JITENDRA
41	PINJARI SAHIL A.
42	BAVISKAR SHUBHAM P
44	PATIL PAVAN
45	CHAUDHARI PRIYANKA D.
46	DESHMUKH TRUPTI M.
47	GIRNARE CHETAN ASHOK
48	PATIL YUGANDHAR B.

HOD
MRS. MINAL T. KOLHE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

Department Of Computer Engineering & I.T.

Academic Year 2018-19 SEM – I

MARKS SHEET FOR FAST LEARNER AFTER ISE –I

CLASS : TE COMP **MARKS: 20**

ROLL NO.	NAME OF STUDENTS	FLAT
NIL		

ROLL NO.	NAME OF STUDENTS	POM
NIL		

ROLL NO.	NAME OF STUDENTS	SP
NIL		

ROLL NO.	NAME OF STUDENTS	CN
NIL		

ROLL NO.	NAME OF STUDENTS	SE
NIL		

ISE COORDINATOR
MRS. LEENA R. WAGHULDE

HOD
MRS. MINAL T. KOLHE

Teaching – 7.5.1 – F14 – 0

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON - 425001
Department Of Computer Engineering & I.T.
Academic Year 2018-2019 SEM – I
REMEDIAL LECTURES AFTER (ISE-I

TE COMPUTER

SUB- SOFTWARE PROGRAMMING

ROLL NO.	NAME OF STUDENTS	DATES														
		8·/9	13/9	20/9	22/9	27/9	29/9	04/10	6/10	11/10	13/10					
1	CHIKNE PRATHMESH G.	P	P	P	P	P	P	P	P	P	P					
2	VINCHULKAR VAIBHAVI V.	P	P	P	P	P	P	P	P	P	P					
3	TALOLE SNEHAL A.	P	P	P	P	P	P	P	P	P	P					
4	VISPUTE SWETA A.	A	P	P	A	P	P	A	P	A	A					
5	PATIL PRIYANKA S.	P	P	P	P	P	P	P	P	P	P					
6	KULKARNI PIYUSH R.	P	P	P	A	P	A	P	A	P	P					
7	BAIG ZEESHAN A.	A	P	P	P	P	A	P	P	P	P					
8	MAHAJAN SACHIN S.	P	P	A	P	P	P	P	P	A	P					
9	VISPUTE LALIT J.	P	P	P	P	P	P	P	P	A	P					
10	WANKHEDE RAHUL S.	P	P	P	P	P	P	A	P	P	P					
11	PATIL JITENDRA	P	P	P	P	A	P	P	A	P	P					
12	PINJARI SAHIL A.	P	A	P	P	P	P	P	P	P	P					
13	PATIL PAVAN	P	P	A	P	A	P	P	P	P	A					
14	CHAUDHARI PRIYANKA D.	P	P	P	P	P	P	P	P	P	P					
15	GIRNARE CHETAN ASHOK	P	A	P	P	P	P	P	P	P	P					
16	PATIL YUGANDHAR B.	P	P	P	P	P	P	P	P	P	P					

SUBJECT INCHARGE

K.C.E. SOC COLLEGE OF ENGINEERING & I.T. JALG 425001
Department Of Computer Engineering & I.T.
Academic Year 2018-2019 SEM – I
REMEDIAL LECTURES AFTER ISE-I
TE COMPUTER

SUB- COMPUTER NETWORK

ROLL NO.	NAME OF STUDENTS	DATES														
		8/9	12/9	21/9	22/9	28/9	29/9	5/10	6/10	12/10	13/10					
1	CHIKNE PRATHMESH G.	P	P	P	P	P	P	P	P	P	P					
2	PATIL JAGRUTI S.	P	P	P	P	P	P	P	P	P	P					
3	VISPUTE SWETA A.	P	P	P	P	P	P	P	P	P	P					
4	PATIL RITESH M.	P	A	P	P	P	A	P	P	P	P					
5	KULKARNI PIYUSH R.	P	P	P	P	P	P	P	P	P	P					
6	PATIL NUTAN S.	P	P	P	P	P	P	P	P	P	P					
7	GOSAVI SHITAL B.	P	P	P	P	P	P	P	P	P	P					
8	BORASE BHAGYASHRI V.	P	P	P	P	P	P	P	P	P	P					
9	CHAUDHARI PRATIKSHA V.	P	P	P	P	P	P	P	P	P	P					
10	BAIG ZEESHAN A.	P	P	P	P	P	P	P	P	P	P					
11	PANDAV SHUBHANGI PRALHAD	P	P	P	P	P	P	P	P	P	A					
12	MAHAJAN SACHIN S.	P	P	P	P	P	P	P	P	P	A					
13	PATIL PRACHI B.	P	P	P	P	P	P	P	P	P	P					
14	VISPUTE LALIT J.	P	P	P	P	P	P	P	P	P	P					
15	PATIL JITENDRA	P	P	P	P	P	P	P	P	P	P					
16	PINJARI SAHIL A.	P	P	P	P	P	P	P	P	P	P					
17	PATIL PAVAN	P	P	P	P	P	P	P	P	P	P					
18	CHAUDHARI PRIYANKA D.	P	P	P	P	P	P	P	P	P	P					
19	GIRNARE CHETAN ASHOK	P	P	P	P	P	P	P	P	P	P					
20	PATIL YUGANDHAR B.	P	P	P	P	P	P	P	P	P	P					

SUBJECT INCHARGE

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K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering & I.T.
Academic Year 2018-2019 SEM – I
REMEDIAL LECTURES AFTER : UT-I

TE COMPUTER

SUB- SOFTWARE ENGINEERING

ROLL NO.	NAME OF STUDENTS	DATES													
		8/9	8/9	22/9	22/9	29/9	29/9	6/10	6/10	13/10	13/10				
1	CHIKNE PRATHMESH G.	P	P	P	A	P	P	P	P	P	P				
2	TALOLE SNEHAL A.	P	P	P	P	P	P	P	P	P	P				
3	PATIL VISHAKHA N.	P	P	P	P	P	P	P	P	P	P				
4	VISPUTE SWETA A.	P	P	P	P	P	P	P	P	P	P				
5	PATIL RITESH M.	A	P	P	P	P	A	P	P	A	A				
6	KULKARNI PIYUSH R.	P	P	P	P	P	P	A	A	A	A				
7	ZOPE DHANASHRI R.	P	P	P	P	P	P	P	P	P	P				
8	GOSAVI SHITAL B.	P	P	P	P	P	P	P	P	P	P				
9	BAIG ZEESHAN A.	P	A	P	P	P	P	A	A	P	P				
10	PANDAV SHUBHANGI PRALHAD	P	P	P	P	P	P	P	P	A	A				
11	MAHAJAN SACHIN S.	P	P	P	P	P	P	P	P	P	P				
12	VISPUTE LALIT J.	P	P	P	P	P	P	P	P	P	P				
13	WANKHEDE RAHUL S.	P	P	P	P	P	P	A	A	P	P				
14	PATIL JITENDRA	P	P	P	P	P	P	P	P	A	A				
15	PINJARI SAHIL A.	P	P	P	P	P	P	P	P	A	A				
16	PATIL PAVAN	P	P	P	P	P	P	A	A	P	P				
17	GIRNARE CHETAN ASHOK	P	P	P	P	P	P	A	A	P	P				
18	PATIL YUGANDHAR B.	P	P	P	P	P	P	P	P	P	P				

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Department Of Computer Engineering & I.T.
Academic Year 2018-2019 SEM – I
REMEDIAL LECTURES AFTER UNIT TEST – I

TE COMPUTER

SUB- PRINCIPLES OF MANAGEMENT

ROLL NO.	NAME OF STUDENTS	DATES														
		8/9	14/9	21/9	22/9	28/9	29/9	5/10	6/10	12/10	13/10					
1	VISPUTE SWETA A.	P	P	P	P	P	P	P	P	P	P					
2	PATIL RITESH M.	P	P	P	P	P	P	P	P	P	P					
3	KULKARNI PIYUSH R.	P	P	P	A	P	P	A	P	P	P					
4	GOSAVI SHITAL B.	P	P	P	P	P	P	A	P	P	P					
5	BAIG ZEESHAN A.	A	P	P	P	P	P	P	A	P	P					
6	MAHAJAN SACHIN S.	P	P	P	P	P	P	P	P	P	A					
7	VISPUTE LALIT J.	P	A	P	P	P	P	P	P	P	A					
8	WANKHEDE RAHUL S.	P	P	P	P	A	P	P	P	P	P					
9	PINJARI SAHIL A.	P	P	P	P	P	P	P	P	P	P					
10	PATIL PAVAN	P	P	P	P	P	P	P	P	A	P					
11	CHAUDHARI PRIYANKA D.	P	P	A	P	P	P	P	P	P	P					
12	DESHMUKH TRUPTI M.	P	P	P	P	P	P	P	P	P	P					
13	GIRNARE CHETAN ASHOK	P	P	P	P	P	P	P	P	P	P					
14	PATIL YUGANDHAR B.	P	P	P	P	P	P	P	P	P	P					

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K.C ETY'S COLLEGE OF ENGINEERING & I.T. JALGAO 001

Department Of Computer Engineering & I.T.

Academic Year 2018-2019 SEM – I

REMEDIAL LECTURES AFTER ~~UN~~ ISE-I

TE COMPUTER

SUB- FORMAL LANGUAGE & AUTOMATA THEORY

ROLL NO.	NAME OF STUDENTS	DATES														
		8/9	13/9	20/9	22/9	27/9	29/9	4/10	6/10	11/10	13/10					
1	PATIL VISHAKHA N.	P	P	P	P	P	P	A	P	P	P					
2	TALOLE SNEHAL A.	P	A	P	P	P	P	P	P	P	P					
3	PATIL PRACHI B.	P	P	P	P	P	A	P	P	P	P					
4	PATIL KAVITA B.	P	P	P	P	P	P	P	P	P	P					
5	PATIL NUTAN S.	P	P	P	P	P	P	P	P	P	P					
6	CHAUDHARI PRATIKSHA V.	P	P	P	P	A	P	P	P	P	P					
7	PATIL DEEPIKA DAYARAM	P	P	P	P	P	P	P	A	P	P					
8	VISPUTE LALIT J.	A	P	A	P	P	P	P	P	P	P					
9	VISPUTE SWETA A.	P	P	P	P	P	P	P	P	A	P					
10	PATIL PRIYANKA S.	P	A	P	P	P	P	P	P	P	P					
11	PATIL RITESH M.	P	P	P	P	P	P	P	P	P	P					
12	KULKARNI PIYUSH R.	A	P	P	P	P	P	P	P	P	A					
13	KANKARIYA PRSHANSA N.	P	P	P	A	A	P	P	P	P	P					
14	ZOPE DHANASHRI R.	P	P	P	P	P	P	P	A	P	P					
15	GOSAVI SHITAL B.	P	P	P	P	P	P	P	P	P	P					
16	BORASE BHAGYASHRI V.	P	P	P	P	P	P	P	P	P	P					
17	BAIG ZEESHAN A.	P	P	A	P	P	P	A	P	P	P					
18	PANDAV SHUBHANGI PRALHAD	P	P	P	A	P	P	P	P	P	P					
19	MAHAJAN SACHIN S	P	P	P	P	P	P	P	P	P	P					
20	WANKHEDE RAHUL S.	P	P	P	P	P	P	P	P	P	P					
21	PATIL JITENDRA	P	P	P	P	P	P	P	P	P	P					
22	PINJARI SAHIL A.	P	P	P	P	P	A	P	P	P	P					
23	BAVISKAR SHUBHAM P	P	P	P	P	P	P	P	P	P	P					
24	PATIL PAVAN	P	P	P	P	P	P	P	P	P	P					
25	CHAUDHARI PRIYANKA D.	P	P	P	P	P	P	P	P	P	P					
26	GIRNARE CHETAN ASHOK	P	P	P	P	P	P	P	P	A	P					
27	PATIL YUGANDHAR B.	P	P	P	P	P	P	P	P	P	A					

SUBJECT INCHARGE

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K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., Jalgaon

DEPARTMENT OF COMPUTER ENGINEERING

REMEDIAL TIME TABLE

SEM : I YEAR : 2018-19 W.E.F. : 08/09/2018

CLASS : BE COMP **CLASS ROOM NO. 206**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
9:00 TO 10:00						
10:00 TO 11:00						
11:00 TO 11:10	RECESS 1					
11:10 TO 12:10					ES	ES
12:10 TO 1:10					IP	ACA
1:10TO 1:45	RECESS 2					
1:45 TO 2:45					ACA	IP
2:45 TO 3:45						

SUBJECT	NAME OF FACULTY
ES	HARSHA TALELE
ACA	DIPTI PATIL
AUP	PRIYANSHI BORASE
AIES	DIPTI PATIL
IP	SNEHA VARADE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

Department of Computer Engineering & I.T.

Academic Year 2018-19 SEM – I

REMEDIAL ROLL LIST

CLASS : BE COMP

ROLL NO.	NAME OF STUDENTS
8	BIRARI PRIYANKA R.
10	CHAUDHARI NEHA
11	CHAUDHARI RAJNANDINI
14	PATIL CHETAN B.
16	PATIL MEGHA A.
19	PATIL SWATI Y.
24	WAGH GAURAV S.
27	YEOLE HARSHAL S.
28	JADHAV ARJUN J.
30	MAVCHI RIBKA FATTESING
32	NERKER SHUBHAM
34	PATIL BHUSHAN

HOD

MRS. MINAL T. KOLHE

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K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

Department Of Computer Engineering & I.T.

Academic Year 2018-19   SEM – I

MARK SHEET- ISE 1

CLASS : BE COMP   **MARKS: 20**

ROLL NO.	NAME	AUP	ACA	ES	IP	AIES
		ISE 1	ISE 1	ISE 1	ISE 1	ISE 1
1	CHAUDHARI KOMAL S.	15	18	15	12	18
2	CHAUDHARI YUVRAJ A.	11	17	16	14	17
3	KALE BHAVANA S.	11	13	16	12	17
4	NARKHEDE NEHA B.	15	16	17	11	16
5	PATIL SHRADDHA S.	11	18	18	16	18
6	SUTAR YAMINI U.	8	14	19	9	17
7	AHIRRAO AISHWARYA S.	15	9	14	8	12
8	BIRARI PRIYANKA R.	12	10	8	4	10
9	CHAUDHARI ARUNA S.	11	14	13	8	10
10	CHAUDHARI NEHA	9	15	10	1	15
11	CHAUDHARI RAJNANDINI	8	14	16	2	17
12	KALE JITESHRI S.	10	12	15	8	15
13	PARDESHI KANCHAN K.	9	8	9	8	12
14	PATIL CHETAN B.	11	8	5	1	11
15	PATIL CHHAYA G.	11	17	15	12	16
16	PATIL MEGHA A.	13	15	13	6	14
17	PATIL PRATIKSHA S.	11	16	18	15	18
18	PATIL ROHINI N.	11	15	10	9	18
19	PATIL SWATI Y.	12	10	14	3	16
20	PAWAR AISHWARYA S.	10	14	15	14	16
21	SHELAKE RASIKA D.	8	14	16	8	16
22	SONAWANE HARSHA	12	17	18	18	17
23	TAYADE LEENA S.	8	10	16	10	11
24	WAGH GAURAV S.	9	14	15	1	15
25	WANI PRANJALI S.	16	17	18	10	18
26	WANKHEDE MONALI S.	15	16	16	9	14
27	YEOLE HARSHAL S.	13	10	11	6	13
28	JADHAV ARJUN J.	12	10	10	6	15
29	PAHURKAR MADHURI	13	12	11	13	14
30	MAVCHI RIBKA FATTESING	12	15	8	5	9
31	PATIL AKSHAY	9	13	10	4	10
32	NERKER SHUBHAM	9	8	8	2	13
33	SURYAWANSHI RAJENDRA	12	9	8	3	11
34	PATIL BHUSHAN	12	13	6	4	12

ISE COORDINATOR
MRS. LEENA R. WAGHULDE

HOD
MRS. MINAL T. KOLHE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

Department of Computer Engineering & I.T.

Academic Year 2018-19 SEM – I

SLOW LEARNERS AFTER ISE –I

CLASS : BE COMP **MARKS: 20**

ROLL NO.	NAME OF STUDENTS	AUP
NIL		

ROLL NO.	NAME OF STUDENTS	ACA
NIL		

ROLL NO.	NAME OF STUDENTS	ES
14	PATIL CHETAN B.	5
34	PATIL BHUSHAN	6

ROLL NO.	NAME OF STUDENTS	IP
10	CHAUDHARI NEHA	1
14	PATIL CHETAN B.	4
24	WAGH GAURAV S.	4
11	CHAUDHARI RAJNANDINI	5
32	NERKER SHUBHAM	2
19	PATIL SWATI Y.	3
8	BIRARI PRIYANKA R.	1
34	PATIL BHUSHAN	6
30	MAVCHI RIBKA FATTESING	4
16	PATIL MEGHA A.	6
27	YEOLE HARSHAL S.	6
28	JADHAV ARJUN J.	6

ROLL NO.	NAME OF STUDENTS	AIES
NIL		

ISE COORDINATOR
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MRS. MINAL T. KOLHE

K C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

Department Of Computer Engineering & I.T.

Academic Year 2018-19 SEM – I

FAST LEARNER AFTER ISE –I

CLASS : BE COMP **MARKS: 20**

ROLL NO.	NAME OF STUDENTS	AUP
	NIL	

ROLL NO.	NAME OF STUDENTS	ACA
1	CHAUDHARI KOMAL S.	18
5	PATIL SHRADDHA S.	18
2	CHAUDHARI YUVRAJ A.	17
15	PATIL CHHAYA G.	17
22	SONAWANE HARSHA	17
25	WANI PRANJALI S.	17

ROLL NO.	NAME OF STUDENTS	ES
6	SUTAR YAMINI U.	19
22	SONAWANE HARSHA	18
25	WANI PRANJALI S.	18
5	PATIL SHRADDHA S.	18
17	PATIL PRATIKSHA S.	18
4	NARKHEDE NEHA B.	17

ROLL NO.	NAME OF STUDENTS	IP
22	SONAWANE HARSHA	18

ROLL NO.	NAME OF STUDENTS	AIES
1	CHAUDHARI KOMAL S.	18
5	PATIL SHRADDHA S.	18
17	PATIL PRATIKSHA S.	18
18	PATIL ROHINI N.	18
25	WANI PRANJALI S.	18
2	CHAUDHARI YUVRAJ A.	17
3	KALE BHAVANA S.	17
6	SUTAR YAMINI U.	17
11	CHAUDHARI RAJNANDINI	17
22	SONAWANE HARSHA	17

ISE COORDINATOR
MRS. LEENA R. WAGHULDE

HOD
MRS. MINAL T. KOLHE

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K.C.E. SOC 'S COLLEGE OF ENGINEERING & I.T. JALGA - 425001
Department Of Computer Engineering & I.T.
Academic Year 2018-2019 SEM – I
REMEDIAL LECTURES AFTER [illegible] -1

BE COMPUTER

SUB- EMBEDDED SYSTEM

ROLL NO.	NAME OF STUDENTS	DATES														
		14/9	21/9	22/9	28/9	29/9	5/9	6/10	12/10	13/10						
1	PATIL CHETAN B.	P	P	P	P	P	P	A	P	P						
2	PATIL BHUSHAN	P.	P	P	A	P	P	P	A	P.						

SUBJECT INCHARGE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

Department Of Computer Engineering & I.T.
Academic Year 2018-2019 SEM – I
REMEDIAL LECTURES AFTER U[illegible]

BE COMPUTER

SUB- IMAGE PROCESSING

ROLL NO.	NAME OF STUDENTS	DATES														
		14/9	21/9	22/9	28/9	29/9	5/10	6/10	12/10	13/10						
1	CHAUDHARI NEHA	P	P	P	A	P	A	A	P	P						
2	PATIL CHETAN B.	P	P	P	P	P	P	P	A	P						
3	WAGH GAURAV S.	P	P	P	P	P	P	P	P	P						
4	CHAUDHARI RAJNANDINI	P	A	P	A	P	P	P	P	P						
5	NERKER SHUBHAM	P	P	P	P	A	P	P	P	P						
6	PATIL SWATI Y.	P	P	P	P	P	P	A	A	P						
7	SURYAWANSHI RAJENDRA	A	P	P	P	P	P	P	P	P						
8	BIRARI PRIYANKA R.	P	P	P	P	P	P	P	P	A						
9	PATIL AKSHAY	P	P	A	P	P	P	P	P	P						
10	PATIL BHUSHAN	P	P	P	A	P	A	P	P	P						
11	MAVCHI RIBKA FATTESING	P	P	P	P	P	P	P	P	P						
12	PATIL MEGHA A.	A	P	P	P	A	P	P	P	A						
13	YEOLE HARSHAL S.	P	P	A	P	P	P	P	P	P						
14	JADHAV ARJUN J.	P	P	P	P	P	P	P	P	P						

SUBJECT INCHARGE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

Department of Computer Engineering & I.T.

Academic Year 2018-19 SEM – I

FAST LEARNER ROLL LIST

CLASS : BE COMP

ROLL NO.	NAME OF STUDENTS
1	CHAUDHARI KOMAL S.
2	CHAUDHARI YUVRAJ A.
3	KALE BHAVANA S.
4	NARKHEDE NEHA B.
5	PATIL SHRADDHA S.
6	SUTAR YAMINI U.
11	CHAUDHARI RAJNANDINI
15	PATIL CHHAYA G.
17	PATIL PRATIKSHA S.
18	PATIL ROHINI N.
22	SONAWANE HARSHA
25	WANI PRANJALI S.

HOD

MRS. MINAL T. KOLHE

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K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

Department Of Computer Engineering & I.T.

Academic Year 2018-19 SEM – I

FAST LEARNER ACTIVITY

CLASS: BE COMPUTER

DATE:

ROLL NO.	NAME OF STUDENT	ACTIVITY 1 (20/09/2018)		ACTIVITY 2 (01/10/2018)		ACTIVITY 3 (04/10/2018)	
		TOPICS	REMARKS	TOPICS	REMARKS	TOPICS	REMARKS
1	CHAUDHARI KOMAL S.	Expert System	Completed	AI and Robotics	Completed	STUDY GATE QUESTION PAPER *2017 SET-2	Completed
2	CHAUDHARI YUVRAJ A.	Further AI impacts on society	Completed	IOT	Completed		Completed
3	KALE BHAVANA S.	Impulse Noise Reduction	Completed	Image Processing	Completed		Completed
4	NARKHEDE NEHA B.	Deep Learning	Completed	Image Processing	Completed		Completed
5	PATIL SHRADDHA S.	Natural Language Processing.	Completed	IOT	Completed		Completed
6	SUTAR YAMINI U.	Internet of Things.	Completed	Computer Network	Completed		Completed
11	CHAUDHARI RAJNANDINI	Pipelines overview	Completed	Software engineering and programming	Completed		Completed
15	PATIL CHHAYA G.	Compiler techniques for enhancing ILP	ABSENT	High-performance computing	Completed		Completed
17	PATIL PRATIKSHA S.	Building Knowledge For AI Agents With Reinforcement	Completed	Data Stucture	Completed		Completed
18	PATIL ROHINI N.	Neural Network Classifier	Completed	Machin Learning	Completed		Completed
22	SONAWANE HARSHA	Theory of memory models	Completed	Image Processing	Completed		Completed
25	WANI PRANJALI S.	Communicating embedded systems software and Design	Completed	Data Mining	Completed		Completed

ACTIVITY 1 (22/09/2018) : Fast learners were motivated to refer some extra out of syllabus advancements in the subject. (Mode: Lecture)

ACTIVITY 2 (29/09/2018): Study different refernece paper.

ACTIVITY 3 (04/10/2018): Solve GATE questions online to boost their thinking level.

COORDINATOR

MRS. LEENA R. WAGHULDE

HOD

MRS. MINAL T. KOLHE

K.C.E. SOCIETY'S COLLEGE OF

Department Of Computer Engineering & I.T.

Academic Year 2018-19 SEM – I

FAST LEARNER ACTIVITY

CLASS:BE COMPUTER Date: 22/09/2018

ROLL NO.	NAME OF STUDENT	ACTIVITY 1	
		TOPICS	REMARKS
1	CHAUDHARI KOMAL S.	Expert System	Completed
2	CHAUDHARI YUVRAJ A.	Future AI impacts on Society	completed
3	KALE BHAVANA S.	Impulse Noise Reduction	completed
4	NARKHEDE NEHA B.	Deep Learning	completed
5	PATIL SHRADDHA S.	Natural Language Processing	completed
6	SUTAR YAMINI U.	IOT	completed
11	CHAUDHARI RAJNANDINI	Pipelines overview	completed
15	PATIL CHHAYA G.	Compiler techniques for ILP	— ABSENT —
17	PATIL PRATIKSHA S.	Building knowledge for AI	completed
18	PATIL ROHINI N.	Neural N/W classifier.	completed
22	SONAWANE HARSHA	Theory of memory models	completed
25	WANI PRANJALI S.	communicating embedded system	completed

ACTIVITY 1 : Fast learners were motivated to refer some extra out of syllabus advancements in the subject. (Mode: Lecture or PPT)

COORDINATOR

MRS. LEENA R. WAGHULDE

HOD

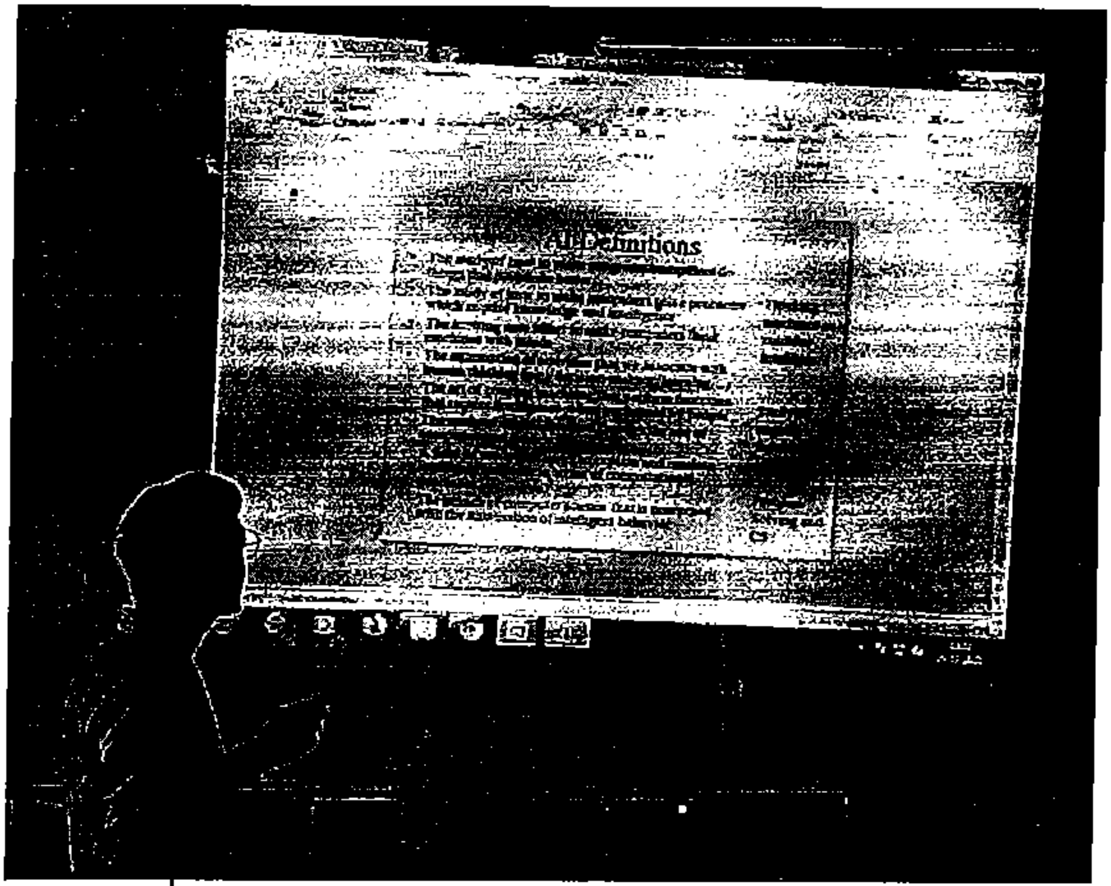
MRS. MINAL T. KOLHE

KCES's College of Engineering & IT Jalgaon
Activity Report

Name of The Activity : Fast Learner Activity 1 (BE COMP –SEM 1)			
Date:	**11/03/2019**	**Participants profile:**	Faculties Students

Objective for conducting activity	➢ Fast learner were motivated to refer some extra out of syllabus advancements in the subject.
Methodology	➢ Lecture was given by students.
Out Come	➢ Development of students skills and knowledge.

Photos:



Co-ordinator

HOD

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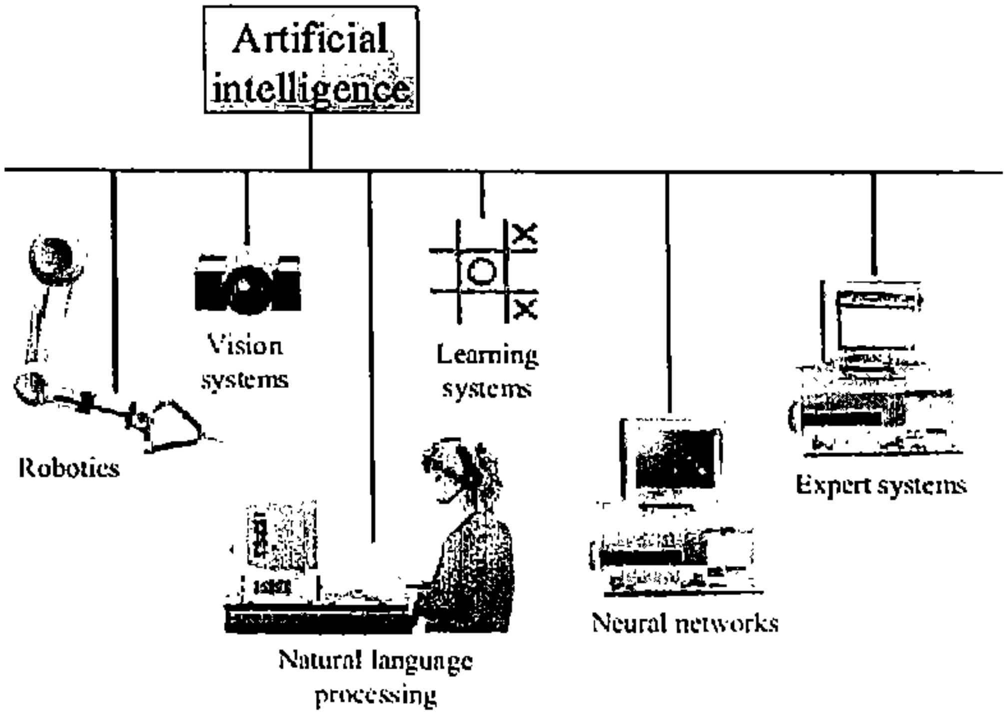
- 425001
Department of Computer Engineering & I.T.
Academic Year 2018-19 SEM - I

Expert systems

PRESENTED BY,
CHAUDHARI KOMAL S

Expert systems



Expert systems

- Expert systems are designed to solve real problems in a particular domain that normally would require a human expert. It can solve many types of problems
- Developing an expert system involves extracting relevant knowledge from human experts in the area of problem, called domain experts.

Components of Expert System

- Knowledge acquisition facility
- Knowledge base
- Knowledge-based management system
Inference engine
- Work space Explanation facility
- Reasoning capability
- User interface.

Characteristics

- Explain their reasoning or suggested decisions
- Display intelligent behaviour
- Draw conclusions from complex relationships
- Provide portable knowledge
- Expert system shell
- A collection of software packages and tools used to develop expert systems

Limitations of Expert Systems

- Not widely used or tested
- Limited to relatively narrow problems
- Cannot readily deal with “mixed” knowledge
- Possibility of error
- Cannot refine own knowledge base
- Difficult to maintain
- May have high development costs
- Raise legal and ethical concerns

Advantages of ES

- It enhances decision quality.
- It reduces the cost of consulting experts for problem solving.
- It provides quick and efficient solutions to problems in narrow area of specialization.
- It offers high reliability of expert suggestions or decisions.
- It gathers scarce expertise and uses it efficiently.
- It can tackle very complex problems that are difficult for human experts to solve.
- It can work on standard computer hardware.
- It can not only give solutions, but also the decision logic and how the solution was arrived at.

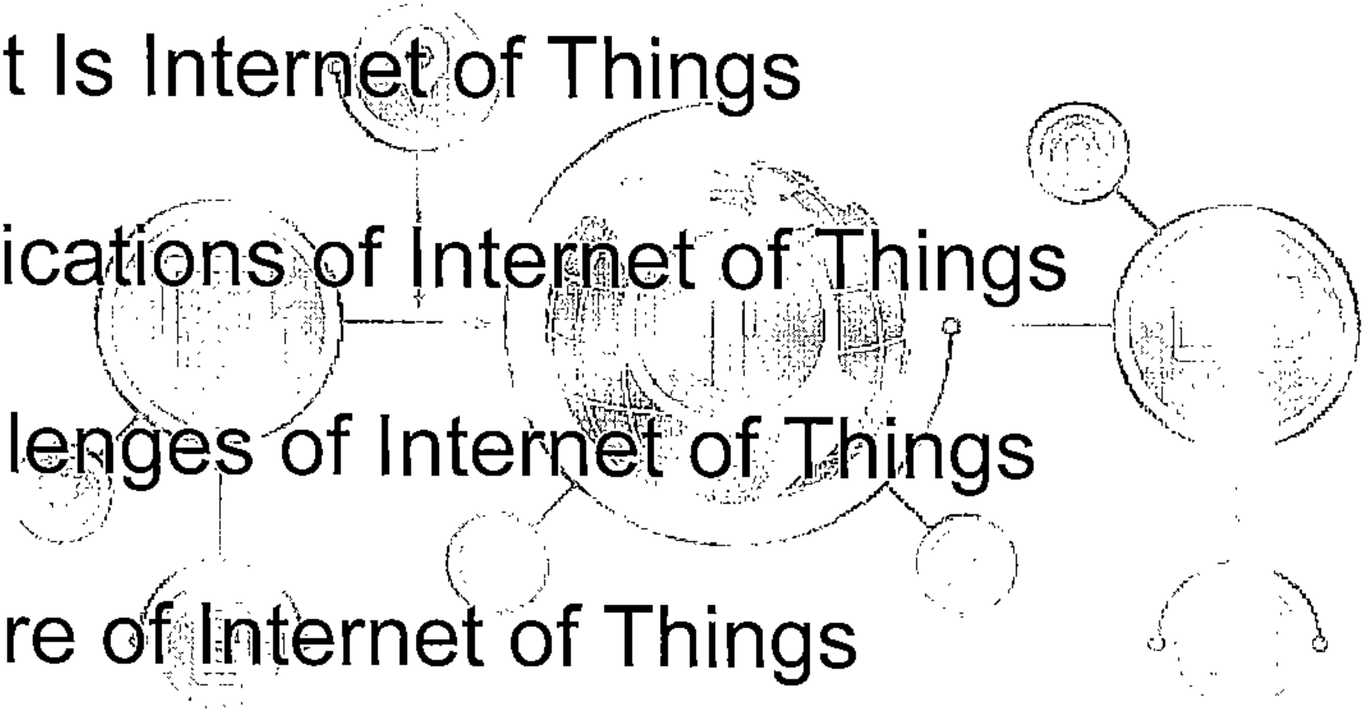
THANK YOU

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T.
JALGAON – 425001
Department of Computer Engineering & I.T.
Academic Year 2018-19 SEM – I

Expert systems

PRESENTED BY,
YAMINI SUTAR

What You Are Going To Know



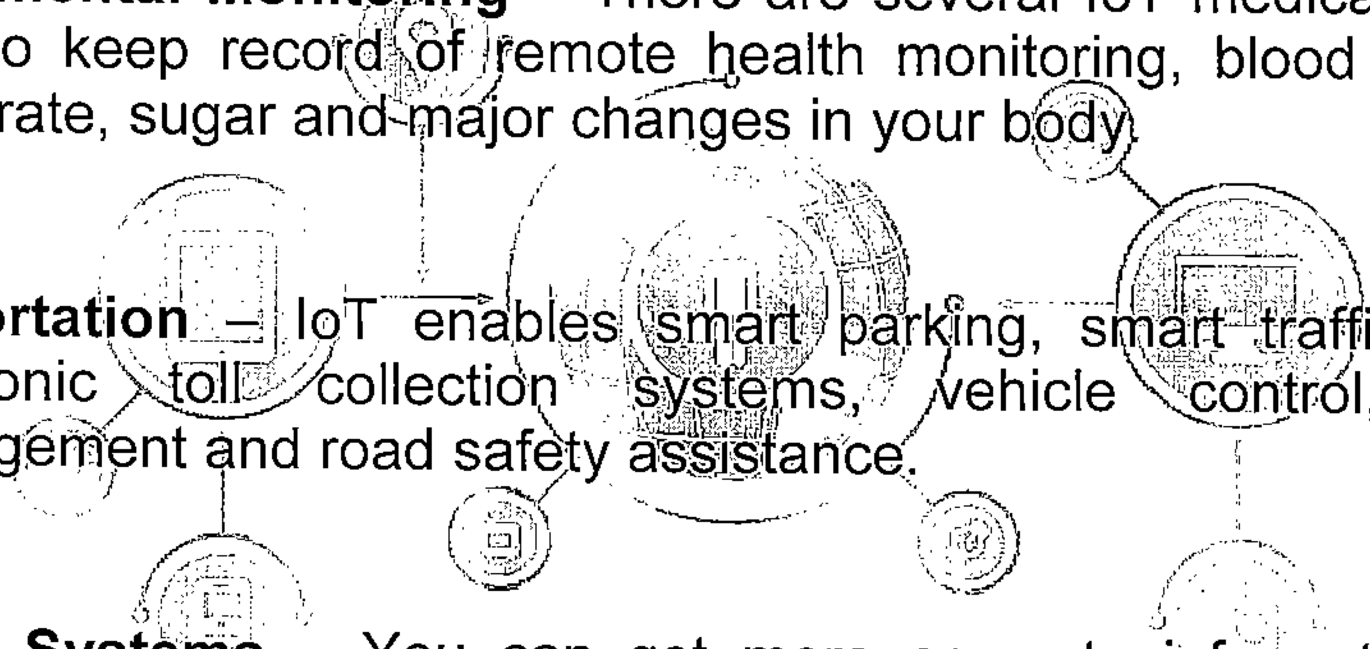
- What Is Internet of Things
- Applications of Internet of Things
- Challenges of Internet of Things
- Future of Internet of Things

What is Internet of Things

The Internet of Things (IoT) is a computing concept that describes a future where everyday physical objects will be connected to the Internet and be able to identify themselves to other devices. We can say that IoT is a network of physical objects which embedded with software, electronics, sensors and connectivity to enable it to achieve greater value and services by exchanging data with the manufacturer, operator or connected with other devices.

IoT is expected to offer advanced connectivity of devices, systems, and services that goes beyond machine-to-machine communication and covers a variety of protocols, domains, and applications

Applications of Internet of Things

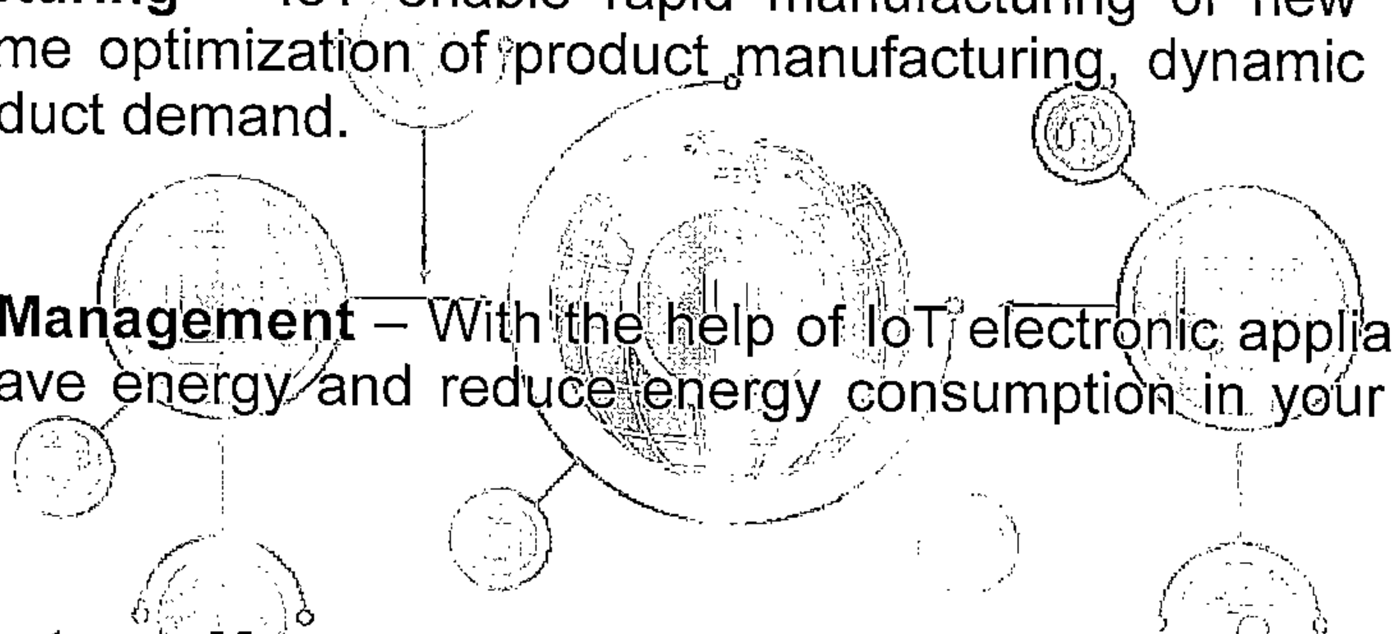


Enviornmental Monitoring – There are several IoT medical devices, able to keep record of remote health monitoring, blood pressure, heart rate, sugar and major changes in your body.

Transportation – IoT enables smart parking, smart traffic control, electronic toll collection systems, vehicle control, logistic management and road safety assistance.

Medical Systems – You can get more accurate information of air quality, water quality, soil conditions and atmospheric changes. IoT devices in this application typically span a large geographic area and can also be mobile.

Applications of Internet of Things



Manufacturing – IoT enable rapid manufacturing of new products, real-time optimization of product manufacturing, dynamic response of product demand.

Energy Management – With the help of IoT electronic appliances you can save energy and reduce energy consumption in your home or office.

Infrastructure Management – Big projects of urban and rural infrastructures like highways, bridges, railway tracks IoT can play an important role

Challenges of Internet of Things

Bandwidth – In addition to security and signaling, bandwidth usage is an another challenge for Internet of Things connectivity. On a cellular network, bandwidth is expensive and it becomes more complex when hundreds of thousands of IoT devices sens/receives signals to the server.

Power Consumption – When hundreds of IoT devices send or receive data between one another, then it takes a lot of power consumption as well as CPU consumption. So, you can't use 100% IoT devices with low power consumption and minimal battery drain.

Complexity – IoT application development is still very complex for the developers as well as experts. It is also the major challenge for the IoT application developers. IoT will be very effective with less complexity.

Future of Internet of Things

According to the Pew Research Center, “By 2025, there will be a global, immersive, invisible, ambient networked computing environment built through the continued proliferation of smart sensors, cameras, software, databases, and massive data centers in a world-spanning information fabric known as the Internet of Things."

Pew Research Center released this statement after the detailed overview which was based on the thoughts of the almost 1600 technology experts and IoT experts. So, by 2025 Internet of Things and wearable tech will start to play a major impact globally. Obviously our daily life will also affected by this revolutions of Internet of Things. It means the world will become “smart world” to live with high level technology.

THANK YOU

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING

Department Of Computer Engineering & I.T.

Academic Year 2018-19 SEM – I

FAST LEARNER ACTIVITY

CLASS:BE COMPUTER

Date: 29/09/2018

ROLL NO.	NAME OF STUDENT	ACTIVITY 2	
		TOPICS	REMARKS
1	CHAUDHARI KOMAL S.	AI & Robotics	submitted
2	CHAUDHARI YUVRAJ A.	IOT	submitted
3	KALE BHAVANA S.	Image Processing	submitted
4	NARKHEDE NEHA B.	Image Processing ✓	submitted
5	PATIL SHRADDHA S.	IOT	submitted
6	SUTAR YAMINI U.	computer Network	submitted
11	CHAUDHARI RAJNANDINI	S/W Engineering	submitted
15	PATIL CHHAYA G.	High Performance	submitted
17	PATIL PRATIKSHA S.	Data Structure	✓
18	PATIL ROHINI N.	Machin Learning	✓
22	SONAWANE HARSHA	Image Processing	✓
25	WANI PRANJALI S.	Data Mining.	✓

ACTIVITY 2 : Study different refernece paper and submit.

COORDINATOR

MRS. LEENA R. WAGHULDE

HOD

MRS. MINAL T. KOLHE

The Impact of Robotics and Automation on Working Conditions and Employment [Ethical, Legal, and Societal Issues]

Article *in* IEEE Robotics & Automation Magazine · June 2018

DOI: 10.1109/MRA.2018.[illegible]

5 authors, including:

Radhamadhavan Madhavan
SRM Institute of Science and Technology
79 PUBLICATIONS 1,199 CITATIONS
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Ludovic Righetti
New York University
153 PUBLICATIONS 4,809 CITATIONS
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William D. Smart
Oregon State University
149 PUBLICATIONS 2,329 CITATIONS
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The Impact of Robotics and Automation on Working Conditions and Employment

By Q.-C. Pham, R. Madhavan, L. Righetti, W. Smart, and R. Chatila

The IEEE Robotics and Automation Research and Practice Ethics Committee (RARPEC) is intended as a platform to exchange ideas and discuss the impacts and practice of robotics and automation (R&A) technologies in research, development, and deployment that appear to pose ethical questions for humanity. With increased awareness and controversies surrounding R&A, RARPEC is publishing a series of opinion pieces that will focus on separating hype from reality by providing an objective and balanced treatment of technological, ethical, legal, and societal perspectives. Second in the series, this piece focuses on topics related to robots, jobs, and workforce development. Please send your feedback and suggestions to the chair of the committee, Raj Madhavan, at raj.madhavan@ieee.org. We look forward to your comments!

As roboticists, we like to think that the fruits of our research—robots that are faster, more efficient, more agile, and more intelligent—can only benefit humanity. While this is certainly true for exploratory or disaster intervention robots, the case is more controversial for other types of robots such as those used for military purposes, as discussed in the previous article in the series [7]. In this article, we provide a quick overview of the concerns raised by the accelerated introduction of robotics and artificial intelligence (AI) technologies in all economic sectors and, in particular, its effects on working conditions and employment.

Robotics and Automation in the Workplace

Robots, like any machines introduced into the production process, have contrasting effects on workers. On the one hand, they can eliminate some harsh, unhealthy, or dangerous tasks. Consider for instance, the welding process in car manufacturing. Welding is certainly a hazardous activity for workers to perform, with deleterious short- and long-term effects ranging from irritations of the eyes, nose, ears, throat, and chest to pulmonary infections, heart diseases, and lung and throat cancers. The robot-based automation of welding in modern car manufacturing lines has significantly reduced health problems caused by welding. On the other hand, precisely because robots can automatically perform some tasks, they render the workers who previously performed those tasks "redundant" for production processes. This has multiple adverse effects for workers.

For example, workers rendered redundant by robots face the risk of being laid off. Since the first machines were introduced on a large scale at the beginning of the 19th century (the First Industrial Revolution), the layoff of redundant workers has been a common practice. An early and particularly tragic episode was the introduction of power looms in the United Kingdom during the first few decades of the 19th century. Skilled weavers were suddenly put in competition with machines that could weave better and faster. Facing wage reduction or replacement by machines operated by cheaper, unskilled workers, desperate weavers (later known as *Luddites*) waged a campaign of destruction targeted at the newly introduced machines. The response by the owner class was harsh: seventeen Luddites were hanged, many others were imprisoned, and the movement was quickly dispelled.

These days, even though strict labor regulations and strong workers' organizations in most developed countries may offer some protection against or procure compensation in the event of layoffs, such technological layoffs and their adverse effects on the lives of the concerned workers seem inevitable. Indeed, when the management of a company considers introducing robots, its chief concern is not whether the robots are based on a fancy new technology or whether they will improve workers' welfare; it is profitability. In this view, keeping redundant workers simply does not make economic sense.

Additionally, workers who retain their jobs alongside robots might not always see their working conditions improve. Consider, for instance, the Amazon warehouses into which robots have been introduced on a massive scale over the past few years; because the robots are so fast and so consistent, their pace can be set arbitrarily and is, in fact, imposed on the workers. A journalist working undercover in an Amazon warehouse testifies:

> Alone in a locked metal cage, ten feet from my nearest colleague,

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Digital Object Identifier 10.1109/MRA.2018.2822058
Date of publication: 13 June 2018

> a robot approaches from the shadows and thrusts a tower of shelves toward me. I have nine seconds to grab and process an item to be sent for packing, a target of 300 items an hour, for hour after relentless hour. As I bend to the floor then reach high above my head to fulfill a never-ending stream of orders, my body screams at me [8].

Far from the image of robots serving humans, the reality is, in fact, the other way round: "...(human) staff are just cattle, there to serve robots" [8].

But would the increased work intensity be compensated for by higher salaries or shorter working hours? In fact, a detailed study of the effects of robot densification in 14 industries across 17 developed countries during the period of 1993–2007 shows that low- and middle-skilled workers actually suffered salary reduction with the introduction of robots, as illustrated in Table 7 in [5]. The same study shows that there was no significant reduction in the number of working hours.

Global Effects of Robotics and Automation: Toward a Jobless Society?

As discussed in the "Robotics and Automation in the Workplace" section, the impact of robotics and automation on the welfare of individual workers is far from entirely positive, but what are its long-term effects on all of society, particularly with regard to employment?

Interestingly, only a few decades after the Luddite revolt, the perspective of entirely automatic production, without any human intervention, started to be formulated. Andrew Ure, an early business theorist, thus contemplated "the most perfect manufacture [...] which dispenses entirely with manual labor" [9]. That perspective has not, however, materialized. As more tasks became automated, an even larger number of new tasks, made necessary by new products or entirely new economic sectors, was created that required human labor.

Yet, due to the rapid progress of robotics and AI technologies in the past few years, the perspective of a jobless society, in which all work is performed by robots and no jobs are left for humans, has begun to capture considerable attention from the general public. Alarmist articles about a jobless future abound in the mainstream media, based significantly on scholarly literature. For instance, a widely cited report by Oxford economists predicts that up to 47% of total U.S. employment is at risk of being taken away by automation [4]. In a recent and well-documented book, technologist Martin Ford argues that, contrary to the development of automation up until now, automation today, because of its cognitive capability, carries an actual threat of massive job destruction over the coming decades [3]. However, there are also studies that make much less dramatic predictions. In fact, as highlighted in a recent *MIT Technology Review* survey, there is no consensus among economists and technologists about the degree and timeline of job eliminations resulting from automation [10]. Furthermore, the effects of robotics and AI on the norms of work and employment, and the associated concerns in developing economies (the so-called global south), are even less well understood because their societal acceptance and assimilation differ significantly between developed and developing economies. In labor-intensive economies (for example, the BRICS countries, i.e., Brazil, Russia, India, China, and South Africa), the effects of automation would be felt much more steeply in the coming decade. While labor may still be cheap in developing economies, automation in developed countries will offset this advantage, thereby possibly resulting in significant adverse effects on workforces in developing countries.

The number of robots in factories has been rising quickly, and robotics technologies have been introduced into many sectors beyond manufacturing, e.g., surgical or rehabilitation robots in hospitals, service robots, self-driving cars, and so on. However, from a roboticists' perspective, there is still a very long way to go before robots can totally replace humans. For example, outside of the structured environments of factory assembly lines, robot locomotion and manipulation capabilities are still very limited. During the 2015 Defense Advanced Research Projects Agency Robotics Challenge, robots (teleoperated by humans and so not even autonomous!) from the best research labs around the world had trouble performing tasks that most humans would find trivial. Even the simple task of grasping and manipulating a previously unknown object in-hand is still the subject of intense academic research. Moreover, the robots already deployed in factories still require an enormous amount of reprogramming when facing a slightly different task. They are far from being able to automatically learn to perform new tasks by themselves or from human demonstration.

Finally, the discussion of automation and employment should not be centered only on the number of jobs lost; it should also deal with the changing nature of work because of the automatability and functional description of tasks. In the Fourth Industrial Revolution, the emphasis is on how machines and humans can work together so that repetitive and dangerous tasks can be relegated to machines and automated systems. This augmented collaborative workforce is the wave of the future and has enormous implications for employment in the automation age. It will redefine the relations between workers, their crafts, and their working environments. On the one hand, workers can focus on aspects that require creativity, social skills, and emotional intelligence; on the other, this could also have a dehumanizing effect if workers' activities are subjugated to robots' behaviors.

Proposed Solutions to Address Unemployment Caused by Automation

Although the degree and timeline of job eliminations caused by automation are still debated, there is a consensus that, in the present global context of stagnant and interdependent economies, automation will inevitably take away a significant number of jobs. This means that, in the next few years and decades, many workers will lose their jobs to robots, while those keeping their jobs will experience increased physical and psychological pressure and still more will face unemployment due to the lack of jobs. A number of solutions have been proposed to address these problems.

An important consideration is to raise the level of workers' education (both initially and continuing) so that they can undertake the higher-level jobs required by automation. Training programs to develop new, requisite skill sets available across the spectrum of the workforce, and not just for low-skilled workers, could be mandated. Such programs could be funded by public–private partnerships and made available for workers who are still employed and those who are in between jobs.

Universal basic income (UBI) is another concept proposed to address technological unemployment, with all of a country's citizens or residents unconditionally receiving sufficient regular amounts of money that will enable them to live. Additionally, there would be no requirement for people to work or look for work. There are many versions of UBI, differing widely in terms of the proposed income amount and the funding source. In any case, for such a system to provide decent living conditions for everyone in a country (and, beyond, in every country), the amount of funding required is likely to be very significant. As a result, there is a significant and complex debate about how UBI could be funded, whether such a system could be sustainable at all, and the effects it would have on the economy.

The notion of robot taxes has been proposed as another alternative to deal with the potential unemployment created by automation. The basic idea, as suggested by Bill Gates [1], is to tax corporations and entities deploying robots that cause job losses. The tax income could then be used to offset the economic hardships experienced by laid-off workers or retrain them so that they can be reassimilated into the workforce. In that vein, a motion (eventually rejected) in the European Union Parliament in 2017 proposed "levying tax on the work performed by a robot or a fee for using and maintaining a robot should be examined in the context of funding the support and retraining of unemployed workers whose jobs have been reduced or eliminated" [2]. Robot taxes have certainly met criticisms from a number of economists. For instance, Larry Summers [6] argued that there are no fundamental differences between robots and any technologies that may cause job losses (including Bill Gates's software); yet there are no specific taxes on such technologies. Thus, taxing robots would amount to another tax on capital, which most capitalists would oppose.

More generally, socioeconomic, political, and resource constraints should be carefully considered when emerging technologies are deployed because there is a potential for unintended consequences such as tilting economic and power structures to unduly benefit certain segments of society, resulting in new gaps and/or exacerbating existing inequities. There are time-sensitive challenges regarding how developing nations, with their potentially low-technology classroom-centric curricula, can be provided with the technical expertise that would allow for the introduction and absorption of these cutting-edge technologies.

Robotics and automation carries the wonderful promise of liberating humanity from toil. In an ideal society, most of the repetitive, unhealthy, and uninteresting work would be fulfilled by robots, while humans would spend a limited amount of time every day on work (including deciding what the robots should do) and the rest of the time on creative activities. From a technical viewpoint, this future is certainly possible, yet both the current situation and the outlook pictured by many reports are gloomy. Robots now tend to be perceived by a portion of the general public as a threat, instead of as a fantastic liberation tool. Why is this so?

In the current economic system where robots are owned by a minority, the gains in productivity they permit (e.g., higher wages and fewer working hours) are not likely to be shared by the working majority; rather, robots would be seen as the reason for humans' job losses. Therefore, to reach the ideal society that most robotics researchers have in mind, the notion of who owns the robots, the working majority or a minority of capitalists, might just be the decisive question.

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[1] K. J. Delaney. (2017, Feb. 17). The robot that takes your job should pay taxes says Bill Gates. *Quartz*. [Online]. Available: https://qz.com/911968/bill-gates-the-robot-that-takes-your-job-should-pay-taxes/

[2] European Parliament. (2018, May 16). Report to European Parliament resolution with recommendations to the Commission on Civil Law Rules on Robotics. [Online]. Available: https://tinyurl.com/EPreport2017

[3] M. Ford, *Rise of the Robots: Technology and the Threat of a Jobless Future*. New York: Basic Books, 2015.

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Scientific Research Publishing

Internet of Things (IoT): A Literature Review

Somayya Madakam, R. Ramaswamy, Siddharth Tripathi

IT Applications Group, National Institute of Industrial Engineering (NITIE), Vihar Lake, Mumbai, India
Email: somu4smart@gmail.com, ramaswamy2008@gmail.com, siddharth.iiita@gmail.com

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Abstract

One of the buzzwords in the Information Technology is Internet of Things (IoT). The future is Internet of Things, which will transform the real world objects into intelligent virtual objects. The IoT aims to unify everything in our world under a common infrastructure, giving us not only control of things around us, but also keeping us informed of the state of the things. In Light of this, present study addresses IoT concepts through systematic review of scholarly research papers, corporate white papers, professional discussions with experts and online databases. Moreover this research article focuses on definitions, geneses, basic requirements, characteristics and aliases of Internet of Things. The main objective of this paper is to provide an overview of Internet of Things, architectures, and vital technologies and their usages in our daily life. However, this manuscript will give good comprehension for the new researchers, who want to do research in this field of Internet of Things (Technological GOD) and facilitate knowledge accumulation in efficiently.

Keywords

Internet of Things, IoT, RFID, IPv6, EPC, Barcode, Wi-Fi, Bluetooth, NFC, ZigBee, Sensors, Actuators

1. Introduction

"The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it" was Mark Weiser's central statement in his seminal paper [Weis 91] in Scientific American in 1991. There is a sea change in human's daily life as well as in working conditions in organizations after the arrival of IT and ITeS technologies. This is becoming well-known concept across many horizontal and vertical markets including a common man's everyday life in the society, as it has several applications. The development of the Internet of Things [IoT] has been primarily driven by needs of large corporations that stand to benefit greatly from the foresight and predictability afforded by the ability to follow all objects through the commodity chains in which they are embedded [1]. The ability to code and track objects has allowed companies to become more efficient, speed up processes, reduce error, prevent theft, and incorporate complex and flexible organizational systems through IoT [2]. The IoT is a technological revolution that represents the future of computing and communications, and its development depends on dynamic technical innovation in a number of important fields, from wireless sensors to nanotechnology. They are going tag the each object for

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identifying, automating, monitoring and controlling.

2. Internet of Things

The Internet of Things is a novel paradigm shift in IT arena. The phrase "Internet of Things" which is also shortly well-known as IoT is coined from the two words i.e. the first word is "Internet" and the second word is "Things". The Internet is a global system of interconnected computer networks that use the standard Internet protocol suite (TCP/IP) to serve billions of users worldwide. It is a network of networks that consists of millions of private, public, academic, business, and government networks, of local to global scope, that are linked by a broad array of electronic, wireless and optical networking technologies [3]. Today more than 100 countries are linked into exchanges of data, news and opinions through Internet. According to Internet World Statistics, as of December 31, 2011 there was an estimated 2, 267, 233, 742 Internet users worldwide (Accessed data dated on 06/06/2013: from the Universal Resource Location http://www.webopedia.com/TERM/I/Internet.html). This signifies 32.7% of the world's total population is using Internet. Even Internet is going into space through Cisco's Internet Routing in Space (IRIS) program in the coming fourth years (Accessed on 10/05/2012: (http://www.cisco.com/web/strategy/government/space-routing.html). While coming to the Things that can be any object or person which can be distinguishable by the real world. Everyday objects include not only electronic devices we encounter and use daily and technologically advanced products such as equipment and gadgets, but "things" that we do not do normally think of as electronic at all—such as food, clothing; and furniture; materials, parts and equipment, merchandise and specialized items; landmarks, monuments and works of art and all the miscellany of commerce, culture and sophistication [4]. That means here things can be both living things like person, animals—cow, calf, dog, pigeons, rabbit etc., plants—mango tree, jasmine, banyan and so on and nonliving things like chair, fridge, tube light, curtain, plate etc. any home appliances or industry apparatus. So at this point, things are real objects in this physical or material world.

2.1. Definitions

There is no unique definition available for Internet of Things that is acceptable by the world community of users. In fact, there are many different groups including academicians, researchers, practitioners, innovators, developers and corporate people that have defined the term, although its initial use has been attributed to Kevin Ashton, an expert on digital innovation. What all of the definitions have in common is the idea that the first version of the Internet was about data created by people, while the next version is about data created by things. The best definition for the Internet of Things would be:

> "An open and comprehensive network of intelligent objects that have the capacity to auto-organize, share information, data and resources, reacting and acting in face of situations and changes in the environment"

Internet of Things is maturing and continues to be the latest, most hyped concept in the IT world. Over the last decade the term Internet of Things (IoT) has attracted attention by projecting the vision of a global infrastructure of networked physical objects, enabling anytime, anyplace connectivity for anything and not only for any one [4]. The Internet of Things can also be considered as a global network which allows the communication between human-to-human, human-to-things and things-to-things, which is anything in the world by providing unique identity to each and every object [5]. IoT describes a world where just about anything can be connected and communicates in an intelligent fashion that ever before. Most of us think about "being connected" in terms of electronic devices such as servers, computers, tablets, telephones and smart phones. In what's called the Internet of Things, sensors and actuators embedded in physical objects—from roadways to pacemakers—are linked through wired and wireless networks, often using the same Internet IP that connects the Internet. These networks churn out huge volumes of data that flow to computers for analysis. When objects can both sense the environment and communicate, they become tools for understanding complexity and responding to it swiftly. What's revolutionary in all this is that these physical information systems are now beginning to be deployed, and some of them even work largely without human intervention. The "Internet of Things" refers to the coding and networking of everyday objects and things to render them individually machine-readable and traceable on the Internet [6]-[11]. Much existing content in the Internet of Things has been created through coded RFID tags and IP addresses linked into an EPC (Electronic Product Code) network [12].

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2.2. Genesis

The Internet of Things is a technological revolution that represents the future of computing and communications, and its development depends on dynamic technical innovation in a number of important fields, from wireless sensors to nanotechnology (Accessed dated on 20/04/2013 from URL: http://www.ieccr.net/comsoc/ijcis/). The first Internet appliance was a Coke machine at Carnegie Melon University in the early 1980s. Programmers working several floors above the vending machine wrote a server program that chased how long it had been since a storage column in the machine had been unfilled. The programmers could connect to the machine over the Internet, check the status of the machine and determine whether or not there would be a cold drink awaiting them, should they decide to make the trip down to the machine. Though the buzzword "Internet of Things" evolution was set out a way back in 1980's with coffee vending machine, the original term is coined by Kevin Auston, the Executive Director of Auto-ID Labs in MIT in 1999. The concept of IoT first became very popular through the Auto-ID centre in 2003 and in related market analysts publications. Right from the beginning the Internet of Things evolution started, there were many things or objects connected to the internet for the different applications through diverse technologies depending on the type of object for the comfort ability of Human.

2.3. Time Series

Accessed from the URL dated on 24/3/2013: http://postscapes.com/internet-of-things-history.

1999: The term Internet of Things is coined by Kevin Ashton, Executive Director of the Auto-ID Center in Massachute Institute of Technology (MIT)

1999: Neil Gershenfeld first time spoken about IoT principles in his book titled "When Things Start to Think"

1999: MIT Auto-ID Lab, originally founded by Kevin Ashton, David Brock and Sanjay Sarma in this year. They helped to develop the Electronic Product Code

2000: LG announced its first Internet of refrigerator plans

2002: The Ambient Orb created by David Rose and others in a spin-off from the MIT Media Lab is released into wild with NY Times Magazine naming it as one of the Ideas of Year

(2003-2004): RFID is deployed on a massive scale by the US Department of Defense in their Savi program and Wal-Mart in the commercial world

2005: The UN's International Telecommunications Union (ITU) published its first report on the Internet of Things topic

2008: Recognition by the EU and the First European IoT conference is held

2008: A group of companies launched the IPSO Alliance to promote the use of IP in networks of "Smart Objects" and to enable the Internet of Things

2008: The FCC voted 5-0 to approve opening the use of the 'white space' spectrum

(2008-2009): The IoT was born according to Cisco's Business Solutions Group

2008: US National Intelligence Council listed the IoT as one of the 6 "Disruptive Civil Technologies" with potential impacts on US interests out to 2025

2010: Chinese Premier Wen Jiabao calls the IoT a key industry for China and has plans to make major investments in Internet of Things

2011: IPv6 public launch-The new protocol allows for 340, 282, 366, 920, 938, 463, 463, 374, 607, 431,768, 211, 456 (2^{128}) addresses

2.4. Aliases

Different people calling Internet of Things with different names but the objective of IoT is same in the broad sense. The aliases of Internet of Things includes Web of Things, Internet of Objects, Embedded Intelligence, Connected Devices and Technology Omnipotent, Omniscient and Omnipresent. In addition to these, it has also calling as counting (1) Cyber Physical Systems "Integrations of computation and physical processes", in which bringing the real and virtual worlds together (2) Pervasive Computing is a computer environment in which virtually every object has processing power with wireless or wired connections to a global network (3) Ubiquitous Computing or Calm technology, where technology becomes virtually invisible in our lives (4) Machine-to-Machine Interaction means no human intervention whilst devices are communicating end-to-end (5) Human-Computer Interaction involves the study, planning, and design of interaction between people and computers (6)

Ambient Intelligence is a developing technology that will increasingly make our everyday environ- ment sensitive and responsive.

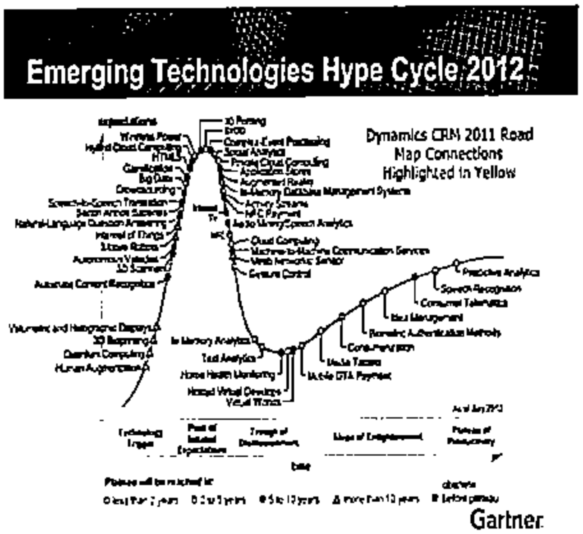
2.5. Requirements

For successful implementation of Internet of Things (IoT), the prerequisites are (a) Dynamic resource demand (b) Real time needs (c) Exponential growth of demand (d) Availability of applications (e) Data protection and user privacy (f) Efficient power consumptions of applications (g) Execution of the applications near to end users (h) Access to an open and inter operable cloud system.

According to another author, there are three components, which required for seamless Internet of Things (IoT) computing (a) Hardware—composed of sensors, actuators, IP cameras, CCTV and embedded communication hardware (b) Middleware—on demand storage and computing tools for data analytics with cloud and Big Data Analytics (c) Presentation—easy to understand visualization and interpretation tools that can be designed for the different applications.

2.6. Gartner's Hype cycle

Garter's Information Technology Hype Cycle [13] is a way to represent emergence, adoption, maturity and impact on applications of specific technologies (2) In the adjacent graph, X- axis denotes expectations and Y- axis denotes time factors (3) Internet of Things has been identified as one of the emerging technologies in Internet of Things as noted in Gartner's IT Hype Cycle (4) It has been forecasted that IoT will takes around 5-10 years for market adoption as of the 2012. See the picture for data.



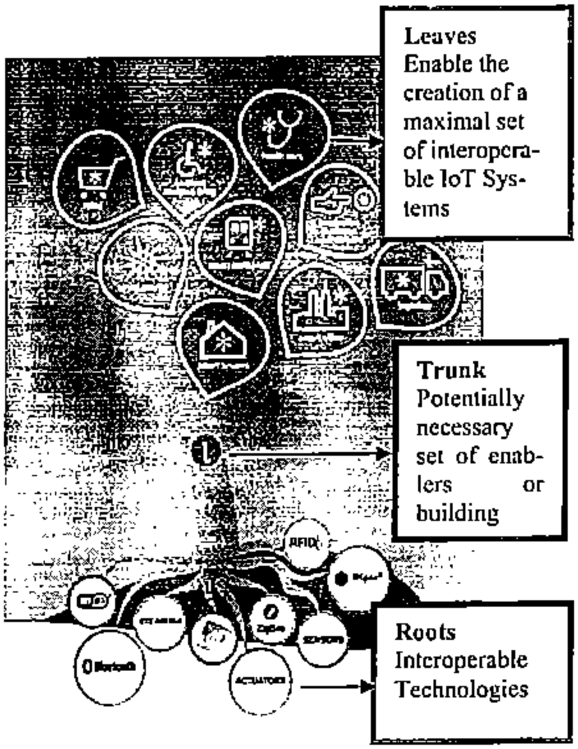
http://www.wired.com/2012/10/gartner-hype-cycle-2012

3. Architectures

One of the main problems with the IoT is that it is so vast and such a broad concept that there is no proposed, uniform architecture. In order for the idea of IoT to work, it must consist of an assortment of sensor, network, communications and computing technologies, amongst others [14]. Here, some of IoT architectures or models are given by several researchers, authors and practitioners.

3.1. European FP7 Research Project

(1) This is to be used as a blueprint for IoT concrete architecture design; (2) Model: Architectural Reference Model (ARM); (3) Developed By: Project partners of the European FP7 Research Project IoT-A; (4) Derived From: Business considerations, application-based requirements and current technologies.



3.2. ITU Architecture

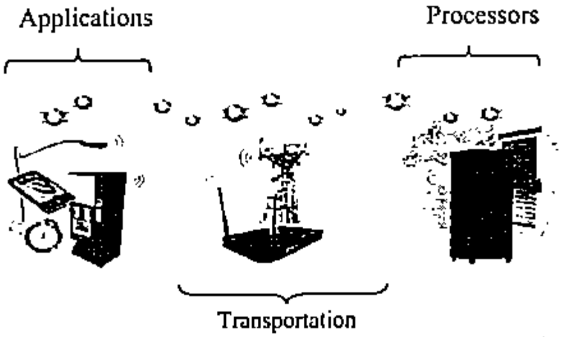
According to the recommendations of the International Telecommunication Union (ITU), the network, Architecture of Internet of Things consists of

(a) The Sensing Layer
(b) The Access Layer
(c) The Network Layer
(d) The Middleware Layer
(e) The Application Layers

These are like the Open Systems Interconnection (OSI) reference model in network and data communication.

3.3. IoT Forum Architecture

The IoT Forum says that the Internet of Things Architecture is basically categorized into 3 types including Applications, Processors and Transpiration.



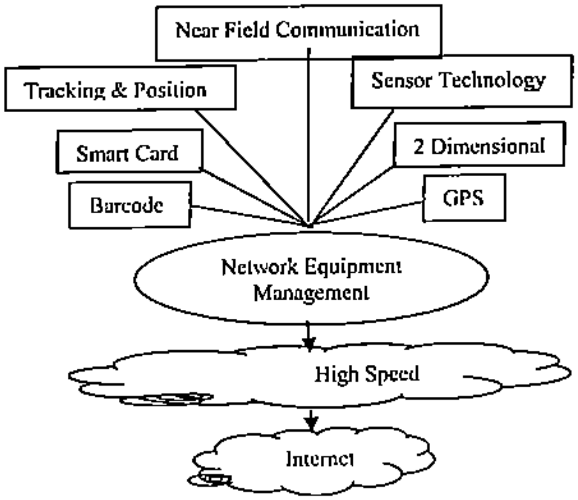
Accessed dated on 2/09/2014 from http://iotaforum.com/.

3.4. Qian Xiaocong, Zhang Jidong Architecture

According to Qian Xiaocong and Zhang Jidong (2012), the traditional IoT is formed by three layers. The bottom is perception layer, whose function is cognizing and collecting information of objects. The middle is transportation layer which consists of OFC, mobile phone networks, and fixed telephone networks, broadcasting networks, and closed IP data networks for each carrier. And finally the top is application layer, where abundant applications run. Typical applications include in this layer are smart traffic, precise agriculture, intelligent logistics, smart industry, environment protection, mining monitor, remote nursing, safety defense, smart government etc.

3.5. Kun Han, Shurong Liu, Dacheng Zhang and Ying Han's (2012)'s Architecture

In "Initially Researches for the Development of SSME under the Background of IoT", the model is



4. Technologies

The Internet of Things [15] was initially inspired by members of the RFID community, who referred to the possibility of discovering information about a tagged object by browsing an internet address or database entry that corresponds to a particular RFID or Near Field Communication [16] technologies. In the research paper "Research and application on the smart home based on component technologies and Internet of Things", the included key technologies of IoT are RFID, the sensor technology, nano technology and intelligence embedded technology. Among them, RFID is the foundation and networking core of the construction of Internet of Things [17]. The Internet of Things (IoT) enabled users to bring physical objects into the sphere of cyber world. This was made possible by different tagging technologies like NFC, RFID and 2D barcode which allowed physical objects to be identified and referred over the internet [18]. IoT, which is integrated with Sensor Technology and Radio Frequency Technology, is the ubiquitous network based on the omnipresent hardware resources of Internet, is the Internet contents objects together. It is also a new wave of IT industry since the application of computing fields, communication network and global roaming technology had been applied. It involves in addition to sophisticated technologies of computer and communication network outside, still including many new supporting technologies of Internet of Things, such as collecting Information Technology, Remote Communication Technology, Remote Information Transmission Technology, Sea Measures Information Intelligence Analyzes and Controlling Technology etc. [19].

4.1. Radio Frequency Identification (RFID)

Radio Frequency Identification (RFID) is a system that transmits the identity of an object or person wirelessly using radio waves in the form of a serial number [20]. First use of RFID device was happened in 2nd world war in Brittan and it is used for Identify of Friend or Foe in 1948. Later RFID technology is founded at Auto-ID center in MIT in the year 1999. RFID technology plays an important role in IoT for solving identification issues of objects around us in a cost effective manner [5]. The technology is classified into three categories based on the method of power supply provision in Tags: Active RFID, Passive RFID and Semi Passive RFID. The main components of RFID are tag, reader, antenna, access controller, software and server. It is more reliable, efficient, secured; inexpensive and accurate. RFID has an extensive range of wireless applications such as distribution, tracing, patient monitoring, military apps etc. [21].

4.2. Internet Protocol (IP)

Internet Protocol (IP) is the primary network protocol used on the Internet, developed in 1970s. IP is the principal communications protocol in the Internet protocol suite for relaying datagrams across network boundaries. The two versions of Internet Protocol (IP) are in use: IPv4 and IPv6. Each version defines an IP address differently. Because of its prevalence, the generic term IP address typically still refers to the addresses defined by IPv4. There are five classes of available IP ranges in IPv4: Class A, Class B, Class C, Class D and Class E, while only A, B, and C are commonly used. The actual protocol provides for 4.3 billion IPv4 addresses while the IPv6 will significantly augment the availability to 85,000 trillion addresses [22]. IPv6 is the 21st century Internet Protocol. This supports around for 2^{128} addresses.

4.3. Electronic Product Code (EPC)

Electronic Product Code (EPC) is a 64 bit or 98 bit code electronically recorded on an RFID tag and intended to design an improvement in the EPC barcode system. EPC code can store information about the type of EPC, unique serial number of product, its specifications, manufacturer information etc. EPC was developed by Auto-ID centre in MIT in 1999. EPCglobal Organisation [Wikipedia, "EPCglobal", 2010] which is responsible for standardization of Electronic Product Code (EPC) technology, created EPCglobal Network [Wikipedia, "EPCglobal Network", 2010] for sharing RFID information. It has four components namely Object Naming Service (ONS), EPC Discovery Service (EPCDS), EPC Information Services (EPCIS) and EPC Security Services (EPCSS).

4.4. Barcode

Barcode is just a different way of encoding numbers and letters by using combination of bars and spaces of varying width. Behind Bars [23] serves its original intent to be descriptive but is not critical. In The Bar Code Book, Palmer (1995) acknowledges that there are alternative methods of data entry techniques. Quick Response (QR) Codes the trademark for a type of matrix barcode first designed for the automotive industry in Japan. Bar codes are optical machine-readable labels attached to items that record information related to the item. Recently, the QR Code system has become popular outside the automotive industry due to its fast readability and greater storage capacity compared to standard. There are 3 types of barcodes of Alpha Numeric, Numeric and 2 Dimensional. Barcodes are designed to be machine readable. Usually they are read by laser scanners, they can also be read using a cameras.

4.5. Wireless Fidelity (Wi-Fi)

Wireless Fidelity (Wi-Fi) is a networking technology that allows computers and other devices to communicate over a wireless signal. Vic Hayes has been named as father of Wireless Fidelity. The precursor to Wi-Fi was invented in 1991 by NCR Corporation in Nieuwege in the Netherland. The first wireless products were brought on the market under the name WaveLAN with speeds of 1 Mbps to 2 Mbps. Today, there are nearly pervasive Wi-Fi that delivers the high speed Wireless Local Area Network (WLAN) connectivity to millions of offices, homes, and public locations such as hotels, cafes, and airports. The integration of Wi-Fi into notebooks, handhelds and Consumer Electronics (CE) devices has accelerated the adoption of Wi-Fi to the point where it is nearly a default in these devices [24]. Technology contains any type of WLAN product support any of the IEEE 802.11 together with dual-band, 802.11a, 802.11b, 802.11g and 802.11n. Nowadays entire cities are becoming Wi-Fi corridors through wireless APs.

4.6. Bluetooth

Bluetooth wireless technology is an inexpensive, short-range radio technology that eliminates the need for pro-

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prietary cabling between devices such as notebook PCs, handheld PCs, PDAs, cameras, and printers and effective range of 10 - 100 meters. And generally communicate at less than 1 Mbps and Bluetooth uses specifi- cation of IEEE 802.15.1 standard. At first in 1994 Ericson Mobile Communication company started project named "Bluetooth". It is used for creation of Personal Area Networks (PAN). A set of Bluetooth devices sharing a common channel for communication is called Piconet. This Piconet is capable of 2 - 8 devices at a time for data sharing, and that data may be text, picture, video and sound. The Bluetooth Special Interest Group comprises more than 1000 companies with Intel, Cisco, HP, Aruba, Intel, Ericson, IBM, Motorola and Toshiba.

4.7. ZigBee

ZigBee is one of the protocols developed for enhancing the features of wireless sensor networks. ZigBee technology is created by the ZigBee Alliance which is founded in the year 2001. Characteristics of ZigBee are low cost, low data rate, relatively short transmission range, scalability, reliability, flexible protocol design. It is a low power wireless network protocol based on the IEEE 802.15.4 standard [25]. ZigBee has range of around 100 meters and a bandwidth of 250 kbps and the topologies that it works are star, cluster tree and mesh. It is widely used in home automation, digital agriculture, industrial controls, medical monitoring &power systems.

4.8. Near Filed Communication (NFC)

Near Field Communication (NFC) is a set of short-range wireless technology at 13.56 MHz, typically requiring a distance of 4 cm. NFC technology makes life easier and more convenient for consumers around the world by making it simpler to make transactions, exchange digital content, and connect electronic devices with a touch. Allows intuitive initialization of wireless networks and NFC is complementary to Bluetooth and 802.11 with their long distance capabilities at a distance circa up to 10 cm. It also works in dirty environment, does not require line of sight, easy and simple connection method. It is first developed by Philips and Sony companies. Data exchange rate now days approximately 424 kbps. Power consumption during data reading in NFC is under 15ma.

4.9. Actuators

An actuator is something that converts energy into motion, which means actuators drive motions into mechanical systems. It takes hydraulic fluid, electric current or some other source of power. Actuators can create a linear motion, rotary motion or oscillatory motion. Cover short distances, typically up to 30 feet and generally communicate at less than 1 Mbps. Actuators typically are used in manufacturing or industrial applications. There are three types of actuators are (1) Electrical: ac and dc motors, stepper motors, solenoids (2) Hydraulic: use hydraulic fluid to actuate motion (3) Pneumatic: use compressed air to actuate motion. All these three types of actuators are very much in use today. Among these, electric actuators are the most commonly used type. Hydraulic and pneumatic systems allow for increased force and torque from smaller motor.

4.10. Wireless Sensor Networks (WSN)

A WSN is a wireless network consisting of spatially distributed autonomous devices using sensors to cooperatively monitor physical or environmental conditions, such as temperature, sound, vibration, pressure, motion or pollutants, at different locations (Wikipedia). Formed by hundreds or thousands of motes that communicate with each other and pass data along from one to another. A wireless sensor network is an important element in IoT paradigm. Sensor nodes may not have global ID because of the large amount of overhead and large number of sensors. WSN based on IoT has received remarkable attention in many areas, such as military, homeland security, healthcare, precision agriculture monitoring, manufacturing, habitat monitoring, forest fire and flood detection and so on [26]. Sensors mounted to a patient's body are monitoring the responses to the medication, so that doctors can measure the effects of the medicines [27].

4.11. Artificial Intelligence (AI)

Artificial Intelligence refers to electronic environments that are sensitive and responsive to the presence of people. In an ambient intelligence world, devices work in concert to support people in carrying out their everyday life activities in easy, natural way using Information and Intelligence that is hidden in the network connected devices. It is characterized by the following systems of characteristics (1) Embedded: Many Net- worked devices are integrated in to the environment (2) Context Aware: These devices can recognize you and your situational context (3) Personalized: They can be tailored to your needs (4) Adaptive: They can change in response to you (5) Anticipatory: They can anticipate your desires without conscious mediation.

5. Conclusions

IoT has been gradually bringing a sea of technological changes in our daily lives, which in turn helps to making our life simpler and more comfortable, though various technologies and applications. There is innumerable usefulness of IoT applications into all the domains including medical, manufacturing, industrial, transportation, education, governance, mining, habitat etc. Though IoT has abundant benefits, there are some flaws in the IoT governance and implementation level. The key observations in the literature are that (1) There is no standard definition in worldwide (2) Universal standardizations are required in architectural level (3) Technologies are varying from vendor-vendor, so needs to be interoperable (4) For better global governance, we need to build standard protocols. Let us hope future better IoT.

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A Survey of Image Processing and Identification Techniques

Sahil V. Khedaskar[1], Mohit A. Rokade[1], Bhargav R. Patil[1], Tatwadarshi P. N.[2]
[1]*(B.E. Computer Engineering, VIVA Institute of Technology/ Mumbai University, India)*
[2]*(Assistant Prof. Computer Engineering, VIVA Institute of Technology/ Mumbai University, India)*

Abstract : *Image processing is always an interesting field as it gives enhanced visual data for human simplification and processing of image data for transmission and illustration for machine preception. Digital images are processed to give better solution using image processing. Techniques such as Gray scale conversion, Image segmentation, Edge detection, Feature Extraction, Classification are used in image processing.*

In this paper studies of different image processing techniques and its methods has been conducted. Image segmentation is the initial step in many image processing functions like Pattern recognition and image analysis which convert an image into binary form and divide it into different regions. The technique used for segmentation is Otsu's method, K-means Clustering etc. For feature extraction feature vector in visual image is texture, shape and color. Edge detector with morphological operator enhances the clarity of image and noise free images. This paper also gives information about algorithm like Artificial Neural Network and Support Vector Mechanism used for image classification. The image is categorized into the receptive class by an ANN and SVM is used to compile all the categorized result. Overall the paper gives detail knowledge about the techniques used for image processing and identification.

Keywords – Extraction, Segmentation, Otsu's method, K-means, Edge detection, ANN, SVM, Active Shape model(ASM), GLCM, SIFT, Genetic algorithm, BIM, RGB Colour, BIM, Vein algorithm.

1. INTRODUCTION

Image processing is a technique to translate an image into digital form and execute some operation on it, in order to get an improved image or to retrieve useful data from image. It is a procedure of signal distribution. The process takes input as an image and then apply efficient algorithms, and the results may be image, data or features associated with that image [15]. The processing stages start with image segmentation. There is some desire from image segmentation algorithms. first of them is speed. While processing for segmentations of an image, it does not want to spend much time. The second is good shape integration of the object. This will enhance results in picture acknowledgment. If the result of shape is incomplete, it need to take many properties to record the edge of the over-section results [2].

In computer vision, picture division is the way toward parceling an advanced picture into various sections. The objective of division is to disentangle or potentially change the portrayal of a picture into something that is more important and less demanding to examine. Picture division is regularly used to find articles and limits in pictures. All the more absolutely, picture division is the way toward allotting a mark to each pixel in a picture to such an extent that pixels with a similar name share certain attributes [1].

Division is generally the essential stage in any undertaking to analyze or interpret an image consequently [3]. Division conquers any hindrance between low-level picture preparing and abnormal state picture handling. A few sorts of division procedure will be found in any application including the discovery, acknowledgment, and estimation of items in pictures.

Otsu's division strategy, in light of histogram examination, is extensively applied as a part of different applications [2]. The approach sections a picture by enhancing the change amongst fragments and, all the while, limits the difference inside the portions. Proposes an Otsu-strategy adjustment for dividing hand compositions from an uproarious foundation. In, the Otsu-technique is utilized to extract different focuses in the data pictures, proposes to extend Otsu 1D-histogrambased technique into a "2D-Otsu" for division. The first single-edge Otsu strategy expressions for one ideal limit for dividing the information image into "forefront" and "foundation".

Proposes to apply this unique Otsu technique for acquiring a first layer of content versus foundation; at that point, a re-thresholding is focused on the foundation pixels to get additional layer of frontal area content [2]. The frequent layers of content are linked to create the last content division. A comparative recursive methodology was at that point proposed in. The recursive division thought is likewise utilized as a part of, again for dim scale pictures as it were.

Dependent upon the sort of data that is the matrix, the photos are separated into pictures of power scale and recorded (each fragment being a novel number, a scalar) and vector pictures (each portion being a vector, vector number which in this manner parts into a couple of areas) [3]. Scalar picture constrain is where each pixel regard (real or normal numbers) is seen as a measure of sparkling force. Scalar recorded picture is a photo in which the estimation of a pixel is where information can be connected with the shade of the pixel being mentioned to.

Edge recognition is a procedure of finding an edge of a picture. Recognition of edges in a picture is a critical advance towards comprehension picture highlights. Edges comprise of significant highlights and contain remarkable data. It essentially reduces the picture size and channels out data that might be viewed as less important, in this manner preserving the imperative auxiliary properties of a picture [5]. Most pictures contain some measure of redundancies that can here and there be displaced when edges are recognized and succeeded amid remaking. This is the place edge discovery becomes an integral factor. to automate these photo-interpretation tasks. It particularly reiterates on the purpose of the most suitable input data to manage with these two arrangement problems [6]. Two kinds of optical images have been used: Rapid Eye data and 50cm ground resolution aerialortho-images.

2. IMAGE PROCESSING TECHNIQUES

Image processing by digital means has many branches including image recognition, image segmentation, image compression, etc. It is likewise the fundamental square in numerous applications like pattern recognition, object identification etc. Image processing normally states digital picture processing, yet process like optical and analog are additionally being possible. This survey is all about general techniques that applied to them. The recovery of pictures (delivering the input info in any case) is referred to as imaging. Image-processing techniques isolate the discrete color planes of an image and then apply standard signal-processing approaches to them. Images are also regards as three-dimensional signals. There are few papers which describe about image processing techniques.

2.1 A Study and Comparison of Different Image Segmentation Algorithms [2]

Image segmentation is a procedure, which split a picture, which are comparative in some viewpoint and change over it into paired frame for preparing. Segmentation process is the primary step in many image processing. Procedure incorporates object characteristic and portrayal and detail estimation. Higher request errand takes after the grouping of object. Hence, classification, imagining of region of interest in any image, description plays a substantial role in image segmentation.

There are numerous segmentation algorithms available in the literature, which split an image into number of regions based on some picture attributes like pixel quality esteem, shading, color, shape etc. These all calculations are described based on the segmentation strategy utilized. Segmentation method split the region using different method such as single or multiple thresh holding, segmentation on parallel region, segmentation using clustering, edge detection, and also segmentation on fuzzy logic technique etc. The chosen methodology are Otsu's calculation, K-means, quad tree, Delta E, Region developing and fth calculations. To check the execution of the calculation, they applied 6 straightforward and complex pictures accessible in the literature. The obtained result demonstrates the viability of the division. The paper provides the best approach for segmentations.

Advantages:

It can segment the image by simply finding edges in the image.

Higher order task follows the classification of object.

Disadvantage:

The methods are difficult to identify multiple objects.

2.2 Generalization of Otsu's Binarization into Recursive Color Image Segmentation [7]

Otsu's segmentation method, based on thresholding and histogram study. The method segments an image by maximizing the variance between segments and, simultaneously, minimizes the variance within the segments. proposes an Otsu-method adaptation for segmenting hand writings from a noisy background. In the

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Otsu-technique is utilized to remove various focuses in the input pictures. proposes to extend Otsu 1D-histogrambased method into a "2D-Otsu" for segmentation.

The original single-threshold Otsu method searches for one optimum threshold for segmenting the input image into "foreground" and "background". proposes to apply this original Otsu method for obtaining a first layer of text versus background; then, a re-thresholding is conducted on the background pixels to obtain another layer of foreground text. The multiple layers of text are combined to generate the final text segmentation results. A similar recursive strategy was already proposed in Image segmentation can detect regions of objects, defined by the artist when painting at different shades or colors. These segments can reveal the contrast of shadows in paintings or some conceptual base patterns in the paintings. The recursive division thought is additionally utilized as a part of, again for gray scale pictures only. The paper proposes a recursive thresholding algorithm for Colour images, which can also be generalized to any multichannel image.

Advantages:

The method segments an image by maximizing the variance between segments and, simultaneously, minimizes the variance within the segments.

Otsu-strategy is utilized to remove numerous objectives in the inputs.

Disadvantages:

Since working of the histogram, a resulting segmented image has in general more than just n + 1 segments.

2.3 Image classification using Support Vector Machine (SVM) and Artificial Neural Network (ANN) [12]

The paper contains two area artificial neural network and support vector mechanism useful for image classification. The image is categorized into the receptive class by an ANN and SVM is used to compile all the categorized result.

Once image processing, image segmentation and feature extraction the output is frequently a vector or multi- vector. They are huge portrayal space and sub space. For each sub-space a picture would be removed the component vector. This feature vector is the input for the ANN. Artificial neural network contains three levels for processing- input, hidden and output. The number of nodes of input layer is equal to element of feature vector. The total nodes of output layer are equivalent to the number of classes in ANN.

To find the ideal weight SVM is used. The support vector mechanism essential to be trained first, the parameter of SVM is adjusted to appropriate for the training data to the specific problem. The support vector mechanism combines all artificial neutral networks classified. The paper proposes detail classification process which required less time to implement and process.

Advantages:

The support vector mechanism combines all artificial neutral networks classified result and gives solution by recognizing the weight if ANN result.

Disadvantages:

The training time of ANN_SVM is problem is large database.

2.4 A Review on Content Based Retrieval Using Feature Extraction [11]

Content Based image retrieval (CSIR) is permanent technique for discovery various images from large dataset. CBIR uses the image visual content for color, shape and texture to index and represent image. The paper gives detailed of CBIR with feature extraction and performance parameter. It gives various feature extraction method of texture, color and shape which are commonly used. For feature extraction feature in visual image is are texture, shape and color etc.

The visual feature is common feature and domain feature. For color feature extraction Color slot, color requirement and similarity measurements are used for extraction. Color sets and color data moments are also used as histogram of color. For texture include significant knowledge about structure surface arrangement. Texture gives valuable surface data about their relationship and structure with surrounding. Shape dose not refer to the image shape but to the distinct region shape that is being sought out. Features of shape are separated into two different classes region based and boundary based. Boundary based uses only shape boundary whereas shape feature if region based use complete shape region. Shape is characterized through means of perceptually graphed symmetrical cubes vertices of edge, joints outlines and multilateral area removed from an image. The paper illustrates the accuracy percent for each feature vector and combination of color, shape extraction techniques.

Advantages:

Combination of color, texture and shape extraction give high accuracy.
Disadvantages:
Other conceptual methodology for CBIR is not explained.

2.5 Automatic identification of two growth stages for rapeseed plant: Three leaf and Four Leaf Stage [4]

As a fundamental innovation of farming advancement on the planet, computerized horticulture is the coalition of agribusiness and modem data innovation together with counterfeit consciousness innovation. As a standout amongst the most critical parts of advanced farming, edit development observing requires for non-ruinous ongoing access to exact data on plant development in order to give direction to refined administration of harvest and essentially enhance the level of motorization and product yields. As a critical oil edit the development and yield of, rapeseed plants are mostly impacted by the development space, water, compost and in addition different impacts in that it is important to fill the holes, thin and prepare on time.

The technique used is this paper is Active shape model. The ASM is divided into three steps. The front stage is point distribution model is which the entire plant blades are marked point to point. Feature stage is the gray texture models were the leaf of plant is aligned to get geometry of the plant in grey shade. The number to leaf is aligned to get proper shape of plant that identifies the leaf and the number of leaf of that plant. The last process is match the destination search process in which the extracted feature is compared with the exciting dataset in the system to identify the stage. The paper provides a method to identify the number of leaf's in a plant. It can be used in images having multiple object to mark and extract features.
Advantages:
The system precisely anticipates the development phase of rapeseed plant.
Disadvantages:
As a standout amongst the most critical parts of advanced farming, edit development observing requires for non-ruinous ongoing access to exact data on plant development in order to give direction to refined administration of harvest and essentially enhance the level of motorization and product yields.

2.6 A Smart Phone Image Processing Application for Plant Disease Diagnosis [1]

Albeit proficient agribusiness engineers are in charge of the acknowledgment of plant illnesses, savvy frameworks can be utilized for their conclusion in beginning periods. The master frameworks that have been proposed in the writing for this reason for existing, are regularly in light of certainties depicted by the client or picture handling of plant photographs in unmistakable, infrared, light and so on. The acknowledgment of an infection can regularly be founded on side effects like sores or spots in different parts of a plant.

The manifestations of a pathogen can be regularly communicated as contagious or bacterial leaf spots. Vein banding, mosaic and ring spot can likewise show up. The leaves can be twisted or a fine mold can show up. Spore structures may likewise be available. The plants can be also be injured by air pollution or by soil/air chemicals. Each cell of BGW1 can have three distinct grey level values for normal leaf (grey), spot (black) or background (white). The matrix BGW1 is swept to group neighboring pixels belonging to the same spot. The resulting matrix BGW2 has an integer number in each one of its cells. This number is the identity of the spot that it belongs to. If a position in BGW2 is 0, then the corresponding pixel does not belong to a spot.
Advantages:
A Windows Phone application is depicted here equipped for perceiving vineyard infections through photographs of the leaves with exactness higher than 90%.
Disadvantages:
The progression of the symptoms in time can vary significantly depending on the biotic agents and they can be classified as primary or secondary.

2.7 An Effective Algorithm for Edges and Veins Detection in Leaf Images [3]

By examining the sudden change in the intensity values in leaf images the leaf edge can be easily detected. Extraction of edges was performed using edge detection methods like Prewitt, Sobel, Canny, etc. In

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this paper, an effective vein detection method is proposed. Initially image preprocessing is performed on the input image followed by edge detection, vein and edge detection, extraction of veins leaf image with edges alone and leaf image with veins alone are produced as output.

The edge and vein algorithm process is as follows. First it Convert the color image (RGB) into grayscale image and then compute local gradient horizontal threshold value ht and vertical threshold value vt, using Sobel method as discussed in Canny Edge detection method. If ($ht > vt$) set t to ht; otherwise set t to vt. The value of t is used as approximate threshold value in detecting the leaf edges (excluding veins, weaker edges). Feather leaf edges are detected using Canny Edge Detection method by fixing up threshold values for strong edges. The values of $T1$ and $T2$ are t +0.001 and t +0.75 respectively. In this step, only edges of leaf are detected (excluding veins, weaker edges). Edges along with Veins are detected using Canny Edge Detection method by fixing up threshold values for stronger edge and weaker edges. The values of $T1$ and $T2$ are 0.001 and 0.002 respectively. Finally, the veins alone are extracted from subtracting results of above process and steps value. The paper shows the step by step process for edge and vein detection. The edge detection it done using Canny method which detect sharp edge and adaptive in nature.

Advantages:

The edge with veins detection provide outcome with less sensitive to noise and senses sharper edges.

Disadvantages:

Detecting edge of multiple object in image is difficult.

2.8 Detection of unhealthy region of plant leaves using Image Processing and Genetic Algorithm [5].

This paper exhibits a calculation for picture division method utilized for programmed identification and in addition order of plant leaf sicknesses and overview on various infections arrangement methods that can be utilized for plant leaf infection identification. Picture division, which is a critical angle for sickness recognition in plant leaf malady, is finished by utilizing hereditary calculation. Plant disease identification by pictorial way is more difficult task and at the same period less accurate and can be done only in partial areas. Whereas if automatic detection technique is used it will take less efforts, less time and more accurately.

They used process based on several structures and various section found in the image. This might be color data, edge or segment of an image. Genetic algorithms belong to the transformative algorithms which produce solutions for optimization problems. Algorithm initiates with a set of resolutions called population. Results from one population are selected and then used to arrange a new population. This is done with the anticipation, that the new population will be enhanced than the old one. Solutions which are selected to form new solutions (offspring) are chosen according to their fitness - the more appropriate they are the more probability they have to reproduce. It uses genetic algorithm along with some segmentation based on color clustering method.

Advantages:

Exhibits a calculation for picture division method utilized for programmed identification and in addition orders of plant leaf sicknesses and overview on various infections arrangement methods that can be utilized for plant leaf infection identification.

Genetic algorithms provide solutions for optimization problems.

Disadvantages:

These normally correspond to something that can affect to separate and view as individual objects.

2.9 Contribution of texture and red-edge band for vegetated area detection and identification [6]

This paper challenges to mechanize these photo-interpretation tasks. It mainly accentuates on the purpose of the most appropriate input data to manage with these two classification problems. Two sorts of optical pictures have been utilized: Rapid Eye information and 50cm ground determination elevated ortho-pictures. They first identify the vegetation using rapid eye. Rapid Eye ortho-images were also available they have a 5m ground-resolution and offer red, green, blue, near infrared and an additional red-edge band. Detection of woody areas: In order to select the best image features, classifications using associations of 2 to 4 indices derived both from Rapid Eye and BD Ortho ortho-images have been performed and evaluated. Results have then been sorted according to their global classification accuracy.

Texture data is basic to achieve a decent location. Therefore, at this step, a very high-resolution image from BD Ortho is the most useful image data source. The most important information for discriminating between "deciduous" and "evergreen" plantings was the radiometric information from Rapid Eye. The utility of the red-edge channel for this assignment is built up, since spirit files including this band were involved in all the best relations of red-edge channel to perceive the area.

Advantages:

It particularly emphasizes on the determination of the most suitable input data to cope with these two classification problems.

Disadvantages:

The system can use more sophisticated method for feature selection methods.

2.10 A Graph-Based Approach for Contextual Image Segmentation [17]

Image Segmentation is a standout amongst the hugest errands as it grants identifying the related areas of the pictures and disregard inconsequential data. Any mistake during this phase may cause serious problems to the subsequent methods of the image-based systems. The segmentation process is usually very complex since most of the images present some kind of noise.

In this work, two techniques have been combined to deal with such problem: one derived from the graph theory and other from the anisotropic filtering methods, both featuring the utilization of related data keeping in mind the end goal to classify every pixel in the picture with higher precision.

The effects demonstrate that the arranged approach clobbers the conventional and all around referenced Otsu's technique. In general, noise is originated from physical limitations of the capture sensors. However, some misrepresentations in the image data can also be generated, deliberately or not, due to the management process.

Image segmentation techniques based on graphs cuts are examples of region-based methods. Unlike techniques focused on isolated pixels, i.e., in which the algorithms classify such elements analyzing them alone, the methods which use graph cuts also take into account, as mentioned, contextual information, i.e., the neighborhood of the pixels in the images, to classify them. The graph based approach gives a result for noise content images.

Advantages:

The method gives an especial emphasis to the neighbourhood information to correctly classify a given image pixel under analysis, preserving, with more accuracy, homogeneous and contiguous regions in the images, avoiding the presence of spurious isolated pixels.

Disadvantages:

The performance of the proposed method will be compared with the results of other important approaches, such as the recently proposed median-based versions of the Otsu's method.

The proposed technique will be assessed on other image databases.

2.11 Plant Diseases Detection Using Image Processing Techniques [8]

Agriculture is a most essential and antiquated occupation in India. As economy of India depends on farming creation, most extreme care of nourishment generation is fundamental. Vermin like infection, organism and microorganisms makes contamination plants with misfortune in quality and amount creation. There is vast measure of misfortune of rancher underway. Consequently, legitimate care of plants is essential for same.

This paper introduces a review of utilizing picture preparing techniques to distinguish different plant sicknesses. Picture preparing gives more proficient approaches to distinguish sicknesses caused by parasite, microorganisms or infection on plants. Negligible perceptions by eyes to identify illnesses are not precise. Overdose of pesticides causes hurtful constant illnesses on individuals as not washed appropriately. Overabundance utilizes likewise harms plants supplement quality. It brings about colossal loss of creation to rancher. Subsequently utilization of picture handling strategies to identify and group illnesses in rural applications is useful. The application uses normal method like segmentation with clustering, color extraction and classification to identify plant disease.

Advantages:

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Picture preparing gives more proficient approaches to distinguish sicknesses caused by parasite, microorganisms or infection on plants.

Subsequently utilization of picture handling strategies to identify and group illnesses in rural applications is useful.

Disadvantages:

Negligible perceptions by eyes to identify illnesses are not precise.

2.12 Scaffolding Progress Monitoring of LNG Plant Maintenance Project using BIM and Image Processing Technologies [9]

Platform errands are the most critical work items in Liquefied Nature Gas (LNG) plant support ventures and a compelling advancement checking methodology can be gainful to partners through the better control to the financial plan and calendar of the whole venture. This exploration is concentrated on examining discoveries and lesson learnt from the platform advance observing contextual analysis of a LNG plant support extend. A novel approach by utilizing Building Data Modeling (BIM) and picture preparing advancements to consequently gauge framework advance through site photographs is being creating.

The contextual investigation by embracing the creating approach at a genuine LNG plant is as of now went ahead. The accumulated structure photos have been used to iteratively upgrade the making approach. The input from industry accomplices can be compressed into five points of view: (1) the many-sided quality of platform structure influences the execution of the proposed acknowledgment calculation a great deal; (2) the proposed approach is considered dependable if the normal precision of the advance estimation can be marginally higher than that of the traditional way; (3) a rule for information gathering process is fundamental; (4) decrease site work and move the work stack back to the workplace is favored and; (5) the proposed approach benefits usage temporary workers the most. Building Information Modeling (BIM) assumes a critical part in taking care of the facility related data through the whole life cycle of an facility. Scaffolding monitoring approach aims to improve the progress tracking of scaffolding by automatic calculations of scaffolding quantity through still images and the combination of BIM abilities for assist choice makings.

Advantages:

The current scaffolding progress and productivity monitoring in LNG plants can be done by visual observations through site supervisors. The accuracy of the progress estimation depends on the judgements of supervisors and their experience.

The photos can be efficiently collected and analyzed. Combining with Building Information Modelling (BIM) platform, the results have potential to be relatively accurate than the conventional site observations given that the cost information is embedded in BIM model and automatic process can be potentially achieved.

Disadvantages:

Due to the complexity of the plant facility, the scaffolding design and the layout of the scaffolding installation can be irregular shaped. They influence the performance of the scaffolding recognition algorithm a lot. In addition, the captured photos at site only gather the outer layer information of scaffolding.

The implementation contractors as well as the plant operator all indicated that as long as the accuracy of the proposed recognition processes can be averagely and slightly higher than the conventional manual rough estimations, the proposed approach is considered reliable.

3. ANALYSIS TABLE

The following table gives the analysis of techniques and methods used in research papers on image processing and identification.

Sr. No	Paper Title	Techniques	Addressed Issue
1	A Smart Phone Image Processing Application for Plant Disease Diagnosis [1]	Plant disease recognition technique; Matrix bgw2 is constructed	Image processing that analyses the color features of the spots in plant parts.

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2	Scaffolding Progress Monitoring of LNG Plant Maintenance Project using BIM and Image Processing Technologies [9]	BIM model	This method, combining object recognition techniques, can rapidly estimate the total number of scaffolding components from images.
3	Detection of unhealthy region of plant leaves using Image Processing and Genetic Algorithm [5]	Image acquisition; Pre-processing of input image; Segment the components using genetic algorithm.	The optimum output were obtained with less computation efforts. The framework demonstrates the effectiveness of proposed calculation in acknowledgment and order of the leaf infections.
4	Plant Diseases Detection Using Image Processing Techniques [8]	Agrobot; K-means; HSV; ANN; BPNN; CCM; Neural Network; SURF; RBF; SIFT; RDI; GLCM; PCA; SGDM	To increase production in agricultural sector it is necessary to detect diseases on plants and take accurate measures.
5	Color Image Segmentation using Morphological edge Detector Algorithm [14]	ISKMO Algorithm Combination of K-means and edge detection operator	The process shows proper segmentation process and segmentation for noise content image. The combination of algorithm has reduced the detection of false edge in segmentation result.
6	Image classification using support vector mechanism and artificial neural network [12]	ANN algorithm SVM algorithm	ANN classify the result based one by one image feature vector. SVM integrate all result of ANN.
7	GPU based parallel processing for plant growth analysis []	Graphic processing unit(GPU) Thresholding algorithm	Give best thresholding algorithm to get partition of object and environment. The parallelism processing gives more efficient time in execution result.
8	A study on image segmentation using different type of k-means clustering [13]	k-mean clustering method	The paper gives different method or formula to find k-mean value to get better results.
9	Content based image retrieval using feature extraction [11]	Feature extraction using color, shape, texture	Extraction of data from image using its color and texture
10	Automated identification of two growth stage for rapeseed plant: Three leaf and four leaf stage [4]	Active shape method -point distribution -local grey texture method	Used pattern recognition method to get data and process for entire geometry of plant
11	A Study and Comparison of Different Image Segmentation Algorithms [2]	Otsu's algorithm, K-means, quad tree, Delta E, Region growing and fth algorithms.	Image segmentation process, and algorithm for the method based on thresholding, parallel processing clustering, edge detection, histogram analysis.
12	An Effective Algorithm for Edges and Veins Detection in Leaf Images [3]	RGB Color, Edge detection, Vein Detection Algorithm	By examining the sudden change in the intensity values in leaf images the leaf edge can be easily detected.
13	Contribution Of Texture And Red-Edge Band For Vegetated Areas Detection And Identification [6]	Edge Detection	Automate these photo-interpretation tasks. It especially accentuates on the assurance of the most appropriate information to adapt to these two order issues

14	Generalization of Otsu's Binarization into Recursive Colour Image Segmentation [7]	Otsu's Algorithm	Otsu's segmentation method, in view of histogram examination, is broadly utilized as a part of different applications. The method segments an image by maximizing the variance between segments and, simultaneously, minimizes the variance within the segments.

4. CONCLUSION

This paper presents a study on different sorts of image processing strategies. An overview of all related image processing methods such as Gray scale, segmentation, feature extraction and classification techniques have been presented in this paper. Image segmentation using Otsu's method and thresholding gives well-referenced segmentation approach, even in noise content images. These segments can reveal the contrast of shadows in paintings or some conceptual base patterns in the paintings. Feature extraction on image dataset such as leaf, fruit, object gets best data extraction using SIFT method and image sets like flower, plant uses HSV color, shape extraction method to get best result. Morphological operator is used to get clarity and noise free image for processing.

Image classification is a technique to classify images from data. The paper studies ANN and SVM as classifier for image processing technique. It also shows edge detection techniques. The canny edge detector gives better outcome related to others with some optimistic points. The recognition is less sensitive to noise, adaptive in nature and recognizes sharper edges when contrasted with others. Overall the papers give knowledge of best methods used for image processing techniques.

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RACSIT - 17

A REVIEW PAPER ON MEDICAL IMAGE PROCESSING

Shruthishree S.H *1, **Harshvardhan Tiwari** 2
*1 Assistant Professor, SET Department of Information Science Engineering, Jain University, Bangalore, India
2 Head of the Department Information Science and Engineering, Jothy Institution of Technology, Bangalore, India

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Abstract

Biomedical image processing has experienced dramatic expansion, and has been an interdisciplinary research field attracting expertise from applied mathematics, computer sciences, engineering, statistics, physics, biology and medicine. Computer-aided diagnostic processing has already become an important part of clinical routine. Accompanied by a rush of new development of high technology and use of various imaging modalities, more challenges arise; for example, how to process and analyze a significant volume of images so that high quality information can be produced for disease diagnoses and treatment. The principal objectives of this course are to provide an introduction to basic concepts and techniques for medical image processing and to promote interests for further study and research in medical imaging processing. The rapid progress of medical science and the invention of various medicines have benefited mankind and the whole civilization. Modern science also has been doing wonders in the surgical field. But; the proper and correct diagnosis of diseases is the primary necessity before the treatment. The more sophisticate the bio-instruments are, better diagnosis will be possible. The medical image plays an important role in clinical diagnosis and therapy of doctor and teaching and researching etc. Medical imaging is often thought of as a way to represent anatomical structures of the body with the help of X-ray computed tomography and magnetic resonance imaging. But often it is more useful for physiologic function rather than anatomy. With the growth of computer and image technology medical imaging has greatly influenced medical field. As the quality of medical imaging affects diagnosis the medical image processing has become a hotspot and the clinical applications wanting to store and retrieve images for future purpose needs some convenient process to store those images in details.

Keywords: Medical Imaging; Bioimaging; Neuroimaging; Visualization; Giga-Voxel; Tera-Voxel; Picture Archiving And Communication Systems (PACS); Content-Based Image Retrieval (CBIR); Virtual Reality (VR); Graphics Processing Unit (GPU) Programming.

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1. Introduction

Biomedical image processing has experienced dramatic expansion, and has been an interdisciplinary research field attracting expertise from applied mathematics, computer sciences, engineering, statistics, physics, biology and medicine. Computer-aided diagnostic processing has already become an important part of clinical routine. Accompanied by a rush of new development of high technology and use of various imaging modalities, more challenges arise; for example, how to process and analyze a significant volume of images so that high quality information can be produced for disease diagnoses and treatment. The principal objectives of this course are to provide an introduction to basic concepts and techniques for medical image processing and to promote interests for further study and research in medical imaging processing. Recent advances in biomedical signal processing and image processing have frequently been reviewed [21, 35, 36]. Usually, such review articles are driven by classifying the methods that are used for processing pixel and voxel data, e.g., image segmentation, or their applications in diagnostics, treatment planning and follow up studies. In contrast, this paper focuses on processing large data volumes of medical images and its related challenges. During the last years, the amount of medical image data grew from Kilo- to Terabyte. This is mainly due to improvements in medical image acquisition systems with increasing pixel resolution and faster reconstruction processing. For example, the new Sky Scan 2011 x-ray nano-tomograph has a resolution of 200 nm per pixel and the high resolution micro computed tomography (CT) reconstructs images with 8 000 × 8 000 pixel per slice with 0.7 µm isotropic detail detectability. This results in 64 Megabyte (MB) per slice. New CT and magnetic resonance imaging (MRI) systems can scale the image resolution and the reconstruction time. Whole human body scans with this resolution reach several Gigabytes (GB) of data load. Large medical image data occurs in two different ways: first, a huge amount of image data from thousands of images such as in picture archiving and communication systems (PACS) and second, a large amount of image data from a single data set.

2. Background

We first define terminology that is used throughout the review, and we describe important issues in the segmentation of medical images.

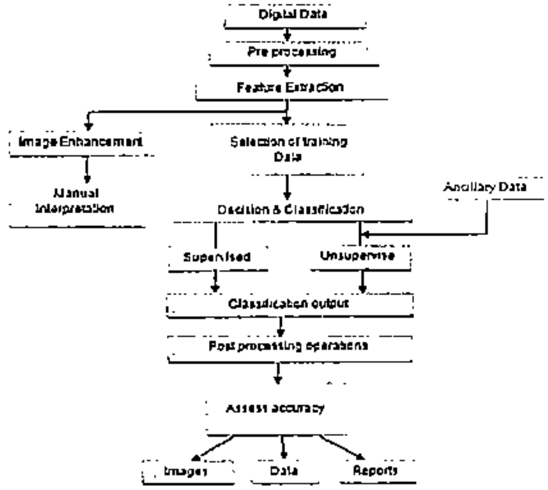
Definitions

An image is a collection of measurements in two-dimensional (2-D) or three dimensional (3-D) space. In medical images, these measurements or 'image intensities' can be radiation absorption in X-ray imaging, acoustic pressure in ultra sound, or radio frequency (RF) signal amplitude in MRI. If a single measurement is made at each location in the image, then the image is called a scalar image. Medical imaging has been undergoing a revolution in the past decade with the advent of faster, more accurate, and less invasive devices. This has driven the need for corresponding software development which in turn has provided a major impetus for new algorithms in signal and image processing. Many of these algorithms are based on partial differential equations and curvature driven flows which will be the main topics of this survey paper. Mathematical models are the foundation of biomedical computing. Basing those models on data extracted from images continues to be a fundamental technique for achieving scientific progress in experimental, clinical, biomedical, and behavioral research. Today, medical images are acquired by a range of techniques across all biological scales, which go far beyond the visible light photographs and microscope images of the early 20th century. Modern medical images may be considered to be geometrically arranged arrays of data samples which quantify such diverse physical phenomena as the time variation of hemoglobin deoxygenation during neuronal metabolism, or the diffusion of water molecules through and within tissue. The broadening scope of imaging as a way to organize our observations of the bio physical world has led to a dramatic increase in our ability to apply new processing techniques and to combine multiple channels of data into sophisticated and complex mathematical models of physiological function and dysfunction. A key research area is the formulation of biomedical engineering principles based on rigorous mathematical foundations in order to develop general-purpose software methods that can be integrated into complete therapy delivery systems. Such systems support the more effective delivery of many image-guided procedures such as biopsy, minimally invasive surgery, and radiation therapy.

Types

The two types of methods used for Image Processing are Analog and Digital Image Processing. Analog or visual techniques of image processing can be used for the hard copies like printouts and photographs. Image analysts use various fundamentals of interpretation while using these visual techniques. The image processing is not just confined to area that has to be studied but on knowledge of analyst. Association is another important tool in image processing through visual techniques. So analysts apply a combination of personal knowledge and collateral data to image processing.

Digital Processing techniques help in manipulation of the digital images by using computers. As raw data from imaging sensors from satellite platform contains deficiencies. To get over such flaws and to get originality of information, it has to undergo various phases of processing. The three general phases that all types of data have to undergo while using digital technique are Pre-processing, enhancement and display, information extraction.



Fundamental steps in image processing:

1) Image acquisition: to acquire a digital image
2) Image preprocessing: to improve the image in ways that increases the chances for success of the other processes.
3) Image segmentation: to partitions an input image into its constituent parts or objects.
4) Image representation: to convert the input data to a form suitable for computer processing.
5) Image description: to extract features that result in some quantitative information of interest or features that are basic for differentiating one class of objects from another.
6) Image recognition: to assign a label to an object based on the information provided by its descriptors.
7) Image interpretation: to assign meaning to an ensemble of recognized objects.

Medical image computing typically operates on uniformly sampled data with regular x-y-z spatial spacing (images in 2D and volumes in 3D, generically referred to as images). At each sample point, data is commonly represented in integral form such as signed and unsigned short (16-bit), although forms from unsigned char (8-bit) to 32-bit float are not uncommon. The particular meaning of the data at the sample point depends on modality: for example a CT acquisition collects radio density values, while a MRI acquisition may collect T1 or T2-weighted images. Longitudinal, time-varying acquisitions may or may not acquire images with regular time steps. Fan-like images due to modalities such as curved-array ultrasound are also common and require different representational and algorithmic techniques to process. Other data forms include sheared images due to gantry tilt during acquisition; and unstructured meshes, such as hexahedral and tetrahedral forms, which are used in advanced biomechanical analysis (e.g., tissue deformation, vascular transport, bone implants).

Segmentation

Segmentation is the process of partitioning an image into different segments. In medical imaging, these segments often correspond to different tissue classes, organs, pathologies, or other biologically relevant structures. Medical image segmentation is made difficult by low contrast, noise, and other imaging ambiguities. Although there are many computer vision techniques for image segmentation, some have been adapted specifically for medical image computing. Below is a sampling of techniques within this field; the implementation relies on the expertise that clinicians can provide.

The commonly used term "biomedical image processing" means the provision of digital image processing for biomedical sciences. In general, digital image processing covers four major areas

1) Image formation includes all the steps from capturing the image to forming a digital image matrix.
2) Image visualization refers to all types of manipulation of this matrix, resulting in an optimized output of the image.
3) Image analysis includes all the steps of processing, which are used for quantitative measurements as well as abstract interpretations of biomedical images. These steps require a priori knowledge on the nature and content of the images, which must be integrated into the algorithms on a high level of abstraction. Thus, the process of image

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analysis is very specific, and developed algorithms can be transferred rarely directly into other application domains.

4) Image management sums up all techniques that provide the efficient storage, communication, transmission, archiving, and access (retrieval) of image data. Thus, the methods of telemedicine are also a part of the image management.

In contrast to image analysis, which is often also referred to as high-level image processing, low level processing denotes manual or automatic techniques, which can be realized without a priori knowledge on the specific content of images. This type of algorithms has similar effects regardless of the content of the images. For example, histogram stretching of a radiograph improves the contrast as it does on any holiday photograph. Therefore, low-level processing methods are usually available with programs for image enhancement.

3. Algorithms used for Image Processing at Different Stages

Image registration Image registration is one of the most common algorithms in medical imaging and the one with the most GPU implementations. One reason for this is the GPU's hardware support for linear interpolation, which makes it possible to transform images and volumes very efficiently. Hastreiter and Ertl (1998) were one of the first to take advantage of the GPU for image registration, mainly for its ability to perform fast interpolation in 3D. A common approach is to let the GPU calculate a similarity measure, often mutual information (Viola and Wells, 1997; Pluim et al., 2003; Mellor and Brady, 2005), over the images in parallel while the CPU runs a serial optimization algorithm to find the parameters (e.g. translations and rotations) that give the best match between the two images. The mutual information between two discrete variables a and b is defined as

$$I(a,b) = \sum_{a \in A} \sum_{b \in B} p(a,b) \log\left(\frac{p(a,b)}{p(a)\,p(b)}\right)$$

1) Edge Detection Technique

Edge detection is an image processing technique for finding the boundaries of objects within images. It works by detecting discontinuities in brightness. Edge detection is used for image segmentation and data extraction in areas such as image processing, computer vision, and machine vision. Common edge detection algorithms include Sobel, Canny, Prewitt, Roberts, and fuzzy logic methods. Consider the ideal case of a bright object O on a dark background. The physical object is represented by its projections on the image I. The characteristic function 1O of the object is the ideal segmentation, and since the object is contrasted on the background, the variations of the intensity I are large on the boundary ∂O. It is therefore natural to characterize the boundary ∂O as the locus of points where the norm of the gradient |∇I| is large. In fact, if ∂O is piecewise smooth then |∇I| is a singular measure whose support is exactly ∂O. This is the approach taken in the 60's and 70's by Roberts [81] and Sobel [91] who proposed slightly different discrete convolution masks to approximate the gradient of digital images. Disadvantages with these approaches are that edges are not precisely localized, and may be corrupted by noise. Note the thickness of the boundary of the heart ventricle as well as the presence of "spurious edges" due to noise. Cann proposed to add a smoothing pre-processing step (to reduce the influence of the noise) as well as a thinning post-processing phase (to ensure that the edges are uniquely localized). See [26] for a survey and evaluation of edge detectors using gradient techniques. A slightly different approach initially motivated by psychophysics was proposed by Marr and Hildreth, where edges are defined as the zeros of _G_ ∗ I, the Laplacian of a smooth version of the image. One can give a heuristic justification by assuming that the edges are smooth curves; more precisely, assume that near an edge the image is of the form where S is a smooth function with $|\nabla S| = O(1)$which vanishes on the edge, ε is a small parameter proportional to the width of the edge, and $\phi : R \rightarrow [0, 1]$ is a smooth increasing function.

$$I(x) = \varphi\left(\frac{S(x)}{\varepsilon}\right)$$

(a) Original image.

(b) Sobel edge detector.

Figure 2: Result of two edge detectors on a heart MRI image

The most powerful edge-detection method that edge provides is the Canny method. The Canny method differs from the other edge-detection methods in that it uses two different thresholds (to detect strong and weak edges), and includes the weak edges in the output only if they are connected to strong edges. This method is therefore less likely than the others to be fooled by noise, and more likely to detect true weak edges.

Original image canny edge detection

(c) Marr edge detector.

Figure 3: Canny edge detection form original image

2) Feature Extraction

Contrast limited adaptive histogram equalization (CLAHE) is a popular technique in biomedical image processing, since it is very effective in making the usually interesting salient parts more visible. The image is split into disjoint regions, and in each region local histogram equalization is applied. Then, the boundaries between the regions are eliminated with a bilinear interpolation. The main objective of this method is to define a point transformation within a local fairly large window with the assumption that the intensity value within it is a stoical representation of local distribution of intensity value of the whole image. The local window is assumed to be unaffected by the gradual variation of intensity between the image centers and edges. The point transformation distribution is localized around the mean intensity of the window and it covers the entire intensity range of the image. Consider a running sub image W of N X N pixels centered on a pixel P (i, j), the image is filtered to produce another sub image P of (N X N) pixels according to the equation below

$$p_n = 255 \cdot \left(\frac{[\emptyset_w(p) - \emptyset_w(Min)]}{[\emptyset_w(Max) - \emptyset_w(Min)]} \right) \qquad (1)$$

$$\emptyset_w(p) = \left[1 + \exp\left(\frac{\mu_w - p}{\sigma_w} \right) \right]^{-1} \qquad (2)$$

And Max and Min are the maximum and minimum intensity values in the whole image, while μ/ and σ/ indicate the local window mean and standard deviation which are defined as:

$$\mu_w = \frac{1}{N^2} \sum_{(i,j)\in(k,l)} p(i,j) \qquad (3)$$

$$\sigma_w = \sqrt{\frac{1}{N^2} \sum_{(i,j)\in(k,l)} \left(p(i,j) - \mu_w \right)^2} \qquad (4)$$

As a result of this adaptive histogram equalization, the dark area in the input image that was badly illuminated has become brighter in the output image while the side that was highly illuminated remains or reduces so that the whole illumination of the image is same

3) Super-Pixel Classification using Slic Algorithm

This paper uses the simple linear iterative clustering algorithm (SLIC) to aggregate nearby pixels into super pixels in retinal fundus images. Compared with other super pixel methods, SLIC is fast, memory efficient and has excellent boundary adherence. The number of desired super pixels is the main parameter why we used SLIC and it is simple also only because of this parameter. We adopted a new super pixel algorithm, simple linear iterative clustering (SLIC), which uses a k-means clustering approach for proper generation of super pixels. This algorithm is best when compared .to other conventional methods. Along that, it is faster and more memory efficient, improves segmentation performance, and is straightforward to extend to super pixel generation. SLIC is simple to use and understand. By default, the only parameter of the algorithm is k, the desired number of approximately equally-sized super pixels. To produce roughly equally sized super pixels, the grid interval is S= N/k. For color images in the CIELAB color space, the clustering procedure begins with an initialization step where k initial cluster centres = li, ai, bi, xi, yi T is sampled on a regular grid spaced S pixels apart. The centres are moved to seed locations corresponding to the lowest gradient position in a neighborhood. This is done to avoid centering a super pixel on an edge, and to reduce the chance of seeding a super pixel with a noisy pixel. Next, in the assignment step, each pixel "i" is associated with the nearest cluster centre whose search region overlaps its location. This is the key to speeding up our algorithm because limiting the size of the search region significantly reduces the number of distance calculations, and results in a significant speed advantage over conventional k- means clustering where each pixel must be compared with all cluster centers. This is only possible through the introduction of a distance measure D, which determines the nearest cluster centered for each pixel.

4. Circular Hough-Transformation

We established an approach based on the In order to detect small circular spots in the image, will implement an approach called Circular Hough Transformation. Images are obtained by detecting circles on the images using circular Hough transformation. With this technique, from the image a set of circular objects can be extracted. Circle shape of the optic disk is computed using circle equation given below

$$r^2 = (x - a)^2 + (y - b)^2$$

Where "r" represents the radius of the circle and (a, b) represents coordinates, which is the center of the circular object. To find out a circular disk in the image it is required to collect votes in three dimensional spaces (a, b, r). CHT transforms the image coordinate parameters into set of collected votes in the constraint space. Followed by every dot in the votes are calculated and accumulated in the group for all combination. Highest voting point will be considered the center of the circle and the coordinate points are

$$x = a + r * \cos(\theta)$$
$$y = b + r * \sin(\theta)$$

5. Conclusion

In this paper, we sketched some of the fundamental concepts of medical image processing. It is important to emphasize that none of these problem areas has been satisfactorily solved, and all of the algorithms we have described are open to considerable improvement. In particular, segmentation remains a rather ad hoc procedure with the best results being obtained via interactive programs with considerable input from the user. Nevertheless, progress has been made in the field of automatic analysis of medical images over the last few years thanks to improvements in hardware, acquisition methods, signal processing techniques, and of course mathematics. Curvature driven flows have proven to be an excellent tool for a number of image processing tasks and have definitely had a major impact on the technology base. The mathematical challenges in medical imaging are still considerable and the necessary techniques touch just about every major branch of mathematics. In summary, we can use all the help we can get!

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Internet of Things (IoT): Definitions, Challenges and Recent Research Directions

Zainab H. Ali
Dept. of Computer Eng. &
Systems, Mansoura University,
Egypt.

Hesham A. Ali
Dept. of Computer Eng. &
Systems, Mansoura University,
Egypt.

Mahmoud M. Badawy
Dept. of Computer Eng. &
Systems, Mansoura University,
Egypt.

ABSTRACT

In this paper, we seek to highlight the concept of Internet of Things (IoT) in general, as well as reviewing the main challenges of the IoT environment by focusing on the recent research directions in this topic. Recently, IoT has emerged as a new technology that is used to express a modern wireless telecommunication network, and it can be defined as an intelligent and interoperability node interconnected in a dynamic global infrastructure network, also it seeks to implement the connectivity concept of anything from anywhere at anytime. Indeed, the IoT environment possesses a large spectrum of challenges has a broad impact on their performance, which can be divided into two categories, namely, i) General challenges: such as communication, heterogeneity, virtualization and security; and ii) Unique challenges: such as wireless sensor network (WSN), Radio Frequency Identification (RFID), and finally Quality of service (QoS) that is considered as a common factor between both general and special challenges. In addition, this paper highlights the main applications of the IoT.

Keywords

IoT; heterogeneity; virtualization; WSN; RFID; QoS.

1. INTRODUCTION

Today, we are living in the era of smart technologies which represents a "ubiquitous computing" or "web 0.3". Internet of Things (IoT) has emerged strongly as a more prosperous area to express this kind of a new technology. It is not the first technology in this field, but also the cloud computing technology has been used to represent the ubiquitous computing world. In the seventh in the series of ITU Internet Reports originally it was launched in 1997 under the title *"Challenges to the Network"* [1], and it was first coined by Kevin Ashton in the RFID journal 1999 [2], In 2005 this name was changed to "Internet of things". The vision of IoT according to Kevin's vision was to enable networked devices to propagate their information about physical world objects through the web. In recent years, the most of the IoT proposed architectures are used, web semantic to publish information through the social networks; for instance, the iPhone has innovated service is Nike + iPod to record information and published it on the social networks and the social network friends [3].

Actually, the definition of IoT varies based on who you talk, but formally, it can be defined as a dynamic global network infrastructure with self-configuration and interoperable communication. Simply, IoT means the ability to make everything around us starting from (i.e. Machine, Devices, Mobile phone and Cars) even (Cities and Roads) are expected to be connected to the Internet with an intelligent behavior and taking into account the existence of the kind of autonomy and privacy. Meanwhile, the IoT environment contains a huge number of the different objects/things can be classified into two types namely; i) Things rechargeable batteries things: the most of them are mobiles (e.g. Laptop, tablets and mobile phone), and ii) Things are non-rechargeable things: these things are static from the mobility point of view [4]. Generally, IoT includes three main demands are: the first, a shared understanding of the situation of its users and their applications. Secondly, software architecture and pervasive communication networks to cover and process contextual information, and lastly, the analytics tools in IoT that aims for autonomous and intelligent behavior [5].

Considerably, can be expressed the principle idea of IoT is promoting the communication between anything from anywhere at anytime through context-aware applications. Accordingly, IoT has relied on RFID and sensor network technologies in the implementations. For instance, IBM company used IoT in Norwegian Sea oil platforms, by deploying sensors at seabed that are used to collect real information to make decision drill in the sea [3].

On the other hand, the IoT environment like many networks suffering from the set of challenges which significantly affect their performance some of them are common and others, are special; the paper divides these challenges into two categories, namely, ***i) General challenges:*** which include common challenges between IoT and traditional network such as communication, heterogeneity, QoS, scalability, virtualization, data mining and security; and ***ii) Special challenges:*** such as RFID and WSN.

The main objective of this paper provides an overview about IoT, its definition, its architecture, and discusses the differences between IoT and the traditional Internet; then highlighting the challenges of IoT and the recent research directions to solve them. Finally, the rest of this paper is summarized as follows: section II, introducing an overview about IoT concept, its history and its inception also discussing the differences between IoT and the traditional Internet; section III, focusing on the challenges and recent research directions to address them and section IV, reviewing a set of the most popular applications in IoT

2. Related Work

In this section, the paper seeks to offer a brief overview about IoT, its definition, its history and its inception also highlight the architecture design of IoT that is relied on three dimensions called ***"IoT infrastructure"***; and the final part in this section discusses the similarities and differences between both IoT and traditional Internet.

2.1. Definitions and History

In 1991, Mark Weiser has described the vision of the future Internet under the name of "*Ubiquitous Computing*". Through this vision he was focused on how to turn on the smart livable environment in the presence of mobile phone technology this provide a powerful multimedia system [6]. Kevin Ashton is a one of the pioneers talk about IoT [2]. According to Atzori A.lera et al [7], classified IoT to three paradigms namely, i) internet oriented (Middleware), ii) things oriented (Sensors), and iii) semantic oriented (Knowledge). In 1999 Neil Gershenfeld was speaking about similar things from the Massachusetts Institute of Technology, MIT Media Lab in his book "*When Things Start to think*".

In 1999 Auto- ID labs and MIT sought to develop Electronic Product Code EPC, and use RFID to identify things on the network. In 2003-2004 the emergence of projects serving IoT idea such as Cooltown, Internet0, and the Disappearing Computer initiative, also IoT start to appear in book titles for the first time. RFID is deployed was published on a massive scale by the US Department of Defense. In 2005 IoT entered a new level when published its first report by International Telecommunication Union ITU. In 2008 a group of companies such as Cisco, Intel, SAP and over 50 other members of companies met to create IPSO Alliance, to promote the use of Internet protocol (IP) and to activate IoT concept. In 2008-2009 IoT was "Born" by Cisco Cisco Internet Business Solutions Group (IBSG) [8]. From the previous perspectives can be defined IoT as a set of smart things/objects such as home devices, mobile, laptop, etc., addressed by a unique addressing scheme and connected to the Internet through a unified framework this framework may be cloud computing. Fig 1 depicts IoT technology.

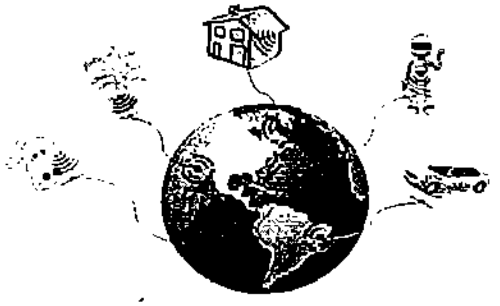

Fig 1: Internet of Things (IoT) technology

2.2 Architecture and Design

The best design of the architecture is a foundation stone to build a privileged IoT system; this architecture helped to address a lot of issues in the IoT environment such as scalability, routing, networking, etc.. Typically, the IoT architecture approach based on three main dimensions are: ***i) Information items***: it includes all items connected to IoT environment may be sensing items, identifying items and control items; ***ii) Independent network:*** which includes several features such as self-configuration, self-protection, self-adaptation, and self-optimization; and ***iii) Intelligent applications:*** which have intelligent behavior over the Internet generally; the intelligent behavior may be intelligent control, exchange data methods through network items, data processing, all the applications which are related to the IoT can be classified according to these dimensions [9]. The intersection between these dimensions creates a new space named "***infrastructure of IoT***", which provides support systems to serve the special things, which can provide various services such as goods identification, location identification and data protection. Fig 2 depicts the three dimensions of IoT and relationship between them.

In this end, There are several approaches to build an architecture of IoT, the paper will focusing on two kinds namely, architecture called ***"EPC global network"*** and another called ***"Unite and ubiquitous IoTs or U2IoTs"***, to create an application on IoT, the architectural approach favored which based on an open architecture the EPC global network. The system designed by AutoID center for conveying the dynamic information about objects/things to provide a history of the product movement for the authorized users, the RFID technology plays a key role to differentiate between these mobile objects, this system is called "the EPC global network". The IoT uses the EPC global network as a principle to design the architecture framework [10].

The future architecture of IoT seeks to achieve connection between real-world, cyber-world and social world. Unite and ubiquitous IoTs or U2IoTs is considered as a different kind of IoT architecture, it's used to integrate the physical world with the cyber world. The U2IoTs consists of a set of heterogeneous systems, including unit of IoT to resemble human neural network that provides solutions to specific applications; U2IoTs includes the industrial IoT, local youth, national IoT, and global IoT which integration of multiple Unit IoTs with ubiquitous features, and it is similar to the social organization framework. The main characteristics of U2IoT model are cyber, physical, social co-existence, connectivity and interactivity, space-time consistency and multi-identity status [10].

2.3 Differences between IoT and Traditional network

In the beginning, the IoT technology has broken a lot of the traditional ideas of network and started a new era of telecommunication technology. Can be considered IoT as an extension and expansion network based on the Internet; but it is different from either traditional network or the so-called Internet of people and WSN although considered as backbone to build any IoT block.

The major equation to represent the IoT environment is ***"IoT environment= Internet + WSN"***, it is a common statement that uses to express the IoT environment. To analyze and judge the correctness of this statement, must be determined the similarities and differences between IoT, Internet, and WSN according to table 1.

From the previous knowledge about the IoT environment can be judged on this view, it's a wrong; because there are two basic reasons for rejecting this view. First; IoT may not necessarily use IP in all cases for addressing things, because nature of IoT needs lightweight communication protocols, the complexity of the TCP/IP protocol is not suitable in particular, when works with the smart little things. Second, the IoT environment is mainly based on the connected smart objects unlike traditional network. That's what makes them move from only a mere extension of the Internet, also the behavior of IoT depends on the creation of the interoperable systems [10], based on these arguments, can be corrected the previous statement:

IoT= Internet + WSN+ Smart Items surrounded by Intelligent environment.

Finally, IoT supports a set of useful features such as interoperability, self- configuration, self- adaptive and self-protection. The intelligent environment is a way to ensure the existence of a minimum level of the previously mentioned elements within the network.

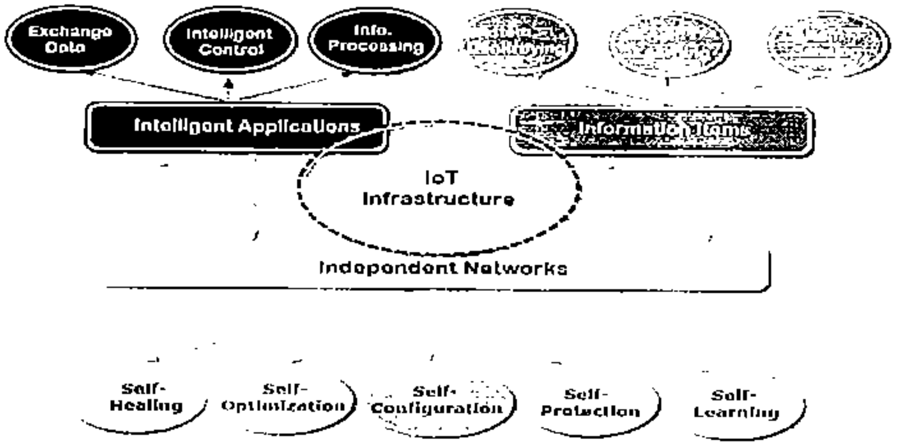

Fig 2: The three Dimensions of IoT

Table 1. The similarities and differences between IoT, Internet, and WSN [10]

Characteristics	IoT	Internet	WSN
Comm. Protocol	Lightweight Comm. protocols.	(TCP/IP)	Lightweight Comm. protocols.
Scale degree of Area	Cover wide area	Cover wide area	Cover local area
Networking Approach	Determine backbone	Determine backbone	Self-organization
Identify objects	Must	Can not	Can
Type of nodes	Active and passive	Active	Active
Network design	WSN+ dynamic smart things+ Internet surrounded by intelligent environment	Set of networks contains set of Fixed objects	Dynamic smart objects
Behavior	Dynamically	Fixed	Dynamically
Networking Time	Timing synchronization	Unlimited	Unlimited

3. CHALLENGES AND RECENT RESEARCH DIRECTIONS

In this section, the paper discusses the bulk of popular challenges or general challenges of the IoT environment; it also displays the recent research directions for each topic. Finally, Table 3 reviews the recent research directions and the proposed solutions for each one of them, in addition to table 4 which reviews the summary for the future research topics in the IoT.

3.1 Networking

Generally, the Networking issue has a great relevance in the Internet because of it includes some of the important factors which uses to manage networks. First of all, traffic and protocols that have a significant impact on the behavior of the network, these points are mentioned in [11] D. Giusto et al. Sought to deal with networking challenges via mobile Ad-Hoc Network. The authors have used mobile ad hoc networks (MANET) interconnected to fixed networks by different gateway. In IoT, can't be predicted where the object moved, and the object may be needed to transmit from network to another. The biggest problem is in dynamic gateways change and the difficulty of Identifying the location of things. The MANET consists of a number of self-organized mobile nodes or objects and it considered as a way to maintain a connection, additionally Multi-homed ad-hoc is seen as an extension to the existing infrastructure in IoT.

3.2 Routing

Routing process means selecting the best path between the source and the destination to complete the communication process successfully. There are various ways to determine the best path based on the communication protocol type such as a number of hops, costs, and bandwidth. Can be classified routing protocols into two main categories are: i) Reactive protocols: the path is established after

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transmission request is made, ii) Proactive protocols: initial path before the request is made. In [12], Sudip Misra et al. proposed the protocol under the name of "fault-tolerant routing protocol" for IoT. This protocol has designed by using learning automate (LA) and cross-layer concept. LA dealing with optimization problems to choose optimal solutions, the need to cross-layer is saving energy of the items of IoT (i.e. FRID).

3.3 Heterogeneity

The IoT environment is the best-known example to represent the heterogeneity issue because it contains a plethora of the different devices in their nature; the main objective of IoT is creating a common way to abstract the heterogeneity of these devices and achieving the optimal exploitation of their functionality. In this vein, the researchers always seek to find an effective method to deal with these devices regardless of their nature.In [13], C. G. García et al. sought to introduce solutions to some of the IoT problems such as interconnection, heterogeneity, and generate an application that allows people to interconnect services over the Internet, these solutions are represented in: creating a domain specific language (DSL), graphic editor and IoT platform Midgar software. For instance, over recent years emerged a lot of applications used to solve the heterogeneous objects problem over the Internet e.g. WhatsApp, Skype and so on, it's considered as a simple example to overcome this problem. The authors have reviewed Midgar software to handle the heterogeneous smart things through the IoT environment and DSL software is designed for the specific purpose, the main idea of this software is generating a domain which allows the interaction between things easy, regardless their nature.

The authors have reviewed Midgar software to handle the heterogeneous smart things through the IoT environment and DSL software is designed for the specific purpose is generating a domain to enable the interaction between things easily regardless their nature. The Midgar Software used to avoid the complexities in traditional methods that are used to handle this problem. In the future the connectivity is won't be limited to the electronic devices, but it will also include people this is will climb the problem; for this reason can be considered Midgar as a first step in this point.Moreover, IoT like any networks uses the service oriented architecture (SOA) approach to enhance the heterogeneous resource behavior (i.e. Sensors and Actuators) and it provides the highest level of flexibility and scalability to the system in both the external integration processes and the exchange processes within the middleware.

3.3.1. *Middleware Layer*

The middleware layer is a software layer or a set of sub-layers interposed between the technological and the application layer, it provides a standard way for representation and communication. In general, the middleware layer supports the transparency concept that is used to hide all complex details from end user; actually the transparency concept is a one of the most distinctive features of distributed systems.The Service oriented Architecture (SOA) is a common example of the middleware technology that is used to deal with IoT, SOA allows to re-use and utilize real world service in a dynamic way [7]. The SOA supports some of the services and one of them is called "Service Level Agreement (SLA)", which used to make an agreement between the service provider and service user, the most important feature of SLA is the contracted to delivery time service, this feature provides QoS.

The middleware layer consists of three main layers are: *i) Service composition layer:* the common layer on top of SOA middleware; it provides the functionality for composition of single service and builds specific application. This layer concerned about services or providing services only. Service composition architecture consists of individual architecture of the participating services, this architecture published SLA [14].

ii) Service Management layer: the layer allows management in IoT. Service management can be classified into two areas are: i) runtime: services that based on time as a critical factor to implement them directly. ii) Design time: services a part of maintenance lifestyle and service development [15]. Service management layer encompasses is a set of services such as object dynamic discovery, status monitoring, service policy enforcement, service Meta model updates and service configuration, some of middleware include additional features that are related to Qos management and lock management. It's notable that through the service management layer can develop new services during run-time [7].

iii) Object abstraction: the need to object abstraction layer is summarized in vast and heterogeneous objects which scattered through IoT, layer organized harmonizing access to different devices with common language and procedure. Object abstraction includes wrapping layer consists of two sub-layers, interface sub-layer that management, incoming/outcoming messages and it provides an interface exposing the available method through a standard web service interface. Second sub-layer is a communication sub-layer that implements logic at web service methods and translate these methods at devices to communicate with real-world objects [7].

3.4. Interoperability

Interoperability concept can be defined as the ability to create systems or devices cooperating with each other in an efficient way. In [16] Jussi et al. sought to use the semantic level interoperability architecture for pervasive the computing and IoT; the architecture is relied on the semantic information sharing solutions called "smart-M3".

The principle idea of the proposed architecture relies on dividing IoT environment into small spaces to facilitate their management process. A Semantic Information Broker SIB is used to provide methods for agents to share semantic information with each other and also provides monitoring and updating of the physical world in real time. The main observation of the architecture, performance after using the agent interaction operations scale very well also enable interaction with the physical world in real time. The architecture needs for tools the support development and deployment of devices and applications in the future IoT systems.

3.5. Quality of Service (QoS)

Ideally. QoS is defined as "the amount of time that is taken to deliver the message from the sender and the receiver" if this time is equal or less than pre-specified time requirement the QoS is achieved. ITU re-defined QoS concept as a degree of conformance of delivering service to the user by the provider with agreement between them [17]. For QoS assurance, must cope with service models to determine which degree of QoS for each Internet service.

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Moreover, Internet services can be classified according to Internet service models which considered as a supplement to provide the following: firstly, the ability to categorize Internet applications by priority; and secondly, determining QoS demands necessary to achieve user satisfaction. A service models consist of three main models based on three factors, namely, a delay factor is concerned with time, which can be classified into Hard Real Time (HRT), Soft Real Time (SRT), and Non-Real Time (NRT), a critical factor is concerned with the kind of process/application (i.e. Sensitive application or not) (yes/no), and finally, an interactivity factor depending on the user's subscription (yes/no). According to table 2, the major types of Internet service models are: an open service model, an Supple service model, and a complete service model, the main function of these categories helping to offer QoS provisioning upon Internet services [18]In [19], Ming ZHOU et al. sought to find an efficient algorithm more suitable with large-scale and real time in IoT, they made a comparison between the three common algorithms are: Integrated Linear Programming (ILP), Genetic Algorithm (GA), and Backtracking Algorithm (BA) to find a suitable algorithm that can deal with this context by efficiently. The authors chose BA as a more suitable algorithm to serve this idea because it's a suitable to cover the large- scale area in IoT and gave the good results in real-time compared with the counterpart of algorithms.

Table 2. Internet Services models

IoT Models	Delay	Process/App.	Interactivity
Open service	Not real time	Not mission critical	Interactive
Supple service	Soft real time	Mission critical	Application dependent
Complete service	SRT/HRT is depending on app.	Mission critical	Not interactive

3.6.Scalability

Scalability is one of the most important challenges of IoT, which means how to deal with the sustainable growth of the Internet in an efficient manner. In the other words, "Scalability is the ability of a system or network to handle the growing scale of any environment without an effect on performance". Currently, the Internet comprises around 9 billion devices with a next era of the Internet which known Web 0.3 or ubiquitous computing it is expected to reach 24 billion devices, the increasing of this number have a broad impact on the performance of the network.

In [5], J. Gubbi et al. sought to apply the cloud computing technology represented in Aneka software with IoT environment. Generally, cloud computing provides a set of features such as high storage resources, scalability, visualization platform and client delivery; plus the cost of each service based on pay-per-use. Aneka cloud computing software provides a utilize storage and computing resources of both public and private cloud.

3.7. Virtualization

Virtualization is known as the ability to share hardware resources among multiple operating systems. The virtualization technology allows for the multiple operating systems and software like applications or services to run upon the same server through creating more than virtual machine inside the physical machine. The vision of this concept helps to increase the performance of the network via increasing utilization, maximizing scalability, saving cost, etc. [20]. Actually, there are three areas used to represent the virtualization technology, namely, i) network virtualization, storage virtualization, and server virtualization.

In [3], S. Alam et al. have created the framework called "an IoT Virtualization Framework based on Sensor as a service notion" this frame consists of three layers are: real world layer, semantic layer and virtualization layer in addition separately database to record useful information. Primarily, the main challenges in the IoT environment can be determined into three items namely, i) there is no registry mechanism, the framework possesses database to overcome this challenge; ii) the heterogeneity and discovery, the proposed framework sought to overcome of this issue through the semantic approach to deal with the heterogeneity by providing a standard language called Sensor Model Language "SensorML"; and finally iii) the interaction between event and service in the IoT environment are absent, the framework uses the Virtualization layer to deal with this challenge by efficient way. The future directions of this framework divided into two points are: enhancing its performance in real-time domain and improving micro-formats for advertising on social networks.

3.8 Big Data

Big Data is a new expression to describe massive data whether structure or unstructured, which is difficult to deal with traditional database methods and software techniques. Simply, Big Data defined as a large volume of data [21]. Dataset considered as a Big Data when it meets 4 V's-value, volume, velocity, and variety. Big Data attracts almost a new industrial field such as online social networks (Twitter, Facebook, and Instagram); the collection of data through the social network is very huge, for example twitter in 2010 producing up 120 terabytes of data of the day [22]. IoT is considered as a good example of Big Data as the amount of data which was collected from deploying sensors through IoT environment was very large and heterogeneous. The coupling between IoT and Big Data was very strong [23].

In [22], Chang Liu et al. sought to introduce a software architecture addressed real-life based on the extraction from the SMARTCAMPUS project, this architecture supported the concept of Big Data into the IoT environment to deal with data collected from sensors. This class of architecture tackled some of challenges such as data storage, avoiding processed bottlenecks and high throughput.

3.9 Cloud Computing

Cloud Computing and IoT are the most popular example to represent the ubiquitous computing field; but IoT is not popular like Cloud Computing, both use the distributed computing concept. Cloud computing is a way to access large amount of computational resources and supports a large number of users in a reliable and decentralized manner; it's also provide software cheaply. Cloud Computing consists of the three main layers are: Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Service as a Service (SaaS) each one provide significant features through the cloud data center. Cloud computing is considered as a standard framework to represent IoT, and both IoT and cloud computing possess a set of benefits and restrictions. IoT represents real world and small things, but it is limited storage in addition to traditional problems in the network such as scalability and privacy; in other side, cloud computing has virtually unlimited capabilities and processing power [24]. The integration of cloud computing with IoT became a very important point of recent researches; to produce system able to overcome the many challenges such as scalability, storage resource and virtualization; can be considered the main objective of this integration is to leverage from cloud computing in processing power which need for sensors and other things [25].

Recently, a lot of researches are mentioned integration between cloud computing concept and IoT; for example not as a limitation in [24], Alessio et al. sought to review the existing integration between IoT and cloud computing in the CloudIoT paradigm and illustrates the benefits from them. First of all, the transparence which come with the virtualization technology to hide the complexity of sensors from the end user; in addition to some of other features such as the storage resources, the cloud computing concept provides high capability to store large amount of data which collected from sensors; the big data considered as a new vision to restructure huge volumes of data through the IoT environment; the computational resources, one of the issues of IoT is limited processing resources Cloud Computing overcome this problem to improve scalability.

The cloud computing also provides a lot of efficient solutions for the most issues of IoT and sought to offer the new visions for these issues such as providing ubiquitous access to sensor data through Sensing-as-a Service (SaaS); enabling automatic control logics implemented in the cloud computing through Sensing and Actuation-as-a-Service (SAaaS); dispatches messaging services triggered by sensor events through Sensor Event-as-a-Service (SEaaS); enabling ubiquitous management of remote sensors through Sensor-as-a-Service (SenaaS); enabling ubiquitous database management through DataBase-as-a-Service (DBaaS); providing ubiquitous access to any kind of data through Data-as-a-Service(DaaS); providing ubiquitous layer-2 connectivity to remote devices through Ethernet-as-a-Service(EaaS); enabling ubiquitous access to policy and identity management functionalities through Identity and Policy Management-as-a-Service(IPMaaS); providing ubiquitous access to recorded video and implementing complex analyses in the Cloud through Video Surveillance-as-a-Service (VSaaS).

3.10 Power Consumption

The power consumption issue is a critical point in wireless networks. Typically, the efficiency of the work of sensors depends on the lifetime of the battery. Nowadays the most of devices are equipped with sensors such as smart mobile phone, tablet and laptop to deal with the modern applications. For instance, the application of weather prediction that is relied mainly on GPS to determine location; once the GPS application is turned on during the whole sensing procedure the battery may be drained very quickly.

In [26], K. Batool et al. have dealt with the power consumption issue by using sniffer agents. The paper was autonomously presented on mobile energy consumption of networked consumer devices to determine the approximation of the current power requirement. The paper represented the model of the proposed self-organized power consumption approximation (SOPCA) algorithm. The principle idea of this algorithm is the use of wireless connectivity between peer devices and servers, the devices discover other devices to propagate energy sniffer agent (ESA).

ESA locates devices and keeps estimating energy consumption. Source node also locates the other node by using GPS, ESA updates their internal variables based on the observation of local energy consumption then it moves to another node. The mechanism of SOPCA algorithm avoids a re-routing between devices by using flags on the individual devices. The authors used agent-based model (ABM) to test the proposed algorithm over random network.

3.11 Security and privacy

The security rule aims to protect it from threats; these threats classify into two kinds are: the external threats such as attacks on system form attackers and the internal threats represented in misuse of the system or information. There are three main factors of security are: data confidentiality, privacy and truth. Data confidentiality guarantees only the authorized users to access and modify data, and it includes two aspects: first, access control mechanism and second, an object authentication process [27]. Truth is guaranteed to apply security rules into system and common example of truth is digital certificates. Privacy is defined as a control access to personal data; and it allows keeping certain information and data confidential; the features of privacy are secrecy, anonymity and solitude [28]. The most current researches seek to increase and develop privacy in the applications, the Privacy Enhancing Technologies (PET) can be oriented to the subject, the object, the transaction or the system; it is used to protect identity over the Internet [28]. In the IoT environment the security and the privacy are important to guarantee a reliable interaction between the physical world and the cyber world [28].

In [29], Biplob R. Ray et al. proposed a framework dependent on group approach and collaborative approach called "a hybrid approach", and used security check handoff (SCH) with RFID. The SCH is a bet flags (0,1) (on/off) help to keep track of the security state of the tag; also the SCH allows the tag to take a shortcut to clear the security check or re-clearance tag. Notable, the most of the existing protocols which deal with RFID suffer from threats and vulnerabilities such as insecure, inefficient identification, throughput and inadaptability. The proposed protocol provides customization to ensure the adaptability of the new efficient techniques. The development of RFID security protocol makes the IoT more robust distributed structure.

4. THE HOT TOPICS AND RELATED CHALLENGES

The IoT consists of a host of other elements, which are considered as an extension for the general challenges of IoT or it can be called "unique challenges". The section seeks to explain some of these elements in a nutshell.

4.1 Radio frequency Identification (RFID)

RFID is a breakthrough in embedded communication and WSN, RFID is used to generate a unique ID for the object in WSN. It consists of two parts are: passive RFID: which used to power of the reader's interrogation signal to communicate the ID to the RFID, and access control application as well. Active RFID: readers have their own battery supply and instantiate the communication. RFID uses Ultrawide Bandwidth (UWB) technology to enhance RFID performance in a specific IoT application field. UWB is a technology allows the next generation of RFID to overcome many of the current restrictions in current RFID such as low security, reduce area, and sensitivity to interferences. The RFID contains three key elements are: the RFID tag or transponder that carries object, the RFID tags reader or transceivers that read and write tags and back-end database.

4.2 Wireless Sensor Networks (WSN)

WSN is an important part of IoT. it's considered as a core to build the IoT block, it consists of a group of specialized sensor data are shared among sensor nodes with communication infrastructure for monitoring some of events or states of objects such as temperature, sound, pressure, etc. these sensor nodes work autonomously and can be linked between them by self-organizing. Notable, WSN support the distribution concept between sensor nodes, and each sensor network includes some of elements such as radio transceiver with an internal antenna or connection to an external antenna, a microcontroller, an electronic circuit for interfacing with the sensors and an energy source [30]. The section seek to show the components that make up WSN in the following:

- WSN hardware contains a sensor interface, processing units, transceiver units and power supply.
- WSN communication stack the nodes deployed in an ad-hoc manner for most applications.
- WSN middleware is mechanism to combine cyber infrastructure with service oriented architecture (SOA). SOA is an architectural style that enables the composition of applications by using loosely coupled and interoperable services.
- Secure data aggregation; it is a very important to ensure reliable data collected from sensors.

4.3 Addressing Schemas and Communication Protocols

The Internet contains a large amount of objects which needing to determine their location to complete the communication process in an efficient manner, it's considered as a main objective of addressing process. Generally, Internet Protocol (IP) used to identify objects through the Internet; there are two versions of IP, namely, i) IPv4, which uses 32-bit addresses (2^{32} addresses) to identify hosts or objects through the Internet, this process considered as limited to some extent; and ii) IPv6 is the latest version of the Internet protocols uses 128-bit (2^{128} addresses), It covers a large area more than IPv4 [31]. The RFID technology is a way to identify things into WSN and IoT, it generates unique ID to identify the smart objects. Also "IPv6 over Low-power wireless Personal Area Network (6LoWPAN)" IEFT group aims to make IPv6 compatible with low capacity devices.

5. APPLICATIONS

Recently, the IoT technology has appeared as a one of the basics in our lives because it touches a lot of the important sides such healthcare, smart water, transportations, surveillance and so on. Moreover, there are many applications which have emerged to serve this concept. According to [5] can be divided the IoT applications into four categories can be summarized in the following: i) Personal and home uses WiFi as a backbone providing higher bandwidth data transfer as well as higher sampling rate, the healthcare sector is considered as the most popular example of this category, ii) Enterprise, the information in this category may be collected from the networks, the environment monitoring such as video surveillance is a first common example of this category followed by smart home and smart environment generally, iii) Mobile, the sensor information can be obtained from large scale WSN for online monitoring of travel time the popular example of this category is transportation; lastly, iv) Utilities, the information can be obtained from networks to achieve service optimization and power consumption,Typically, the main target of companies which are using this type of applications is reducing cost and maximizing profit. The best example of this kind is smart grid, smart metering and smart water and quality of drinking water. This section will be reviewed the most popular examples of each type of these mentioned categories earlier, also table 5 summarizes the categories of the IoT applications.

Healthcare: the IoTCloud paradigm [33] has been widely used in the healthcare sector to diagnosis, treatment and tracking the status of the patients remotely. The paradigm must serve four pivots namely, i) tracking: is a function aimed to identify the patient in motion, ii) identification and authentication: identification aimed to reduce mistakes in diagnosis and authentication used to meet with security requirements, iii) data collection: usually aims to reduce processing time and it is related to integrating RFID technology with other health information, lastly iv) sensing: used to provide real time information about the patient [32]. The issues in this area are defined as: control, security, heterogeneity, interoperability and streaming QoS.

Smart environment (i.e. Smart city, smart home): The key idea to gain the smart environment such as smart city or smart home while maintaining the level of service without degradation has relied on the integration between both IoT and cloud computing; over recent year's escalation of attention toward this integration. Generally, The IoT suffers from a host of the thorniest issues, first of all, heterogeneity of objects; there are many middleware technologies are designed to deal with this type of issues, such as RFID middleware and WSN middleware. On the other hand,the cloud computing provides scalability and hide complexity of sensors from end users by using the virtualization technology. The most popular challenges in this type of application are limited to security and real-time applications.Video surveillance: is an intelligent video to monitor the object behavior and activities, it has become an important tool of security-related application and it can be considered as an alternative to self-contained management systems, and the complex video analytics requires Cloud-based solutions, and it can be used to satisfy the need to increase volume of storage capacity of media [32].

Automotive and smart mobility: the aim of this function concentrated on the improvement of transportation and transport through increasing safety road, reducing congestion, and control traffic. Can be considered the integration between Cloud Computing and IoT as a promising opportunity to find effective solution is characterized by high performance, security and lowest cost. The challenges in this type are: identification, heterogeneity of sensors, scalability and dynamic behavior of objects.

Smart energy and smart grid: the biggest problem in the sensors world is power consumption, the battery in sensors may drain very quickly, and both the IoT and Cloud Computing provide intelligent solutions to manage energy distribution and consumption in heterogeneous environments.

6. CONCLUSIONS AND FUTURE DIRECTIONS

IoT is a one the main techniques that is used to express the ubiquitous computing approach, but it still not popular like the cloud computing technology. This paper has sought to highlight the IoT concept in general through the three sections namely; section I, reviewed an overview about the IoT concept via highlighting its history and its inception since 1999 at the hand of Kevin Ashton who considered as one of the pioneers who talked about IoT and even Cisco company now. Then it has reviewed the main idea to design the IoT structure that relies on the integration between three dimensions are: information items, independent network and intelligent applications. Accordingly, the future of the IoT structure relies on the integration among real or physical worlds, cyber-world and social world. Lastly, in this section is pointed out to the differences between both IoT and the traditional network.Section II, reviewed the main general challenges which had a significant impact on the performance of IoT such as communication, networking, Qos, scalability, virtualization, big data, heterogeneity and security; this section sought to illustrate and provide the recent solutions for each element of these challenges. Also, this section reviewed another kind of challenges that are called "unique challenges" under subtitle "The Hot Topics and Related Challenges"

which includes more related challenges to the IoT environment.Finally, section III, reviewed a set of the popular applications which are offered by IoT and the IoTcloud paradigm such as healthcare, smart city, smart grid, smart transportations, etc.. Based on the above, can be considered the IoT environment as a rich search point, and flourishing area to the research in particular in the integration topic with cloud computing, which provides the new scenerics to handle the smart services and applications.

Table 3. Summary for the recent research directions of IoT

Research area	Techniques	Solutions	Open area
Networking [11]	MANET	The authors have used the MANET as a way to maintain connection between things.	▪ Improving Ad-Hoc network. • Network technologies. • RFID. ▪ Communication protocols.
Routing [12]	Learning automates (LA) & Cross-layer.	The authors proposed a protocol called "fault-tolerant routing" protocol to serve the IoT environment.	• Improving the proposed algorithm to cover the wide range of the application domains
Heterogeneity [13]	Midgar Software	The authors have been sought to improve the interaction between objects or things via the graphic editor that generates model defined by a Domain Specific Language.	▪ Domain Specific language and graphic editor to generate smart objects. • Insertion of boxes in the graphic editor with support for data analysis and fuzzy logic. • Scalability of IoT platform. • Security and privacy.
Interoperability [16]	Semantic Interoperability Architecture	The authors have been sought to build the semantic interoperability architecture to access the information easily, also the paper used the monitoring and updating events of physical world in real time.	▪ The architecture needs tools that support development and deployment of devices and applications into the future IoT systems.
QoS [19]	BT, IP & GA	The authors have been reviewed comparison between three algorithms to determine Qos metrics for composes service. BT algorithm is the most appropriate to IoT environment more than ILP & GA, because it suitable to serve both high scale of service and real-time application.	▪ Decreasing steps of BT algorithm for calculating QoS.
Scalability [5]	Aneka Hybrid cloud computing (private cloud + public cloud)	The authors have used cloud computing technology with IoT environment to improve scalability and provide storage resources.	• Cloud computing. • Energy efficient sensing. • Architecture of IoT. • Data mining. • Secure reprogrammable networks and privacy.
Virtualization [3]	IoT Virtualization Framework based on SenaaS technology.	The authors have created a new framework based on SenaaS notion named it "IoT Virtualization Framework", the main objective of this frame is reusability of the sensor information via web browser.	• The development of IoT framework services micro-formats for advertising on social networks. • Improving the performance of an IoT framework at real time.
Big Data [22]	SMARTCAMPUS.	The authors have sought to improve the software architecture named "real-life" based on extracted from the SMARTCAMPUS project to handle Big	• Cloud Computing. • Scalability/elasticity. • Computation time. • Security.

		Data in the IoT environment.	
Cloud Computing [24]	CloudIoT Paradigm.	The authors have highlighted the integration between the cloud computing and IoT, also reviewed the previous literatures about them.	• Standardization of framework. • Power consuming. ▪ Fog Cloud. • Complex data mining.
Power Consumption [26]	Self-Organized Power Consumption Approximation (SOPCA) Algorithm	The authors have used a self-organizing for dynamic approximation of power consumption to create (SOPCA) algorithm. Also the authors have used Agent-based model to test this algorithm.	▪ The SOPCA can be further explored by the evaluation of flooding as well as by using artificial intelligence algorithms.
Security [29]	SCH	The authors have used SCH to improve and ensure security of RFID system.	• Improving and addressing the integration of a tag tamper resistance mechanism.

Table 4. Summary for The future research topics in the IoT.

Research Directions	Info.	Open directions
Discovery / identification.	The ability to create a standard addressing schemes more efficient and reliable, additionally, it must be provided convergence of IP and RFID.	• Mapping digital & real. • Device discovery. • Semantic search. • Universal authentications mechanism.
Design / architecture	The IoT architecture uses an open architecture approach to maximize interoperability and handle the heterogeneity.	• Cloud computing. • Ad-Hoc networks. • Adaptive and context-aware architecture.
Networking	The Networking issue includes both routing and communication protocols. it seeks to improve the performance of network through congestion management and traffic.	• Ad-Hoc networks, Hyper networking. • Self-configuration. • Virtualization technology (location transparency). • Self-organization networks.
Standardization	The aim of standardization issue is the ability to create a standard interface or standard framework to achieve highest level of interoperability between devices.	• IoT standardization. • Cloud computing. • Semantic web. • Semantic interoperability.
Energy Consumption	Typically, the efficient of sensors rely on the lifetime of battery. Recently, the micro power technology used to address this issue.	• Semantic interoperability. • Micro battery technologies. • Energy harvesting.
Security	The aim of security is protecting data from unauthorized users. Generally, the security issue contains three levels are: confidentiality, trust, integrity	• Security for cloud computing. • Security for semantic web. • Improving encryption methods. • Privacy policies and trust.

Table 5. The categories of IoT applications

Categories	Services	Connectivity	Challenges
Personal/Home	healthcare	WiFi, 3G, 4GLTE	• Heterogeneity. • Interoperability. • Control methods. • Real-time. • Security. • QoS.
Enterprise	Smart Cities	WiFi, 3G, 4GLTE, Satellite	• Scalability. • Identification and discovery. • Heterogeneity. • Virtualization. • Control methods. • Real-time. • Big data. • Power consumption. • Security.
	Smart Environment	WiFi, 3G, 4GLTE, Satellite	
	Video Surveillance	WiFi, Satellite	

Mobile	Smart Transportation / Smart traffic	WSN, Satellite	• Identification and discovery. • Control methods. • Scalability. • WSN • IoT architecture and design. • Real-time. • Cost.
Utilities	Smart Grid	WiFi, Satellite & Celular	• Power consumption. • Scheduling (Load balance). • Real-time. • Scalability. • Control methods. • Cost.
	Smart Energy		
	Smart Water		

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Computer Networking: A Survey

M. Benaiah Deva Kumar and B. Deepa,
[1]Scholar, [2]Assistant Professor,
IT Department, Sri Krishna College of Arts and Science College, Coimbatore, India.

Abstract- Computer networks have become increasingly ubiquitous. In today's world, a computer network is much more than a collection of interconnected devices. Computer networks are a system of interconnected computers for the purpose of sharing digital information. The computer network enables to analyze, organize and disseminate the information that is essential to profitability. The rise of intranets and internets is the important aspect of computer networking. Intranets and internets are private business networks that are based on internet technology. The businesses are currently implementing intranets at a breakneck pace and for one reason only, an intranet enables a business to collect, manage and disseminate information more quickly and easily than ever before. Many businesses are implementing intranets simply to remain competitive; business that delay is likely to see their competition outdistance them. In this article we are presenting the basic concepts of networking.

Keywords- Peer-to-peer; Client / Server; Inter-networks; Intra-networks; Communication medium; Internet Protocol; Open Systems Interconnection.

I. INTRODUCTION

Networking supports communication between two or more programs running on physically distant machines. A computer network is a collection of computers, which are in some way connected such that they can exchange data between themselves and other computers on the network. A network is created when two or more computers are connected to share information and resources. A set of computers exchanging information by common conventions called protocols over communication media. A computer network is simply computers wired together in a way that lets them share data and/or devices such as hard drives, CD-ROMs, fax-modems, printers, etc [2]. A computer network is an interconnected collection of autonomous computers where interconnected means that the computers can exchange information and autonomous means that no computer can start, stop or control another computer connected to the network. Fig 1 gives an example of a network in a school comprising of local area network or LAN connecting computers with each other, the internet, and various servers [4].

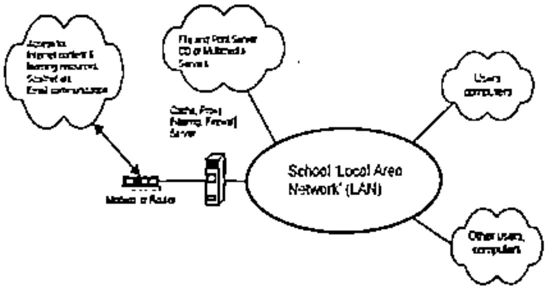

Fig 1: Representation of Network in a school.

II. TYPES OF NETWORK CONFIGURATION

Broadly speaking, there are two types of network configuration, peer-to-peer networks and client/server networks.

A. Peer-to-peer networks

Peer-to-peer networks are more commonly implemented where less than ten computers are involved and where strict security is not necessary. All computers have same status, hence the term 'peer', and they communicate with each other on an equal footing. Files can be shared across the network and all the computers on the network can share devices such as printers or scanners, which are connected to any one computer.Fig 2 represents how the computers are connected in a peer-to-peer networks [4].

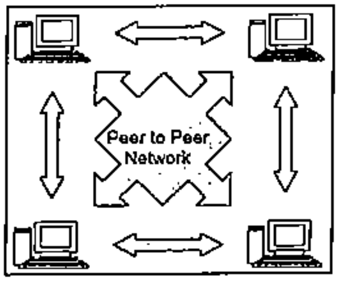

Fig 2: Peer to Peer Networking

B. Client/server networks

Client/server networks are more suitable for larger networks. A central computer, or 'server', acts as the storage location for files and applications shared on the network. Usually the server is higher than an average performance computer. The server also controls the network access of the other computers which are referred to as the 'client' computers. Only the network administrator will have access rights to the server while others cannot. Others can only use the client computers. Fig 3 represents how the computers are connected in a client/server network [4].

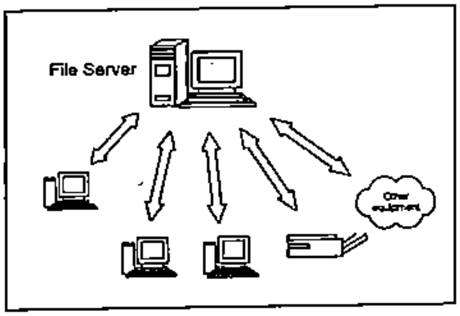

Fig 3: Client - Server Networking

III. COMPONENTS OF A NETWORK

A computer network comprises the following components:

- A minimum of at least two computers.
- Cables that connect the computers each other, although wireless communication is becoming more common.
- A network interface device on each computer (this is called a network interface card or NIC).
- A 'switch' used to switch the data from one point to another. Hubs are outdated.
- Network operating system software [4].

IV. Types of network

The network can be divided into geographical areas and fall into these major categories.

- Local Area Network (LANs).
- Wide Area Network (WANs).
- Metropolitan Area Network (MANs).
- Wireless networks.

A. Local Area Network

A LAN is generally confined to a specific location, such as floor, building or some other small area. By being confined it is possible in most cases to use only one transmission medium (cabling). This technology is less expensive to implement than WAN because you are keeping all of your expenses to a small area, and generally you can obtain higher speed. They are widely used to connect personal computers and workstations in offices and factories to share the resources. Traditional LANs runs at a speed of 10 to 100 mbps have low delay and make very few errors. Never LANs may operate at higher speed up to 100 mbps.

1) Common Physical Topologies

Physical and logical topologies can take several forms. The most common and the most important for understanding the Ethernet and Token Ring topologies are

- Bus topology.
- Ring topology.
- Star topology.
- Mesh topology.
- Cellular topology.

a) Bus topology

A bus physical topology is one in which all devices connect to a common shared cable. A physical bus topology network typically uses one long cable called a backbone computers (workstation and servers) are attached directly to the backbone using Terrestrial microwave-connectors. The backbone is terminated at both ends to remove the signal from the wire after it has passed all devices. The bus topology is the first used topology to connect the computers in a network. This is the oldest form of topologies. This is a failure model. Most bus topologies allow electric or electro-magnetic signals to travel in both directions. A LAN with BUS topology is represented in Fig 4.

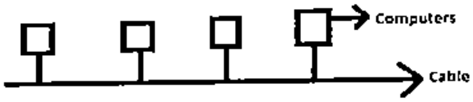

Fig: 4 LAN with BUS topology

b) Ring topology

Ring topologies are wired in a circle. Each node is connected to its neighbors or either side, passes around the ring in one direction only. Each device incorporates a receiver and a transmitter and serves as a repeater that passes the signal to the next device in the ring. Because the signal is regenerated at each device, signal degeneration is low. After some period of time the RING topology came into existence. To avoid the disadvantages of BUS topology, the RING topology is invented. But this is also a failure model. Ring topologies are ideally suited for token passing access methods. The token gets passed around the ring, and only the node that holds the token can transmit data. Ring topologies are quite rare. A LAN with RING topology is represented in Fig 5.

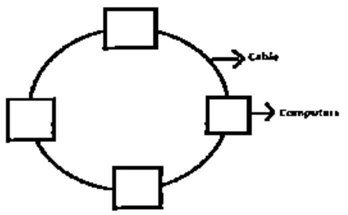

Fig: 5 LAN with RING topology

c) Star topology

Star topologies use a central device with drop cables extending in all directions. Each networked device is connected via a point-to-point link to the central device called a hub or multiport repeater or switch. Additionally, star topologies can be nested within other stars to form tree or hierarchical network topologies. In star topology, electrical or electromagnetic signals travel from the networked device, up its drop cable, to the switch, from there the signal is sent to other network. To avoid the disadvantages of BUS topology and RING topology, the STAR topology is invented. This is not a failure model. But it is a standard model and now-a-days this topology is commonly used everywhere. A LAN with STAR topology is represented in Fig 6.

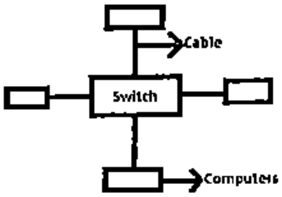

Fig: 6 LAN with STAR topology

d) Mesh topology

A mesh network has a point-to-point connection between every device in the network. Because each device requires an interface for every other device on the network, mesh topologies are not usually considered practical. However, mesh networks are extremely fault tolerant and each link provides guaranteed capacity.

e) Cellular topology

A cellular topology combines wireless point-to-point and multipoint strategies to divide a geographic area into cells. Each cell represents the portion of the total network area in which a specific connection operates. Devices within the cell communicate with a central station or switch. Switches are interconnected to route data across the network and to provide the complete network infrastructure. For example, devices may roam from cell to cell while maintaining connection to the network.

B. Wide Area Network

A wide area network spans a large geographical area, often a country or continent. It multiplies multiple connected LANs that can be separated by any geographical distance. In most WANs the network contains numerous cables or telephone lines, each one connection a pair of routers. If two routers that do not share a cable nevertheless and wish to communicate, they must do it indirectly. On personal computers we are using modem to communicate indirectly with other computer. WAN connecting two different networks is represented in Fig 7.

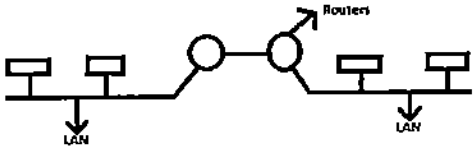

Fig: 7 WAN connecting two different networks

C. Metropolitan Area Network

Metropolitan Area Network is basically a bigger version of LAN and normally uses same technology. It might cover a group of nearby corporate offices or a city and might be either private or public. On the other hand, MAN is network running throughout a metropolitan area such as a backbone for a phone service carrier. A MAN just has one or two cables and does not contain switching elements.

D. Wireless Networks

Mobile computers such as notebook computers, laptops are the fastest growing segment of computer industry. Users want to connect this machine to their office LANs to see the data when they are out from the office, since the wired connection is not possible we have to use wireless networks.

For e.g. on aircraft single router will maintain a radio link with some other router on ground, changing routers as it flies along this configuration is just a traditional LAN, except that its connection to the outside world happens to be a radio link instead of a wired line.

V. COMMUNICATION LINKS

Various types and forms of communication medium are

- Fiber-optic cable.
- Twisted-pair copper wire.
- Coaxial cable.
- Wireless local-area links. (e.g. 802.11, Bluetooth)
- Satellite channel [3].

VI. INTERNET PROTOCOL (IP)

To solve the scaling problem with Ethernet, and to allow support for other types of LANs and point-to-point links as well, the Internet Protocol was developed. To support universal connectivity, IP provides a global mechanism for addressing and routing, so that packets can actually be delivered from any host to any other host. IP addresses (for the most common version 4, which we denote IPv4) are 4 bytes (32 bits), [6] and are part of the IP header that generally follows the Ethernet header. The Ethernet header only stays with a packet for one hop; the IP header stays with the packet for its entire journey across the Internet. An essential feature of IPv4 addresses is that they can be divided into a "network" part and a "host" part [5]. There are different types of classes in IPv4 and their ranges are shown in Table 1.

Table: 1 Range and types of classes

Class	Address Range
Class A	0 to 126
Class B	128 to 191
Class C	192 to 223
Class D	224 to 239
Class E	240 to 254

Range 127 is reserved for the loopback or localhost, for example, 127.0.0.1 is the common loopback address. Range 255.255.255.255 broadcasts to all hosts on the local network [9].

VII. OPEN SYSTEMS INTERCONNECTION (OSI) MODEL

In 1977 the International Organization for Standardization, or ISO, founded the Open Systems Interconnection model, or OSI, a process for creation of new network standards. OSI represented an attempt at the creation of networking standards independent of any individual government. The OSI model is today perhaps best known for its seven-layer networking model. Those seven layers of the OSI model and their purpose are stated in Table 2. OSI has its own version of IP and TCP. The IP equivalent is CLNP, the Connection Less Network Protocol, although OSI also defines a connection oriented protocol CMNS. The TCP equivalent is TP4.

Table: 2 Layers of OSI model and their purpose

Layer	Purpose
Physical	Network Interface Card, wire and so on.
Data Link	Error checking, manages link control, communication with cards.
Network	Addressing, traffic, switching.
Transport	Handles network transmission
Session	Establishes rules for communication, determines synchronization.
Presentation	Translator between application and others, redirector, encryption, compression.
Application	Interface to network services.

CONCLUSION

Computer communication, it seems, will become a much more useful networking tool when large numbers of people with similar interests acquire access to the technology. Though it can expedite the formation of new interpersonal networks by overcoming the space and time barriers faced by traditional networking techniques, it still requires a great deal of concentrated effort and resources to get the people to use it. This problem should become increasingly minimized over the coming years as the technological innovations become more diffused throughout society [8].

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Current Trends in Software Engineering Research

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1 author:

Gayatri Vijiyan
Asia Pacific University of Technology and Innovation
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CURRENT TRENDS IN SOFTWARE ENGINEERING RESEARCH

Gayatri Vijiyan[1]

[1]Lecturer, Asia Pacific University of Technology and Innovation (APU) Technology Park Malaysia Bukit Jalil, Wilayah Persekutuan, 57000 Kuala Lumpur

ABSTRACT

Software engineering is dynamic disciplines that have continuous growth in research in identifying new methods, tools and methodologies that have cause vast improvement in software development and maintenance to be more reliable and efficient. Past research critics on cost reduction, quality and flexibility have endless try to design and develop many ways to improve these sectors are still causing impacts to the software industry [1]. *The new trends in software engineering research topics resolves under the research field of Cloud Computing, Big Data, Android Computing, Network Security and Software Engineering Project Management. Nevertheless, there are more other research areas in software engineering that have been intense researched and implemented in the industries.*

Keywords: Methodology, Tools, Model, Cloud Computing, Android Computing, Big Data, Network Security, Project Management

Contribution/ Originality:

1. CLOUD COMPUTING

Cloud computing a new area in the research field of software engineering where more new techniques and models are introduced with benefit to the industry and also provide knowledge with intension to improve the education and software industry in providing reduction cost and improve the current technology in the industry [1]; [2]. Based from past research, problems in identifying the quality of services in cloud computing are rather poor and because of variety of services provided in cloud computing are neglected, mostly in service sector where the benefit of cloud computing is not felt by the software industry and the users. Thus researcher Abdelmaboud, et al. [2] have introduced five-research focus area to improve cloud-computing services. The research areas are as in Figure 1 below.

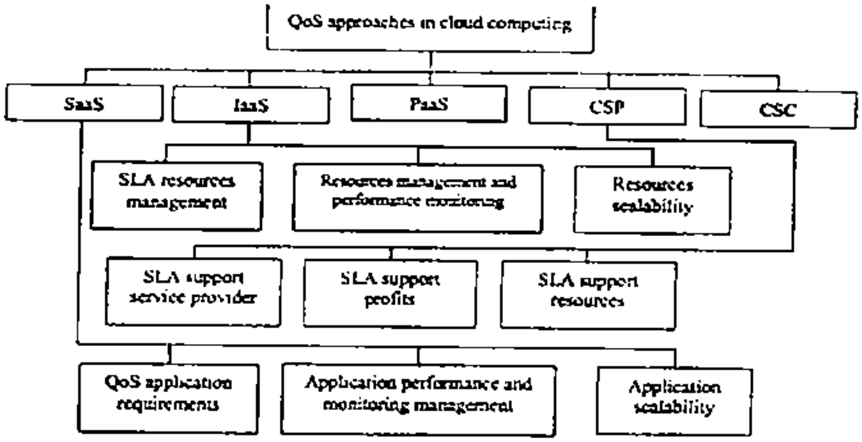

Figure-1. The characteristics of quality of services in cloud computing [2].

The SaaS research focus is related to the applications provided in systems that act as service to consumers. PaaS research focus on development of the platform resource for applications and system services. Iaas research focus on data canters and virtualization resources in organizations. While CSP focus to the providers of cloud computing services such as software, software platform and infrastructure services to the users. Finally CSC related to the people and the organization who use cloud computing services like the software, platform etc.

Another conference paper related to cloud computing is the adoption of cloud computing for software engineering learning environment through Saad and Rana [1] research study. Issues highlighted in this paper are related to the availability, maintenance, accessibility, scalability, compatibility and resource utilization of software and hardware tools used in software engineering course. Another issue highlighted is the willingness to adapt this new technology. From the collective review of past survey handled with three universities which are Asia Pacific University of Technology and Innovation Malaysia, University Technology Malaysia and University Malaya Malaysia, discussion of results obtained where software engineering students face difficulty of compatibility, availability and licensing of the software while lectures are concern by the availability of the labs for scenarios for huge classes and unmanageable groups. Furthermore, this paper provides a guideline in implementing the software engineering tool in cloud with descriptions in Figure 2 as below.

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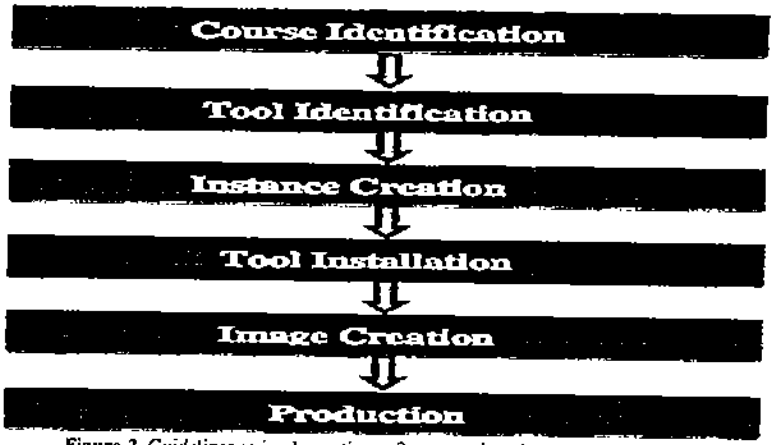

Figure-2. Guidelines in implementing software engineering tools on cloud [1]

In addition, benefits of cloud computing usage are visualized through working on multiple computers and operating systems with regardless of time and location. In addition, universities will have top beneficiaries and this able to optimize the resources more efficiently. To conclude, cloud computing have indulge in many areas weather in education or industry and would have benefited users through quality improvement and providing guidelines in implementing the tools in cloud which also indirectly cause benefit to the society.

2. BIG DATA

Now "Big Data" is famously known for software system utilize the Operational Data (OD) for software design and maintenance activities [3]. The structure and unstructured data in operational support tools have long been prevalent in software engineering field. Proposing systematic approach to the engineering field of operational database systems are popular researched within the Big Data research topics [3]. Mockus [3] research study suggests satisfying growing needs for OD system in software engineering and other fields are emerging. It will be necessary to develop basic principles and tools that allow having effective use of engineering in OD system. Mockus [3] had systematically grab best practises and use past research approach from other domains like databases and principles of OD system challenges. The proposed feature acts as a guide to build engineering principles in OD system are two events that should have the same context, data incomplete, data incorrect, filtered or tempered. From the features develop it is also necessary to develop library basic mechanism to describe the relationships among entities for software engineering domain [1]. The mechanisms are designed into models and used as segments by context, input missing values etc. Particular care needs to be taken when applying methods in OD because the assumptions may be taken for granted and techniques may not be applicable for OD in general and for software engineering in particular. Future work in this area for research are implementing effective methods to identify data entry problem, clean data, augment or segment events and develop robust methods in identifying subject identities [4]. While another research paper on Big Data describes the approaches and environments for applying clouds on Big Data applications [4]. Proposed four areas of analytic and Big Data are data management, model development and scoring, visualization and user interaction also business models. To conclude, Big Data is seen challenge in industries to overcome competitors. While industries able to make use of Big Data to obtain information then the demand of customers will grow, increase revenue, reduce cost and increase operations. Cloud computing help to elevate demand with cost proportional and Big Data is still time consuming, requires expensive software, large infrastructures and efforts [4]; [3].

3. ANDROID COMPUTING

Proliferations of Android device and application services have created demands that are applicable for software testing techniques [5]. Previous research focuses on unit and GUI testing of Andiods applications. Today, EvoDroid [6] is an evolutionary approach for system testing in Android applications. EvoDroid overcomes the shortcoming for system testing and Mahmood, et al. [6] suggests combining two novel techniques, Android specific program on identifying segments of code to be searched independently and evolutionary algorithm that gives information for such segments. Although the approach [6] have shown to successful hand existing tools and techniques for automated testing in Android applications, it could degrade because of unable to systematically reason about input conditions. Future work exists in this are to extend the model and framework exist to provide full use of search base algorithm. Besides, Android application can be considered as Event Driven Software (EDS) that is driven by several types of events [5]. Major issue with Android application testing is accessing testing approaches for traditional EDS system (such as GUIs, Rich Internet Applications, embedded software, etc.) also available in Android based mobile application [5]. Problem of automatic testing in Android Google platform suggests techniques for rapid crash testing and regression testing of the application [5]; [1]. The proposed testing technique is aim at finding runtime crashes or visible faults on modified versions of the application. To conclude, Android computing in software engineering field of research is growing in testing in identifying the right approach and model.

4. NETWORK SECURITY

Network security is desirable as it enables to have direct measurement and compares the security level provided at different solutions. Popular critic of past research is dealing with the rank level of vulnerabilities identified which are able to be measurable and security is not quantifiable until the issue is fixed [7]; [8]. Research on novel security metric that stated k-zero safety identified that metrics are able to count the many responsible network assets compared to ranking the vulnerabilities. K-zero safety can be applied through network hardening and submits. Network hardening renders the k-zero network [8] for larger vulnerabilities. Examples of network hardening is increasing diversity, strengthen isolation, disabling services and firewall attacks. Sub metrics applies modelling and quantifying services by patching with related vulnerabilities. This is an opportunity in choosing different network hardening solutions [8]. The proposed safety model is efficient in determining the appropriate metric for determining the value. Future improvements and evaluations are needed to rank the k-zero day vulnerabilities in handling inputs that are known to vulnerabilities [8] in an application services. However research on network security have grown deeper in measuring the existing networks. Study on security measures relating to the single broadcast Local Area Network (LAN) (Ethernet [7]. A hierarchical model was proposed in clarifying the intrusion detection mechanism in network security. Types of attacks are preparation phase, attack phase and post phase. Preparation phase is where the attacker has generic information of the network. Attack phase is when the network is remotely log from another machine and accessed in another machine. Finally, post phase is when the system continuous to do changes after been hacked Ethernet [7] and this model is beneficial for an open environment in real time. To conclude, network security research areas in software engineering is growing from topology area to metrics or framework extensions regards to this technology.

5. SOFTWARE ENGINEERING PROJECT MANAGEMENT

Software engineering project management purpose to manage the required set of activities and tasks consists major set of issues in planning of software projects [9] that involves software requirements, project planning that are incomplete, software costs and schedules which are hard to prepare and the criteria for selecting the best analysis, design, testing and management methodology for a software project that are in progress [9]. It is quite little that researchers know, the strength and weakness of a software type in planning for a software engineering projects leads towards completion of time involves setting objectives and goals, strategies, developing policies, determining course action and making decisions [9]; [10]. In addition, getting the right people on the right project team suggest to improve the chances of success which is through acknowledging through qualification, technical skills and experience of team members [10].

6. CONCLUSION

This article benefits research students in software engineering field to acknowledge the latest trends of research topics available and to move further with the research gap and future works stated in the research papers reviewed.

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A review of High Performance Computing

G.Sravanthi[1] , B.Grace[2] , V.kamakshamma[3]
[1 2 3]Department of Computer Science, PBR Visvodaya Institute of Science And Technology, India

Abstract: *Current high performance computing (HPC) applications are found in many consumers, industrial and research fields. There is a great deal more to remote sensing data than meets the eye, and extracting that information turns out to be a major computational challenges, so the high performance computing (HPC) infrastructure such as MPP (massive parallel processing), clusters, distributed networks or specialized hardware devices are used to provide important architectural developments to accelerate the computations related with information extraction in remote sensing. The focus of HPC has shifted towards enabling the transparent and most efficient utilization of a wide range of capabilities made available over networks. In this paper we review the fundamentals of High Performance Computing (HPC) in a way which is easy to understand and sketch the way to standard computers and supercomputers work, as well as discuss distributed computing and essential aspects to take into account when running scientific calculations in computers.*

Keywords: *High Performance Computing, scientific supercomputing, simulation, computer architecture, MPP, distributed computing, clusters, parallel calculations.*

I. Introduction

High Performance Computing most generally refers to the practice of aggregating computing power in a way that delivers much higher performance than one could get out of a typical desktop computer or workstation in order to solve large problems in science, engineering, or business. the high-performance computing community has long advocated composing individual computing resources in an attempt to provide higher quality of service (in terms of processing time, size of data store, bandwidth/latency, remote instrument access, special algorithm integration, and so on, for example)

HPC, as a discipline, is largely concerned with software design and implementation issues associated with achieving maximal performance for a given algorithm; the choice of the algorithm itself — for example, an iterative solver for a system of linear equations — is more properly the focus of computational science than of HPC. For the most part, the issues that most affect HPC are:

- Instruction-level parallelism [1]. [2]. [3], [4], [5], [6],
- The storage hierarchy [1], [3], [4], [6],
- High performance compilers [1], [3], [5], [6],
- Shared memory parallelism (e.g., OpenMP) [1], [3], [6],
- Distributed parallelism (e.g., MPI) [1], [2].
- Scientific libraries [5], [6],
- I/O [6],
- Visualization [2].

In addition, the past several years have seen the rise of the issue of remote, heterogeneous (i.e., Grid-based) computing. The pedagogical challenge for the discipline of HPC is to find means of expressing these basic concepts in a manner that is approachable by scientists and engineers who have strong mathematical and scientific backgrounds but modest software development experience. Thus, teaching strategies for HPC require minimal jargon and maximal intuitiveness.

Science and technology plays an important role in improving the quality of life. Many products have been designed to extend human capability and perception in various ways. Numerous scientific and engineering problems must be solved before a very complex product can be designed. This approach used to solve science and engineering problems. Traditionally, scientific and engineering problems can be studied by conducting extensive experiments and analysis . Although it is unavoidable, this approach is very costly and time consuming .The emerging of computer technology 50 years ago introduced tremendous changes to scientific study . Instead of spending precious time and expense conducting real experiments, problems such as weather forecasting, structural analysis, molecular dynamics, large scale financial and economic systems can be described using a mathematical model, then simulated using a computer. Afterwards, when more understanding are obtained via an analysis and visualization, experiments can be conducted to verify the simulation results or collect more information to fine-tune the model. The clear advantages of this second approach are faster turn-around time and much less cost. However, the computing power needs to solve these kind of problems is enormous. This is the rational for recent emerging of *Computational Science* which is the study of techniques and tools to tackle compute-intensive applications.

High Performance Computing (or HPC) is an emerging discipline concerning the solving of large scale, compute intensive mathematical problems using High Performance Computer Systems. Numerous applications in various fields depend on high performance computing. The examples of these application are chemical process simulation, numerical weather prediction, finite element analysis, molecular dynamics, quantum chromo dynamic, air pollution control, and seismic migration.

Application Area	Computation Tasks and Expected Results
Magnetic recording technology	To study magnetostatic and exchange interaction to reduce noise in high-density disk
Rational drug design	To develop drug that cure cancer or AIDs by blocking the action of HIV protease
High-speed civil transport	To develop supersonic jet through computational fluid dynamics running on super computer
Catalysis	Computer modeling of biomimetic catalysts to analyze enzymatic reaction in manufacturing process.
Fuel combustion	Designing better engine model via chemical kinetics calculations to reveal fluid mechanical effects.
Ocean modeling	Large scale simulation of ocean activities and heat exchange with atmospherically flows
Ozone depletion	To study chemical and dynamical mechanisms controlling the ozone depletion process.
Digital anatomy	Real Time medical imaging , MRI
Air pollution	Simulated air quality model
Protein structure design	3-D structural study of protein formation using MPP
Image understanding	Real-time image rendering
Technology linking research to education	Scientific and Engineering Education using computer simulation.

Table 1 Grand Challenge problems

- There are a lot of benefits from high performance computing such as
    - Cost effective
    - Simulate physically challenging experiments
    - Extract meaningful information from massive data

US High-Performance Computing and Communication program had identified some substantially important applications that demand high performance computing [7]. These so called Grand Challenge Applications are listed in Table 1.

II. Hardware Basics

The basic scheme of a single computer is simple; it is sketched in fig. 1. A computer contains memory, which is a set of physical devices to store information. The memory contains both data to use in the calculations, and coded instructions to be provided to the Control Unit so that the calculations can be performed. The Control Unit controls the data flow and the operations that are to be performed in the Arithmetic Logic Unit (ALU). The ALU performs both arithmetic operations on numbers (like addition and subtraction) and logic operations (like AND, OR, XOR, etc.) on the binary digits (bits) of the stored variables. Computers also include a clock, which operates at a given frequency (the clock frequency or clock-rate). The clock-rate determines the number of maximum operations performed per second: An arithmetic or logic operation (as well as each stage an operation is divided into) takes at least one clock cycle. The Control Unit and the Arithmetic Logic Unit together form the CPU. The basic computer device also includes an interface which enables its interaction with the human user (input/output). High performance computers are essentially formed by the accumulation of CPUs linked in a smart way.

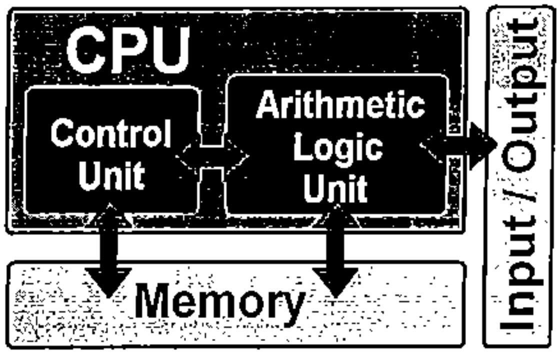

Figure 1: Scheme of the basic parts of a computer [8]. The red arrows indicate information flow

In fig. 1, red arrows indicate information flow. This flow can be physically handled by different devices (the network). One or several CPUs together with some communication devices can be set on a thin layer semiconductor with electronic circuits (i.e., on a chip), to form a processor or microprocessor. The CPU interacts with the outside world via the input/output interface. This interface enables, for example, the system to be managed by the human user (e.g., a keyboard is an input device, and a monitor is an output device).

Figure 2: Scheme of the flow of information (red arrows) in a computer to and from its Arithmetic Unit through a hierarchy of memories [8]. The cache can have more levels (not necessarily two). Usually, the closer a device is to the Arithmetic Unit, the faster the information transferring, but the lower the storage capacity (see fig. 3). The disk, as well as eventual external memories like tape libraries, are not directly connected to the CPU. Some architectures also include direct access paths which connect the registers with the main memory

The data moves to and from the ALU through a memory hierarchy following the pattern displayed in fig. 2. Information can be stored in numerous devices which exist for that purpose (the memory), each having a different maximum amount of bytes for storage (size) and different bandwidth (maximum rate for information transfer). They also have distinct latencies (the latency is the amount of time between a request to the memory, and the time when its reply takes place). For example, if y bytes of information are to be transferred from a memory device which has a latency of l seconds, and a bandwidth of b bytes/second, then the minimal time required for the information to be delivered will be

$$t = l + y/b$$

Not only do the different kinds of memory have latency and a bandwidth, but also the network does. Latencies and bandwidths have a major influence on a computer's performance, especially in parallel machines. In fig. 2 we can see the scheme of connection of an arithmetic unit with several types of memories. Commonly, closer connections are with memories with lower latency and higher bandwidth, though smaller size.

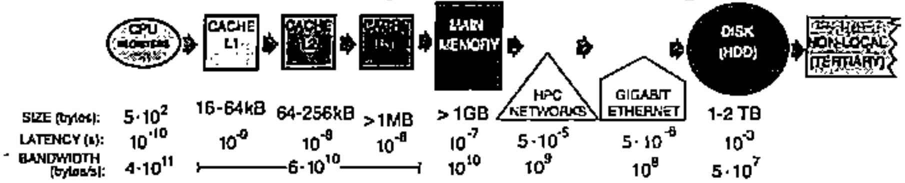

Figure 3: Hierarchy of memories in a computer [7, 9, 10], with typical values of their latency, memory size and bandwidth. The lower the delay in data transfer (latency), the higher the bandwidth and the lower the size of the memory. Blue borders indicate elements typical in supercomputers, while black borders indicate elements which are present both in supercomputers and in personal computers. White shapes do not represent memories, but networking devices for interconnection of nodes in supercomputers.

A scheme of the memory hierarchy, including their present-day typical sizes, bandwidths and latencies, is displayed in fig. 3.The information which is expected to be used immediately by the CPU is stored in its registers, which have a very low latency, but can only store a small amount of information. At present, typical CPUs have between 16 and 128 user-visible registers [8]. The next level in the hierarchy of memories (after the registers) is the level of cache memories. Typically, there exist three different levels within this cache memory, which are usually denoted with L1, L2, L3. When the CPU needs some data, it first checks whether or not they are stored in the cache. Efforts in circuit integration are specifically aimed at increasing the storage capabilities of caches, in order to reduce the time to access the information the CPU requires. After caches, the next level in the memory hierarchy is the main memory (which is sometimes called RAM, although this acronym refers to a specific type of technology).

The disk (hard disk drive, or HDD) has larger storage space, but higher latency and lower bandwidth. Although access to the disk is the slowest if compared to access to other memories, it has much more capability of storing information permanently [11] (external memories, such as CD-ROMs, pen drives, etc. excepted). The first disk memory was developed by IBM in 1956. This first device was able to store 2 kilobits/in2, while disks manufactured today can store data at densities of 0.25 Terabits/in2 [12]. In the last decades, the space of data volumes is doubling each year or even faster [13, 14]. It is worth mentioning that the increase in disk memory capabilities has been boosted by the discovery of giant magneto resistance [15, 16]. This phenomenon makes it possible to manufacture MRAM memories which store information (bits) in magnetic layers [17], resulting in storage capabilities larger than those of previous technologies.

The increase in memory size of devices such as caches, RAMs and disks is quite useful for scientific simulation, because much of the information of the tackled complex systems has to be stored frequently during the calculation process, which makes memory an important limiting factor for in silico scientific calculations. Both the amount of available memory (in disk) and the speed to access information in all levels of the hierarchy imply major limitations to scientific calculations. Data storage is reported to be a big energy consumer; moreover, its power intake tends to grow because storage requirements are increasing over and over, and disks are faster and faster [18] . The low speed to access the information on disks is another drawback of the current technology. I/O (input and output to disk) bandwidth has not advanced as much as storage capacity. As stated in [13]: 'In the decade 1995-2005, while capacity has grown more than 100-fold, storage bandwidth has improved only about 10-fold'. Externall devices to store information can be considered the last level in the hierarchy of memories. These devices can be CD or DVD disks, USB flash drives, or different technologies. Massive storage devices, such as tape libraries are often used in supercomputers. Sometimes, the words primary memory for registers, cache and main memory, secondary memory for hard disks and tertiary memory for non-local memories are used.

III. Super Computer

Because of remarkable advances in computer technology, scientists now have a new problem solving tool, a supercomputer. Supercomputers supported by high powered graphics workstations are extremely valuable resources for a wide range of scientific investigations. High performance computing is becoming increasingly more important to many scientific and engineering disciplines, so it is important for educators to prepare future generations to be ready for that growing demand.

A new supercomputer being deployed this month in the U.S. is using solid-state drive storage(SSD) as an alternative to DRAM and hard drives, which could help speed up internal data transfers because SSDs are lightning fast. If this is close, or as fast as the RAM, maybe we could take the RAM out and replace it with an SSD. Because it is non-volatile and has great storage, it could bring better performance and saving more power (since sleeping will be considered as shutting down because there is no RAM to power up) and speed up booting times.

The supercomputer, called Catalyst, will be deployed at Lawrence Livermore National Laboratory in Livermore, Calif. Built by the U.S. Department of Energy, Cray and Intel, the supercomputer delivers a peak performance of 150 teraflops and will be available for use starting later this month.

Catalyst has 281TB of total SSD storage and is a giant computing cluster broken into 324 computing units, called "nodes" by LLNL. Each computing unit has two 12-core Xeon E5-2695v2 processors, totaling 7,776 CPU cores for the supercomputer. Each node has 128GB of DRAM, while 304 nodes have 800GB of solid-state drive storage. Additionally, 12 nodes have 3.2TB of solid-state drive storage for use across computing units.

The supercomputer is built around the Lustre file system, which helps break bottlenecks and improves internal throughput in distributed computing systems.

The super computer performance is measured in number of floating point operations per second (FLOPS) that the machine is able to perform. The overall performance of the super computer is nowhere near that of the world's fastest supercomputer, Tianhe-2, which delivers a peak performance of 54.9 petaflops, but the implementation of solid-state drives as an alternative to both volatile DRAM and hard drives sets Catalyst apart.

"As processors get faster with every generation, the bottleneck gets more acute," -said Mark Seager, chief technology officer for Technical Computing Group at Intel.

The throughput in the supercomputer is 512GB per second, which is equal to that of Sequoia, the third-fastest supercomputer in the world, which is also at LLNL, Seager said. Sequoia delivers peak performance of 20 petaflops. Intel's 910 series SSDs with 800GB of storage are being used in Catalyst. The SSDs are plugged into PCI-Express 2.0 slots, the same used for graphics cards and other high-bandwidth peripherals.

Faster solid-state drives are increasingly replacing hard drives in servers to improve data access rates. SSDs are also being used in some servers as cache, or short-term storage, where data is temporarily stored for quicker processing. For instance, Facebook replaced DRAM with flash memory in a prototype server called McDipper, and is also using SSDs for long-term cold storage. Though SSDs are more expensive than hard drives, observers say SSDs are poised for widespread enterprise adoption as they consume less energy and are becoming more reliable. SSDs are also smaller and can provide more storage in fewer servers. Samsung in

August announced faster V-NAND flash storage chips that could be 10 times more durable than current flash storage. With faster SSD storage, Catalyst is adept at solving "big data" problems, such as in bioinformatics, analytics and natural language processing, LLNL said in a statement. LLNL has developed a system so memory arrays are mapped directly to DRAM and SSDs, which helps in faster processing of serial applications like gene sequencing. Seager said Catalyst is partly an experiment in new supercomputer designs as the nature of applications and hardware changes.

IV. Massive Parallel Processing

MPP (massively parallel processing) is the coordinated processing of a program by multiple processor s that work on different parts of the program, with each processor using its own operating system and memory . Typically, MPP processors communicate using some messaging interface. In some implementations, up to 200 or more processors can work on the same application. An "interconnect" arrangement of data paths allows messages to be sent between processors. Typically, the setup for MPP is more complicated, requiring thought about how to partition a common database among processors and how to assign work among the processors. An MPP system is also known as a "loosely coupled" or "shared nothing" system.

MPP is a complicated process requiring a certain database functions to be shared between all involved processors. Messages are exchanged between processors via an interconnection of data paths during MPP. MPP is typically found in applications like decision support systems and data warehouses. Supercomputers are also examples of MPP architecture.

V. Distributed Computing

In recent times, other solutions for HPC, such as grid computing, cloud computing and volunteer computing,,have become very popular. These three more modern ways of computing are said to be ways of distributed computing. Distributed computing is based on the concept of doing high performance calculations using geographically distant machines, which has been enabled with the advent of the internet and high-speed networks. Computers participating in a given problem can lie thousands of kilometers away from each other, but they can share information through the internet.

Grid computing [22] uses geographically distant nodes to solve a given problem simultaneously in a cooperative way. grid computing capabilities are usually managed by a given organization, and the computational resources (mediated by physical machinery) which support the calculations are provided by different supporting institutions and organizations, which can be companies, research groups, laboratories, universities, etc. A management committee distributes the computational capabilities at every moment among the requests of different groups of users. The groups of people taking part in grid computing projects for solving problems are usually called virtual organizations since these groups are frequently heterogeneous, being formed by many people from different organizations which are geographically distributed.

The essential aspect of a virtual organization is that it is formed for a specific project. Virtual organizations can act either as producers or consumers of resources (or both). Various virtual organizations involved in a grid computing project are mutually accountable; i.e., if one misbehaves, the others can cease sharing resources with it.

Since many computer cores throughout the world are working together, much computing power can be accumulated, which enables solving many problems whose solution may not be feasible even in the most powerful supercomputing clusters. This generates vast amounts of data, which spurs the creation of large collective databases [13]. Large grid computer facilities are often used by a large number of users, which helps to match the demand of the computational resources with their availability. It is also worth noticing that grid computing projects commonly operate under open-source software standards, which eases the development of software applications and the cooperation among groups.

A popular software package to manage grids is the Globus Toolkit, including the GRAM software as a tool for the users. Grid facilities, as well as cluster computers, frequently run in Linux operating systems. grid computing has been successful in numerous research fields, such as drug design, bimolecular simulation, engineering and computation for industry, Chemistry, Geology (e.g. earthquake simulations) or meteorology [22, 23]. It also play recently, another kind of distributed computing, volunteer computing, has become a useful tool for scientific purposes. volunteer computing consists of using the computation power of machines which were neither devised nor purchased to do scientific calculations, but for use in daily life. Common PCs and laptops connected to the internet, like those in millions of homes, can perform calculations to solve scientific problems. It is only necessary that the owner of the computer agrees and installs the appropriate software (this is the reason why this kind of computing is called volunteer computing). As stated in [24], there are hundreds of millions of idle PCs potentially available for use every moment, and the majority of them are strongly underused. Moreover, while the complexity and the network effciency have increased following their own

Moore's Laws, the number of computer users has increased at even a higher rate during the last decades, which makes the potential capabilities of volunteer computing huge [24].

Volunteer computing projects often rely on the BOINC open-source software16, which is also appropriate for grid computing. Although grid computing and volunteer computing share some features, there is a key difference between them. grid computing is commonly symmetric while volunteer computing is commonly asymmetric. This is, in the former, one organization can borrow resources one day, and supply them the next; in the latter, contributors (particular computer owners) commonly just provide resources to the project.

Apart from grid computing and volunteer computing, cloud computing [25,26, 27] also supplies computational capabilities for scientific calculations by connecting to remote machines via the internet. This is performed by powerful computers that companies dedicate for this purpose (usually for a fee). In cloud computing, a set of virtual servers work together to satisfy user requests, enabling interactive feedback and taking advantage of the available computing capabilities to maximize their use. Cloud computing has some advantages with respect to other ways of computing. For example, it enables the user immediate access to computational resources without the need to obtain approval from an allocations committee and the service can be provided without human interaction with the service provider. Cloud computing enables the use of software without the need for purchasing a licence or installing it, and the user does not need to have strong qualifications in software or infrastructure management. Cloud computing can be classified into three models [27]:

- ***Software as a service (SaaS):*** The user can run the available software, but he cannot install new programs or configure the operating system.
- ***Platform as a service (PaaS):*** The user can install new programs, but he cannot act on the operating system.
- ***Infrastructure as a service (IaaS):*** The user is enabled to configure the infrastructure;

User can install new software, configure the operating system, the network, etc. At present, several companies offer cloud computing resources at competitive prices. Downloading vast amounts of data generated from calculations done in the cloud, however, is customarily relatively expensive.

VI. Accuracy And Efficiency

When performing scientific calculations, both software developers and software users should try to avoid some important issues related to methodology, which are commonly related to accuracy and execution time. We can call accuracy the similarity between the result of a given calculation and the hypothetical result that would be obtained if we were able to perform the same calculation without any numerical error. When calculating physical or chemical quantities, the accuracy is essential, because a lack of accuracy makes results unreliable. The accuracy can be lowered by many sources of error that exist for calculations performed in computers.

Apart from the accuracy, the other main limiting factor in computer simulation is the execution time. Nowadays, we do know equations which describe small scale phenomena quite well, but their solution for complex systems is cumbersome, and often unaffordable. The numerical complexity of the solution of simulation problems usually increases with the size or complexity of the system tackled. This numerical complexity can be measured with the number of required operations. Some examples of this can be

- If one wants to add N arbitrary numbers, then the number of operations required will be N -1.
- Solving a linear system of equations $Ax = b$, being A an $N * N$ dense matrix, requires of the order of N^3 operations using the typical Gaussian elimination scheme.
- The simplest implementations of the Hartree-Fock method to find the ground state of the electronic Schrödinger Hamiltonian require a number of operations which is proportional to N^4, being N the number of basis functions used.
- A naive approach to calculate an estimation of the partition function of a system depending on N coordinates, and sampling m different values for each, takes of the order of m^N operations (exponential growth).

In all these examples the size of the system is proportional to a number N, and the increase of N leads to an increase of the numerical complexity of the solution of the problem. In doing any calculation, we want its result to be ready within a given time; systems beyond a given size will be unaffordable. This scaling of the methods can sometimes be reduced by doing a number of approximations consisting of neglecting part of the information involved in the problem and expecting it will not have a major influence on results [20].

The considerations about simulation time are more complex if parallel programs are run, instead of serial programs. Parallel programs distribute the workload in several computing threads, each of which is run in a different computing unit. When executing a parallel program, it is customary to measure its efficiency with

- The total execution time (wall clock time) which is required for a given task tNc (which is a function of the number of cores working on it, Nc).
- speedup, which is defined as the quotient $SN_c := t1=tN_c$ This is, the time that the task would last if run in one core divided by the time it lasts when run in N_c cores.

- The quotient S_{N_c} / N_c (sometimes called the efficiency factor)

For a given problem of constant size, Amdahl's Law [28] states that if p is the fraction of the problem which can be run in parallel, and therefore s: = (1-p) is the minimum fraction which must be run in serial, then the maximum speedup that can be achieved by using N_c cores is

$$S_{N_c}^{max} = \frac{N_c}{N_c(1-p)+p} . \tag{1}$$

This expression has an horizontal asymptote in $(1\text{-}p)^{-1}$. The speedup can be increased by increasing the total time required by the fraction of the problem which can be run in parallel, which can usually be achieved by increasing the size of the simulated system (for example, increasing its number of atoms). Commonly, p is not constant, but increasing as the size of the problem increases. Let us consider a variable-size problem which requires a time of $T(s + pN^{\alpha}_{c})$ to be solved in serial. In this expression, T is the total time required for solving the problem of a given size in serial, and the exponent α is a given positive number. If the part that can be parallelized is indeed parallelized (assuming optimal scaling in the $N_c$computing units), the time required by the execution in parallel will be $T(s + pN_c^{\alpha-1})$. Applying that s + p = 1 in the ratio of serial and parallel times for a variable-size problem for $0 < \alpha < 1$, becomes:

$$S_v := \frac{s+(1-s){N_c}^{\alpha}}{s+(1-s)N_c^{\alpha-1}} , \tag{2}$$

where S v means speedup factor for variable size algorithms. If $\alpha = 0$ (i.e., if the problem size does not increase with Nc) the expression above equals the Amdahl's Law (1). In the limit of high N_c, eq. (2) becomes

$$S_v=1+\frac{p}{s}N^{\alpha} \tag{3}$$

In the case of $\alpha = 1$ (linear scaling of the size of the problem with the number of computing units solving it), the ratio of serial and parallel time is

$$S_v^G = S+(1-S)N_c \; = (1-P)+PN_c \tag{4}$$

for the ideal parallelization situation. Equation (4) is called the Gustafson's Law [8] and states that the speedup for solving a problem can be increased by increasing the size of its parallelizable part. Considerations such as the ones underlying Amdahl's and Gustafson's Laws can be useful for scientific software developers, in order to increase the efficiency of their codes. Parallelization characteristics of algorithms, however, are commonly much harder to derive than these laws.

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Data Structures and Algorithms in Pen-based Computing Environments

Victor Adamchik

Carnegie Mellon University in Qatar
Compute Science Department
Doha, Qatar
adamchik@qatar.cmu.edu

ABSTRACT

Data structure visualization (or animation) has been studied for more than twenty years, though existing systems have not gained wide acceptance in the classroom by students and their instructors. The main reason is that animation preparation is too time consuming. A more technical reason is that when a particular data structure is encoded into an animation, it does not have the flexibility often needed in a classroom setting. There is also a pedagogical reason: a number of prior studies have found that using algorithm visualization in a classroom had no significant effect on student's performance. We believe that the Tablet PC, empowered by digital ink, will challenge the current boundaries imposed upon algorithm animation. One of the potential advantages of this new technology is that it allows the expression and exchange of ideas in an interactive environment using sketch based interfaces. In this paper we discuss teaching and learning Tablet PC based environment in which students using a stylus would draw a particular instance of a data structure and then invoke an algorithm to animate over this data structure. A completely natural way of drawing using a digital pen will generate a data structure model, which (once it is checked for correctness) will serve as a basis for execution of various computational algorithms.

Categories and Subject Descriptors

H.5.3 [**Group and Organization Interfaces**]: User Group and Organization Interfaces – *collaborative computing.*

K.3.1 [**Computers and Education**]: Computer Uses in Education – *collaborative learning, computer-assisted instruction.*

General Terms

Algorithms, Visualization, Design, Human Factors, TabletPC

Keywords

Programming education, natural interfaces

1. INTRODUCTION

We are entering a new era of teaching, learning and computing. With an abundance of useful information available on any subject, anywhere, anytime, and on any device, the challenge (faced by all us, the educators) is to create a teaching/learning environment that is mobile, smart, personable, and easy to use. Next generation's learning tools will require that we receive only the information we need at the right time. Future applications will also require natural interfaces that allow students (as well as instructors) to interact with any computing device with ease.

The time for having "problem solving environments" in the classroom has emerged. A problem solving environment is an integrated computational system for solving problems in a specific application domain [1]. Such environments, in general, should enable the user to input and work on problems in a manner that is natural to the problem domain. The animation data structures and algorithms integrated with a natural pen-based interface is one of the most valuable environments in the classroom setting.

Intuitively we, the computer science educators, believe that algorithm animation is helpful in teaching advanced computer science concepts. Students often study in either of the following two distinct modes according to their cognitive learning style.

The first study mode is the initial learning of an algorithm and the associated data structure. In this mode students simply step through an algorithm to attain a preliminary grasp of the algorithm. This process of learning can be supported either by textual algorithm description or graphical algorithm animation. Some studies [2] have shown little improvement in student performance (mostly on analytical questions) due to the use of animations in teaching data structures and algorithms. Another study [3] has shown that simply *viewing* animation in a classroom

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setting did not significantly improve students' understanding.

The second study mode is when students are active participants of the learning process. An example of this study mode is when students test themselves in preparation for an exam. In this mode a data structure visualization system must provide a high level of interactivity. It would be most helpful for students to have a system that will automatically verify the correctness of the student's manual algorithm execution. Although algorithm animation has been studied for more than twenty years, the systems that have been proposed have not gained a wide acceptance in the classroom by students and their instructors. The reason is that most of the evaluations indicate that algorithm animation has no significant effect when students are just observers. We all know that students must be mentally engaged in order to learn. Therefore, we strongly believe that any new electronic educational technology integrated with a Tablet PC environment will have a fundamental influence on education in general.

One of the principal aims of our study is to investigate the suitability of a Tablet PC environment in teaching data structures and algorithms. In this environment sketching is an integral part of computer science exploration. It allows the expression and exchange of ideas in a highly interactive atmosphere. Using the pen-based gesture interface, we will promote students' intuition for problem solving and algorithmic thinking.

2. SOLUTION EMPLOYED

Creating new interfaces is not a simple task; it has already been the subject of years of intensive research. Our work will be built upon research projects currently underway at MIT (see [4]) and CMU (see [5]). The primary goal of these projects is to develop a library of domain-based gesture recognition tools. Therefore, our project is not concerned with developing recognition tools but rather utilizing what is currently available. Our contribution to, and aim for, this is to automatically associate a geometrical drawing with the underlying data structure model.

We restrict ourselves to simple geometrical drawings, such as a circle, a straight line, and a polygon. However, even in this trivial setting there is a lot of heuristics and uncertainties. As an example, consider the hierarchy of the following data structures: a graph, a tree, a binary tree, a search binary tree. Drawing each of these data structures requires only two graphical primitives: a circle and a line, so recognition does not represent a problem. Correct understanding and interpretation of the drawing is a whole different story. Domain-based interpretation is the cornerstone of our system. We restrict ourselves to the following three most important topics in CS2: self-adjusted Binary Search Trees, Minimum Spanning Trees and Single Source Shortest Paths. Each of these topics includes one or more specific domains.

The development of the interface can be broken down into four key parts: 1) stroke recognition and beautification, 2) the association of strokes to an underlying domain-dependent data structure, 3) the animation of algorithms, and 4) the verification of algorithms. The stroke recognition aspect comes into play when the user takes the stylus and draws a stroke on the Tablet PC. A series of points are digitized and then analyzed for feature points. The latter play a dominant role in shape perception by humans. If these characteristic points are identified properly, a shape can be represented in an efficient and compact way with accuracy sufficient for a given application. Various complicated corner detection algorithms have been developed (see [6].) Since drawings in our environment do not require high accuracy one can choose any of those algorithms. Once feature points have been detected, the next step is to classify the stroke and therefore to recognize the shape. For example, triangles can be detected by three feature points and the closed line segments between them. Furthermore, an important part of this recognition is the beautification of these strokes. In the example of binary search trees, when a student intends to draw a straight line, the system should snap the stroke to a straight line, beautifying the drawing. The same can be said of nodes; since most people cannot draw perfect circles, the system should snap elliptical strokes into perfect circles upon recognition with the condition that all nodes look the same (have the same radius).

The next segment of this tool is the on-the-fly association of strokes with elements of the data structure. In the example of BSTs, each ellipse drawn will correspond to an existing node in the data structure and each edge between two nodes will represent a reference from the parent node to the child node. Consequently, each domain may require a set of heuristics in order to provide a simple, user-friendly interface. In the example of BSTs, with every pair of nodes that is connected by an edge, the node whose height on the screen is greater than the other will be designated the parent and the other node the child. The important part of this segment is that every edit to the canvas will result in an on-the-fly edit to the underlying data structure. It is important to mention here the equilibrium between a non-restrictive intuitive interface and theoretical correctness of the associated data structure-meaning that rules of the domain must not be violated. In the example of BSTs, no node may have more than two children, each node can have at most one parent, there are to be no cycles in any tree, and if there is data in the tree, the ordering property will be verified...etc.

The last two major segments of this tool are the animation and verification of the algorithms as performed on hand-drawn data structures. The system will give students two different approaches for studying a particular algorithm. The first is when students draw a data structure and then watch a step-by-step algorithm animation. The second is when students draw a data structure and then graphically (manually) perform an algorithm execution having the system verify the correctness of each step performed. These two segments are of great pedagogical importance. This system does not dependent on any terse language, cultural differences, nor "hand-wavy" explanations and arguments. Imagine the ideal situation when a PowerPoint lecture presentation seamlessly incorporates the algorithm animation tool. Such highly interactive multimedia environment can assist in demonstrating and exploring the algorithm concepts from various perspectives. Moreover, if every student had a Tablet PC, they can go home and practice on their own, the very same day, the things that were taught in lecture.

3. EVALUATION PLANS

A preliminary version of this new learning tool has been initially tested in 15-121 and 15-211 courses taught at Carnegie Mellon University in the summer of 2009. It is planned that systematic assessment of the learning outcomes will be conducted with the help of the Eberly Center for Teaching Excellence at CMU (see [7]). The Eberly Center is currently collecting data from a pilot group of students who are using Tablet PC's in an introductory computer science programming course. We will be using some of that technique to measure the usability aspect of the tablet PC and its effectiveness in improving student performance. We are hopeful to develop specific techniques to follow up with two groups of students. One group would take a traditional data structure course; the second group would be given Tablet PCs with the algorithm animation tool. The subject areas included in the evaluation would be binary search trees, AVL trees, splay trees and the minimum spanning trees. The visualization tool is intended to be used during a four week period.

In addition, we plan to evaluate this tool according to students' cognitive learning styles based on the Felder-Silverman style model [8, 9]. This model classifies students as: (1) sensitive or intuitive learners, (2) visual or verbal learners, (3) active or reflective learners, and (4) sequential or global learners. Depending on a particular style of learning, some students may (or may not) benefit from algorithm animation. It would be interesting to determine how algorithm animation on Tablet PCs influences different groups of students.

4. FUTURE PLANS: PEN-BASED PROOFS

Experience shows that many Computer Science students have great difficulties with the proofs methods encountered in, say, an advanced course on algorithms. Indeed, often the logical foundation of a proof argument seems to escape some of the students. We propose to transform students' experience with proofs by incorporating pen-based technology into introductory computer science courses. In particular, we consider formal proofs in Euclidean geometry. The cornerstone of this model is the concept of geometrical sketching dynamically combined with an underlying mathematical model. A completely natural way of drawing using a digital pen will generate a system of polynomial equations of several variables. The latter will be fed to a theorem prover (see [10, 11]), based on the Gröbner bases technique, that will automatically establish inner properties of the model. Moreover, once a particular mathematical model is created and then checked for accuracy, it will serve as a basis for logical deduction of various geometrical statements that might follow. Lastly, a detailed step-by-step exposition of the proving process will be provided.

While theorem provers have become surprisingly powerful over the last decade, they are still too cumbersome to use and too limited in their capabilities to have any impact as teaching tools. As a case in point, see the recent study by Freek Wiedijk [12] where the fifteen major systems available today are challenged to prove that the square-root of 2 is irrational. One way around this problem is to use a hybrid system that combines a pure theorem prover with a computer algebra system, like Mathematica and Maple. In such hybrid systems the theorem prover organizes and controls the logical part of the argument whereas the computer algebra system takes care of all algebraic manipulations. Application of this rule shortens some proofs tremendously, and also brings the argument much closer to the form that a human prover would employ.

For our purposes such a simple pragmatic solution will suffice. To avoid interface issues we chose Analytica, a system that is implemented entirely within the computer algebra system Mathematica, see [13]. Sophisticated algorithms such as Gröbner bases and cylindrical algebra decomposition are readily available in this environment. Analytica is currently used (see [14]) as an auxiliary tool in a discrete mathematics course at CMU to motivate the strict formalization of reasoning.

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A Research on Machine Learning Methods and Its Applications

Özer ÇELİK *(Corresponding author)* *
Serthan Salih ALTUNAYDIN *
* *Osmangazi University, Eskisehir, Turkey.*

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Abstract

Machine learning is a science which was found and developed as a subfield of artificial intelligence in the 1950s. The first steps of machine learning goes back to the 1950s but there were no significant researches and developments on this science. However, in the 1990s, the researches on this field restarted, developed and have reached to this day. It is a science that will improve more in the future. The reason behind this development is the difficulty of analysing and processing the rapidly increasing data. Machine learning is based on the principle of finding the best model for the new data among the previous data thanks to this increasing data. Therefore, machine learning researches will go on in parallel with the increasing data. This research includes the history of machine learning, the methods used in machine learning, its application fields, and the researches on this field. The aim of this study is to transmit the knowledge on machine learning, which has become very popular nowadays, and its applications to the researchers.

Keywords: Machine Learning, Machine Learning Algorithms, Artificial Intelligence, Big Data.

1. INTRODUCTION

Learning is defined as "the process of a change and enhancement in the behaviours through exploring new information in time" by Simon. When the "learning" in this definition is performed by the machines, it is called machine learning. The term enhancement is creating the best solution based on the existing experiences and samples during machine learning process (Sırmaçek, 2007). As a result of the developments in information technologies, the term 'big data' has emerged. The term 'big data' is not a new concept and can be defined as enormous and accumulating raw data sets which have no limits and cannot be analysed by the traditional database techniques (Altunışık, 2015). Enormous data are collected from the Internet applications, ATMs, credit card swiping machines and etc. The information collected by this way is waiting to be analysed. The aim of analysing the data collected in different fields change in accordance with the business sector. Machine learning applications are used in some fields like natural language processing, image processing and computer vision, speech and handwriting recognition, automotive, aviation, production, generation of energy, calculated finance and biology. However, the aim is based on the principle of analysing and interpretation of the previous data. As it is impossible to analyse and interpret by human, machine learning methods and algorithms have been developed to do this (Amasyalı, 2008).
In this study, the concept of machine learning, which has become very popular recently, is examined in detail. The study includes information about the history of machine learning, the methods and algorithms used and its application areas. The final part is a conclusion which consists of the results of the previous studies.

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2. MACHINE LEARNING

2.1. Definition

There is no error margin in the operations carried out by computers based an algorithm and the operation follows certain steps. Different from the commands which are written to have an output based on an input, there are some situations when the computers make decisions based upon the present sample data. In those situations, computers may make mistakes just like people in the decision-making process. That is, machine learning is the process of equipping the computers with the ability to learn by using the data and experience like a human brain (Gör, 2014).

The main aim of machine learning is to create models which can train themselves to improve, perceive the complex patterns, and find solutions to the new problems by using the previous data (Tantuğ ve Türkmenoğlu, 2015).

2.2. History

In 1940s, based on the studies on the electrical crashes of the neurons, the scientists explained the decision-making mechanism of human by cannon and fire. In this way, the researches of the artificial intelligence started in the 1950s (Erdem, 2014). In those years, Alan Turin executed the Turing Test in order to test the ability of a machine to imitate a human. The aim of the Turing Test was to measure the ability of the machine to make a contact with a human during an interview. If the machine performed worse than a human, it was successful. In 1956, the term 'artificial intelligence' was first used in a summer school held by Marvin Minsky from Massachusetts Institute of Technology, John McCarthy from Stanford University and Allen Newell and Herbert Simon from Carnegie-Mellon University. Until that time, Alan Turing's term, 'machine intelligence', had been used. In 1959, Arthur Samul created the checkers programme, and then machine learning got its way. From those developments to the 1980s, there were some studies on abstract mind, information-based systems, which was called the 'winter of artificial intelligence'. In the 1990s, artificial intelligence and machine learning studies accelerated due to the developments in game technologies. Nowadays, artificial intelligence and machine learning are used in lots of researches and work sectors (Topal, 2017)

2.3. Machine Learning Methods

Machine Learning can be examined in four parts as follows;

- Supervised learning
- Unsupervised learning
- Semi-supervised learning
- Reinforced learning

Supervised Learning: It is a method in which the present input data is used to reach the result set. There are two types of supervised learning: classification and regression supervised learning. .

- Classification: Distributing the data into the categories defined on the data set according to their specific features.
- Regression: Predicting or concluding the other features of the data based on its some available features.

Unsupervised Learning: The difference between the supervised and unsupervised learning is that in unsupervised learning the output data is not given. The learning process occurs by using the relations and connections between the data. Also, unsupervised learning doesn't have a training data.

There are also two types of unsupervised learning: clustering and association.

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- Clustering: Finding the groupings of data which are similar to each other when inherent groupings in the data is not known.
- Association: Determining the relations and connections among the data in the same data set.

Deduction of Features: In some cases, although lots of features about the data are known, the features related to group and category of the data cannot be determined. In such cases, selecting a subgroup of features or getting new features combining the features is called deduction of features (Erdem, 2014).

Semi-supervised Learning: supervised and unsupervised learning is inadequate when the labelled data are less than unlabelled data. In such cases, the unlabelled data, which are very inadequate, is used to deduce information about them. And, this method is called semi-supervised learning. The difference between the semi-supervised learning and the supervised learning is the labelled data set. In supervised learning, the labelled data are more than the data to be predicted. In contrast, in semi-supervised learning, the labelled data are less than the data to be predicted (Kızılkaya ve Oğuzlar, 2018).

Reinforcement Learning: This is a kind of learning in which the agents learn via reward system. Although there is a start and finish points, the aim of the agent is to use the shortest and the correct ways to reach the goal. When the agent goes through the correct ways, s/he is given positive rewards. But the going through wrong ways means negative rewards. Learning occurs on the way to the goal (Sırmaçek, 2007).

2.4. Machine Learning Algorithms

2.4.1. Artificial Neural Networks

Artificial neural network is a data processing system which is developed based on the biological neural networks in the human brain to function like human brain neural networks (Kocadayı, Erkaymaz, ve Uzun, 2017).

Neurons (process elements) are the basics of artificial neural networks. Neurons have 5 basic functions: inputs, weights, summation function, activation function and output.

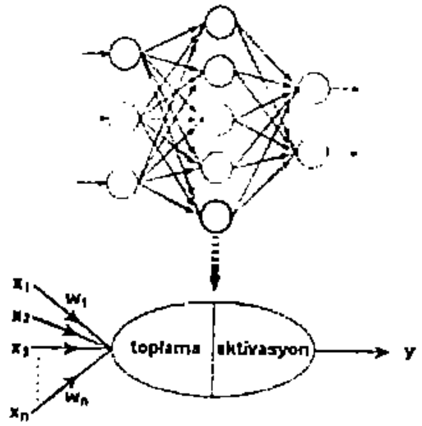

Figure 2.1. The structure of artificial neuron

Inputs ($x_1, x_2, \ldots, x_n$): It is the layer created by the user with the samples in the data set.

Weight ($w_1, w_2, \ldots, w_n$): It shows how much of the input data would reach the output. For example; w1 weight shows how much the x1 input would affect the output. The values of the weights can be changeable, which doesn't mean that the inputs are important or unimportant.

Summation Function: This is the function which is used to calculate the total input in a cell. Various functions are used during calculation. These functions are explained in the following table:

Table 2.1. The summation functions used in artificial neural networks

Name of the function	Function	Explanation
Weighted total	$NET = \sum x_i . w_i$	Inputs and weight values are multiplied. The calculated values are added to each other.
Multiplication	$NET = \prod x_i . w_i$	Inputs and weight values are multiplied. The calculated values are multiplied.
Maximum	$NET = Max(x_i . w_i)$	Inputs and weight values are multiplied. The highest calculated value is taken.
Minimum	$NET = Min(x_i . w_i)$	Inputs and weight values are multiplied. The lowest calculated value is taken.
Incremental total	$NET_k = NET_{k-1} + \sum x_i . w_i$	Weighted total is calculated. The previous weighted total is calculated.

Activation Function: This function is used to calculate the output value which corresponds the input value. In some neural network models, it is must for the activation function to be derivable. Calculating the derivative is important for the learning process of the network. Thus, the derivation of the sigmoid function is the most commonly used function because it can be written in the function itself. It is not compulsory to use the same activation function in all the cells. They can have different activation functions. Activation functions are as follows: linear function, sigmoid function, hyperbolic tangent function, sine function, digit function.

Output: This is the value which is determined by the activation value. The last output produced can both be sent to the other cells or to the outer world. If there is a feedback, the cell may use the output as an input by this feedback (Haciefendioğlu, 2012).

2.4.1.1. Single Layer and Multilayer Artificial Neural Networks

The first researches on artificial intelligence started with the single layer artificial neural networks. The most important feature of the network is classification of the problems which can be selected linear as a layer. After the inputs in the problem are multiplied by the weights and added, the calculated values are classified according to their threshold value as high or low. The groups are shown like -1 and 1 or 0 and 1. During the learning process, both the weights and the weights of threshold value are updated. The output value of the threshold value is 1. Since the single layer artificial neural networks are inefficient for the nonlinear problems, multilayer artificial neural networks have been developed. Today, mostly used artificial neural network is the multilayer artificial neural network. Multilayer networks emerged during the studies to solve the XOR problems. Multilayer networks have 3 layers.

Input Layer: This layer gets the information from the outer world, but there is no process on this layer.

Interlayers: The information from the input layer is processed on this layer. Mostly one interlayer can be adequate for the solution of the problem. However, if the relations between input and output are not linear or there are some complications, more than one layer can be used.

Output Layer: The information from the interlayer is processed on this layer and the outputs which correspond the input are detected.

In training the multilayer artificial neural networks, the 'delta rule' is used. As the multilayer networks use supervised learning methods, both the inputs and the outputs which correspond the inputs are shown to the network. According to the learning rule, the error margin between the outputs and the expected outputs are distributed to the network in order to minimize the error margin (Öztemel, (2003).

2.4.1.2. Feedforward and back propagation artificial neural networks

Artificial neural network architectures are divided into two groups as feedforward and back propagation based on the directions of the links between the neurons. In the feedforward networks, the signals go from input layer to output layer on the one-way links. At the same time, in the feedforward networks, the output values of the cells in one layer are transmitted to the following layers as the inputs on the weights. The input layer sends the input to the hidden layer without making any change. Once this information is processed on the hidden and the output layer, its output on the network is determined. Multilayer sensors and learning vector quantity can be examples of feedforward artificial networks.

The most important characteristics of the back propagation artificial neural networks is that output value of at least one cell is given to itself or another cell as an input value. The back propagation can be processed on a retardation unit as well as the cells in one layer or among the cells on other layers. Because of this feature, the back propagation artificial neural networks show a dynamic behaviour [12]. Those networks got their name by their function that they can organize the weights backwards in order to minimize the errors occurred on the output layer (Hamzaçebi ve Kutay, 2004).

2.4.2. Decision Trees

A decision tree which learns from the data classified by the induction is a decision making structure. It is a kind of learning algorithm which divides the large amount of data into small portions by using simple decision making steps. At the end of every successful division, the similarity of the elements in the final group increases. The decision trees, which have descriptive and predictive features, are one of the most popular classification algorithms because they can be easily interpreted, integrated to the databases and are reliable (Albayrak ve Yılmaz Koltan, 2009). Decision tree have three structures: decision nodes, branches and leaves.

Root Nodes: It is a node which has no former branch and can create one or more branch. Root nodes show the dependent variable and show which variable will be used for the classification.

Interior Node: It is a node which has one incoming branch and can have two or more outgoing branches.

Leaf or Terminal nodes: These are the nodes which has an incoming branch but no outgoing brand.

This is a structure which shows the result of the test between the leaves and the nodes, and has a role to determine the groups to be defined. If the classification is not completed at the end of the branch, a decision node emerges. The place of the nodes at the end of every branch is called deepness. The user can determine the number of deepness by analysing the appropriateness of the decision tree to the data set. In the decision trees, the deepth and the number of groups are directly proportional.

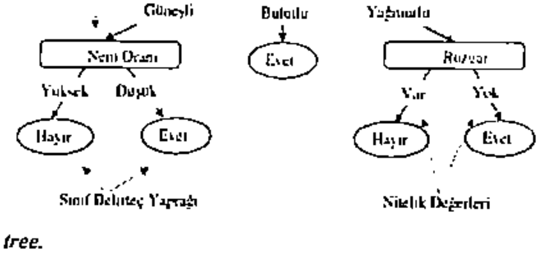

Figure 2.2. A sample of decision tree.

The decision tree is shaped by the questions and their answers. As a result, some rules emerge according to the answers. Once the variable, which is the source of the question, is determined, this variable creates the root node of the tree. The test to be applied is determined by the root node. At the end of the test, the tree is divided into branches and the separation process follow the test. Each of the branches on the are candidates for classification process. If there is a classification at the end of a branch, a leaf emerges at the end of the branch. The leaf is the one of the desired groups in the data. If there is no classification process at the end of the branch, there emerges a decision node on this branch. The decision tree aims to reach the leaf by the shortest way starting from the root node through sequencing nodes.

Each feature is used as a test in order to decide on the classification of the training data. After the best feature is chosen, it is used on the root node for the test. The number of branches changes according to the value of the feature. Which feature is going to be chosen on each node is the main selection of the decision tree. The measure of the feature is determined by a value called information gain which is also defined as entropy.

Entropy: Measuring the disorder in a system or events is called entropy. Entropy is related to the information and when uncertainty and disorder rise, more information is needed to define the data better. The value of the entropy changes between 0 and 1, and the value near 1 means more uncertainty. Therefore, it is necessary to lower the entropy value to 0 in decision trees. When D represents the distribution of probability P (p1,p2,....pn), the entropy equation is as follows:

$$E(D) = -\sum_{k=1}^{m} p_i \; log_2(p_i)$$

P_i is the probability of i class in D dataset which is calculated by dividing the sample size of the class i by the sample size of the whole data.

If the D dataset would be divided into n subclass in the X variable, the information gain is calculated by the following equation:

$$(D,X) = E(D) - \sum_{k=1}^{n} p(D_i) \; E(D_i)$$

As it is seen in the equation, E(D) represents the entropy before the dataset is divided; i represents the entropy of the subdivision after it is divided $E(D_i)$; $p(D_i)$ is the probability of the i subdivision after it is divided.

Pruning: overfitting may occur when creating a model on the decision tree. While the model becomes successful for the sample data, it can make mistakes with the new data. It occurs when there is too much information to be classified or noisy data in the dataset. Pruning is the process of cutting the branches which are formed by the noisy data and which leads to mistakes. The pruning process has two types: pre-pruning and post-pruning. Generally, post-pruning is preferred. In this process, determined branches are cut or two different branches are combined and cut after the whole tree has been created till the leaves by using the whole data. At the end of the pruning process the tree gets smaller with less error margins (Haciefendioğlu, 2012).

Widely used various decision tree methods are given in the following table:

Table 2.2. Some decision making algorithms (Emel ve Taşkın, 2005).

DECISION TREE ALGORITHM	FEATURES
C&RT	There are two dividing process based on Gini. In each nood, which are not the final or end, there are two branches. Prunning process is based on the complexity of the tree. It is in the form of supporting the classification and regression. It works with the continuous goal variables. It needs the data to be prepared.
C 4.5 and C5.0 (The updated versions of ID3 Decision Tree Algorithms)	The tree is formed by the multiple branches emerged from each node. The number of the branches is the same as the number of categories of the predictor. It combines more than one decision tree in one classifier. It uses the information gain for the separation. Prunnig process is based on the error margin in each leaf.
CHAID (Chi-squared Automatic Interaction Detector)	It performs the separation by chi-quare tests. The number of the branches changes between 2 and the number of the categories that the predictor has.
SLIQ (Supervised Learning in Quest)	It is a fast scalable classifier. It has a fast pruning algorithm.
SPRINT (Scalable Parallelizable Induction of Decision Trees)	It is ideal for big data sets. The separation process is based on the value of only one feature. It functions on the whole memory limits by using the feature list data structure.

2.4.3. Support Vector Machines

Support vector machines (SVM) are one of the supervised classification techniques which were founded by Cortes and Rapnik in 1995. SVM is a kind of machine algorithm which makes predictions and generalizations on the new data by learning on the data sets whose distribution is unclear. The main principle of SVM is based on finding the hyperplane which separates the data of two classes the most appropriately. Support vector machines are divided into two categories based on the classification that the data set is separated linearly and not linearly (Güneren, 2015).

Linearly separable case: With SVM it is aimed to separate the samples of two classes which are generally shown with the labels (-1, +1) with two different most appropriate hyperplane by the help of decision function generated at the end of the training data. This process is reached by finding the hyperplane which makes the length between the nearest spots to the SVM maximum. The hyperplane, which makes the border maximum, optimum hyperplane and the spots limiting the border are called support vectors.

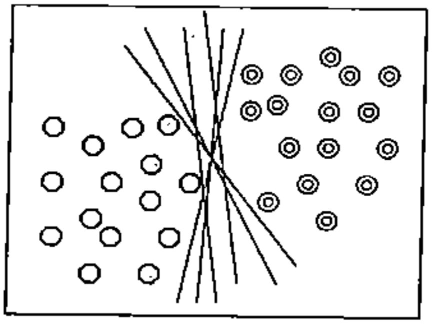

Figure 2.3. Hyperplanes for problem with two class.

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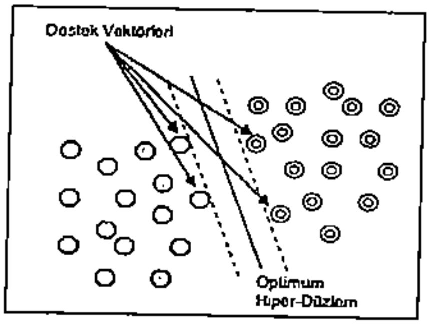

Figure 2.4. Optimum hyperplane and support vectors

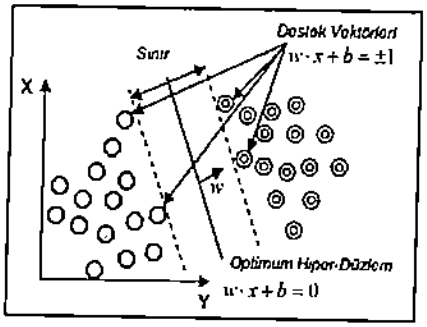

Figure 2.5. Finding the hyperplane for linearly separable data

The decision function for the linearly separable problems can be written like this:

$$f(x) = sign(\sum_{i=1}^{k} \lambda_i \, y_i \, (x \, . x_i) + b)$$

Linearly inseparable case: In some cases, it can be impossible to separate the data linearly. In cases like this, the solution is to define a positive artificial variable (ξ_i). With a regulation parameter shown as C, after making the border maximized, the balance between minimizing the classification errors is provided. The optimization problem for the linearly inseparable data using (ξ_i) and C is;

$$min\left[\frac{\|w\|^2}{2} \div C \cdot \sum_{i=1}^{r} \xi_i\right]$$

And the limitations are like this:
$y_i (w \, . \, \phi \, (x_i) + b) - 1 \geq 1 - \xi_i$
$\xi_i \geq 0$ ve $i=1,\ldots,N$
In order to solve the optimization problem, the linearly inseparable data is displayed in a high dimensional space. This space is called feature space. By this way, the hyperplanes can be determined in order to separate the data linearly. SVM can be separated highly linearly by the help of kernel functions. The decision function for the linearly inseparable data is written by using the Kernel function ($K(x_i, x_j) = \phi(x) . \, \phi \, (x_j)$) like this:

$$f(x) = sign(\sum_{i} \alpha_i y_i \phi(x) . \phi(x_i) + b)$$

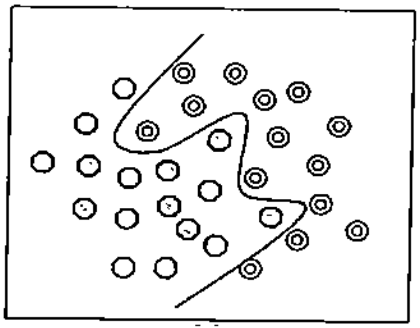

Figure 2.6. Linearly inseparable data set

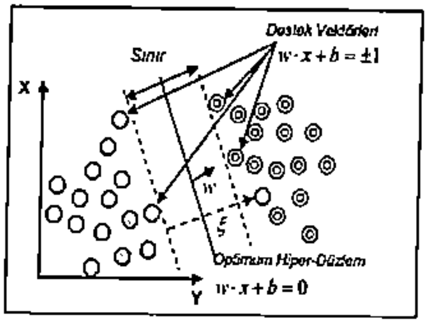

Figure 2.7. Finding the hyperplane for the linearly inseparable data set

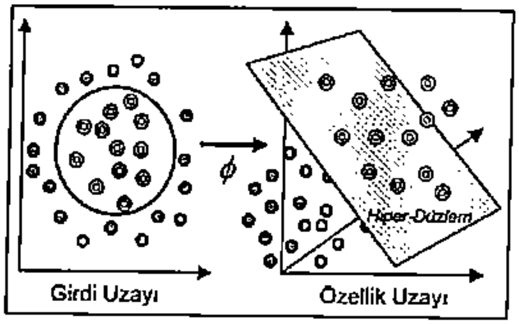

Figure 2.8. Transforming the data into a higher dimension by using Kernel function (Kavzoğlu ve Çölkesen, 2010).

2.4.4. Naive Bayes

Naïve Bayes classification is a kind of classification which is used to label the data by using statistical methods. It is preferred in classification problems as it is easy to apply. In general, in Bayes classification, it is aimed to calculate the probability values of the effects of each criterion to the result. The Naive Bayes calculates the conditional probability of the class to which the data belongs in order to estimate the probability of the class in which the data belongs. To perform those operations, Bayes theorem is used. Bayes theorem is this:

$P(A/B) = (P(B/A) * P(A)) / P(B)$

In the theorem;

$P(A)$: The independent probability of event A,

$P(B)$: The independent probability of event B,

$P(B|A)$: the probability of event B when event A occurs,

$P(A|B)$: the probability of event A when event B occurs,

The class of the new incoming data can be estimated here by making $P(A | B)$ maximum (Çalış, Gazdağı ve Yıldız, 2013).

Bayes Classification: Here C represents a class and x=x1,x2,x3,….xm are the values of the observed features. The probability of predicting the class according to Bayes theorem x test data is calculated as:

$$P\ (C = c_j\ |X{=}x) = \frac{p(C = cj)p(X = x|C = cj)}{p(X = x)}$$

In the example P (X = x) is ignored in cases where the expression does not change between classes. The equation is now like this;

$p\ (C = c_j\ |X = x) = p(C = c_j)\ p(X = x|C = c_j)$

$(C = c_j)$ ve $p = (X = x\ |\ C = c_j)$

is predicted from the learning data.

$x_1, x_2, x_{3,\dots}, x_m$ features are conditionally independent of each other. Therefore, the final equation is like this (Sağbaş. ve Ballı, 2016).

$$p\ (C = cj\ |X = x) = p(C = cj) \prod_{i=1}^{m} p(X_i = x_i|C = c_j)$$

2.4.5. Logistic Regression

Logistic regression is a kind of classification method which models the relationship among more than one independent variable and dependent variable. It is an advanced regression method which has gained popularity in social sciences today; however, it was used more in medical sciences in the past.

Logistic regression is a technique that is used as an alternative method to the EKK because the EKK is insufficient in a multivariate model in which dependent and independent variables are discriminated. In the logistic regression analysis, the probability of a dependent variable which has two final values. In addition, the variables in the model are continuous. Because of its this feature, it is frequently used to classify the observations into the classes. The logistic

$$\frac{1}{1+e^{-z}}$$

regression model is as follows:

$$L{=}\ln\left[\frac{P_i}{1-P_i}\right] = Z_i = b_0 + b_1X_i + e_i$$

P_i, shows the probability and 1- P_i, shows the improbability, it is calculated as follows:

In the equation, the Z is written like this: $Z = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \dots + \beta_nX_n$.

Regression coefficients are shown by β. P values can be reached by taking antilog of Z value.

Logistic regression has some differences with other regression methods because of the assumptions. Those differences provide some conveniences too. These conveniences are:

- In regression analysis, independent variables should be continuous and they must have multiple normal distributions; however, these conditions are not required in the logistic regression method.
- Logistic regression analysis assumes that there are no multiple link problems among independent variables.
- The equality condition of the variance-covariance matrices is not required in the logistic regression analysis.

In logistic regression analysis, after the predictions of the coefficients in the model are made, the reliability of the model must be tested. For determining the fitness of the model, Chi-Square test is applied and log similarity function is used in the test. In this method, all logit coefficients outside the constant term are tested to be equal to zero or not. The transformed form of the L statistic, -2LogL, is used in testing the absence and alternative hypotheses. After testing the significance of the model, the significance of the variables in the model must be tested. The results are evaluated after the Wald and Score tests are performed. Then, goodness

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of fit model, which is the process of investigating the effect of describing the response variable, is carried out. Finally, after the calculation of the Zi values and the classification of the units, the success rate of classifying the Pi values by calculating the antilog of Zi is obtained (Ege, ve Bayrakdaroğlu, 2009).

2.4.6. K-NN

The k-nearest neighbours algorithm developed by Fix and Hodges in 1951 is based on the logic that the variables which are closest to each other belong to the same class. The main purpose is to classify the new incoming data in accordance with the previously categorized data. Data whose class is not known is called a 'test sample' and previously classified data is called 'learning samples'. In the K-NN algorithm, the distance from the test sample to the learning samples is calculated and then the closest k learning instances are selected. The majority of the selected k samples are used to determine their class; it is also decided that the test sample belongs to that class (Özkan, 2013).

The distance between the data is given by the following equation:

$$d_{(i,j)} = \sqrt{\sum_{k=1}^{p} (X_{ik} - X_{jk})^2}$$

With the new incoming data, the K value is checked first; so, K value must be selected as an odd number in order to avoid equality. In calculations of distance, the methods such as Cosinus, Euclidean and Manhattan distances are performed (Kılınç, Borandağ, Yücalar, Tunalı, Şimşek ve Özçift , 2016).

In cases where there is a lot of learning data in the K-NN classification, the success rate is also increasing. In addition, very effective results are obtained in noisy data. In addition to these successes, however, there are also disadvantages. For example; it is not precisely known which distance measure is used when calculating the distance, and it takes too much time to calculate the measurement of the test sample's distance to the learning samples (Özkan, 2013).

2.5. Machine Learning Application Areas

The previous section includes the theoretical background of the machine learning algorithms. In this section, information about the areas and studies in which the machine learning are used nowadays will be given. Today, the use of machine learning has increased considerably. Although it is though that it can only be done in large studies, many people face machine learning in their daily life. These studies and applications are as follows:

Education: One of the most important application fields is education in which there have been some studies in order to identify and increase success recently. Despite the projects made in the field of education in recent years, the desired success has not been achieved. There are a lot of factors that influence this failure. However, it has not been determined which factor has more influence on this failure. In this context, by a questionnaire applied to secondary school students, the successes of the students in the lessons were predicted by machine learning models, which resulted with success (Gök, 2017).

Similarly, there are some studies in order to determine the proficiencies of students in higher education. In 2007, a study was carried out at Pamukkale University, where the students identified as risky students according to the failure in mathematics course. In the study, it was found out that the scores of 434 students' university entrance exam; mathematics, sciences, Turkish tests and high school graduation scores played a major role in predicting the success in mathematics. In the study, 289 students' data were used for training and 145 students' data

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were used for testing. As a result, 86 percent of the students who passed the mathematics course were correctly estimated (Güner ve Çomak, 2011).

Other areas of application for machine learning which have become quite functional in the field of education are:

Image processing: In this method, it is aimed to process and improve recorded images. Some application areas where the image processor is used are as follows:

- Security systems
- Face detection
- Medicine (to diagnose diseased tissues and organs)
- Military (to process underwater and satellite images)
- Motion detection
- Object detection

Computational biology:

- DNA sequencing
- Finding a tumor
- Drug discovery

Natural language processing: It is aimed to investigate and analyse the structures of natural languages. It is possible to perform many applications with natural language processing:

- Automatic translation of written texts
- Question-answer machines
- Automatic summarization of text
- Understanding speech and command

Automotive, aviation and production:

- Detecting malfunctions before they occur
- Producing autonomous vehicles

Retail:

- Customized shelf analysis for persons
- Recommendation engines
- Material and stock estimates
- Purchasing - demand trends

Finance:

- Credit controls and risk assessments
- Algorithmic trading

Agriculture:

- Predicting yields or deficiencies by analysing satellite images

Human Resources:

- Selecting the most successful candidate among a lot of applicants.

Energy:

- Calculating the heating and cooling loads for building designs
- Power usage analysis
- Smart network managements

Meteorology:

- Weather forecast via sensors

Health:

- Providing warning and diagnosis by analysing patient data
- Disease defining
- Health care analysis

Cyber security:

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- Detecting the harmful network traffic
- Finding out address fraud

3. CONCLUSION

Along with the developments in the technology in recent years, machines have had a big role in our lives. There are a lot of data gathered in every part of our lives and these data are increasing day by day. Thanks to the machines, these data are used very efficiently. Although these machines are thought to be used only in the fields of engineering and computer science, they are encountered at every part of human life. Firms that have already recognized and invested on this area are using this technology actively today and achieving success. In the future, machines that will be successful in the jobs that cannot be done by human will affect lots of business sectors and people. Some of the known business areas will become extinct and some new business areas will emerge. In such an environment, the power of information technology and machines must be strictly taken into consideration.

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Makine Öğrenmesi Yöntemleri ve Uygulamaları Hakkında Bir İnceleme

Özet

Makine öğrenmesi 1950'li yıllarda yapay zekanın alt dalı olarak bulunmuş ve geliştirilmiş bir bilim dalıdır. Makine öğrenmesinin ilk adımları 1950'li yıllarda atılmış olup uzun bir süre gözle görülür çalışmalar yapılmamış ve gelişme gösterememiştir. Ancak 1990'lı yıllarda tekrar gelişme göstererek çalışmalara başlanmış ve günümüze kadar ulaşmıştır. Bundan sonraki zamanlarda daha da gelişecek bir bilim dalı olacaktır. Bunun nedeni de hızla artan veri miktarının (büyük veri – big data) analizinin ve işlenmesinin insan eliyle yapılamayacak olmasından kaynaklanmaktadır. Makine öğrenmesi, artmakta olan bu veriler sayesinde geçmişteki verilerden yeni veriler için en uygun modeli bulma prensibine dayanmaktadır. Bu yüzden gün geçtikçe makine öğrenmesi çalışmaları da artan veriyle doğru orantılı olarak gelişerek devam edecektir. Bu çalışmada da makine öğrenmesinin tarihçesi, makine öğrenmesinde kullanılan yöntemler, uygulama alanları ve yapılan çalışmalar hakkında bilgiler verilmiştir. Bu çalışmanın amacı günümüzde daha da popüler bir hale gelen makine öğrenmesi konusunun ve uygulamalarının araştırmacılara aktarılmasını sağlamaktır.

Anahtar Kelimeler: Makine öğrenmesi, Makine öğrenmesi algoritmaları, Yapay zeka, Büyük veri

About the Author(s)

Özer ÇELİK

Özer Çelik received his B.C. degree in Computer Engineering, Electric & Electronic Engineering Department (Double Major) and M.S degree in Electric & Electronic Engineering Department at Eskişehir Osmangazi University. He is in the process of completing his thesis in computer science at the Department of Mathematics-Computer. His interest areas are artificial intelligence, machine learning, deep learning and mobile applications.

Mailing Address: Eskişehir Osmangazi University, Faculty of Science and Art, Mathematics-Computer Department, 26040, Eskişehir, Turkey.
Mobile: +90 222 239 37 50
E-mail: ozer@ogu.edu.tr
ORCID: https://orcid.org/0000-0002-4409-3101

Serthan Salih ALTUNAYDIN

Serthan Salih ALTUNAYDIN has got undergraduated degree from Eskişehir Osmangazi University, Department of Mathematics – Computer in 2018. He purposes his taken education, experiences and problem solving abilities in computer sciences. He met with artificial intelligence, machine learning, artificial neural networks, deep learning in undergraduate and interest and continues researches and studies with these subjects.

Mailing Address: Eskişehir Osmangazi University, 26040, Eskisehir, Turkey.
Mobile: +90 507 190 49 25
E-mail: serthan.altunaydin@gmail.com
ORCID: https://orcid.org/0000-0002-9053-7711

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Digital Image Processing

Muzamil Bhat

Abstract: With the large cost involved in launching satellites, probes, sensors to keep an eye on the resources and entities of commercial value necessitates to strengthen the processing of procured data at ground stations. The emphasis is laid on enhancing the quality for easy human interpretation and reducing the quantity for easy storage and transmission. The first sine qua non involves the capturing of image and subsequent transfer to the ground stations, where the image is passed through various operations to retrieve the information of the captured area. The three pronged approach of capturing at suitable height, segmentation or edge roughening at the middle stage and retrieving the information from the base created by initial stages. With the arrival of new software's to enhance the quality, a single image serves the representative of the whole area. The processing of the images helps to get the information in shortest possible time and energy.

Keywords: Digital Image,

◆

Introduction

A digital image is the representation of two dimensional image as a finite set of digital values, known as picture elements or pixels. .The processing of the image initiates with news paper industry got necessary impetus with arrival of computers and soon entered into the domain of critical professions. Image processing serves as a technique to enhance raw images received from cameras/sensors placed on satellites, space probes and aircrafts. Image Processing has become essential feature for retrieving maximum information suitable for various professions like Remote Sensing, Medical Imaging, Non-destructive Evaluation, Forensic Studies, Textiles, Material Science, Military, Film industry, Document processing, Graphic arts and Printing Industry. The common steps in image processing are image scanning, enhancing, interpretation and storage. Either traditional methods or modern technological tools are used for enhancing the quality of the images. Accordingly, processing is categorized into two types: Analog Image Processing: It involves the alteration of images with the aid of electrical variation technology. The most common example is television image. The television signal is a voltage level which varies in amplitude to represent brightness through the image. By electrically varying the signal, the displayed image appearance is altered. The brightness and contrast controls on a TV set serve to adjust the amplitude and reference of the video signal resulting in the brightening, darkening and alteration of the brightness range of the displayed image. Digital Image Processing: The sine qua non of this processing involves the availability of computer for the subsequent Processing of 2-dimensional picture. It also involves subjecting numerical representations of objects to a series of operations in order to obtain a desired result. It starts with one image and produces a modified version of the same. It is, therefore, a process that takes an image into another form. Digital image is an array of real numbers represented by a finite number of bits formed by the intersection of each row i and column j in each k band (pixel). The pixels are associated with Digital Number (DN) or Brightness Value (BV). The DN value varies from 0-1063 (10 digit), 0-255(8-bit) or 0-63 (6- bit). It represents the average radiance of a relatively small area within a scene.

- *Muzamil Bhat is currently pursuing masters degree program in Farm Power and Equipment in IARI, New Delhi, India and can be mailed at*
- muzamil4951@gmail.com

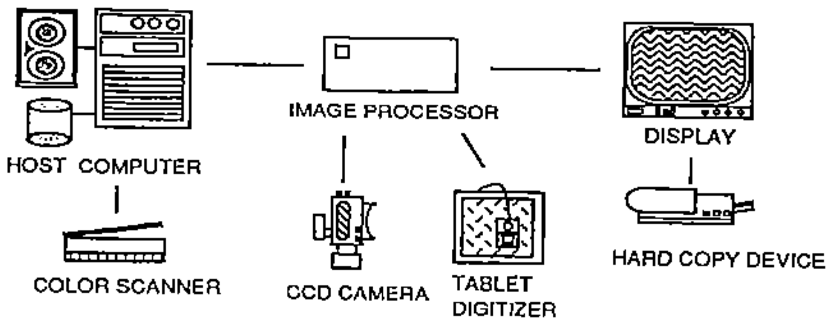


Image processing system with Image processor

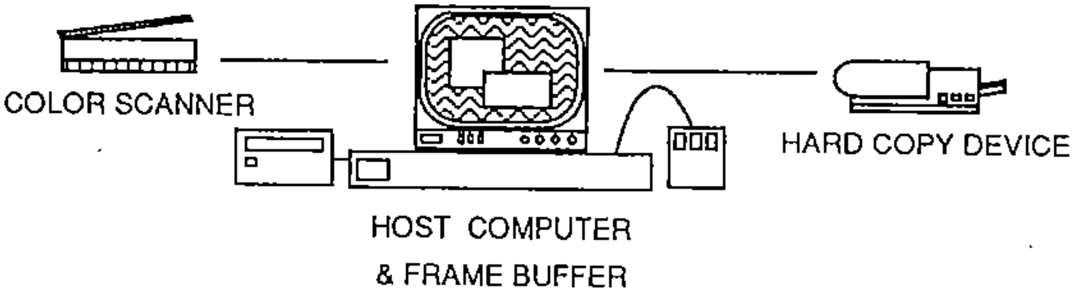
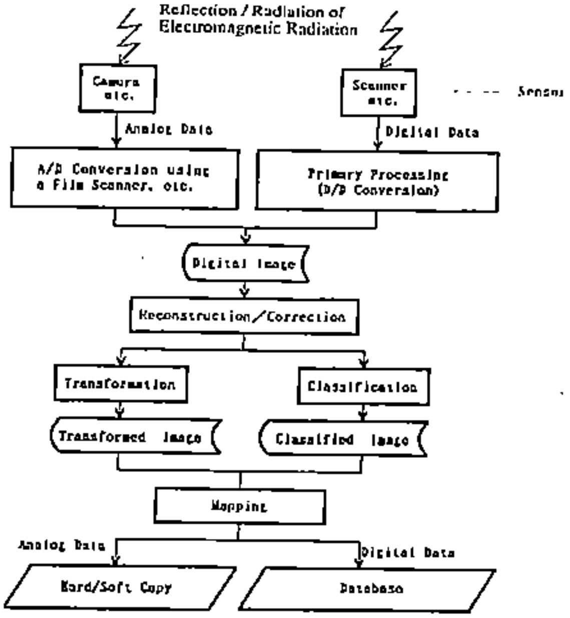


Image processing system with general purpose Computer

Process Flow: As the humans are not able to see infrared radiations, a false composite colour combination is used to represent different segments in imagery. The most commonly used being Red, Blue and Green (RGB). The camera is used to capture the image and scanners are used to produce digital imagery. Cameras mounted in light aircraft flying between 200 and 15,000 m capture images autonomously. Aerial photos provide an instant visual inventory of a portion of the earth's surface and can be used to create detailed maps. Light, portable, inexpensive video cameras and recorders can also be carried in chartered aircraft. For use in digital analysis, special graphics hardware boards known as frame grabbers can be used to freeze any frame within a continuous video sequence and convert it to digital format, usually in one of the more popular exchange formats such as TIF or TARGA. The angle at which the images are captured determines the technological superiority as images at certain angle gave larger information than others. The camera and the platform configurations are categorized into oblique and vertical. The capturing of the images at an angle occurs in the domain of oblique aerial photography. The surroundings of the camera are fully covered under such image. The oblique image is easier to interpret than vertical photographs, but it is difficult to locate and measure features for mapping purposes. The images obtained at 'nadir' is taken by pointing the camera in perpendicular direction. The images obtained by vertical camera depict the ground features clearly in plan form, ensuring its utilisation for mapping purposes. Vertical images are highly desirable for resource surveys in areas where no maps are available. The necessity of covering the whole area is ensured by capturing the images in overlapped position which varies from 60% along flight path and at least 20% between the lines. Overlapped images can be viewed with a stereoscope to create a three-dimensional view, called **stereo model**. Images are usually taken by large format cameras (23x23 cm) or small format cameras (35mm x 70 mm). The images are stored in hard/ soft form (analog form) or directly in database (digital form). A classical flow chart of data flow in remote sensing is as follows, Pic 1



Pic 1: Flow Chart: Data Flow in Remote Sensing

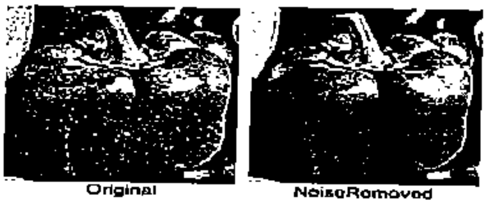
Data processing: The processing of the data in remote sensing following three stages as Reconstruction, Transformation and Classification, Pic 2. The individual breakup helps to enrich the quality of the captured images for easier interpretation.

I) Reconstruction/ Correction: It is subdivided into different categories

- i) Restoration: Image restoration refers to removal or minimization of degradations in an image. The restoration of the image involves improving the condition for further processing. This includes de-blurring of images degraded by the limitations of a sensor or its environment, noise filtering, and correction of geometric distortion or non-linearity due to sensors. Image is restored to its original quality by inverting the physical degradation phenomenon such as defocus, linear motion, atmospheric degradation and additive noise. This is called radiometric resolution. The geometric resolution employability ensured the registration of the imagery for the mapping purposes. With satellite imagery, the very high altitude of the sensing platform results in minimal image displacements due to relief. As a result, registration can usually be achieved through the use of a systematic rubber sheet transformation process that gently warps an image (through the use of polynomial equations) based on the known positions of a set of widely dispersed control points.
- ii) Image Reconstruction: Image reconstruction from projections is utilized for special class of image restoration problems where a two or higher dimensional object is reconstructed from several one-dimensional projections. Each projection is obtained by projecting a parallel X-ray (or other penetrating radiation) beam through the object. The projection obtained are Planar, obtained by viewing the object from many different angles. Reconstruction algorithms derive an image of a thin axial slice of the object, giving an inside view otherwise unobtainable without performing extensive surgery. Such techniques are important in medical imaging (CT scanners), astronomy, radar imaging, geological exploration, and non-destructive testing of assemblies.
- iii) Mosaic: Sometimes the images of particular area or object are captured in patches. Mosaic involves the combining of two or more images or patches to form a single large image without radiometric imbalance. Mosaic is required to get the synoptic view of the entire area, otherwise captured as small images.

II) Transformation: The images need to be transformed for larger retrieval of information. The images lacking proper contrast and brightness is accentuated for subsequent analysis. It is done by

- i) Contrast stretching: Some images (Ex. Over water bodies, deserts, dense forests, snow, clouds and under hazy conditions over heterogeneous regions) are homogeneous i.e., they do not have much change in their levels. In terms of histogram representation, they are characterized as the occurrence of very narrow peaks. The homogeneity can also be due to the incorrect illumination of the scene. The contrast stretching methods are designed exclusively for frequently encountered situations.
- ii) Noise filtering: It is used to filter the unnecessary information from an image. It is also used to remove various types of noises from the images. Various filters like low pass, high pass, mean, median etc. are available.



Original NoiseRemoved

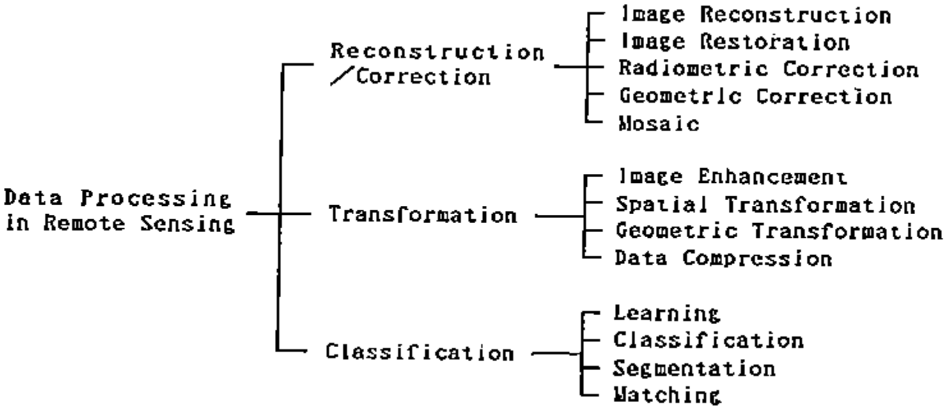
- iii) Histogram modification: Histogram has a lot of importance in image enhancement. It reflects the characteristics of image. By modifying the histogram, image characteristics can be modified. One such example is Histogram Equalization. Histogram equalization is a nonlinear stretch that redistributes pixel values so that there is approximately the same number of pixels with each value within a range. The result approximates a flat histogram. Therefore, contrast is increased at the peaks and lessened at the tails.
- iv) Data compression: The image is should be compressed so that each pixel is compressed without affecting radiometric properties. It is commonly done by DCT (discrete cosine transformation) developed by JPEG (joint photographers expert group). For higher compression ratios with minimum loss of data, Wavelet based compression technique is used.
- v) Rotation: The images are rotated in order to match with the second image. It is mostly used in mosaic, restoration for joining many images together for final interpretation. Most common technique is 3-pass shear rotation where matrix is decomposed into separate matrices (developed in California) like

$$R=\begin{matrix}\cos\alpha & -\sin\alpha \\ \sin\alpha & \cos\alpha\end{matrix}=\begin{matrix}1 & \tan\alpha \\ 0 & 1\end{matrix}\times\begin{matrix}1 & 0 \\ \sin\alpha & 1\end{matrix}\times\begin{matrix}1 & -\tan\alpha \\ 0 & 1\end{matrix}$$

III) Classification: It involves the categorisation of individual components of the image that constitute the image.

- i) Segmentation: It is the process that subdivides an image into its constituent parts or objects. The level to which this subdivision is carried out depends on the problem being solved, i.e., the segmentation should stop when the objects of interest in an application have been isolated e.g., in autonomous air-to-ground target acquisition, when our interest lies in identifying vehicles on road, first step is to segment the road from the image and then segment the contents of road down to potential vehicles. Image thresholding techniques are used for image segmentation.

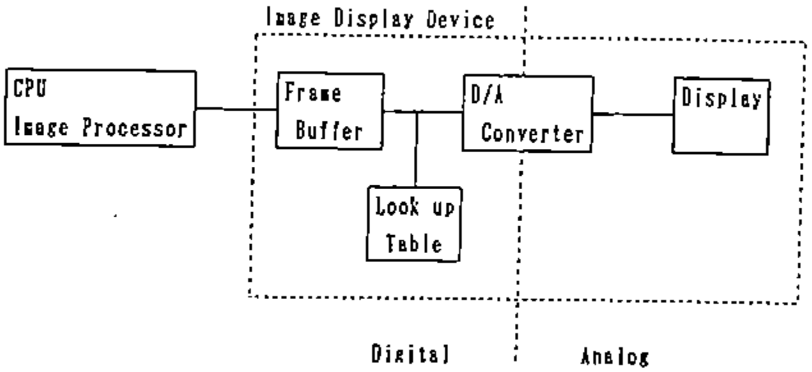
ii) Classification: It is the labelling of a pixel or a group of pixels based on its grey value. Classification is one of the most often used methods of information extraction. In Classification, usually multiple features are used for a set of pixels i.e., many images of a particular object are needed. In Remote Sensing area, this procedure assumes that the imagery of a specific geographic area is collected in multiple regions of the electromagnetic spectrum and that the images are in good registration. Most of the information extraction techniques rely on analysis of the spectral reflectance properties of such imagery and employ special algorithms designed to perform various types of 'spectral analysis'. The process of multispectral classification is performed by either supervised or unsupervised way. In Supervised classification, the identity and location of some of the land cover types such as urban, wetland, forest etc., are known as priori through a combination of field works and toposheets. The analyst attempts to locate specific sites in the remotely sensed data that represents homogeneous examples of these land cover types. These areas are commonly referred as TRAINING SITES because the spectral characteristics of these known areas are used to 'train' the classification algorithm for eventual land cover mapping of reminder of the image. Multivariate statistical parameters are calculated for each training site. Every pixel both within and outside these training sites is then evaluated and assigned to a class of which it has the highest likelihood of being a member. While in Unsupervised Classification the identities of land cover types has to be specified as classes within a scene which are generally not known priori because ground truth is lacking or toposheets are not available. In this case, computers are required to group pixel data into different spectral classes according to some statistically determined criteria. Example the comparison in medical area is labelling of cells based on their shape, size, colour, and texture which act as features. This method is useful for MRI images.



Pic 2: Data processing in remote Sensing

After processing of the image, Principal Components Analysis (PCA) is brought to the surface, a linear transformation technique related to Factor Analysis. Given a set of image bands, PCA produces a new set of images, known as components that are uncorrelated with one another and are ordered in terms of the amount of variance they explain from the original band set. PCA has traditionally been used in remote sensing as a means of data compaction. For a typical multispectral image band set, it is common to find that the first two or three components are able to explain virtually all of the original variability in reflectance values. Later components thus tend to be dominated by noise effects. By rejecting these later components, the volume of data is reduced with no appreciable loss of information.

Image Display Devices: The information is converted by Image input system pic 3. Image input systems are defined as the analog to digital converters of analog images. The image system provides digital data which are the converted tone or colour of a film or photograph. In case of colour image, the components of the three primary colours (Red, Blue and Green) are digitized by using three colour filters. In Mechanical Scanner, an image placed around a drum is scanned using the rotation of the drum and a shift of a light source. Though the speed of scanning is not very high, it is widely used because the spatial resolution and density resolution are very high. Recently laser beams have been used as the light source which enables a faster speed. The Electronic image tube such as TV camera is used for A/D conversion of an image. However the spatial resolution density resolution and positioning accuracy are low. The advantages are its low price and ease of use. The electronic image tube is now being replaced by CCD cameras with higher spatial resolution and positioning accuracy. These systems are compact and lightweight. In some cases, a linear array CCD with very high resolution, for example 409 pixels line is derived mechanically to enable line, scanning on a flat table. The spatial resolution, density resolution and positioning accuracy are very high, so that desk top scanners are becoming popular. In latest methods, an illuminated spot on a CRT is projected onto a film, at a given coordinate, with high speed. The density of the film can be digitized regularly as well as randomly depending on the input coordinates known as flying spot technique. The disadvantage is that a dark room is required.



Pic 3: Organization of Image display Devices

The processed images need to be stored for their long term survivability. The digital data is stored in magnetic and streamer tapers, which are most widely used with general purpose computers and minicomputers. The data format is well standardized so that transportability is also guaranteed. The disadvantage is that the size of the magnetic tape and tapers are so big that the storage space becomes bulky. In Digital audio tape (DAT) the capacity is bigger and the price is lower and is becoming popular for PC's. The disadvantage is its low data transfer rate. Magneto optical disk (MO-disk) ensures compact size and capacity is also large, similar to an ordinary hard disk. Because rewriting is possible, exchange is available, the data transfer rate is much faster than tape media, and the price is lower, this media is very popular for Pc's. In write one and read many optical disk (WORM) rewriting is impossible, therefore, users are decreasing. However the capacity is a little larger than a MO-DISK and the storage life is longer. The large scale spread of computer technology ensures the large scale usage of Floppy discs, which are the most popular storage for Pc. The disadvantage is that the capacity is limited to a few Megabytes and the data transfer rate is low. The advantages are its low price and data exchangeability. The modern storage devices like 8 mm video tape is cheaper in price and bigger in storage capacity than DAT. The data transfer rate is not very fast but is a little faster than DAT. The optimum storage is provided by Optical tape with a capacity of about 1 terabyte. The data transfer rate is more than ten times faster than DAT, rewriting is possible and the device is exchangeable. The optical tape is expected to be the new media for the next generation. Although the price is very expensive, data capacity and the life of the tape make it economic for all large volume users since for less standard tape is used.

Advantages of DIP: The main advantages include Versatility, repeatability and preservation of original data precision. The processing of images is faster and cost-effective. Transmission of the digital images are easier as compared to normal images. The processed images can be further enriched by various available software's, thus ensures higher retrievability of information.

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DATA MINING TECHNIQUES AND APPLICATIONS

Mrs. Bharati M. Ramageri, Lecturer
Modern Institute of Information Technology and Research,
Department of Computer Application, Yamunanagar, Nigdi
Pune, Maharashtra, India-411044.

Abstract

Data mining is a process which finds useful patterns from large amount of data. The paper discusses few of the data mining techniques, algorithms and some of the organizations which have adapted data mining technology to improve their businesses and found excellent results.

Keywords: Data mining Techniques; Data mining algorithms; Data mining applications.

1. Overview of Data Mining

The development of Information Technology has generated large amount of databases and huge data in various areas. The research in databases and information technology has given rise to an approach to store and manipulate this precious data for further decision making. Data mining is a process of extraction of useful information and patterns from huge data. It is also called as knowledge discovery process, knowledge mining from data, knowledge extraction or data /pattern analysis.

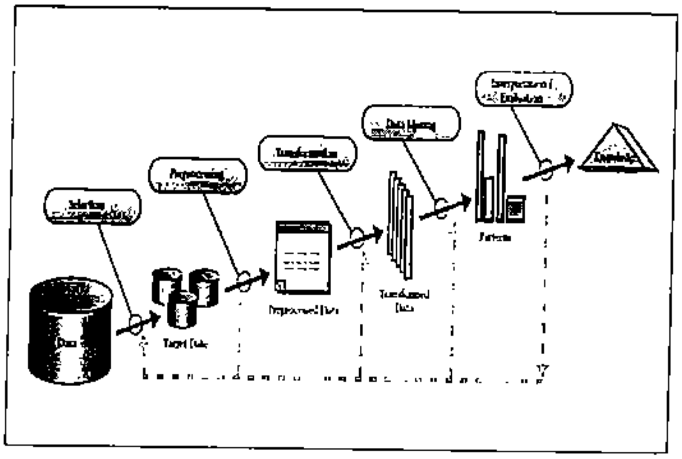

Figure 1. Knowledge discovery Process

Data mining is a logical process that is used to search through large amount of data in order to find useful data. The goal of this technique is to find patterns that were previously unknown. Once these patterns are found they can further be used to make certain decisions for development of their businesses.

Three steps involved are

- Exploration
- Pattern identification
- Deployment

Exploration: In the first step of data exploration data is cleaned and transformed into another form, and important variables and then nature of data based on the problem are determined.

Pattern Identification: Once data is explored, refined and defined for the specific variables the second step is to form pattern identification. Identify and choose the patterns which make the best prediction.

Deployment: Patterns are deployed for desired outcome.

2. Data Mining Algorithms and Techniques

Various algorithms and techniques like Classification, Clustering, Regression, Artificial Intelligence, Neural Networks, Association Rules, Decision Trees, Genetic Algorithm, Nearest Neighbor method etc., are used for knowledge discovery from databases.

2.1. Classification

Classification is the most commonly applied data mining technique, which employs a set of pre-classified examples to develop a model that can classify the population of records at large. Fraud detection and credit-risk applications are particularly well suited to this type of analysis. This approach frequently employs decision tree or neural network-based classification algorithms. The data classification process involves learning and classification. In Learning the training data are analyzed by classification algorithm. In classification test data are used to estimate the accuracy of the classification rules. If the accuracy is acceptable the rules can be applied to the new data tuples. For a fraud detection application, this would include complete records of both fraudulent and valid activities determined on a record-by-record basis. The classifier-training algorithm uses these pre-classified examples to determine the set of parameters required for proper discrimination. The algorithm then encodes these parameters into a model called a classifier.

Types of classification models:

- Classification by decision tree induction
- Bayesian Classification
- Neural Networks
- Support Vector Machines (SVM)
- Classification Based on Associations

2.2. Clustering

Clustering can be said as identification of similar classes of objects. By using clustering techniques we can further identify dense and sparse regions in object space and can discover overall distribution pattern and correlations among data attributes. Classification approach can also be used for effective means of distinguishing groups or classes of object but it becomes costly so clustering can be used as preprocessing approach for attribute subset selection and classification. For example, to form group of customers based on purchasing patterns, to categories genes with similar functionality.

Types of clustering methods

- Partitioning Methods
- Hierarchical Agglomerative (divisive) methods
- Density based methods
- Grid-based methods
- Model-based methods

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2.3. Predication

Regression technique can be adapted for predication. Regression analysis can be used to model the relationship between one or more independent variables and dependent variables. In data mining independent variables are attributes already known and response variables are what we want to predict. Unfortunately, many real-world problems are not simply prediction. For instance, sales volumes, stock prices, and product failure rates are all very difficult to predict because they may depend on complex interactions of multiple predictor variables. Therefore, more complex techniques (e.g., logistic regression, decision trees, or neural nets) may be necessary to forecast future values. The same model types can often be used for both regression and classification. For example, the CART (Classification and Regression Trees) decision tree algorithm can be used to build both classification trees (to classify categorical response variables) and regression trees (to forecast continuous response variables). Neural networks too can create both classification and regression models.

Types of regression methods

- Linear Regression
- Multivariate Linear Regression
- Nonlinear Regression
- Multivariate Nonlinear Regression

2.4. Association rule

Association and correlation is usually to find frequent item set findings among large data sets. This type of finding helps businesses to make certain decisions, such as catalogue design, cross marketing and customer shopping behavior analysis. Association Rule algorithms need to be able to generate rules with confidence values less than one. However the number of possible Association Rules for a given dataset is generally very large and a high proportion of the rules are usually of little (if any) value.

Types of association rule

- Multilevel association rule
- Multidimensional association rule
- Quantitative association rule

2.5. Neural networks

Neural network is a set of connected input/output units and each connection has a weight present with it. During the learning phase, network learns by adjusting weights so as to be able to predict the correct class labels of the input tuples. Neural networks have the remarkable ability to derive meaning from complicated or imprecise data and can be used to extract patterns and detect trends that are too complex to be noticed by either humans or other computer techniques. These are well suited for continuous valued inputs and outputs. For example handwritten character reorganization, for training a computer to pronounce English text and many real world business problems and have already been successfully applied in many industries. Neural networks are best at identifying patterns or trends in data and well suited for prediction or forecasting needs.

Types of neural networks

- Back Propagation

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3. Data Mining Applications

Data mining is a relatively new technology that has not fully matured. Despite this, there are a number of industries that are already using it on a regular basis. Some of these organizations include retail stores, hospitals, banks, and insurance companies. Many of these organizations are combining data mining with such things as statistics, pattern recognition, and other important tools. Data mining can be used to find patterns and connections that would otherwise be difficult to find. This technology is popular with many businesses because it allows them to learn more about their customers and make smart marketing decisions. Here is overview of business problems and solutions found using data mining technology.

3.1. FBTO Dutch Insurance Company

Challenges

- To reduce direct mail costs.
- Increase efficiency of marketing campaigns.
- Increase cross-selling to existing customers, using inbound channels such as the company's sell center and the internet a one year test of the solution's effectiveness.

Results

- Provided the marketing team with the ability to predict the effectiveness of its campaigns.
- Increased the efficiency of marketing campaign creation, optimization, and execution.
- Decreased mailing costs by 35 percent.
- Increased conversion rates by 40 percent.

3.2. ECtel Ltd., Israel

Challenges

- Fraudulent activity in telecommunication services.

Results

- Significantly reduced telecommunications fraud for more than 150 telecommunication companies worldwide.
- Saved money by enabling real-time fraud detection.

3.3. Provident Financial's Home credit Division, United Kingdom

Challenges

- No system to detect and prevent fraud.

Results

- Reduced frequency and magnitude of agent and customer fraud.
- Saved money through early fraud detection.
- Saved investigator's time and increased prosecution rate.

3.4. Standard Life Mutual Financial Services Companies

Challenges

- Identify the key attributes of clients attracted to their mortgage offer.
- Cross sell Standard Life Bank products to the clients of other Standard Life companies.
- Develop a remortgage model which could be deployed on the group Web site to examine the profitability of the mortgage business being accepted by Standard Life Bank.

Results

- Built a propensity model for the Standard Life Bank mortgage offer identifying key customer types that can be applied across the whole group prospect pool.
- Discovered the key drivers for purchasing a remortgage product.
- Achieved, with the model, a nine times greater response than that achieved by the control group.
- Secured £33million (approx. $47 million) worth of mortgage application revenue.

3.5. Shenandoah Life insurance company United States.

Challenges

- Policy approval process was paper based and cumbersome.
- Routing of these paper copies to various departments, there was delays in approval.

Results

- Empowered management with current information on pending policies.
- Reduced the time required to issue certain policies by 20 percent.
- Improved underwriting and employee performance review processes.

3.6. Soft map Company Ltd., Tokyo

Challenges

- Customers had difficulty making hardware and software purchasing decisions, which was hindering online sales.

Results

- Page views increased 67 percent per month after the recommendation engine went live.
- Profits tripled in 2001, as sales increased 18 percent versus the same period in the previous year.

4. Conclusion

Data mining has importance regarding finding the patterns, forecasting, discovery of knowledge etc., in different business domains. Data mining techniques and algorithms such as classification, clustering etc., helps in finding the patterns to decide upon the future trends in businesses to grow. Data mining has wide application domain almost in every industry where the data is generated that's why data mining is considered one of the most important frontiers in database and information systems and one of the most promising interdisciplinary developments in Information Technology.

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Department Of Computer Engineering & I.T.
Academic Year 2018-19 SEM – I

FAST LEARNER ACTIVITY

CLASS:DE COMPUTER

Date: 04/10/2018

ROLL NO.	NAME OF STUDENT	ACTIVITY 3	
		TOPICS	REMARKS
1	CHAUDHARI KOMAL S.	study Gate Paper 2017 Set 02	✓
2	CHAUDHARI YUVRAJ A.		✓
3	KALE BHAVANA S.		✓
4	NARKHEDE NEHA B.		✓
5	PATIL SHRADDHA S.		✓
6	SUTAR YAMINI U.		Not done
11	CHAUDHARI RAJNANDINI		Not done
15	PATIL CHHAYA G.		✓
17	PATIL PRATIKSHA S.		✓
18	PATIL ROHINI N.		✓
22	SONAWANE HARSHA		✓
25	WANI PRANJALI S.		✓

ACTIVITY 2 : Solve GATE questions online to boost their thinking level.

COORDINATOR

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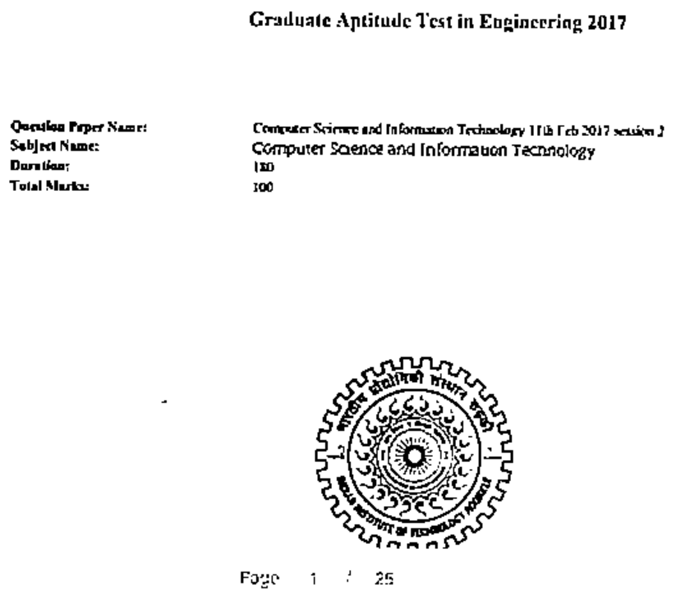

Graduate Aptitude Test in Engineering 2017

Question Paper Name: Computer Science and Information Technology 11th Feb 2017 session 2
Subject Name: Computer Science and Information Technology
Duration: 180
Total Marks: 100

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Question Number : 44 Correct : 2 Wrong : 0

Question Paper Name: Computer Science and Information Technology 11th Feb 2017 session 2
Subject Name: Computer Science and Information Technology
Duration: 180
Total Marks: 100

Organizing Institute:
Indian Institute of Technology Roorkee

Question Number : 1 **Correct : 1 Wrong : -0.33**

The representation of the value of a 16-bit unsigned integer X in hexadecimal number system is BCA9. The representation of the value of X in octal number system is

(A) 571244 (B) 736251 (C) 571247 (D) 136251

Question Number : 2 **Correct : 1 Wrong : -0.33**

Match the following:

(P) `static char var;`	(i) Sequence of memory locations to store addresses
(Q) `m = malloc(10);` `m = NULL;`	(ii) A variable located in data section of memory
(R) `char *ptr[10];`	(iii) Request to allocate a CPU register to store data
(S) `register int var1;`	(iv) A lost memory which cannot be freed

(A) P → (ii), Q → (iv), R → (i), S → (iii)
(B) P → (ii), Q → (i), R → (iv), S → (iii)
(C) P → (ii), Q → (iv), R → (iii), S → (i)
(D) P → (iii), Q → (iv), R → (i), S → (ii)

Question Number : 3 **Correct : 1 Wrong : -0.33**

Match the algorithms with their time complexities:

Algorithm	Time complexity
(P) Towers of Hanoi with n disks	(i) $\Theta(n^2)$
(Q) Binary search given n sorted numbers	(ii) $\Theta(n \log n)$
(R) Heap sort given n numbers at the worst case	(iii) $\Theta(2^n)$
(S) Addition of two $n \times n$ matrices	(iv) $\Theta(\log n)$

(A) P → (iii), Q → (iv), R → (i), S → (ii)
(B) P → (iv), Q → (iii), R → (i), S → (ii)
(C) P → (iii), Q → (iv), R → (ii), S → (i)
(D) P → (iv), Q → (iii), R → (ii), S → (i)

Question Number : 4

Correct : 1 Wrong : -0.33

Let L_1, L_2 be any two context-free languages and R be any regular language. Then which of the following is/are CORRECT?

I. $L_1 \cup L_2$ is context-free.
II. $\overline{L_1}$ is context-free.
III. $L_1 - R$ is context-free.
IV. $L_1 \cap L_2$ is context-free.

(A) I, II and IV only (B) I and III only (C) II and IV only (D) I only

Question Number : 5

Correct : 1 Wrong : -0.33

Match the following according to input (from the left column) to the compiler phase (in the right column) that processes it:

(P) Syntax tree	(i) Code generator
(Q) Character stream	(ii) Syntax analyzer
(R) Intermediate representation	(iii) Semantic analyzer
(S) Token stream	(iv) Lexical analyzer

(A) P → (ii), Q → (iii), R → (iv). S → (i)
(B) P → (ii), Q → (i), R → (iii). S → (iv)
(C) P → (iii), Q → (iv). R → (i). S → (ii)
(D) P → (i). Q → (iv). R → (ii). S → (iii)

Question Number : 6

Correct : 1 Wrong : -0.33

Which of the following statements about parser is/are CORRECT?

I. Canonical LR is more powerful than SLR.
II. SLR is more powerful than LALR.
III. SLR is more powerful than Canonical LR.

(A) I only (B) II only (C) III only (D) II and III only

Question Number : 7 **Correct : 1 Wrong : -0.33**

Which of the following is/are shared by all the threads in a process?

I. Program counter
II. Stack
III. Address space
IV. Registers

(A) I and II only
(B) III only
(C) IV only
(D) III and IV only

Question Number : 8 **Correct : 1 Wrong : -0.33**

In a file allocation system, which of the following allocation scheme(s) can be used if no external fragmentation is allowed?

I. Contiguous
II. Linked
III. Indexed

(A) I and III only
(B) II only
(C) III only
(D) II and III only

Question Number : 9 **Correct : 1 Wrong : -0.33**

Consider the following statements about the routing protocols. Routing Information Protocol (RIP) and Open Shortest Path First (OSPF) in an IPv4 network.

I: RIP uses distance vector routing
II: RIP packets are sent using UDP
III: OSPF packets are sent using TCP
IV: OSPF operation is based on link-state routing

Which of the statements above are CORRECT?

(A) I and IV only
(B) I, II and III only
(C) I, II and IV only
(D) II, III and IV only

Correct : 1 Wrong : -0.33

If $f(x) = R\,sin\left(\frac{\pi x}{2}\right) + S$. $f'\left(\frac{1}{2}\right) = \sqrt{2}$ and $\int_0^1 f(x)dx = \frac{2R}{\pi}$. then the constants R and S are. respectively

(A) $\frac{2}{\pi}$ and $\frac{16}{\pi}$ (B) $\frac{2}{\pi}$ and 0

(C) $\frac{4}{\pi}$ and 0 (D) $\frac{4}{\pi}$ and $\frac{16}{\pi}$

Question Number : 11

Correct : 1 Wrong : -0.33

Let p, q, r denote the statements "*It is raining*", "*It is cold*", and "*It is pleasant*", respectively. Then the statement "*It is not raining and it is pleasant, and it is not pleasant only if it is raining and it is cold*" is represented by

(A) $(\neg p \wedge r) \wedge (\neg r \rightarrow (p \wedge q))$ (B) $(\neg p \wedge r) \wedge ((p \wedge q) \rightarrow \neg r)$

(C) $(\neg p \wedge r) \vee ((p \wedge q) \rightarrow \neg r)$ (D) $(\neg p \wedge r) \vee (r \rightarrow (p \wedge q))$

Question Number : 12

Correct : 1 Wrong : -0.33

Given the following binary number in 32-bit (single precision) IEEE-754 format:

00111110011011010000000000000000

The decimal value closest to this floating-point number is

(A) 1.45×10^{1} (B) 1.45×10^{-1} (C) 2.27×10^{-1} (D) 2.27×10^{1}

Question Number : 13

Correct : 1 Wrong : -0.33

A circular queue has been implemented using a singly linked list where each node consists of a value and a single pointer pointing to the next node. We maintain exactly two external pointers **FRONT** and **REAR** pointing to the front node and the rear node of the queue, respectively. Which of the following statements is/are CORRECT for such a circular queue, so that insertion and deletion operations can be performed in $O(1)$ time?

I. Next pointer of front node points to the rear node.
II. Next pointer of rear node points to the front node.

(A) I only (B) II only

(C) Both I and II (D) Neither I nor II

Question Number : 14 **Correct : 1 Wrong : -0.33**

Consider the following function implemented in C:

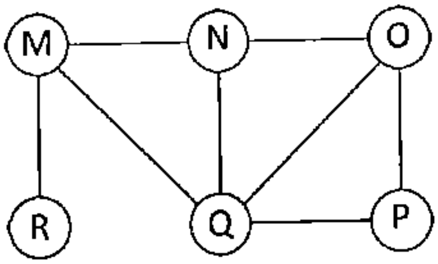
```
void printxy(int x, int y) {
      int *ptr;
      x = 0;
      ptr = &x;
      y = *ptr;
      *ptr = 1;
      printf(“%d,%d”,x,y);
}
```

The output of invoking `printxy(1,1)` is

(A) 0,0 (B) 0.1 (C) 1.0 (D) 1.1

Question Number : 15 **Correct : 1 Wrong : -0.33**

The Breadth First Search (BFS) algorithm has been implemented using the queue data structure. Which one of the following is a possible order of visiting the nodes in the graph below?



(A) MNOPQR
(B) NQMPOR
(C) QMNROP
(D) POQNMR

Question Number : 16 **Correct : 1 Wrong : -0.33**

Identify the language generated by the following grammar, where S is the start variable.

$$S \rightarrow XY$$
$$X \rightarrow aX \mid a$$
$$Y \rightarrow aYb \mid \epsilon$$

(A) $\{a^m b^n \mid m \geq n,\ n > 0\}$
(B) $\{a^m b^n \mid m \geq n,\ n \geq 0\}$
(C) $\{a^m b^n \mid m > n,\ n \geq 0\}$
(D) $\{a^m b^n \mid m > n,\ n > 0\}$

Question Number : 17 **Correct : 1 Wrong : -0.33**

An ER model of a database consists of entity types A and B. These are connected by a relationship R which does not have its own attribute. Under which one of the following conditions, can the relational table for R be merged with that of A?

(A) Relationship R is one-to-many and the participation of A in R is total.

(B) Relationship R is one-to-many and the participation of A in R is partial.

(C) Relationship R is many-to-one and the participation of A in R is total.

(D) Relationship R is many-to-one and the participation of A in R is partial.

Question Number : 18 **Correct : 1 Wrong : -0.33**

Consider socket API on a Linux machine that supports connected UDP sockets. A connected UDP socket is a UDP socket on which `connect` function has already been called. Which of the following statements is/are CORRECT?

I. A connected UDP socket can be used to communicate with multiple peers simultaneously.

II. A process can successfully call `connect` function again for an already connected UDP socket.

(A) I only
(B) II only
(C) Both I and II
(D) Neither I nor II

Question Number : 19

Correct : 1 Wrong : 0

Consider the following tables T1 and T2.

T1

P	Q
2	2
3	8
7	3
5	8
6	9
8	5
9	8

T2

R	S
2	2
8	3
3	2
9	7
5	7
7	2

In table T1, **P** is the primary key and **Q** is the foreign key referencing **R** in table T2 with on-delete cascade and on-update cascade. In table T2, **R** is the primary key and **S** is the foreign key referencing **P** in table T1 with on-delete set NULL and on-update cascade. In order to delete record $\langle 3, 8 \rangle$ from table T1, the number of additional records that need to be deleted from table T1 is ____________.

Question Number : 20

Correct : 1 Wrong : 0

The maximum number of IPv4 router addresses that can be listed in the record route (RR) optic field of an IPv4 header is ________.

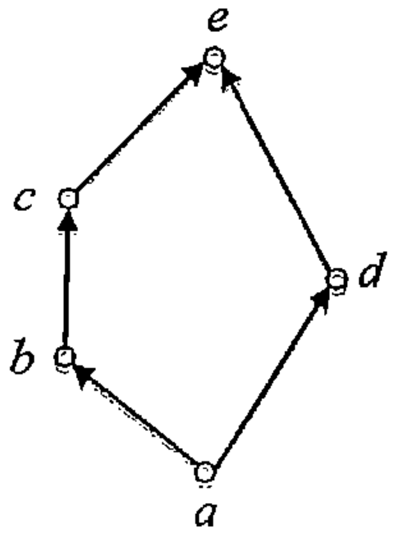
Question Number : 21

Correct : 1 Wrong : 0

Consider the set $X = \{a,b,c,d,e\}$ under the partial ordering

$$R = \{(a,a),(a,b),(a,c),(a,d),(a,e),(b,b),(b,c),(b,e),(c,c),(c,e),(d,d),(d,e),(e,e)\}.$$

The Hasse diagram of the partial order (X,R) is shown below.



The minimum number of ordered pairs that need to be added to R to make (X,R) a lattice is __________.

Question Number : 22

Correct : 1 Wrong : 0

Let $P = \begin{bmatrix} 1 & 1 & -1 \\ 2 & -3 & 4 \\ 3 & -2 & 3 \end{bmatrix}$ and $Q = \begin{bmatrix} -1 & -2 & -1 \\ 6 & 12 & 6 \\ 5 & 10 & 5 \end{bmatrix}$ be two matrices.

Then the rank of $P + Q$ is ________________.

Question Number : 23

Correct : 1 Wrong : 0

G is an undirected graph with n vertices and 25 edges such that each vertex of G has degree at least 3. Then the maximum possible value of n is __________.

Question Number : 24 **Correct : 1 Wrong : 0**

Consider a quadratic equation $x^2 - 13x + 36 = 0$ with coefficients in a base b. The solutions of this equation in the same base b are $x = 5$ and $x = 6$. Then $b =$ __________.

Question Number : 25 **Correct : 1 Wrong : 0**

The minimum possible number of states of a deterministic finite automaton that accepts the regular language $L = \{w_1aw_2 \mid w_1, w_2 \in \{a, b\}^*, |w_1| = 2, |w_2| \geq 3\}$ is __________.

Question Number : 26 **Correct : 2 Wrong : -0.66**

P and Q are considering to apply for a job. The probability that P applies for the job is $\frac{1}{4}$, the probability that P applies for the job given that Q applies for the job is $\frac{1}{2}$, and the probability that Q applies for the job given that P applies for the job is $\frac{1}{3}$. Then the probability that P does not apply for the job given that Q does not apply for the job is

(A) $\frac{4}{5}$ (B) $\frac{5}{6}$ (C) $\frac{7}{8}$ (D) $\frac{11}{12}$ ( )

Question Number : 27 **Correct : 2 Wrong : -0.66**

If w, x, y, z are Boolean variables, then which one of the following is INCORRECT?

(A) $wx + w(x + y) + x(x + y) = x + wy$
(B) $\overline{w\bar{x}(y + \bar{z})} + \bar{w}x = \bar{w} + x + \bar{y}z$
(C) $(w\bar{x}(y + x\bar{z}) + \bar{w}\bar{x})y = x\bar{y}$
(D) $(w + y)(wxy + wyz) = wxy + wyz$

Question Number : 28

Correct : 2 Wrong : -0.66

Given $f(w,x,y,z) = \Sigma_m(0,1,2,3,7,8,10) + \Sigma_d(5,6,11,15)$, where d represents the *don't-care* condition in Karnaugh maps. Which of the following is a minimum product-of-sums (POS) form of $f(w,x,y,z)$?

(A) $f = (\overline{w} + \overline{z})(\overline{x} + z)$
(B) $f = (\overline{w} + z)(x + z)$
(C) $f = (w + z)(\overline{x} + z)$
(D) $f = (w + \overline{z})(\overline{x} + z)$

Question Number : 29

Correct : 2 Wrong : -0.66

In a two-level cache system, the access times of L_1 and L_2 caches are 1 and 8 clock cycles, respectively. The miss penalty from the L_2 cache to main memory is 18 clock cycles. The miss rate of L_1 cache is twice that of L_2. The average memory access time (AMAT) of this cache system is 2 cycles. The miss rates of L_1 and L_2 respectively are:

(A) 0.111 and 0.056
(B) 0.056 and 0.111
(C) 0.0892 and 0.1784
(D) 0.1784 and 0.0892

Question Number : 30

Correct : 2 Wrong : -0.66

Consider the recurrence function

$$T(n) = \begin{cases} 2T\left(\sqrt{n}\right) + 1, & n > 2 \\ 2, & 0 < n \leq 2 \end{cases}$$

Then $T(n)$ in terms of Θ notation is

(A) $\Theta(\log \log n)$
(B) $\Theta(\log n)$
(C) $\Theta(\sqrt{n})$
(D) $\Theta(n)$

Question Number : 31 **Correct : 2 Wrong : -0.66**

For any discrete random variable X. with probability mass function $P(X=j)=p_j, p_j \geq 0. j \in \{0.\dots.N\}$. and $\sum_{j=0}^{N} p_j = 1$. define the polynomial function $g_X(z)=\sum_{j=0}^{N} p_j z^j$. For a certain discrete random variable Y. there exists a scalar $\beta \in [0,1]$ such that $g_Y(z)=(1-\beta+\beta z)^N$. The expectation of Y is

(A) $N\beta(1-\beta)$

(B) $N\beta$

(C) $N(1-\beta)$

(D) Not expressible in terms of N and β alone

Question Number : 32 **Correct : 2 Wrong : -0.66**

Consider the following expression grammar G :

```
E -> E - T | T
T -> T + F | F
F -> (E) | id
```

Which of the following grammars is not left recursive, but is equivalent to G?

(A)
```
E -> E - T | T
T -> T + F | F
F -> (E) | id
```

(B)
```
E -> TE′
E′ -> -TE′ | ϵ
T -> T + F | F
F -> (E) | id
```

(C)
```
E -> TX
X -> -TX |ϵ
T -> FY
Y -> +FY |ϵ
F -> (E) | id
```

(D)
```
E -> TX | (TX)
X -> -TX | +TX | ϵ
T -> id
```

Question Number : 33 **Correct : 2 Wrong : -0.66**

A system shares 9 tape drives. The current allocation and maximum requirement of tape drives for three processes are shown below:

Process	Current Allocation	Maximum Requirement
P1	3	7
P2	1	6
P3	3	5

Which of the following best describes current state of the system?

(A) Safe, Deadlocked
(B) Safe, Not Deadlocked
(C) Not Safe, Deadlocked
(D) Not Safe, Not Deadlocked

Question Number : 34 **Correct : 2 Wrong : -0.66**

Consider a binary code that consists of only four valid codewords as given below:

00000, 01011, 10101, 11110

Let the minimum Hamming distance of the code be p and the maximum number of erroneous bits that can be corrected by the code be q. Then the values of p and q are

(A) $p=3$ and $q=1$
(B) $p=3$ and $q=2$
(C) $p=4$ and $q=1$
(D) $p=4$ and $q=2$

Question Number : 35 **Correct : 2 Wrong : -0.66**

Consider two hosts X and Y, connected by a single direct link of rate 10^6 bits/sec. The distance between the two hosts is 10,000 km and the propagation speed along the link is 2×10^8 m/sec. Host X sends a file of 50,000 bytes as one large message to host Y continuously. Let the transmission and propagation delays be p milliseconds and q milliseconds, respectively. Then the values of p and q are

(A) $p=50$ and $q=100$
(B) $p=50$ and $q=400$
(C) $p=100$ and $q=50$
(D) $p=400$ and $q=50$

Question Number : 36

Correct : 2 Wrong : -0.66

The pre-order traversal of a binary search tree is given by 12, 8, 6, 2, 7, 9, 10, 16, 15, 19, 17, 20. Then the post-order traversal of this tree is:

(A) 2, 6, 7, 8, 9, 10, 12, 15, 16, 17, 19, 20
(B) 2, 7, 6, 10, 9, 8, 15, 17, 20, 19, 16, 12
(C) 7, 2, 6, 8, 9, 10, 20, 17, 19, 15, 16, 12
(D) 7, 6, 2, 10, 9, 8, 15, 16, 17, 20, 19, 12

Question Number : 37

Correct : 2 Wrong : -0.66

Consider the C program fragment below which is meant to divide `x` by `y` using repeated subtractions. The variables `x`, `y`, `q` and `r` are all `unsigned int`.

```
while (r >= y) {
  r = r - y;
  q = q + 1;
}
```

Which of the following conditions on the variables `x`, `y`, `q` and `r` before the execution of the fragment will ensure that the loop terminates in a state satisfying the condition `x == (y*q + r)`?

(A) `(q == r) && (r == 0)`
(B) `(x > 0) && (r == x) && (y > 0)`
(C) `(q == 0) && (r == x) && (y > 0)`
(D) `(q == 0) && (y > 0)`

Question Number : 38

Correct : 2 Wrong : -0.66

Consider the following C function.

```
int fun(int n) {
        int i, j;
        for(i = 1; i <= n; i++) {
                for(j = 1; j < n; j += i) {
                        printf(" %d %d",i,j);
                }
        }
}
```

Time complexity of `fun` in terms of Θ notation is

(A) $\Theta(n\sqrt{n})$
(B) $\Theta(n^2)$
(C) $\Theta(n\log n)$
(D) $\Theta(n^2\log n)$

Question Number : 39 **Correct : 2 Wrong : -0.66**

Let δ denote the transition function and $\hat{\delta}$ denote the extended transition function of the ϵ-NFA whose transition table is given below:

δ	ϵ	a	b
$\rightarrow q_0$	$\{q_2\}$	$\{q_1\}$	$\{q_0\}$
q_1	$\{q_2\}$	$\{q_2\}$	$\{q_3\}$
q_2	$\{q_0\}$	$\emptyset$	$\emptyset$
q_3	$\emptyset$	$\emptyset$	$\{q_2\}$

Then $\hat{\delta}(q_2, aba)$ is

(A) $\emptyset$ (B) $\{q_0, q_1, q_3\}$ (C) $\{q_0, q_1, q_2\}$ (D) $\{q_0, q_2, q_3\}$

Question Number : 40 **Correct : 2 Wrong : -0.66**

Consider the following languages.

$L_1 = \{a^p \mid p \text{ is a prime number}\}$
$L_2 = \{a^n b^m c^{2m} \mid n \geq 0, m \geq 0\}$
$L_3 = \{a^n b^n c^{2n} \mid n \geq 0\}$
$L_4 = \{a^n b^n \mid n \geq 1\}$

Which of the following are CORRECT?

I. L_1 is context-free but not regular.
II. L_2 is not context-free.
III. L_3 is not context-free but recursive.
IV. L_4 is deterministic context-free.

(A) I, II and IV only (B) II and III only (C) I and IV only (D) III and IV only

Question Number : 41

Correct : 2 Wrong : -0.66

Let $L(R)$ be the language represented by regular expression R. Let $L(G)$ be the language generated by a context free grammar G. Let $L(M)$ be the language accepted by a Turing machine M. Which of the following decision problems are undecidable?

I. Given a regular expression R and a string w, is $w \in L(R)$?
II. Given a context-free grammar G, is $L(G) = \emptyset$?
III. Given a context-free grammar G, is $L(G) = \Sigma^*$ for some alphabet Σ ?
IV. Given a Turing machine M and a string w, is $w \in L(M)$?

(A) I and IV only (B) II and III only (C) II, III and IV only (D) III and IV only

Question Number : 42

Correct : 2 Wrong : -0.66

The next state table of a 2-bit saturating up-counter is given below.

Q_1	Q_0	Q_1^+	Q_0^+
0	0	0	1
0	1	1	0
1	0	1	1
1	1	1	1

The counter is built as a synchronous sequential circuit using T flip-flops. The expressions for T_1 and T_0 are

(A) $T_1 = Q_1Q_0$, $T_0 = \bar{Q}_1\bar{Q}_0$

(B) $T_1 = \bar{Q}_1Q_0$, $T_0 = \bar{Q}_1 + \bar{Q}_0$

(C) $T_1 = Q_1 + Q_0$, $T_0 = \bar{Q}_1 + \bar{Q}_0$

(D) $T_1 = \bar{Q}_1Q_0$, $T_0 = Q_1 + Q_0$

Question Number : 43

Correct : 2 Wrong : 0

Consider the following snippet of a C program. Assume that `swap(&x, &y)` exchanges the contents of x and y.

```
int main() {
     int array[] = {3, 5, 1, 4, 6, 2};
     int done = 0;
     int i;

     while (done == 0) {
          done = 1;
          for (i=0; i<=4; i++) {
               if (array[i] < array[i+1]) {
                    swap(&array[i], &array[i+1]);
                    done = 0;
               }
          }
          for (i=5; i>=1; i--) {
               if (array[i] > array[i-1]) {
                    swap(&array[i], &array[i-1]);
                    done = 0;
               }
          }

     }
    printf(”%d”,array[3]);
}
```

The output of the program is __________.

Question Number : 44

Correct : 2 Wrong : 0

Two transactions T_1 and T_2 are given as

$$T_1 : r_1(X)w_1(X)r_1(Y)w_1(Y)$$
$$T_2 : r_2(Y)w_2(Y)r_2(Z)w_2(Z)$$

where $r_i(V)$ denotes a *read* operation by transaction T_i on a variable V and $w_i(V)$ denotes a *write* operation by transaction T_i on a variable V. The total number of conflict serializable schedules that can be formed by T_1 and T_2 is ____________.

Question Number : 45

Correct : 2 Wrong : 0

The read access times and the hit ratios for different caches in a memory hierarchy are as given below.

Cache	Read access time (in nanoseconds)	Hit ratio
I-cache	2	0.8
D-cache	2	0.9
L2-cache	8	0.9

The read access time of main memory is 90 nanoseconds. Assume that the caches use the referred-word-first read policy and the write back policy. Assume that all the caches are direct mapped caches. Assume that the dirty bit is always 0 for all the blocks in the caches. In execution of a program, 60% of memory reads are for instruction fetch and 40% are for memory operand fetch. The average read access time in nanoseconds (up to 2 decimal places) is ___________.

Question Number : 46 **Correct : 2 Wrong : 0**

Consider the following database table named *top_scorer*.

top_scorer

player	country	goals
Klose	Germany	16
Ronaldo	Brazil	15
G Müller	Germany	14
Fontaine	France	13
Pelé	Brazil	12
Klinsmann	Germany	11
Kocsis	Hungary	11
Batistuta	Argentina	10
Cubillas	Peru	10
Lato	Poland	10
Lineker	England	10
T Müller	Germany	10
Rahn	Germany	10

Consider the following SQL query:

```
SELECT ta.player FROM top_scorer AS ta
WHERE ta.goals >ALL (SELECT tb.goals
           FROM top_scorer AS tb
           WHERE tb.country = 'Spain')
AND ta.goals >ANY (SELECT tc.goals
           FROM top_scorer AS tc
           WHERE tc.country = 'Germany')
```

The number of tuples returned by the above SQL query is ____________.

Question Number : 47 **Correct : 2 Wrong : 0**

If the ordinary generating function of a sequence $\{a_n\}_{n=0}^{\infty}$ is $\frac{1+z}{(1-z)^3}$, then $a_3 - a_0$ is equal to ____________.

Question Number : 48 **Correct : 2 Wrong : 0**

If a random variable X has a Poisson distribution with mean 5, then the expectation $E[(X+2)^2]$ equals ___________.

Question Number : 49 **Correct : 2 Wrong : 0**

In a B+ tree, if the search-key value is 8 bytes long, the block size is 512 bytes and the block pointer size is 2 bytes, then the maximum order of the B+ tree is ___________.

Question Number : 50 **Correct : 2 Wrong : 0**

A message is made up entirely of characters from the set $X = \{P, Q, R, S, T\}$. The table of probabilities for each of the characters is shown below:

Character	Probability
P	0.22
Q	0.34
R	0.17
S	0.19
T	0.08
Total	1.00

If a message of 100 characters over X is encoded using Huffman coding, then the expected length of the encoded message in bits is ________.

Question Number : 51

Correct : 2 Wrong : 0

Consider the set of processes with arrival time (in milliseconds). CPU burst time (in milliseconds). and priority (0 is the highest priority) shown below. None of the processes have I/O burst time.

Process	Arrival Time	Burst Time	Priority
P_1	0	11	2
P_2	5	28	0
P_3	12	2	3
P_4	2	10	1
P_5	9	16	4

The average waiting time (in milliseconds) of all the processes using preemptive priority scheduling algorithm is ____________.

Question Number : 52

Correct : 2 Wrong : 0

If the characteristic polynomial of a 3×3 matrix M over $\mathbb{R}$ (the set of real numbers) is $\lambda^3 - 4\lambda^2 + a\lambda + 30$. $a \in \mathbb{R}$, and one eigenvalue of M is 2. then the largest among the absolute values of the eigenvalues of M is ____________.

Question Number : 53

Correct : 2 Wrong : 0

Consider a machine with a byte addressable main memory of 2^{32} bytes divided into blocks of size 32 bytes. Assume that a direct mapped cache having 512 cache lines is used with this machine. The size of the tag field in bits is __________.

Question Number : 54 **Correct : 2 Wrong : 0**

Consider the following C Program.

```
#include<stdio.h>
int main() {
        int m = 10;
        int n, n1;
        n = ++m;
        n1 = m++;
        n--;
        --n1;
        n -= n1;
        printf("%d", n);
        return 0;
}
```

The output of the program is ____________.

Question Number : 55 **Correct : 2 Wrong : 0**

Consider the following C Program.

```
#include<stdio.h>
#include<string.h>
int main() {
        char* c = "GATECSIT2017";
        char* p = c;
        printf("%d", (int)strlen(c+2[p]-6[p]-1));
        return 0;
}
```

The output of the program is ______304______.

Question Number : 56 **Correct : 1 Wrong : -0.33**

Choose the option with words that are not synonyms.

(A) aversion. dislike

(B) luminous. radiant

(C) plunder. loot

(D) yielding. resistant

Question Number : 57 **Correct : 1 Wrong : -0.33**

Saturn is __________ to be seen on a clear night with the naked eye.

(A) enough bright

(B) bright enough

(C) as enough bright

(D) bright as enough

Question Number : 58 **Correct : 1 Wrong : -0.33**

There are five buildings called V. W. X. Y and Z in a row (not necessarily in that order). V is to the West of W. Z is to the East of X and the West of V. W is to the West of Y. Which is the building in the middle?

(A) V

(B) W

(C) X

(D) Y

Question Number : 59 **Correct : 1 Wrong : -0.33**

A test has twenty questions worth 100 marks in total. There are two types of questions. Multiple choice questions are worth 3 marks each and essay questions are worth 11 marks each. How many multiple choice questions does the exam have?

(A) 12

(B) 15

(C) 18

(D) 19

Question Number : 60 **Correct : 1 Wrong : -0.33**

There are 3 red socks. 4 green socks and 3 blue socks. You choose 2 socks. The probability that they are of the same colour is

(A) 1/5 (B) 7/30 (C) 1/4 (D) 4/15

Question Number : 61 **Correct : 2 Wrong : -0.66**

"We lived in a culture that denied any merit to literary works. considering them important only when they were handmaidens to something seemingly more urgent – namely ideology. This was a country where all gestures. even the most private. were interpreted in political terms."

The author's belief that ideology is not as important as literature is revealed by the word:

(A) 'culture' (B) 'seemingly' (C) 'urgent' (D) 'political'

Question Number : 62 **Correct : 2 Wrong : -0.66**

There are three boxes. One contains apples. another contains oranges and the last one contains both apples and oranges. All three are known to be incorrectly labelled. If you are permitted to open just one box and then pull out and inspect only one fruit. which box would you open to determine the contents of all three boxes?

(A) The box labelled 'Apples' (B) The box labelled 'Apples and Oranges'
(C) The box labelled 'Oranges' (D) Cannot be determined

Question Number : 63 **Correct : 2 Wrong : -0.66**

X is a 30 digit number starting with the digit 4 followed by the digit 7. Then the number X^3 will have

(A) 90 digits (B) 91 digits (C) 92 digits (D) 93 digits

Question Number : 64 **Correct : 2 Wrong : -0.66**

The number of roots of $e^x + 0.5x^2 - 2 = 0$ in the range $[-5, 5]$ is

(A) 0 (B) 1 (C) 2 (D) 3

Q. No.	Type	Section	Key	Marks
1	MCQ	CS-1	D	1
2	MCQ	CS-1	B	1
3	MCQ	CS-1	C	1
4	MCQ	CS-1	B	1
5	MCQ	CS-1	C	1
6	MCQ	CS-1	B	1
7	MCQ	CS-1	D	1
8	MCQ	CS-1	B	1
9	MCQ	CS-1	C	1
10	MCQ	CS-1	B	1
11	MCQ	CS-1	D	1
12	MCQ	CS-1	B	1
13	MCQ	CS-1	D	1
14	MCQ	CS-1	D	1
15	MCQ	CS-1	B	1
16	MCQ	CS-1	A	1
17	MCQ	CS-1	C	1
18	MCQ	CS-1	D	1
19	NAT	CS-1	0.0 to 0.0	1
20	NAT	CS-1	18.0 to 18.0	1
21	NAT	CS-1	1.0 to 1.0	1
22	NAT	CS-1	4.0 to 4.0	1
23	NAT	CS-1	2.6 to 2.6	1
24	NAT	CS-1	3.0 to 3.0	1
25	NAT	CS-1	0.05 to 0.05	1
26	MCQ	CS-1	A	2
27	MCQ	CS-1	D	2
28	MCQ	CS-1	C	2
29	MCQ	CS-1	D	2
30	MCQ	CS-1	A	2
31	MCQ	CS-1	B	2
32	MCQ	CS-1	C	2
33	MCQ	CS-1	B	2
34	MCQ	CS-1	D	2
35	MCQ	CS-1	A	2
36	MCQ	CS-1	C	2

37	MCQ	CS-1	B	2
38	MCQ	CS-1	A	2
39	MCQ	CS-1	A	2
40	MCQ	CS-1	B	2
41	MCQ	CS-1	D	2
42	MCQ	CS-1	A	2
43	NAT	CS-1	1024.0 to 1024.0	2
44	NAT	CS-1	11.0 to 11.0	2
45	NAT	CS-1	86.5 to 89.5	2
46	NAT	CS-1	4.0 to 4.0	2
47	NAT	CS-1	271.0 to 271.0	2
48	NAT	CS-1	5.0 to 5.0	2
49	NAT	CS-1	-16.0 to -16.0	2
50	NAT	CS-1	1.49 to 1.52	2
51	NAT	CS-1	76.0 to 76.0	2
52	NAT	CS-1	2.0 to 2.0	2
53	NAT	CS-1	3.0 to 3.0	2
54	NAT	CS-1	14.0 to 14.0	2
55	NAT	CS-1	23.0 to 23.0	2
56	MCQ	GA	C	1
57	MCQ	GA	D	1
58	MCQ	GA	C	1
59	MCQ	GA	D	1
60	MCQ	GA	C	1
61	MCQ	GA	B	2
62	MCQ	GA	A	2
63	MCQ	GA	B	2
64	MCQ	GA	D	2
65	MCQ	GA	C	2

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
Computer Department

ACADEMIC YEAR 2018-19 SEM- II

List of Fast learner Students

Following Students of Second year are selected as fast learners on the basis of Mid Sem Examination marks evaluation. Extra activities for the students will be sheduled by the coordinator.

Date: 19|03|2019

PRN NO	NAME
21510620171124510002	DUHITA SUHAS NEVE
21510620171124510021	SONALI PRAMOD SONAWANE
21510620171124510040	DIVYA RAVINDRA NEVE
21510620181124510058	NISHA BHAGWAN CHAUDHARI
21510620171124510016	AKSHADA NILESH BADGUJAR

HOD
Computer

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

Computer

CLASS : Second year SEM- II ACADEMIC YEAR 2018-19

Attendance Fast learner

Title of activity		Study of Research Methodology	Hands on Practical Assignment	Case Study
Date of activity		23/03/2019	30/03/2019	20/04/2019
ROLL NO	NAME			
21510620171124510002	DUHITA SUHAS NEVE	Introduction of topic	Design of framework	Conv. of B2B from
21510620171124510021	SONALI PRAMOD SONAWANE	Literature Survey	Structure of website	Categorization of Ecom
21510620171124510040	DIVYA RAVINDRA NEVE	Proposed scheme	Provide Links to Menu	B2B E-Com App
21510620181124510058	NISHA BHAGWAN CHAUDHARI	Application Areas	Frame work Design	Acoustics for voice morphing
21510620171124510016	AKSHADA NILESH BADGUJAR	Methodology Archit	Foreground & Menu	Voice Conversion

Coordinator

H.O.D.
Computer

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

Computer

CLASS : Second year

SEM- II

ACADEMIC YEAR 2018-19

Date : 23-03-2019

Attendance Fast learner

Title of activity 1		Study of Research Methodology
ROLL NO	NAME	Topic
21510620171124510002	DUHITA SUHAS NEVE	Open Issues and Security Challenges of Data Communication Channels in Distributed Internet of Things (IoT): A Survey
21510620171124510021	SONALI PRAMOD SONAWANE	
21510620171124510040	DIVYA RAVINDRA NEVE	
21510620181124510058	NISHA BHAGWAN CHAUDHARI	Mobile Wallet Payments Recent Potential Threats and Vulnerabilities with its possible security Measures
21510620171124510016	AKSHADA NILESH BADGUJAR	

Coordinator

H.O.D.
Computer

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Open Issues and Security Challenges of Data Communication Channels in Distributed Internet of Things (IoT): A Survey

Ernest Ezema
Faculty of Computer Science
and Information Technology,
Universiti Putra Malaysia
Serdang 43400, Selangor D.E
Malaysia.

Azizol Abdullah
Faculty of Computer Science
and Information Technology,
Universiti Putra Malaysia
Serdang 43400, Selangor D.E
Malaysia

Nor Fazlida Binti Mohd
Faculty of Computer Science
and Information Technology,
Universiti Putra Malaysia
Serdang 43400, Selangor D.E
Malaysia

ABSTRACT

The concept of the Internet of Things (IoT) has evolved over time. The introduction of the Internet of Things and Services into the manufacturing environment has ushered in a fourth industrial revolution: Industry 4.0. It is no doubt that the world is undergoing constant transformations that somehow change the trajectory and history of humanity. We can illustrate this with the first and second industrial revolutions and the information revolution. IoT is a paradigm based on the internet that comprises many interconnected technologies like RFID (Radio Frequency Identification) and WSAN (Wireless Sensor and Actor Networks) to exchange information. The current needs for better control, monitoring and management in many areas, and the ongoing research in this field, have originated the appearance and creation of multiple systems like smart-home, smart-city and smart-grid. The IoT services can have centralized or distributed architecture. The centralized approach provides is where central entities acquire, process, and provide information while the distributed architectures, is where entities at the edge of the network exchange information and collaborate with each other in a dynamic way. To understand the two approaches, it is necessary to know its advantages and disadvantages especially in terms of security and privacy issues. This paper shows that the distributed approach has various challenges that need to be solved. But also, various interesting properties and strengths. In this paper we present the main research challenges and the existing solutions in the field of IoT security, identifying open issues, the industrial revolution and suggesting some hints for future research.

Keywords

Internet of Things (IoT), IoT Security, Distributed IoT, Industrial Revolution 4.0, Data, Communication Channels.

1. INTRODUCTION

The Internet of things was probably introduced by Ashton in 1999 [1]. The IoT can be defined as a set of interconnected things (humans, tags, sensor, and so on) over the internet, which can measure, communicate and act all over the world. The key idea of the IoT is to obtain information about our environment, to understand, control and act on it. The IoT can help us in our daily life, e.g in [2]. Nowadays, the concept of IoT is very broad, it covers many different technologies, services, and standards and it is perceived as the foundation of the ICT market in the next ten years [4–6]. Consequently, a typical IoT system is a collection of smart devices that interact on a collaborative basis to fulfil a common goal. At the technological floor, IoT deployments may adopt different processing and communication architectures, technologies, and design methodologies, based on their target. For instance, the same IoT system could leverage the capabilities of a wireless sensor network (WSN) that collects the environmental information in each area and a set of smartphones on top of which monitoring applications run. In the middle, a standardized or proprietary middleware could be employed to ease the access to virtualized resources and services. The middleware, in turn, might be implemented using cloud technologies, centralized overlays, or peer to peer systems [5].

According to Haddara & Elragal [39], our world today has had multiple industrial revolutions over history. The 1st industrial revolution was the mechanization of production using water and steam power; the 2nd industrial revolution introduced mass production with the help of electric power; and 3rd industrial revolution use electronics and IT to further automate production. In the last few years, the technological advances of ICT provided a set of tools that changed our life as internet, robots, drones, IoT, and IoE. However, things communicate easily through the world-wide network: The Internet. This trend will certainly find its way also into industrial production, which will benefit increasingly from the advances in ICT and computer sciences [40].

In the context of the IoT, the importance of the distributed approach as an element of the Future Internet of Things has been previously mentioned in the literature [1]. However, there have been no explicit analyses of its features and its challenges. To understand the viability and applicability of this distributed approach, it is necessary to explicitly know its actual features and major principles, including the benefits and disadvantages. Also, as security and privacy are important factors that will influence the adoption of the IoT paradigm, it is essential to know what are the security and privacy challenges – and benefits – of the distributed approach, and what are the most promising approaches in this field. If the challenges are too complex and the benefits too small, it might make sense to focus mainly on the centralized approach for IoT [8.6]. On the other hand, in a distributed approach, not only the intelligence and the provisioning of services are located at the edge of the network, but also various application platforms can collaborate with each other dynamically.

Note that adaptation and self-healing plays a key role in IoT infrastructures, which must be able to face normal and unexpected changes of the target environment. Accordingly,

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Ernest Ezema
University of New Haven

Azizol Abdullah
Universiti Putra Malaysia

privacy and security issues should be treated with a high degree of flexibility as advocated in [12,13]. Together with the conventional security solutions, there is also the need to provide built-in security in the devices themselves (i.e., embedded) to pursue dynamic prevention, detection, diagnosis, isolation and countermeasures against successful breaches, as underlined in [12]. Our work analyzes the most relevant available solutions related to security (i.e., integrity, confidentiality, and authentication), privacy, and trust in IoT field with analysis of centralized and distributed approaches. We also focus on proposals regarding security middleware's and secure solutions for mobile devices, as well as ongoing international projects on this subject. The main topics analyzed are shown in Fig. 1. In literature, other surveys deal with issues related to the IoT paradigm: In [1] analyzes the IoT enabling technologies and existing middleware's, also from an application point of view, and presents security and privacy open issues together with standardization, addressing, and networking ones; [8] considers the security and privacy challenges only under a legislative point of view, with attention to the European Commission directives. In [2] discusses the main research contexts (i.e., impact areas, projects, and standardization activities) and challenges in IoT, dealing also with data confidentiality, privacy, and trust as regards security requirements; [15] is on Internet of Underwater Things and presents only few hints to security issue; [10] investigates the advantages and disadvantages of centralized and distributed architectures in terms of security and privacy in IoT with an analysis of the principal attack models and threats; [12] provides a general overview on various IoT aspects, such as the involved technologies, the applications, the cloud platforms, the architecture, the energy consumption and security issues, the quality of service and data mining implications; [11] focuses only on the specific issue of trust management in IoT. The contribution of this paper is compared in Table 1 with respect to the surveys: it clearly embraces with a breaded breath all security-related facets and of course it includes more recent references on the subject. The rest of this paper is organized as follows. Section 2 analyzes the available approaches regarding confidentiality and access control in IoT. It deals with privacy and trust issues, respectively with related work on Distributed IoT. Section 3 shows the security and privacy policies enforcement in IoT applications. Section 4 shows the main challenges and promising solutions in the design and deployment of the security mechanism. Finally, Conclusions are presented in Section 5.

At the Hanover Fair in 2011, the term Industry 4.0 was first coined. In October 2012, the Working Group on Industry 4.0, presented a set of implementation recommendations to the German government. The term Industry 4.0 spring from a project in the high-tech strategy of the German government. The project advocates the computerization of the manufacturing industry. It is also known as the 4th industrial revolution. In more concise meaning, industry 4.0 is based on the technological concepts of cyber-physical systems, Internet of Things (IoT), which enables the Factory of the Future (Fofo) [39].

Subsequently, companies have come up with solutions to this concept, supported by governments, mainly European (especially German), but also by countries such as the United States, Japan and China, indicating that this was an industrial and strategic era Industries. Weyer et al. [40] stated that in Industry 4.0, field devices, machines, production modules and products are comprised as Cyber-Physical Systems (CPS) that are autonomously exchanging information, triggering actions and controlling each other independently. In [40] further explained that factories are developing into intelligent environments in which the gulf between the real and digital world is becoming smaller. The strong bias of the electro-technical and hierarchical world of factory automation will transition to smart factory networks, that enable dynamic reengineering processes and deliver the ability to respond flexibly to disruptions and failures. Central aspects of the Industry 4.0 can be divided into three paradigms namely: The Smart Product, the Smart Machine and the Augmented Operator. The main idea of the Smart Product is to extend the role of the work piece to an active part of the system. The products receive a memory on which operational data and requirements are stored directly as an individual building plan. The paradigm of the Smart Machine describes the process of machines becoming Cyber-Physical Production Systems (CPPS). The third paradigm mentioned above, the Augmented Operator, targets at the technological support of the worker in the challenging environment of highly modular production systems [40]. By 2020, the Fourth Industrial Revolution will have brought us advanced robotics and autonomous transport, artificial intelligence and machine learning, advanced materials, biotechnology and genomics. These developments will transform the way we live, and the way we work. However, the big question is, how secure are these systems, machines and other connected devices to provide the needed support and communication.

2. CENTRALIZED VS DISTRIBUTED APPROACH

In today's world, cloud continues to expand, it has taken to many forms. From the virtual partitions on mainframes to virtualization, cloud services and mobile technologies, the cloud is composed of diverse platforms and approaches. However, IoT stands to be one of the new applications that will be closely related to cloud technologies. The IoT inherited the concept of the original Internet, which was (and still is) composed of networking nodes (servers and computers) all linked together via global networks, and which is used for everything from data transfers and stock quotes to web surfing and media streaming. But this new technology isn't about computer communications in the traditional sense; rather, IoT is about data collection from a much larger range of simple devices or sensors that communicate specific data to a centralized or semi-centralized collection point, and can receive simple commands back from that central source. Comparing IoT to the more traditional networking nodes, sensors have less compute and storage power. This raises the age-old question of having the compute and storage resources centralized vs. distributed.

Nowadays, the applications for IoT are enormous. For example, in healthcare, a range of sensors attached to patients can transmit data about that patient to a central management console, informing the medical team when certain conditions are detected. In our home, IoT applications are essentially already in use, smart appliances like a refrigerator can signal the need for new water filters, and thermostats can both report temperature data and receive commands to adjust the temperature. And in agriculture, things like sensors on cows can report everything from the cow's body temperature to signs of stress or disease which requires urgent attention.

Arising from this feature and many potential applications possible, the question is to what kind of architecture will be required to support such diverse uses with such a high volume of sensors. Before now, in the early days of computer, terminals connected to a mainframe and were dependent on that mainframe to be of any use. Later, the development of the personal computer negated the need for a mainframe. But the advent of the Internet re-introduced the client-server model and the centralized vs. distributed discussion again. And now, cloud services have essentially taken us back to reconsider our architectures. But for IoT applications, a client-server approach may not be the possible model. Example, in many areas, the sensors may be required to make some decisions locally, or communicate with more than one external source based on the data collected. The main differences between these two approaches is their ability to process information and mode of communication. In centralized approach, all data are streamed back to the server while in distributed approach, intra processing stage and inter processing stage is required. Hence, distributed computing is an essential technique for internet of things (IoT) to off-load the computation from the cloud servers as well as reduce the transmission bandwidth requirements

2.1 Contributions to Distributed IoT

The concept of a distributed IoT have existed before now. In fact, various official documents consider it as one of the possible strategies that can push the dream of the IoT into the real world, and it has been explicitly mentioned that the development of decentralized autonomic architectures and the location of intelligence at the very edge of the networks are issues that need to be addressed [2]. However, some key questions must be answered to make the most of this strategy in the real world, such as the specific situations on which the network intelligence should be distributed [1]. To answer these questions, it is necessary to study the specific requirements of applications. For example, whether an application needs support for distributed ownership of data [3]. This and other issues that have been raised by government and individuals are being carefully considered by the research community.

In the last few years, researchers have carried various studies in so many areas of distributed IoT architectures. For example, [46] combine the concept of the web of things (using web protocols to implement the IoT) with the concept of triple spaces (using semantic web techniques to exchange knowledge in a distributed local shared space) to create a distributed environment where devices located in both ends can collaborate with each other through Internet services. In another example, which follows a more holistic point of view, Ning and Liu describe a heterogeneous system known as U2IoT that comprises two subsystems: Unit IoTs, which are basic local cells that provide solutions for special applications, and Ubiquitous IoT, which comprises the different Unit IoTs plus other managers and controls the collaboration between all entities. The table below shows the list of selected literatures and their contributions to specific security requirements in IoT. See table 1.

Table 1. Review of selected literatures based on their contributions to IoT security.

	[1]	[8]	[2]	[15]	[10]	[16]
Security	Yes	No	Yes	Yes	No	Yes
Privacy	Yes	Yes	Yes	No	Yes	Yes
Trust	No	Yes	Yes	No	Yes	Yes
Distributed IoT	No	Yes	Yes	No	Yes	Yes

Government bodies have funded projects targeted at studying the important of distributed IoT architecture which will directly or indirectly impart the society. Precisely, one of these projects, IoT-A [8], aimed at providing an architectural reference model for the interoperability of Internet of Things systems. However, this project does not mandate how all entities should collaborate, or who should analyze the data and provide the different services. Still, the communication model provides the foundations for the creation of distributed applications, allowing digital entities to directly connect and interact with other digital entities. Moreover, the location of intelligence at the edge of the network is implicitly considered, as digital entities range from simple devices to abstract entities made up of various distributed devices. Therefore, its building blocks [9] could be used in the future to create fully distributed IoT applications. Some concrete building blocks, which can help to build a distributed IoT, have been indirectly studied in other research projects. For example, the HYDRA project [10] developed an open source middleware that allows legacy devices to provide web services over the Internet – directly or indirectly. HYDRA also provides some tools that can be used to enable collaboration, such as a device and service discovery interface. This interface can make use of ontology to describe the available services, achieving semantic consistency. Another project, SENSEI [11], was more focused on providing a consistent interface to access the services of Wireless Sensor Networks (WSN) islands. But it produced other relevant results, such as semantically-enabled resource directories, and local management systems that benefit of the existence of such directories. Finally, other projects, like CUBIQ [12] and SMARTPRODUCTS [13], studied and developed various P2P-based distributed mechanisms, such as a distributed publish/subscribe system and a distributed storage system. Beyond theoretical research, there are numerous companies and start-ups that are making use of cloud technologies to provide IoT services. The key idea is that all edge devices and intranet of things will send their information periodically to an application platform located in the cloud. This platform stores all the data and provides specialized API interfaces that can be used by 3rd parties to create their IoT applications. There are various approaches for implementing these types of platforms: from closed environments where even the sensors are controlled by the company [4] to more open platforms that allow the integration of external devices and databases [5]. Most of these solutions are completely centralized: edge systems act mainly as data acquisition networks, and application platforms from different vendors are not prepared to interact with each other. Yet there are some platforms that, pursuing the idea of creating private and hybrid clouds, can be deployed in a local environment [14]. These platforms not only enable the existence of local intelligence but also can exchange information and services with external systems, thus they can easily become instances of the distributed IoT. In IoT distributed architecture, multiple services are merged with minimal human intervention. Functionalities are grouped into three layers; Vitural object layer (VOL), Composite virtual object layer (CVOL) and the service layer (SL). Information are shared between this layer to make communication complete. Refer to Figure 1.

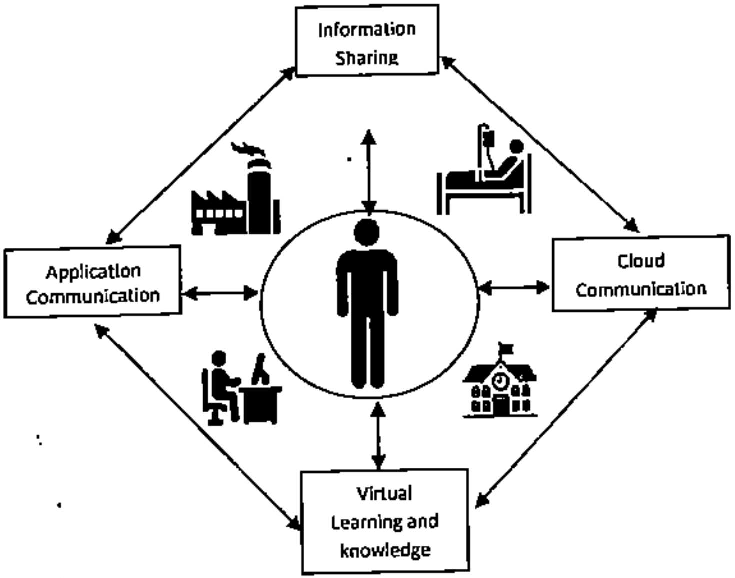

Fig 1: Understating Distributed IoT

2.3 Security issues in distributed IoT systems

Although academic research on the topic of security in the Internet of Things is still in its infancy, there is a substantial body of work that analyses the existing challenges and possible protection mechanisms. However, existing research mainly provides an overview of the generic problems – without considering the impact of specific features such as the ones studied in this paper. To understand the specific security issues of a distributed IoT, it is necessary not only to analyses the impact of the distributed IoT principles (collaboration, edge intelligence) over the existing threats and attacker models. Once the analysis of the threats and attacker models is finished, we can study what are the main challenges in the design and deployment of the security mechanisms. Such study, which will be performed in this section, will help to point out specific problems that must be considered if we want to bring the distributed IoT architectures to the real world. Moreover, within this study, we will explore not only existing IoT security mechanisms, but also proposed scheme solution approaches that could be used to provide security in a distributed IoT environment.

In recent time, security have been identified by researchers as the major challenge and concern hindering the successful implementation or the .use of IoT in real world. IoT architectures are supposed to deal with an estimated population of billions of objects, which will interact with each other and with other entities, such as human beings or virtual entities. And all these interactions must be secured somehow, protecting the information and service provisioning of all relevant actors and limiting the number of incidents that will affect the entire IoT. However, protecting the Internet of Things is a complex and difficult task. The number of attack vectors available to malicious attackers might become staggering, as global connectivity ("access anyone") and accessibility ("access anyhow, anytime") are key tenets of the IoT. The threats that can affect the IoT entities are numerous, such as attacks that target diverse communication channels, physical threats, denial of service, identity fabrication, and others [21]. Finally, the inherent complexity of the IoT, where multiple heterogeneous entities located in different contexts can exchange information with each other, further complicates the design and deployment of efficient, interoperable and scalable security mechanisms. Some of the previously mentioned challenges, alongside with the security mechanisms that should integrate awareness mechanism that can be used to create the foundation of intrusion detection and prevention mechanism are explained below.

2.3.1 Attacker models and threats

As aforementioned, to understand how the different approaches presented in Section 2.5 should be secured in the future, it is firstly necessary to enumerate and analyze the attacker models. These models have been defined in a way that they can be applied to both centralized and distributed IoT approaches. Note, however, that the concept of 'perimeter' in the Internet of Things is a bit fuzzy: an attacker can control part of the network, but due to the inherent distributed nature of the IoT, it is nearly impossible for an attacker to fully control the whole system. As a result, an attacker can be both 'internal' and 'external' at the same time. These attacker models, categorized by threats, are introduced in the following paragraph.

- Denial of service (DoS). There are a wide number of DoS attacks that can be launched against the IoT. Beyond traditional Internet DoS attacks that exhaust service provider resources and network bandwidth, the actual wireless communication infrastructure of most data acquisition networks can also be targeted (e.g. jamming the channels). Malicious internal attackers that take control of part of the infrastructure can create even more mayhem.
- Physical damage. This threat be a subset of the DoS threat. In this attacker model, active attackers usually lack technical knowledge, and can only hinder the provisioning of IoT services by destroying the actual 'things'. This is a realistic attack in the IoT context, because things might be easily accessible to anyone (e.g. a street light). If that is not possible, the attacker can simply target the hardware module in charge of creating the 'virtual persona' of the thing.
- Eavesdropping. Passive attackers can target various communication channels (e.g. wireless networks, local wired networks, Internet) to extract data from the information flow. Obviously, an internal attacker that gains access to a infrastructure will be able to extract the information that circulates within that infrastructure.
- Node Capture. As aforementioned, things (e.g. household appliances, street lights) are physically located in a certain environment. Instead of destroying them, an active attacker can try to extract the information they contain. Note also that, instead of things, active attackers can also target other infrastructures that store information, such as data processing or data storage entities.
- Controlling. If there is an attack path, active attackers can try to gain partial or full control over an IoT entity. The scope of the damage caused by these attackers depends mainly on (a) the importance of the data managed by that entity, (b) the services that are provided by that entity.

3. IOT SECURITY REQUIREMENTS: AUTHENTICATION, CONFIDENTIALITY AND ACCESS CONTROL

The heart of every system is the security and what makes a system secure is the ability to guard against internal and external attacks. This section analyzes in depth three key security requirements: authentication, confidentiality, and access control, with a special focus on IoT systems. IoT, in fact, enables a constant transfer and sharing of data among things and users to achieve goals. In such a sharing environment, authentication, authorization, access control and non- repudiation are important to ensure secure communication. In this context, the lack of Computing resources (i.e., processing power, storage) and ad hoc nature of such networks requires to Taylor existing techniques to this new environment. The seminal contributions in such a field will be illustrated together with a critical review of open issues that deserve further investigation [10]. However, having this in mind, we need to understand the security challenges of IoT and suggested solutions. See fig2.

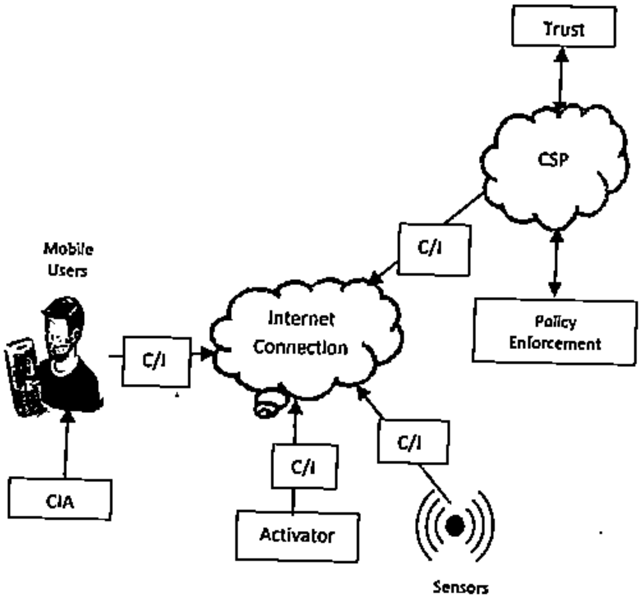

Fig 2: Overview of Security Challenges in IoT Channels

3.1 Authentication and confidentiality

For authentication, the approach presented in [18] makes use of a custom encapsulation mechanism, namely smart business security IoT application Protocol Intelligent Service Security Application Protocol; it combines cross-platform communications with encryption, signature, and authentication, to improve IoT applications development capabilities by establishing a secure communication system among different things.

In [19] it introduced the first fully implemented two-way authentication security scheme for IoT, based on existing Internet standards, specifically the Datagram Transport Layer Security (DTLS) protocol, which is placed between transport and application layer. This scheme is based on RSA and it is designed for IPv6 over Low Power Wireless Personal Area Networks (6LoWPANs) [3]. The extensive evaluation, based on real IoT systems, shows that such an architecture provides message integrity, confidentiality, and authenticity with enough affordable energy, end-to-end latency, and memory overhead. For confidentiality and integrity, in [20] it is analyzed how existing key management systems could be applied to the IoT context. It is possible to classify the Key Management System (KMS) protocols in four major categories: key pool framework, mathematical framework, negotiation framework, and public key framework. In [20] the authors argue that most of the KMS protocols are not suitable for IoT. In fact, key pool protocol suffer insufficient connectivity; mathematical protocol make use of the deployment knowledge to optimize the construction of their data structures, but such an approach cannot be used in IoT since client and server nodes are usually located in different physical locations; combinatorics-based KMS protocols suffer both connectivity and scalability/authentication; negotiation protocol make use of the wireless channel and its inherent features to negotiate a common key, however they cannot be suitable for IoT because client and server nodes usually belong to different networks and they should route the information through the Internet to be able to talk with each other. Hence, the KMS protocols which might be suitable for some IoT scenarios are the Blom [21] and the polynomial schema [22], whose computational overhead is quite low in comparison to a Public Key Cryptography (PKC) operations (i.e., public key framework). However, for such schemes, several countermeasures are required to manage device authentication and face man-in-the-middle attacks. For example, [23, 24] present a framework for IoT based on Public Key Infrastructure (PKI).

A more practical approach, as [25], proposes a transmission model with signature-encryption schemes, which addresses IoT security requirements (i.e., anonymity, trustworthy and attack- resistance) by means of Object Naming Service (ONS) queries. Root-ONS can authenticate the identities and platform creditability of Local ONS servers (L-ONS) by a Trusted authentication Server (TAS), and the TAS gives a temporary certificate to validated L-ONS, which can apply for inquiry services many times with the certificate in the validated time. A security ONS query service with anonymous authentication provides credentials only to authorized and trusted L-ONS, preventing the illegal ONS to enquire information from things. In the transmission process, Remote Information Server of Things (R-TIS) wraps the information of things into multiple encryption layers with the routing node's public key. The encrypted data are decrypted at each routing node, until the Local Information Server of Things (L-TIS) receives the plain text. Meanwhile, the nodes can check the integrity of received data and the creditability of routing path in the transmitting procedure. Such a transmission model results very weak in terms of attack-resistance due to the adoption of hop-by-hop encryption/decryption behavior. It appears that a unique and well-defined solution able to guarantee confidentiality in a IoT context is still missing, as also asserted in [26]. It is worth to note that many efforts have been conducted in the WSN field [27-32], but several questions raised; Are the WSN proposals adaptable to the IoT environment, considering both the heterogeneity of the involved devices and the different application contexts? How and at which network layer to handle authentication? Is it feasible to reuse the traditional security mechanisms (e.g., encryption algorithms) or it is better to start from new solutions? How to handle the different keys? Which kind of key distribution mechanism is the most suitable? How to ensure an end-to-end integrity verification mechanism to make the system more resilient to malicious attacks? Very recent works started addressing such questions. For example, an authentication protocol for IoT is presented in [33], using lightweight encryption method based on XOR manipulation for anti- counterfeiting and privacy protection, to cope with constrained IoT devices. From the WSN context, a user authentication and key agreement scheme for heterogeneous wireless sensor networks is also proposed in [34]. It enables a remote user to securely negotiate a session key with a sensor node, using a lean key agreement protocol. In this way, it ensures mutual authentication among users, sensor nodes, and gateway nodes (GWN), although GWN is never contacted by the user. To apply such a scheme to resource constrained architectures, it only uses simple hash and XOR computations, as in [33]. The authentication and access control method presented in [35] aims at establishing the session key based on Elliptic Curve Cryptography (ECC), another lightweight encryption mechanism. This scheme defines attribute-based access control policies, managed by an attribute authority, enhancing mutual authentication among the user and the sensor nodes, as well as solving the resource-constrained issue at application level in IoT. These preliminary answers partially address afore listed questions because they specifically target the problem of lightweight ciphering in pervasive environments. Further efforts are required to complement these lean mechanisms with standardized protocols for authentication and a clear definition of one or more authorities aimed at guaranteeing the expected confidentiality within the IoT infrastructure

3.2 Policy Enforcement in IoT

Policy enforcement refers to the mechanisms used to force the application of a set of defined actions in a system. More in details, policies are operating rules which need to be enforced for maintaining order, security, and consistency on data. With reference to IoT scenarios, in literature are still present neither viable solutions nor detailed analysis on this subject. Only few works describe how to manage policies enforcement. [22] provides an overview of network security, security policies, policy enforcement and firewall policy management systems. About policy enforcement, it is proposed to use security services such as authentication, encryption, antivirus software and firewalls, to protect the data confidentiality, integrity, and availability. In [23] the languages regarding the definition of obligations and policies are classified into two categories. On the one hand, there are policy enforcement languages, which generally simplify the specification and interpretation of policies; however, they lack the formal semantics needed to allow the verification of the policies themselves by means of formal proofs. On the other hand, there are policy analysis languages, which allow the formal policies analysis and the expression of a large variety of obligations. In this work, it is introduced a policy language which aims at combining the advantages of both policy enforcement and analysis languages. Formalizing policy enforcement has several advantages: it reduces the gap between the specified policies and their deployment, thus it ensures that the policies are correctly applied in the system. To formalize policy enforcement, the target system should be modeled and then the effects of the application of the policies should be described. More in details, policies are enforced using reference monitors, and a set of active rules specifies that a set of actions should be executed after the detection of some events, if some conditions are met.

However, this language does not provide the operational semantics needed to dynamically enforce and manage obligations in a policy managed system. [25] pays its attention to the various types of policy languages, such as WS-Policy (Web Services-Policy) and XACML (eXtensible Access Control Markup Language), exploited in different systems. In fact, low level enforcement mechanisms can vary from system to system. Thus, it is difficult to enforce a policy across domain boundaries or over multiple domains. Before applying policies across domain boundaries, it is desirable to know which policies can be supported by other domains, which are partially supported, and which are not supported. In [26] it is proposed and implemented a simulation environment using semantic model mapping and translation for policy enforcement across domain boundaries by means of a semantically-rich language: Web Ontology Language (OWL), which can be used to model both policy languages and enforcement mechanisms. For example, in a healthcare environment, the cooperation and communication between pharmacy, hospital and medical school are essential. They have their own policy enforcement mechanisms to protect their own proprietary data and patient's records. The problem is that there are more and more collaborations and communications among these domains, therefore a cross-domain policy enforcement becomes an essential component. However, in most cases, these domains use different policy languages to define their policies and these specific policies are executed on their own platforms. When a new cooperation or communication is required between two stranger domains, we do not know how many policy rules from the stranger domain can be enforced by current enforcement mechanisms. So, in most cases, the technical departments from these two domains have to work together to evaluate whether or not it is possible to make their systems interoperating. The same problem also exists in social networking environment (e.g Facebook, MySpace, LinkedIn). Most existing social networking sites have privacy configurations based on their own enforcement mechanisms. When two social networking sites or two healthcare domains need to communicate or collaborate with each other, they have to rebuild or reconfigure their systems to make sure these activities are consistent with their own and their partners policies. Expressing security policies to govern distributed systems is a complex and error-prone task. Because of their complexity and of the different degrees of trust among locations in which code is deployed and executed, it is challenging to make these systems secure.

Moreover, policies are hard to understand, often expressed with unfriendly syntax, making it difficult for security administrators and for business analysts to create intelligible specifications. In [24] it is introduced a Hierarchical Policy Language for Distributed Systems (HiPoLDS), which has been designed to enable the specification of security policies in distributed systems in a concise, readable and extensible way. HiPoLDS design focuses on decentralized execution environments under the control of multiple stakeholders. It represents policy enforcement using distributed reference monitors, which control the flow of information among services (i.e., SOAs) and have the duty to put into action the directives output by the decision engines. For example, an enforcement engine should be able to add or remove security metadata such as signatures or message authentication codes, encrypt confidential information, or decrypt it when it is the case. In [95] the focus is on the enforcement of privacy issues in e-commerce applications (e.g., eBay). There exist two main paradigms to protect the customer privacy: one relies on the customer trustworthiness; the other one insists on the customer anonymity. The proposed paradigm hides the customer real identity and only data which cover the actual resources he/she is looking for can circulate. Such data will be orchestrated through the network to raise potential matches, and each node will use certified email to send the customer a matching offer in a standardized format. [26] introduces a formal and modular framework allowing to enforce a security policy on a given concurrent system. In fact, one of the important goals of the software development process is to prove that the system always meets its requirements. To deal with this problem, two different approaches are proposed. The former is a conservative enforcement: the program should be terminated as soon as it violates the security policy even if the current run could be partially completed. The latter is a liberal enforcement: the execution of the process is not aborted if it could be partially satisfied. With this approach, more properties are enforced than with the conservative one, but the program may terminate without fully satisfying the security policy. Therefore, the conservative enforcement will generate fault negative, while the liberal enforcement will generate fault positive and no one of them reach the desired result. In [26] the liberal enforcement is developed, which can be further extended to handle the conservative approach. More in details, an extended version of the Algebra for Communicating Process (ACP) [27], designed for specifying concurrent systems guarantee the enforcement of security and privacy policies, although they are essential to ensure a safe deployment of IoT paradigm. Note that it is important to identify the enforcement mechanisms suitable for the specific IoT context, finding an equilibrium between the guarantee of security and privacy issues and the computing efforts requested by the exploited mechanisms themselves. Some efforts have already been done to define the proper languages for the specification of privacy policies, but a standard which addresses specifically IoT paradigm is still missing.

3.3 Privacy in IoT

IoT finds application in many different fields, for example: patients remote monitoring, energy consumption control, traffic control, smart parking system, inventory management, production chain, customization of the shopping at the supermarket, civil protection. For all of them, users require the protection of their personal information related to their movements, habits and interactions with other people. In a single term, their privacy should be guaranteed. In literature, there are some attempts to address such an issue. In [27] a data tagging for managing privacy in IoT is proposed. Using techniques taken from the Information Flow Control, data representing network events can be tagged with several privacy properties; such tags allow the system to reason about the flows of data and preserve the privacy of individuals. Although exploiting tagging within resource-constrained sensor nodes may not be a viable solution because tags may be too large with respect to the data size and sensitivity, therefore they generate an excessive overhead. Clearly, in this case it is not suitable for IoT. In [30] a user-controlled privacy-preserved access control protocol is proposed, based on context-aware anonymity privacy policies. Note that privacy protection mechanisms are investigated: users can control which of their personal data is being collected and accessed, who is collecting and accessing such data, and when this happens. In [32] it is presented Continuously Anonymizing Streaming data via adaptive cLustEring (CASTLE). It is a cluster-based scheme which ensures anonymity, freshness, and delay constraints on data streams, thus enhancing those privacy preserving techniques (e.g., k-anonymity) that are designed for static data sets and not for continuous, unbounded, and transient streams. More in details, [29] models k-anonymity on data streams and defines anonymized clusters exploiting the quasi-identifier attributes of tuples in order to preserve the sensitive data privacy. In [34], the traditional privacy mechanisms are divided into two categories: Discretionary Access and Limited Access. The former addresses the minimum privacy risks, to prevent the disclosure or the cloning of sensitive data; whereas the latter aims at limiting the security access to avoid malicious unauthorized attacks. [34] analyzes the privacy risk that occurs when a static domain name is assigned to a specified IoT node. In this work the authors propose a privacy protection enhanced DNS (Domain Name System) for smart devices, which can authenticate the original user's identity and reject illegal access to the smart device. The scheme is compatible with widely used DNS and DNSSEC (Domain Name System Security Extensions) protocols. In [36] it is presented a fully decentralized anonymous authentication protocol for privacy-preserving target driven IoT applications. Such a proposal is based on a multi-show credential system where different showing of the same credential cannot be linked together, therefore avoiding the generating keys to be discovered. The system defines two possible roles for participant nodes: users, which represent the nodes originating the data and data collectors, which are responsible for gathering the data from authorized users. Users can anonymously and unlikable authenticate themselves in front of data collectors proving the owning of a valid Anonymous Access. To summarize, privacy requirement in IoT is currently only partially covered and there is a wide space of research issues to be investigated, referring to the need to define privacy policies starting from a well-defined model [29] and the correspondent development, dealing with the scalability and the dynamic environment which characterizes IoT scenarios. In fact, capturing privacy requirement in the very early stages of development is essential for creating sufficient public confidence and facilitate the adoption of novel IoT systems.

3.4 Trust in IoT

The trust concept is used in various contexts and with different meanings. Trust is a complex notion about which no definitive consensus exists in the scientific literature, although its importance is widely recognized. A main problem with many approaches towards trust definition is that they do not lend themselves to the establishment of metrics and evaluation methodologies. Moreover, the satisfaction of trust requirements are strictly related to the identity management and access control issues. Works [32,37] focus on trust level assessment of IoT entities. The authors assume that most smart objects are human-carried or human- related devices, so they are often exposed to public areas and communicate through wireless, hence vulnerable to malicious attacks. Smart objects have heterogeneous features and need to cooperatively work together. The social relationships considered are: friendship, ownership and community, since users are friends among themselves (i.e., friendship), users own the devices (i.e., ownership) and the devices belong to some communities (i.e., community). Malicious nodes aim at breaking the basic functionality of IoT by means of trust related attacks: self-promoting, bad-mouthing and good-mouthing. The trust management protocol for IoT proposed in [39] is distributed, encounter-based, and activity- based: two nodes that come in touch to each other or involved in a mutual interaction can directly rate each other and exchange trust evaluation about the other nodes, so they perform an indirect rate which seems like a recommendation. The reference parameters to trust evaluation are: honesty, cooperativeness, and community-interest. Therefore such a dynamic trust management protocol is capable of adaptively adjusting the best trust parameter setting in response to dynamically changing environments in order to maximize application performance. A similar approach to provide a trustworthiness evaluation is carried out in [32] in the so called Social Internet of Things (SIoT). This paradigm derives from the integration of social networking concepts into IoT, since the objects belonging to the IoT infrastructure can establish social relationships in an autonomous way with respect to their owners. The challenge addressed in [35] is to build a reputation-based trust mechanism for the SIoT which can effectively deal with certain types of malicious behaviors aimed at misleading other nodes, to drive the use of services and information delivery only towards trusted nodes.

3.5 Identity and authentication

It is essential to consider how to manage identity and authentication in the Internet of Things, as multiple entities (e.g. data sources, service providers, information processing systems) need to authenticate each other to create trustable services [25]. When defining these security mechanisms, we also must consider some of the inherent features of the Internet of Things. As interactions can be quite dynamic, the entities of the network might not even know in advance which partners can be used to create a certain service. Vehicular networks (VANETs [26]) are an example of this: cars are expected to provide data not only to devices located on the roadside but also to other cars. Besides, if billions of things are going to be interconnected, it is necessary to manage their identities in a scalable way. In a centralized IoT architecture, some of these challenges are inherently simpler. In this approach, the application logic is mainly located in one central entity (e.g. a cloud-based IoT application platform) that provides a limited set of well-known entry points (e.g. APIs). Both data providers, such as sensors, and information consumers, such as user applications and other customers, connect to this central entity. Consequently, all the authentication logic can be centralized in this entity or in an identity provider associated with it. In case there are data providers that have their own identity provider, there are no scalability problems, as such identity providers can establish a relationship of trust with the central entity (a N-to-1 scenario). Note that if an IoT complies with the collaboration principle (Collaborative IoT), it might be possible to make use of a federated identity management system, where all the service providers belong to the same circle of trust. This simplification cannot be found in purely distributed IoT architectures, which fulfil both the collaboration and edge intelligence principles. In this context we find a dynamic N-to-N scenario, where data providers are no longer passive and are able to acquire and process information from other sources. Moreover, due to the edge intelligence principle, local users can query local information providers directly, without intervention from external entities. As a result, authentication logic must be present in every service provider – including the tiniest of objects. Note, however, that things do not exist in a vacuum: they usually belong to a specific group, are in a context, and are owned by certain entities. These aspects must be considered.

3.6 Protocol and Network Security

A secure communications channel is, in most cases, a by-product of a successful authentication (e.g. server authentication or mutual authentication using protocols such as TLS/DTLS). This process will make use of certain user credentials, such as shared keys or X.509 certificates. If there is a limited set of well-known centralized application providers (i.e. central entities), the distribution and management of these credentials becomes easier, as it is possible to preload information in the devices. However, in distributed IoT architectures, extra challenges arise: any entity can connect with any other entity at any time, these entities might not know each other in advance, and limited devices can exchange information with other limited devices. Therefore, in this scenario key management becomes a significant problem. There are some additional challenges related to the computational resources available to things. When opening a secure channel, devices should be able to negotiate the actual parameters of that channel, such as algorithms (e.g. RSA vs. ECC), strength (AES-128 vs. AES-256), and protection mechanisms (only integrity vs. confidentiality and integrity). The first reason is obvious: constrained devices might not be able to implement certain configurations. There is another reason, though: adaptability. Depending on various factors such as the level of criticality of the data, it might not be necessary to apply strong protection mechanisms to an information flow (e.g. confidentiality and the on/off status of a street light). Another challenge is the need to analyze the number of security protocols that can be implemented within a constrained device. In fact, it is necessary to carefully study whether existing Internet protocols should be adapted to this context or not. Finally, things that can be accessed directly (e.g. in the distributed IoT approach) need to be careful about the overhead caused by incoming connections (e.g. multiple incoming connections that require the use of public key cryptography).

4. PROPOSED SCHEME APPROACHES

There have been very few advances in the management of access control policies for distributed IoTs. In fact, it is not trivial to apply existing access control approaches to completely distributed environments. For example, there are scalability and consistency issues when storing the list of users and their associated access rights in access control lists (ACLs). Role-based access control (RBAC) mechanisms need to define the different roles that users can take, which might be different in various contexts even if they refer to the same type of entity (e.g. custodian vs. janitor). Finally, RBAC policies that use attribute certificates [34] need of an infrastructure that allows validating such certificates in a cross-domain environment. Note, however, that due to the specific features of the Internet of Things, it is possible to consider certain factors such as context as part of the access control model [35]. Consequently, with adequate technological support, certain policies (e.g. only authenticated users located within my vicinity during working hours can access today's reports) can be easily implemented. Besides, there are various simple strategies that could be used whenever the things belong to a certain group for example, the access control logic could be pushed to specific trusted entities, which will act as token-granting services à la Kerberos (i.e. a thing will grant access to anyone that has a valid signature created by a trusted entity). In another approach, the access control logic can be implemented within the things themselves, but relying only on locally-defined roles (e.g. a doctor from another hospital must retrieve his locally-issued role before interacting with the local things). A drawback of all these strategies is that users must first access the trusted entity before requesting information from the things.

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4.1 Other suggested scheme approaches

As the Internet of Things inhabits the Internet ecosystem, it is important to provide support for existing security protocols. In fact, the security of IoT-designed web transfer protocols, such as CoAP (Constrained Application Protocol), is largely dependent on the implementation of these security protocols [36]. Some protocols can be implemented without any major changes. For example, there are commercial implementations available of DTLS for constrained devices [37]. However, other protocols need to be adapted due to the complexity of their design. Such protocols must achieve a trade-off between simplicity and compatibility. For example, one approach seeks to apply IPsec to constrained environments by balancing link-layer security and IPsec security [38]. As for the distribution of the credentials, there are various strategies that could be used to tackle this problem. As whenever things belong to a local group, it is possible to have one or various entities in charge of managing and distributing the credentials. Also, in scenarios where clients and servers know each other in advance, it is also possible to use certain symmetric key-based protocols, which can provide good properties such as high resilience to attacks [39]. Finally, beyond the optimization of these security protocols, there are various researchers that are pursuing the implementation of fast and compact cryptographic algorithms. There are various research areas, which are not mutually exclusive: from the design of novel hash entity. Therefore, data providers do not need to implement any kind of access control logic: they will send all their data to those whom they trust (i.e. the central entity). As a side effect of this configuration, both data providers and information consumers must completely trust the central entity, as it will store the information generated by all network entities. On the other hand, purely distributed IoT architectures must deal with all previously mentioned challenges: management of heterogeneous policies, multiple enforcement points, etc.

Nevertheless, the overall privacy of the network improves once the things can control directly who accesses their own data. Observe that additional mechanisms must be implemented whenever the collaboration principle is applied to centralized IoT architectures (e.g. tools for maintaining consistency between access control lists, resource delegation mechanisms). Note also that we need to manually configure the direct links between the intranets and the external entities in networks that only comply with the edge intelligence principle.

5. CONCLUSION

The real spreading of IoT services requires customized security and privacy levels to be guaranteed. By 2020, it is no doubt that Industrial Revolution 4.0 will have brought us advanced robotics and autonomous transport, artificial intelligence and machine learning, advanced materials, biotechnology and genomics. The broad overview provided with this survey arises many open issues, and shed some light on research directions in the IoT security field. More in details, a unified vision regarding the insurance of security and privacy requirements in such a heterogeneous environment, involving different technologies and communication standards is still missing. Suitable solutions need to be designed and deployed, which are independent from the exploited platform and able to guarantee: confidentiality, access control, and privacy for users and things, trustworthiness among devices and users, compliance with defined security and privacy policies. Research efforts are also required to face the integration of IoT and communication technologies in a secure middleware, able to cope with the defined protection constraints. The main goal of this paper was to provide an explicit analysis of the features and security challenges of the distributed approach of the Internet of Things, to understand what is its place in the Future Internet. Distributed computing is an essential technique for internet of things' (IoT) to off-load the computation from the cloud servers as well as reduce the transmission bandwidth requirements. There are numerous challenges that must be solved, such as assuring interoperability, reaching a business model, and managing the authentication and authorization of entities. it is possible not only to push/pull data only when needed, but also to implement specific privacy policies. Besides, additional trust and fault tolerance mechanisms can be specifically created for this approach. These and other benefits show that this approach is useful and applicable to the real world. As a final note, we would like to stress that both centralized and distributed approaches can coexist with each other, providing the foundations of a full-fledged Internet of Things.

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Krishna Bhagwan Chaudhari, Nishada Bhagyas
Activity 1

Mobile Wallet Payments Recent Potential Threats and Vulnerabilities with its possible security Measures

Mansi Prakashbhai Bosamia
CMPICA
CHARUSAT
Changa, Anand, India
mansibosamia@gmail.com

***Abstract*— The volume of mobile wallet payment transactions has considerably increased in the last decade. There are many mobile wallets already has been developed and also new mobile wallets coming in the market day by day for payment transactions. These mobile wallet application uses highly distributed environments. So far it has the focus on addressing only security issues. However, key important criteria of distributed processing such as performance, scalability, and availability. In this paper, I identify and analyze the different threats and vulnerabilities of a mobile wallet application to obtain a high-level understanding of the various types of threats that may affect mobile wallet applications with its possible security measures.**

***Keywords*— e-cash, mobile payment system, mobile wallet**

I. INTRODUCTION

About an earlier era, growing of e-commerce concerns has been expressed in the academic and financial communities about the future and safety. Now, the current era and recent future is of electronic cash, most common practice of e-cash payments is credit cards and debit cards. The recent trends of e-cash is apple pay, google pay, paytm, freecharge, mobikwik, sbi money, icici money, airtel money, jio money, payUmoney, hdfc zap pay, many more banking mobile apps. etc.

TABLE I. COMPARISION ON DIFFERENT MOBILE WALLETS

Parameters	Apple pay	Google pay	Paytm	Freecharge	Mobikwik	SBI's buddy	ICICI pay	Airtel money	Jio money	payU money	HDFC zap pay
	Pay		paytm		MobiKwik	buddy	pockets	airtel	JioMoney	PayU money	PAY ZAPP
Year of launch	2014	2015	[illegible]	[illegible]	2009	2015	2013	2012	2015	2014	2015
Payment Type of wallet	Semi-closed	Semi-closed	Semi-closed	Semi-closed	Semi-closed	Semi-closed	Open	Semi-open	Open	Semi-closed	Semi-closed
Supports in-store proximity payment technologies	Yes (NFC)	Yes (NFC)	Yes (QR code)	Yes (QR code)	Yes (QR code)	Yes (NFC)	Yes (NFC)	No	No	No	Yes (QR code)
own UPI (Unified Payment Interface) based app	No	Yes	No	[illegible]	Yes	Yes	Yes	No	No	Yes	Yes
Bank transfer	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes	No
Send on Mobile	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No	Yes
Company	Apple Inc.	Google	One97 Communication	[illegible]	One MobiKwik Systems Private Limited	State Bank of India	ICICI Bank	Airtel	Reliance	Naspers group	HDFC Bank
Industry	Technology	Technology	Private	Private	Private	Banking	Banking	Telecom	Telecom	Internet	Banking

Mobile wallets have the key characteristics of physical cash such as anonymity, transferability, and security. Also they have few differences defines in table I. The implementation and real-life deployment of mobile wallets schemes are inherently distributed with its processing issues including scalability, performance and availability. Till today, research on mobile payment has been directed mostly towards addressing security requirements through the design of suitable security protocols and mechanisms. [6] For that I need to identify security threats. This paper defines mobile payment system, mobile wallet, mobile wallet threat model, and threats and vulnerability with mobile wallets security measures.

II. MOBILE PAYMENT SYSTEM

Mobile payments have been popular and the most accepted as an emerging payment method in both advanced and emerging economies. Mobile wallets are continues growing and affects many factors such as increased deployments, mobile penetration, financial inclusion, more convenient, faster, and more economical.

A. Mobile Payment Definition

Mobile payment is payment services operated under financial guideline and performed financial transactions from or via a mobile device.

B. Mobile Wallet Definition

It is a virtual wallet in your smartphone, in which money is stored in the form of virtual money. So overall, it is a digital wallet out of which you can make money transactions and payments. It has the combination of software and hardware on certain devices and all seek to replace the use of traditional credit/debit cards with mobile phones. You can pay money using smart phone apps, text messages, social media or websites.

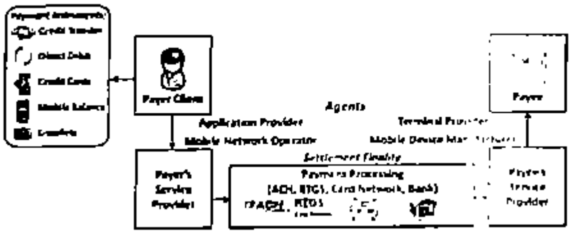

Fig. 1. Mobile Payment System

In the mobile payment system, agents are playing main role. These agents are application providers, mobile network operators, mobile device manufacturers, terminal providers, and third-party agents. The client connects with mobile network using application provider. Application provider contains credit/debit cards details, mobile balance, bank account details for payment transaction. Mobile network operators provides services for make purchases, transfer money, pay bills, etc. Other common services include third party payments, online services access, etc. Some mobile device manufacturers traditionally produce mobile phones with payment functions. Third party agents acting as retail outlets to deal directly with a customer for reducing services cost. Third party agents have sub-agents by the permission of law. Cash merchant agents provides cash-in and cash-out facility but not allows other banking transactions such as account open/close, loan, check, etc.

Currently, mobile wallets use has been increased due to more protected security aspects are enhanced. In past people don't have the acceptance of mobile base financial transactions but as the time changes, people have been accepted the mobile payments solutions. Still there are many threats affecting to secure transactions to identify and understand the mobile wallets threat model in this paper.

III. MOBILE WALLETS THREAT MODEL

A threat model of a mobile wallet applications such as paytm, apple pay, google wallet, freecharge, mobikwik, sbi money, icici money, airtel money, jio money, payUmoney, hdfc zap pay etc. shall consider threats against basic components of the mobile wallet. Mobile wallets "trust boundaries" depicted below as dotted yellow lines. This area of mobile wallet has most possibilities for threats to occur. A generic threat model of the mobile wallet system is shown below: [7]

A. Mobile Wallet Application Users Threats

- *Phishing attacks:* Mobiles have personal and corporate information of customer which may to carry out sophisticated attacks. These attacks user by phishing emails. It is an attempt to trap a user to disclose the information.
- *Social engineering:* In social engineering, user data available in the public domain and the attackers can steal it from there. This information monetized or sold in underground market forums or used for fraudulent payments. Sometimes attackers use this theft information as their identity.
- *Unintentional installation of rogue and malware applications:* Attackers will install malware by malicious attachment, Redirecting the user to a malicious URL, insecure WiFi hotspots, a network spoofing attack, fake access point with same network, fake website, etc. Then use user information for mobile wallet payment.
- *Mobile Operating System Access Permissions:* Users give certain permission to OS access, that can be use by attackers to access sensitive data and harm the mobile application.

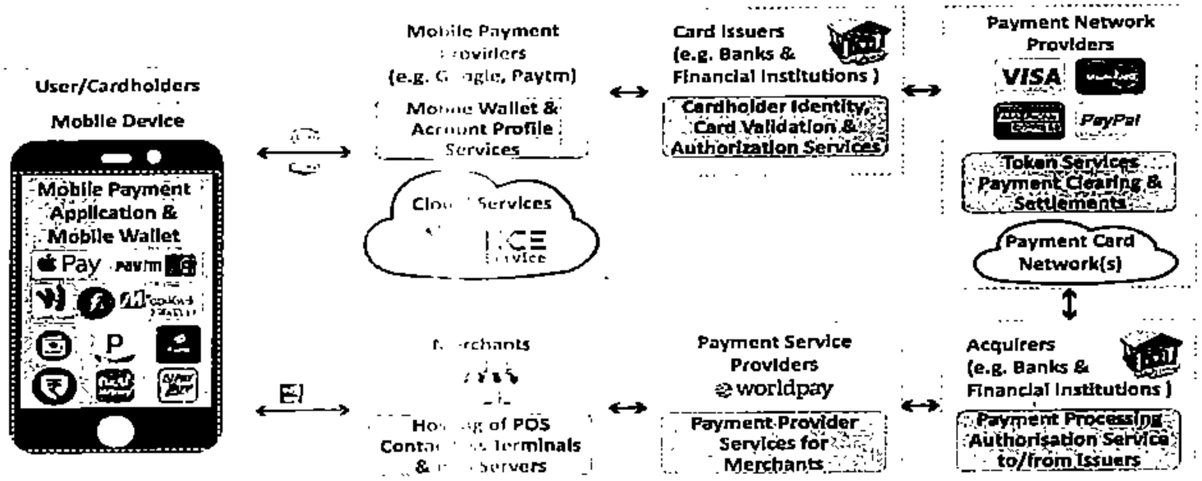

Fig. 2. Mobile Payments and Digital Wallets Threat Model

The Possible Vulnerabilities of users are:

- Lack of user's due carefulness of validating content in emails, messages, SMS being truthful before selecting URLs, downloading attachments.
- Use public Wi-Fi connections for mobile payments.
- Use of fake access point with same network.
- Use of fake websites.
- Missing minimum security hygiene rules.
- To install non-trusted applications and files on device.

Possible Security Measures of Users

- Security awareness, education and communication.
- Do not use public Wi-Fi hots[illegible] mobile wallet payments.
- Distinguish real and fake website and access point, only use real one.
- Keep OS up to date and don't use [illegible]ted phone.

B. *Mobile Devices Threats*

- *Unauthorized access of lost or stolen mobile device:* Once mobile has stolen the[illegible] can steal any sensitive data, also they h[illegible] on device. Attacker can also steal finge[illegible] and used as provider authentication and use [illegible] of customer by fraudulent transactions. [illegible] and malware affected in stolen device the[illegible] real danger of lost or it affects consumer's digita[illegible]
- *Data interception via insta[illegible] malware:* The installation of malware/ro[illegible] allowed by drive by download attacks [illegible] For example, WebKit to root level access [illegible] side-loading of malware alongside reliab[illegible] unreliable apps downloaded from the various stor[illegible]
- *Mobile as a target:* M[illegible] are mostly targeted by attackers becaus[illegible] is in their control they can use for [illegible] attack like fraud transaction, use sens[illegible] spyware, etc. It is easy for attacke[illegible] mobile device then mobile app.
- *Implementation Issues:* In a [illegible] market, all the payment providers are [illegible] stand still. It is predicted that new [illegible] will be continuously released. As [illegible] risk to run potentially immature code [illegible] be prone to security issues on differen[illegible] of mobile wallet payment applicatio[illegible]

The Possible Vulnerabilities of [illegible] are:

- No PIN lock set or PINs s[illegible]s.
- No remote devices lock se[illegible] data wipe set.
- Not up-to-date OS to [illegible] trusted device.

Possible Security Measures of Mo[illegible]

- Remote device lock and [illegible]
- PIN lock and Strong PIN
- User to device biometrics authentication factors safely.
- Keep OS up to date.
- Keep default security controls & measures on device.
- Secured Biometric validation data.

C. *Mobile Wallet Applications Threats*

- *Reverse engineering:* Reverse engineering offers to attack on hardcoded passwords and encryption keys like data. For that attackers have high level of understanding of mobile wallet payment applications.
- *Tampering with the mobile payment application and the use of rootkits:* An attacker may choose to backdoor a mobile payment application to capture login details and send these to an attacker controlled server. By this attacker can downloading and uploading any data from user application. This is a very realistic threat on mobile devices. [7]
- *Installation of rootkits/malware:* Discussed in mobile device threats.
- *Mobile Operating System Access Permissions:* Discussed in mobile application user threats.

The Possible Vulnerabilities of Mobile Wallet Apps are:

- Hardcoded secrets as private keys.
- Missing to disable code debugging routines.
- Unsigned production binaries.
- Credit card provisioning weaknesses like stolen credit cards to affect sensitive data.
- Weaknesses in biometric identification for initial authorization of transactions.
- S/W vulnerabilities and weaknesses in third party applications that provide access to mobile wallets.
- Weaknesses in payment authorization provisioning with mobile paired smartwatch device.
- Credit/debit card not stored encrypted in Secure Element or processed in Trusted Execution Environment.
- Weak PINs exposing them to brute force attacks.
- Insecure communication channels with Point of Sale (POS) contactless terminals.
- Insecure tokens used in Magnetic Secure Transmission (MST) connections.
- Poor signal strength for MST processing.

Possible Security Measures of Mobile Wallet Applications

- Adopt secure coding practices and secure code reviews manual and automated via tools.
- Source code complication an untrusted code detection.
- Anti-debug and Integrity source code protections.
- White-box cryptography.
- Secure application provisioning through trusted application stores.
- Takedown rogue applications from unauthorized application stores.

D. Merchants Threats

- *Uploading malware (POS) on the POS contactless payment terminal:* Once the Point of Sale (POS)malware is installed on the POS contactless terminal it can be configured by the attacker to remotely steal mobile wallet payment data that transact through the card readers. Uploading POS malware has insecure remote desktop access to POS servers.[7] It also affects the cryptogram and possibility of fraud payments.
- *Man-in-the-Middle (MiTM) attacks against the POS contactless terminal and POS server connections:* Attackers can also attempt to exploit network security weaknesses such as lack of firewalls.
- *Relay attacks against NFC enabled POS contactless terminal:* A known attack against the NFC POS interface is the relay attack. [7] Relay software installed on the mobile can relay commands and responses between the Secure Element and a card emulator that is installed as proxy on the mobile POS across a wireless network.

The Possible Vulnerabilities of Merchants are:

- Use of default password to access POS terminals available online.
- POS and POI security misconfigurations and security hygiene such as keeping software up to date. patching systems, etc.
- Insecure connections between POI and POS
- Insecure access to LAN and to POS systems
- Lack of enforcement of minimum privileges for POI and POS access

Possible Security Measures/Controls of Merchants

- Change default passwords on POS systems and keep POS software up to date.
- Use SSL between POS connection point (POI to POS).
- Deploy and configure firewalls.
- Restrict POI and POS access to authorized users.

E. Payment Service Providers Threats

- *Compromise of S/W running on contactless terminals:* Payment Service Providers (PSPs) provide POS contactless terminals for mobile payments e.g. for NFC enabled POS terminals as well as aggregated payment services for merchants by processing data from different channels including face to face (card present) payments, online payments and mobile/contactless payments.[7]
- *Compromise of Payment Gateways:* PSP payment gateways represent an interesting target for attackers that seek to compromise the payment data in transit from the merchants to the different acquiring banks.
- *Compromise of S/W installed on POS Servers:* Attackers might seek to compromise to attack on payment gateway and break the security of POS contactless terminals that PSPs provide to merchants to host on their premise/network.
- *Data connectivity compromise:* Merchant hosted POS connection to Payment Service Provider (PSP) and from PSP to acquirer at that time Attackers might try to exploit insecure connections.

The possible Vulnerabilities Payment Service Providers are:

- Design flaws and un-patched S/W vulnerabilities in POI terminal/credit card machines and POS systems and payment gateways to/from acquirers.
- Insecure point to point connections between merchant POS server and PSP and between PSP and acquirers.

Possible Security Measures of Payment Service Provider

- Secure by-default design.
- Vulnerability testing
- Patching of POI terminal (card machines) H/W and S/W.
- Fix S/W vulnerabilities in POI.
- POI and payment gateways hosted at the payment service providers.
- Enforce secure point to point connections between merchant POS and PSP and between PSP and acquirers.

F. Acquirers Threats

- *Payment processing systems compromise:* When requesting token and cryptogram from the issuer payment network, attacker obtains large amount of cardholder data.
- *Installation of malware/RAT for. Advanced Persistent Threats (APTs):* Attackers might seek to compromise the acquirer bank payment processing servers from the inside of the network. Installation of malware at backdoors and Remote Access Tools (RAT) via malware infection of the servers hosted at the acquired network.
- *Installation of rootkits:* Rootkits are a significant threat vector and can also be leveraged to directly monitor and hijack/manipulate API calls.
- *Data connectivity (external from acquirer to issuer and internal among servers) compromise:* Attackers might try to exploit insecure point to point connections between acquirer and issuer through network service provider network to conduct attacks.[7]
- *Repudiation of mobile payment authorization:* Repudiation attacks such as to repudiate a payment authorization from an issuer can be facilitated by exploits of design flaws in the implementation of payment processing services by the acquirers.[7]

The Possible Vulnerabilities Acquirers are:

- Un-authorized access to payment processing systems/applications and weaknesses in enforcement of internal security controls and measures to access these systems.

- Non-effective malware detection, data outflow detection/prevention and fraud detection/prevention.
- Insecure external and internal point to point system connections.
- Weak server to server authentication among internal systems.
- Gaps in non-repudiation controls for processing authorizations such as out of band verification/confirmation of suspicious transactions and digital signing of transactions.

Possible Security Measures of Acquirers

- Enforce high security standard measures for payment processing systems and second factor authentication (2FA) for user authentication/access.
- Enforce minimum privileges for user access.
- Deploy malware detection, data leakage and fraud prevention.
- Secure internal point to point connections with SSL/mutual authentication.
- Require digital signatures to sign and verify payment authorizations from issuer.

G. Payment Network Providers Threats

- *Compromise Token Services:* Tokenization services will become a single point of failure, something similar to DNS infrastructure. Token must be irredundant rather than like DNS. Additionally, they will become a prime target as they will mask real PANs.
- *Compromise Token services provider servers:* Token Services Providers (TSP) provide token management services such as tokenization, de-tokenization and validation of the token data integrity and origination token and validation with cryptograms.
- *Denial of payment settlement services:* Attacks targeting the availability of token services hosted by payment network organization [illegible] impact the authorization of mobile payments and possibly also for payments originating from other channel's that also use these token services.[7]
- *Data connectivity compromise:* Insecure connections to/from acquirers and issuers. The [illegible] attacker may attack on this weak connection m[illegible] the sensitive data.
- *Device and mobile network reliance:* the mobile device and network were consi[illegible] reliable for payments.

The Possible Vulnerabilities of Payment Network Provider are:

- Misconfiguration of servers pr[illegible] tokenization services by Non-secure key storage.
- Insecure user access to the token [illegible]
- Insecure connections to/f[illegible] and issuers.
- Weaknesses in protectio[illegible] [illegible] vice (DOS) attacks against TSP servi[illegible]

Possible Security Measures of Payment Network Provider

- Secure configuration and hardening of critical servers.
- Secure key storage in hardware encrypted security modules.
- Dual controls and strong authentication 2FA to access the token vault.
- Enforcement of End to End encryption for protecting cardholder data in transit to issuer.
- Anti-DOS measures are application and network layer to protect token services.

H. Card Issuers Threats

- *Credit card Enrolment:* The first step to use a mobile payment is the enrolment of the user's credit cards into the app. The provider cannot concern about card holder or user. This is something that only the card issuer can know. Providers facilitate issuer's decision making by providing information to accept or not.
- *Payment authorization process compromise:* An internal attacker at the card issuer bank or an external attacker that gained access to critical servers may attempt to bypass fraud controls e.g. changing the card payment limits.
- *Confidential cardholder data compromise through malware/APT:* Credit and debit accounts mostly target for commit fraud or reselling accounts information in black market. It can attack user's sensitive data to attack in banks databases. Possible attacks are first, using social engineering authenticate bank and access databases, and second, Advanced Persistent Threats (APTs) that seek to install malware to target encryption keys or supplementary data.
- *Payment fraud:* Payment fraud detection should occur at fraudulent mobile payments transactions, enforce credit card limits on the payment transactions themselves and on the debit cards amounts linked to consumer direct bank accounts managed by the issuer bank.
- *Token services data compromise:* Issuers can choose to leverage the tokenization service from the payment networks or implement their own token service and become a Token Service Provider themselves, they will be at increased risk of threats against token data confidentiality, integrity and availability.

The Possible Vulnerabilities of Card Issuer are:

- Weaknesses in enforcing strong authentication for access to critical systems and databases where cardholder data is stored for validation and payment authorization to acquirer.
- Non-effective malware detection and prevention measures.
- Misconfiguration of fraud detection systems including rules such as positive payment checks, max

limit amount per transaction, daily limits, velocity tagging.

Possible Security Measures of Card Issuer

- Enforce strong multi-factor authentication for access to critical systems where credit cardholder data is being stored.
- Enforce minimum privileges for users that have access to internal critical systems used for verify cardholder data and authorize payments based upon specific business rules.
- Deploy malware detection and prevention, suspicious activity detection rules based upon aggregated log analysis.
- Configure fraud detection and prevention systems and enforce fraud management rules for mobile payment transactions.

I. Mobile Payment Applications Providers (Servers & Cloud Services) Threats

- *Compromise of cardholder's sensitive data:* Attackers might direct their effort to cardholder credit/debit data and personal data of the user that is stored by the mobile payment service provider.[7] This data compromise might also occur during transmission at the time of card enrollment.
- *Compromise of the user profile managed in the cloud:* Since the mobile application has access to the mobile payment servers. At the time of card enrolment an attacker could enroll stolen credit data with the mobile card enrolment service, to abuse non-authorized access to the user profile managed at the mobile payment provider, and to change accounts sensitive data to facilitate fraud.[7]
- *Token service data compromise:* Since mobile payment providers can also implement their own token service they are also at risk of threats against the token management process that encrypt and decrypt tokens, the management of keys and the integrity and availability of the tokens issued for payment authorizations. [7]
- *DDoS attacks:* DDoS attacks by threat actors seeking to interrupt mobile payment services. These might affect transactions relates services hosted in the cloud.
- *Enrolment of stolen credit card data entry:* Enrolment of stolen credit card data for use of mobile payment by fraudsters. Attacker uses the phone's camera, memory scraping, OCR recognition, etc. information and sent on cloud to gain access the network traffic of user's data. The attacker could masquerade passbook and steal card information.
- *Accountability for payment transactions:* Payment providers require fingerprint authentication to perform the payment. As individual by figure print and more than one device access creates accountability identification failure in mobile payments.
- *Transaction errors:* The errors could be caused by the payment system or by their own mistakes in the system use.
- *Lack of transaction record and documentation:* It difficult to follow up the amount of payments made with a mobile phone since they did not get any receipt or other efficient means to keep track of the payments.
- *Ambiguity of the transaction:* The lack of control when paying with a mobile phone. They were unsure of whether the payment had taken place or not and whether the payment had been charged or not.
- *Third party trust:* Regardless of the mobile payment provider, enrolling on the system requires a certain level of trust on the third party.
- *Privacy issues:* some of the respondents were unwilling to trust their personal information with the payment service providers. They were concerned that their purchases would be tracked or that they would begin to receive a lot of advertisements.

The Possible Vulnerabilities Mobile Payment Application Provider are:

- Weaknesses and vulnerabilities on digital wallet servers and applications hosted at the mobile payment application provider.
- Absence of malware detection and prevention on critical servers that provide access servers where cardholder data and user profiles are stored.
- Gaps in deployment of 2FA to access servers and maker/checker controls.
- Absence of fraud detection and prevention for use of stolen credit card holder for enrolment in mobile payment applications.
- Weaknesses in anti-DoS measures to prevent DoS against digital wallet and account profile services hosted in data centers and cloud services.

Possible Security Measures of Mobile Payment Application Provider

- Enforce information security policies and processes requiring identification and remediation of vulnerabilities in servers and applications.
- Deploy malware detection and prevention measures.
- Enforce 2FA for internal user's access to critical servers such as digital wallet services where cardholder data and user profile information is stored.
- Enforce user entitlements and minimum privileges.
- Deploy fraud detection and prevention for high risk functions such as change of account profile, credit card enrolment and payment transactions.
- Deploy anti-DoS measures for critical servers hosted in data centers and in the cloud.

CONCLUSION

Potential mobile wallet threats and vulnerability have shortly discussed and studied in this paper. However, the threats are identified yet not reached to the expected level of maturity, as a result the overall field proceeds to be an area of intense research. Also need to identify the solutions for specific threats or vulnerability. Due to fast development of mobile wallets most of solutions are already implemented. This paper also indicates that if the new s[illegible] is identified then defiantly increases the "trust [illegible]" of mobile wallet payments.

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SEM- II
ACADEMIC YEAR 2018-19
Date: 30-03-2019

Attendance Fast learner

Title of activity 2		Hands on Practical Assignment
ROLL NO	NAME	Topics
215106201711245100002	DUHITA SUHAS NEVE	Design a Webpage for Online Shopping
215106201711245100021	SONALI PRAMOD SONAWANE	
215106201711245100040	DIVYA RAVINDRA NEVE	
215106201811245100058	NISHA BHAGWAN CHAUDHARI	Design a Webpage for Book Store
215106201711245100016	AKSHADA NILESH BADGUJAR	

Coordinator

H.O.D.
Computer

Line wrap ☐

Activity 2

```
<html>
<head>
<style>
.zoom:hover
{
transition:transform 0.6s;
transform:scale(1.07);
}
</style>

<title>flipkart</title>
<link rel="stylesheet" href="slider.css">

</head>
<body bgcolor="#F1F3F6">


<table border="0" width="100%" bgcolor="#2874F0">


<tr>
<td><img src="logo.png",align="right"></td>
<td><input type="text" placeholder="search for products,brands and more" style="width:550px;height:35px;">
<input type="button" value="search" style="width:120px;height:35px"></td>

<th><font color="white"><a href="index.html">Login & Signup</a></th>
<th><font color="white">More</th>
<th><img src="cart.png"></th>
</tr>
</table>

<table border="0" width="100%" bgcolor="White" height="7%">
<tr>

<th width="12.5%">
<div class="dropdown">
<span>ELECTRONICS</span>
<div class="dropdown-content">
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
</div>
</div>
</th>

<th width="12.5%">
<div class="dropdown">
<span>TV's & APPLIANCES</span>
<div class="dropdown-content">
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
</div>
</div>
</th>

<th width="12.5%">
<div class="dropdown">
<span>MEN</span>
<div class="dropdown-content">
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
</div>
</div>
</th>

<th width="12.5%">
<div class="dropdown">
<span>WOMEN</span>
<div class="dropdown-content">
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
</div>
</div>
</th>

<th width="12.5%">
<div class="dropdown">

```

```
<span>BABY & KIDS</span>
<div class="dropdown-content">
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
</div>
</div>
</th>

<th width="12.5%">
<div class="dropdown">
<span>HOME & FURNITURE</span>
<div class="dropdown-content">
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
</div>
</div>
</th>

<th width="12.5%">
<div class="dropdown">
<span>SPORTS, BOOKS & MORE</span>
<div class="dropdown-content">
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
</div>
</div>
</th>

<th width="12.5%">
<div class="dropdown">
<span>OFFER ZONE</span>
<div class="dropdown-content">
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
<p>Hello!!</p>
</div>
</div>
</th>
</tr>
</table>

<div class="w3-content w3-section" style="max-width:1320px;">
  <img class="myslides"  src="slider1.jpg" style="width:100%">
  <img class="myslides"  src="slider2.jpg" style="width:100%">
  <img class="myslides"  src="slider3.jpg" style="width:100%">
</div>


<br><br>
<table border="0" width="100%" bgcolor="white">
<tr>
<td colspan="5"><h2>School Bags</h2><hr></td>
<tr>
<th><img src="bag1.png" width="75%" class="zoom"></th>
<th><img src="bag2.png" width="75%" class="zoom"></th>
<th><img src="bag3.png" width="75%" class="zoom"></th>
<th><img src="bag4.png" width="75%" class="zoom"></th>
<th><img src="bag5.png" width="75%" class="zoom"></th>
</tr>
<tr>
<th><font color="green">&#8377; 599</font></th>
<th><font color="green">&#8377; 699</font></th>
<th><font color="green">&#8377; 469</font></th>
<th><font color="green">&#8377; 389</font></th>
<th><font color="green">&#8377; 749</font></th>
</tr>
<tr>
<th><input type="button" value="Show Details" style="width:150px;height:25px;background-color:grey;color:white;"></th>
<th><input type="button" value="Show Details" style="width:150px;height:25px;background-color:grey;color:white;"></th>
<th><input type="button" value="Show Details" style="width:150px;height:25px;background-color:grey;color:white;"></th>
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<th><input type="button" value="Show Details" style="width:150px;height:25px;background-color:grey;color:white;"></th>
</tr>
</table>

<br>
<table border="0" width="100%" bgcolor="white">

<tr>
```

```
<td colspan="5"><h2>Earphones</h2><hr></td>
<tr>
<th><img src="earphone1.png" width="75%" class="zoom"></th>
<th><img src="earphone2.png" width="75%" class="zoom"></th>
<th><img src="earphone3.png" width="75%" class="zoom"></th>
<th><img src="earphone4.png" width="75%" class="zoom"></th>
<th><img src="earphone5.png" width="75%" class="zoom"></th>
</tr>
<tr>
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<th><font color="green">&#8377; 699</font></th>
<th><font color="green">&#8377; 469</font></th>
<th><font color="green">&#8377; 389</font></th>
<th><font color="green">&#8377; 749</font></th>
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<th><input type="button" value="Show Details" style="width:150px;height:25px;background-color:grey;color:white;"></th>
</tr>
</table>

<br>
<table border="0" width="100%" bgcolor="white">

<tr>
<td colspan="5"><h2>Kitchen Appliances</h2><hr></td>
<tr>
<th><img src="kitchen1.png" width="75%" class="zoom"></th>
<th><img src="kitchen2.png" width="75%" class="zoom"></th>
<th><img src="kitchen3.png" width="75%" class="zoom"></th>
<th><img src="kitchen4.png" width="75%" class="zoom"></th>
<th><img src="kitchen5.png" width="75%" class="zoom"></th>
</tr>
<tr>
<th><font color="green">&#8377; 599</font></th>
<th><font color="green">&#8377; 699</font></th>
<th><font color="green">&#8377; 469</font></th>
<th><font color="green">&#8377; 389</font></th>
<th><font color="green">&#8377; 749</font></th>
</tr>
<tr>
<th><input type="button" value="Show Details" style="width:150px;height:25px;background-color:grey;color:white;"></th>
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<th><input type="button" value="Show Details" style="width:150px;height:25px;background-color:grey;color:white;"></th>
</tr>
</table>

<br>
<table border="0" width="100%" bgcolor="white">

<tr>
<td colspan="5"><h2>Mobiles</h2><hr></td>
<tr>
<th><img src="mobile1.png" width="75%" class="zoom"></th>
<th><img src="mobile2.png" width="75%" class="zoom"></th>
<th><img src="mobile3.png" width="75%" class="zoom"></th>
<th><img src="mobile4.png" width="75%" class="zoom"></th>
<th><img src="mobile5.png" width="75%" class="zoom"></th>
</tr>
<tr>
<th><font color="green">&#8377; 599</font></th>
<th><font color="green">&#8377; 699</font></th>
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<th><font color="green">&#8377; 389</font></th>
<th><font color="green">&#8377; 749</font></th>
</tr>
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<th><input type="button" value="Show Details" style="width:150px;height:25px;background-color:grey;color:white;"></th>
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<th><input type="button" value="Show Details" style="width:150px;height:25px;background-color:grey;color:white;"></th>
</tr>
</table>

<br>
<table border="0" width="100%" bgcolor="white">

<tr>
<td colspan="5"><h2>Mouse</h2><hr></td>
<tr>
```

```
<th><img src="mouse2.png" width="75%" class="zoom"></th>
<th><img src="mouse3.png" width="75%" class="zoom"></th>
<th><img src="mouse4.png" width="75%" class="zoom"></th>
<th><img src="mouse5.png" width="75%" class="zoom"></th>
</tr>
<tr>
<th><font color="green">&#8377; 599</font></th>
<th><font color="green">&#8377; 699</font></th>
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</tr>
</table>

<br>
<table border="0" width="100%" bgcolor="white">

<tr>
<td colspan="5"><h2>Pendrives</h2><hr></td>
<tr>
<th><img src="pendrive1.png" width="75%" class="zoom"></th>
<th><img src="pendrive2.png" width="75%" class="zoom"></th>
<th><img src="pendrive3.png" width="75%" class="zoom"></th>
<th><img src="pendrive4.png" width="75%" class="zoom"></th>
<th><img src="pendrive5.png" width="75%" class="zoom"></th>
</tr>
<tr>
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<th><font color="green">&#8377; 699</font></th>
<th><font color="green">&#8377; 469</font></th>
<th><font color="green">&#8377; 389</font></th>
<th><font color="green">&#8377; 749</font></th>
</tr>
<tr>
<th><input type="button" value="Show Details" style="width:150px;height:30px;background-color:grey;color:white;"></th>
<th><input type="button" value="Show Details" style="width:150px;height:30px;background-color:grey;color:white;"></th>
<th><input type="button" value="Show Details" style="width:150px;height:30px;background-color:grey;color:white;"></th>
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<th><input type="button" value="Show Details" style="width:150px;height:30px;background-color:grey;color:white;"></th>
</tr>
</table>

<br>
<table border="0" width="100%" bgcolor="white">

<tr>
<td colspan="5"><h2>Teddy's</h2><hr></td>
<tr>
<th><img src="teddy1.png" width="75%" class="zoom"></th>
<th><img src="teddy2.png" width="75%" class="zoom"></th>
<th><img src="teddy3.png" width="75%" class="zoom"></th>
<th><img src="teddy4.png" width="75%" class="zoom"></th>
<th><img src="teddy5.png" width="75%" class="zoom"></th>
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<th><input type="button" value="Show Details" style="width:150px;height:25px;background-color:grey;color:white;"></th>
</tr>
</table>

<script>
var myIndex = 0;
carousel();

function carousel() {
  var i;
  var x = document.getElementsByClassName("myslides");
  for (i = 0; i < x.length; i++)
```

```
    x[i].style.display = "none";
  }

  myIndex++;
  if (myIndex > x.length) {myIndex = 1}
  x[myIndex-1].style.display = "block";
  setTimeout(carousel, 3000); //change image every 2 seconds
}
</script>

</body>
</html>
```

(32) LED TVs
Most Searched by Customers

FROM ₹8,499

No Cost EMI | Exchange Offers

School Bags

599

Show Details

699

Show Details

469

Show Details

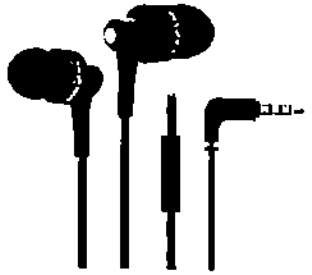
.389

Show Details

749

Show Details

Earphones

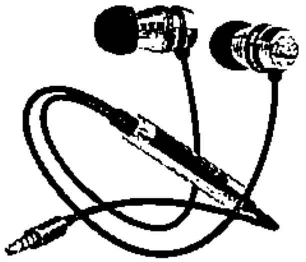


599

Show Details

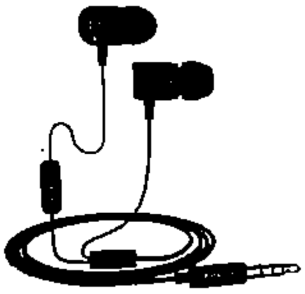
699

Show Details



469

Show Details



389

Show Details

749

Show Details

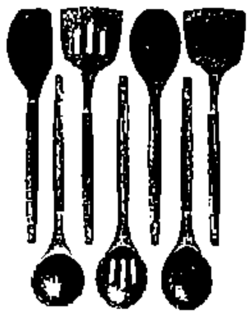
Kitchen Appliances

599

Show Details

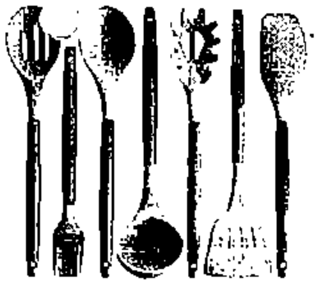
699

Show Details



469

Show Details



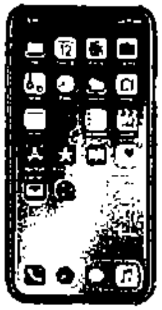
389

Show Details

749

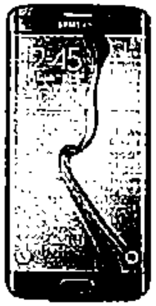
Show Details

Mobiles



599

Show Details



699

Show Details

469

Show Details

389

Show Details

749

Show Details

Mouse

599

Show Details

699

Show Details

469

Show Details

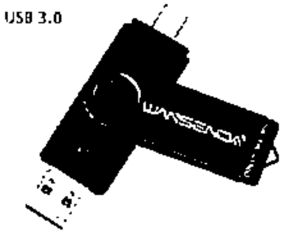
389

Show Details

749

Show Details

Pendrives



599

Show Details

699

Show Details

469

Show Details

389

Show Details

749

Show Details

Teddy's

599

Show Details

699

Show Details

469

Show Details

389

Show Details

749

Show Details

Line wrap ☐ Activity 2

```
<!DOCTYPE HTML>
<html>
    <head>
        <title>BooksStore</title>
        <meta charset="utf-8" />
        <meta name="viewport" content="width=device-width, initial-scale=1" />
        <link rel="stylesheet" href="assets/css/main.css" />
    </head>
    <body>

        <!-- Header -->
            <header id="header" class="alt">
                <div class="logo" style="font-family: Cambria;"><a href="index.html">BOOKS STORE</a></div>
                <a href="#menu" style="font-family: Cambria;">Menu</a>
            </header>

        <!-- Nav -->
            <nav id="menu">
                <ul class="links">
                    <li><a href="index.html" style="font-family: Cambria;">Home</a></li>
                    <li><a href="department.html" style="font-family: Cambria;">Department</a></li>
                    <li><a href="contact.html" style="font-family: Cambria;">Contact</a></li>
                </ul>
            </nav>

        <!-- Banner -->
            <section class="banner full">
                <article>
                    <img src="images/bimg1.jpg" alt="" />
                </article>
                <article>
                    <img src="images/bimg2.jpg" alt="" />
                </article>
                <article>
                    <img src="images/bimg3.jpg"  alt="" />
                </article>
            </section>

        <!-- One -->
            <section id="one" class="wrapper style2">
                <div class="inner">
                    <div class="grid-style">

                        <div>
                            <div class="box" style="height: 375px;">
                                <div class="image fit">
                                    <a href="art.html">
                                        <img src="images/bimg4.jpg" alt="" / style="height: 300px;">
                                    </a>
                                </div>
                                <div class="content" style="margin-top: -12px;">
                                    <header class="align-center">
                                        <h2 style="font-family: Centaur;">ARTS DEPARTMENT</h2>
                                    </header>

                                    <footer class="align-center">
                                    </footer>
                                </div>
                            </div>
                        </div>

                        <div>
                            <div class="box" style="height: 375px;">
                                <div class="image fit">
                                    <a href="science.html">
                                        <img src="images/bimg6.jpg" alt="" / style="height: 300px;">
                                    </a>
                                </div>
                                <div class="content" style="margin-top: -12px;">
                                    <header class="align-center">
                                        <h2 style="font-family: Centaur;">SCIENCE DEPARTMENT</h2>
                                    </header>

                                    <footer class="align-center">

                                    </footer>
                                </div>
                            </div>
                        </div>

```

```
                        <div style="margin-left: 308px;">
                            <div class="box" style="height: 375px;">
                                <div class="image fit">
                                    <a href="commerce1.html">
                                        <img src="images/bimg7.jpg" alt="" / style="height: 300px;">
                                    </a>
                                </div>
                                <div class="content"  style="margin-top: -12px;">
                                    <header class="align-center">
                                        <h2 style="font-family: Centaur;">COMMERCE DEPARTMENT</h2>
                                    </header>

                                    <footer class="align-center">

                                    </footer>
                                </div>
                            </div>
                        </div>



                    </div>
                </div>
            </section>
    <!-- Footer -->
            <footer id="footer">
                <div class="container">
                    <ul class="icons">
                        <li><a href="#" class="icon fa-twitter"><span class="label">Twitter</span></a></li>
                        <li><a href="#" class="icon fa-facebook"><span class="label">Facebook</span></a></li>
                        <li><a href="#" class="icon fa-instagram"><span class="label">Instagram</span></a></li>
                        <li><a href="#" class="icon fa-envelope-o"><span class="label">Email</span></a></li>
                    </ul>
                </div>
                <div class="copyright">
                    Terms of Use | 2019 &copy; BooksStore.com. All rights reserved.
                </div>
                <article class="copyright">Created By
                    <address>Gayatri Anil Mahajan</address>
                    <address>Priyanka Bhika khodape</address>
                                        </address></article>
            </footer>


        <!-- Scripts -->
            <script src="assets/js/jquery.min.js"></script>
            <script src="assets/js/jquery.scrollex.min.js"></script>
            <script src="assets/js/skel.min.js"></script>
            <script src="assets/js/util.js"></script>
            <script src="assets/js/main.js"></script>

    </body>
</html>
```

344

ARTS DE

NCE D

COMMERCE DEPARTMENT

Created By
Gayatri Anil Mahajan

Priyanka Bhika khodape

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

Computer

CLASS : Second year

SEM- II

ACADEMIC YEAR 2018-19

Date :20-04-2019

Attendance Fast learner

Title of activity 3		Case Study
ROLL NO	NAME	Topics
215106201711124510002	DUHITA SUHAS NEVE	E-Commerce and B2B Enterprises
215106201711124510021	SONALI PRAMOD SONAWANE	
215106201711124510040	DIVYA RAVINDRA NEVE	
215106201811124510058	NISHA BHAGWAN CHAUDHARI	Voice Morphing
215106201711124510016	AKSHADA NILESH BADGUJAR	

Coordinator

H.O.D.
Computer

"Transforming Lives, Inventing Future"

A
Case Study
On

E COMMERCE AND B2B ENTERPRISES

By

Duhita S. Neve
Sonali P. Sonawane
Divya R. Neve

Department of Computer Engineering
K.C.E. S's College of Engineering & Information Technology,
Jalgaon (M.S.)

Year 2018 - 2019
Sem II

"Transforming Lives, Inventing Future"

A
Case Study
On
Voice Morphing

By

Akshada N. Badgujar
Nisha Chaudhari

Department of Computer Engineering
K.C.E. S's College of Engineering & Information Technology,
Jalgaon (M.S.)

Year 2018 - 2019
Sem II

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

Computer Department

ACADEMIC YEAR 2018-19 SEM- I

List of Fast learner Students

Following Students of Second year are selected as fast learners on the basis of Mid Sem Examination marks evaluation. Extra activities for the students will be sheduled by the coordinator.

Date: 20/9/2018

PRN NO	NAME
2151062018I124510056	VAIBHAVI SARJERAO PATIL
2151062018I124510058	NISHA BHAGWAN CHAUDHARI
21510620171124510002	DUHITA SUHAS NEVE
21510620171124510016	AKSHADA NILESH BADGUJAR
21510620171124510021	SONALI PRAMOD SONAWANE
21510620171124510041	SHUBHANGI PRAVIN SONAR

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Computer

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

Computer

CLASS : Second year

SEM- I

ACADEMIC YEAR 2018-19

Attendance Fast learner

Title of activity		Study of Research Methodology	Hands on Practical Assignment	Case Study
Date of activity		22-09-2018	6/10/18	20-10-2018
ROLL NO	NAME			
2151062018112451 0056	VAIBHAVI SARJERAO PATIL	Lit Review Done	Insertion in DLL	Intro to Software Quality
21510620181124510058	NISHA BHAGWAN CHAUDHARI	Methodology Done	Del in DLL	types of Software metric
21510620171124510002	DUHITA SUHAS NEVE	Applications Studied	Reverse, Count	Software reliability Models
21510620171124510016	AKSHADA NILESH BADGUJAR	Introduction Done	Insertion in tree	Use of Data Mining
21510620171124510021	SONALI PRAMOD SONAWANE	Architecture Done	[illegible]	Market Basket Analys.
21510620171124510041	SHUBHANGI PRAVIN SONAR	Adv & Disadv ok	Traversal in tree (Inorder) (Postorder) (Preorder)	Rule generation

Coordinator

H.O.D.
Computer

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

Computer

CLASS : Second year

SEM- I

ACADEMIC YEAR 2018-19

Date : 22-09-2018

Attendance Fast learner

Title of activity 1		Study of Research Methodology
ROLL NO	NAME	Topic
21510620181124510056	VAIBHAVI SARJERAO PATIL	Andriod Applications UI Development Intelligent Tutoring System
21510620181124510058	NISHA BHAGWAN CHAUDHARI	
21510620171124510002	DUHITA SUHAS NEVE	
21510620171124510016	AKSHADA NILESH BADGUJAR	Characterizing the Impact of Topology on IoT Stream Processing
21510620171124510021	SONALI PRAMOD SONAWANE	
21510620171124510041	SHUBHANGI PRAVIN SONAR	

Coordinator

H.O.D.
Computer

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Activity 1

Characterizing the Impact of Topology on IoT Stream Processing

Anindya Dey, Kim Stuart, Matthew E. Tolentino
Intelligent Platforms & Architecture Lab
University of Washington, Tacoma, WA, USA
{andy1602, ksstuart, metolent} @uw.edu

***Abstract*—The Internet of Things (IoT) extends traditional cyber-physical systems by linking sensor based edge devices to network accessible services and resources. In most current IoT deployments, sensor data is streamed from edge devices to servers for storage. Analytical pipelines are then used to translate this raw sensor data into actionable information in real-time. As additional IoT devices are deployed, the volume and rate of data received on the server side can increase dramatically. This has a possibility of offsetting the response latencies beyond acceptable limits for IoT analytical systems.**

In this paper, we compare the impact of alternative server-side stream processing topologies for ingesting and analyzing IoT sensor data in real-time. We use real building sensor data with our real-time IoT platform called Namatad. We have characterized and analyzed the latency and QoS impact due to the different levels of granularity of the ingestion and routing process by which we transmit data into the analytical pipelines. Our results show that as IoT systems continue to scale in density, server-side topology management for IoT data streams is critical for latency-sensitive control and analysis applications.

***Keywords*-IoT, Server, Topology, Sensors, Machine Learning**

I. INTRODUCTION

Internet of Things (IoT) systems consist of multiple compute platforms, notably edge devices and servers. Within IoT systems, most of the focus has been on the development and integration of novel new edge devices. For example, the recent proliferation of wearable devices designed to monitor personal health has increased significantly in recent years yielding unprecedented awareness of fitness. Similarly, new *smart* buildings are integrating new sensors with building control systems to improve energy efficiency, occupant comfort, and safety [1], [2]. The raw data obtained using IoT devices provides tremendous operational insight, which is driving the deployment of additional IoT devices.

For deployed IoT devices, once sensor values are read the data generated is transmitted across the network and stored on server platforms for later analysis [3]. Once stored, this data is then analyzed, leveraging recent advances in machine learning. To date, most of these IoT analytics have been performed offline, using batch-oriented techniques. However, as IoT analytics transition to online, real-time pipelines that immediately translate raw data into actionable information, earlier approaches to manage streaming data becomes challenging. Additionally, as the number of deployed IoT devices increases, how IoT data is routed and processed must be handled judiciously to prevent overloading and ensure scalability.

The server entry point for IoT data generated by edge devices are often message queues. Effectively managing these ingress queues is key to efficiently route streaming data to analytical pipelines while maximizing scalability. One common approach is to use message brokers, such as MQTT or Apache Kafka to establish a single ingress queue. This simplifies the configuration of IoT devices because all data can be sent to the same destination message queue. However, as an IoT deployment scales from a few edge devices to thousands, this single message queue will quickly become a bottleneck. The additional latency caused by using a single queue will then have a ripple effect impacting all downstream analytical processing pipelines. In the extreme this additional latency can cause poor predictions and analysis.

In this paper, we describe and characterize the impact of alternative IoT data processing topologies in the context of real-time machine processing pipelines. Our goal is twofold. First, we identify and compare the performance impact of using different topologies that leverage different levels of queue-level parallelism for server-side processing of IoT data. Second, we identify patterns using real deployment data (e.g. smart buildings) that can be generalized for diverse IoT deployments. We leverage the complete real-time streaming platform that we developed in previous work [4] and extend this system to use alternative topologies that increase queue parallelism. We use real building sensor data collected by the facilities department at the University of Washington for a LEED certified building that was recently renovated. These data streams, sourced from multiple installed sensors are then routed through our real-time streaming system to our analytical pipelines to gain insights into room occupancy within that building. We then analyze the performance impact of several alternative topologies. More specifically, our contributions from this paper include:

- Characterization of the impact of topology on an IoT

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system in terms of latency to prediction as well as the impact on prediction accuracy.

- Characterization of the impact of real world parameters including degree of disorder in data arrivals, varied data set sparsity, and impact of missing values.
- Impact of new prediction models that enable occupancy forecasting.

II. System Architecture & Topologies

Most IoT systems are composed of edge devices connected to web servers which ingest sensor data streams and transfer them to persistent storage. This stored data is then analyzed and visually displayed using dashboard interfaces. Unfortunately, this approach fails to leverage the temporal utility of sensor data.

To immediately take advantage of new sensor data, data streams must be received and analyzed in real-time with minimal latency. Many IoT servers use a message broker such as MQTT or Apache Kafka to reliably receive and queue incoming data and then use analytical pipelines for processing the data. As an example, in previous work we leveraged Kafka and open source analytical engines to create a new end-to-end streaming system for IoT called Namatad and used this system to infer occupancy from a minimal set of environmental sensors using machine learning [4]. However, during several subsequent scaling experiments for high-density sensor deployments within buildings, we quickly encountered bottlenecks with our system that caused our machine learning models to produce wildly inaccurate predictions. These problems motivated us to conduct several scaling experiments including adding IoT devices to a deployment as well as increasing the rate at which these devices send data to the server.

Several scaling issues became evident during these initial experiments. First the prediction latencies of our real-time analytical pipelines increased. We initially used a single server-side queue within Kafka to capture the data from all sensors within the building. We found that increasing the number of IoT devices and rate at which each edge device sent data to the server significantly increased the depth of this single receive queue. Second, the computational requirements on the server increased. This was due to the increase in the sensor types that had to be parsed, split, correlated with other sensor values in time, and then relayed to the appropriate analytic pipeline for processing. Third, the increase in rate and volume in IoT device generated data caused the sensor values to often arrive at the server out of order. This required additional buffer space within the server given each analytic pipeline required multiple correlated sensor values to provide a prediction.

A simple approach to coping with these issues would be to increase the number of servers we used for processing real-time analytic pipelines. However, particularly for many IoT deployments, it is impractical to install a cluster of servers just to analyze sensor data. Additionally, after profiling we found that not all cores of our single server were being utilized, meaning the server had additional unused computational capacity. Instead, how we *used* the server was problematic. This was due to how sensor values from different areas of the building were managed within the streaming platform and routed through the analytic pipelines. In other words, the topology used for receiving, filtering, and processing IoT data in real-time limited our scalability.

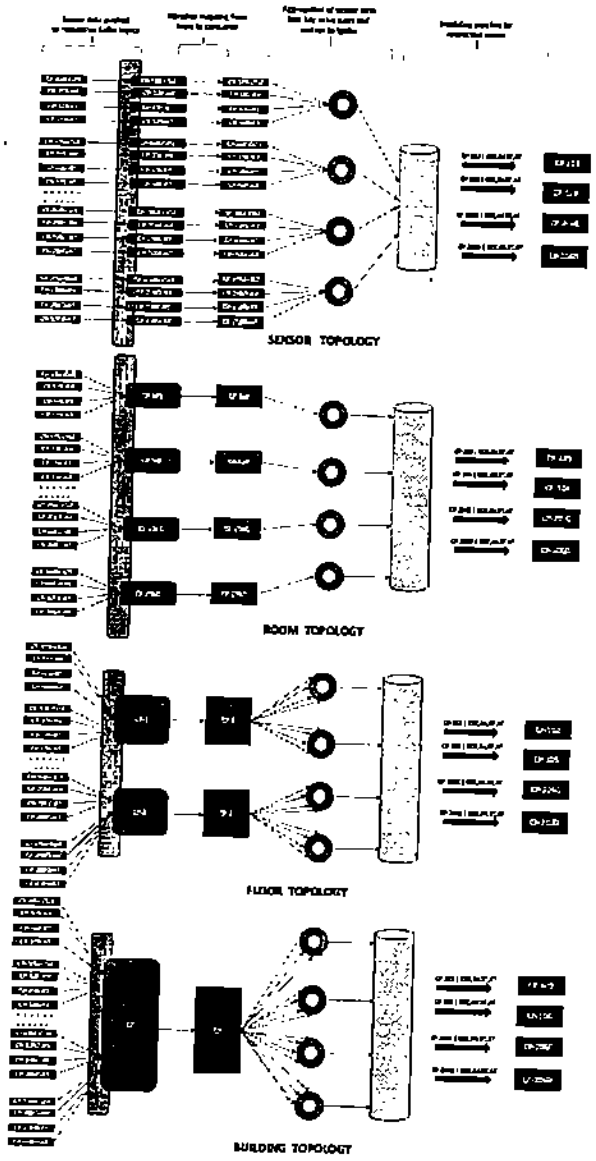

Figure 1. Topology Comparisons

To address this issue, we experimented with using alternative topologies within our real-time analytic system.

Using the data from our previous work to predict room occupancy, we developed four different topologies that could be configured. Figure 1 shows the four different topologies used in this study which we refer to as sensor, room, floor, and building based on how we group the data received. Each topology has a different number of receive queues or topics. Each topic consists the destination that IoT devices send data to the server for processing. For each topology the topics are created before the experiments are run. A sample topic is named as CP-103-CO2 for sensor topology, CP-103 for room topology, CP-1 for floor topology, CP for building topology. In our experimental setup, the number of topics for the sensor topology is 24 (4 sensors per room * 6 rooms), for room topology its 6 (since 6 rooms in total), for floor topology its 2 (since 2 rooms in total), for building topology its 1(since 1 building).

We have also configured a bijective mapping between Kafka topic and Kafka consumers. This means that as we increase the number of topics, we also increase the number of computational pipelines that will be used to process the data. Consumers pull data from distinct topics. Based on the topology, the data is either segregated or aggregated into room level key-value pair tuples and written to our key-value temporary store using Apache Ignite. The tuples are at room granularity since our machine learning models have been trained to predict occupancy at room level.

III. EXPERIMENTAL METHODOLOGY

We experimented using sensor values from six rooms from the Cherry Parkes building. This is consistent with our previous work where we had predicted occupancy and compared across several rooms [4]. To evaluate multiple levels of granularity in terms of sensor, room, floor and building levels we needed another floor along with various types of rooms like class rooms, office rooms so that we could also account for the sparsity of data. For a single room, there are four sensors, which gives us time stamped sensor values. For example, for room CP-103, we have CO2(carbon dioxide), AV(supply air volume), AT(supply air temperature) and RT(room temperature) sensors. So the reading of a single sensor data value will follow a (YYYY-MM-DD HH:MM:SS, sensor value) schema. For example, the data value for CP-103-CO2 will be represented as *2016-01-05 12:45:00, 368.67.*

The motivation for our experiments was to evaluate the time for orchestrating the flow of data from individual sensors in a given room, aggregation time, and time for writing the resulting tuples to Ignite which feeds them to the trained machine learning models for prediction and forecasting. In this evaluation, we captured the execution times for the entire end to end run with a focus on the aggregation time given this is dependent on topology. For all runs, we fixed the CPU frequency on both the PI boards and server to 900 MHz and 3 GHz respectively. This was done to maintain experimental consistency, particularly given different topologies have different CPU loads. Additionally, given our system supports dynamic voltage frequency scaling we wanted to ensure any observed performance differences were due to topology and not system effects.

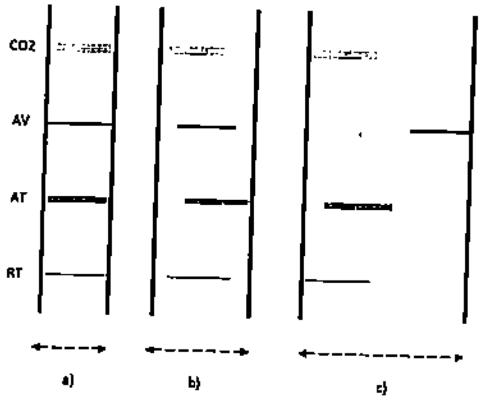

Figure 2. T(x) Duration : Each grey line represents the time it takes for the sensor value to arrive and pass through its respective Kafka topic to reach the consumer at the end. The length of the line can be assumed to be roughly consistent for a topology.

The thickness of each of the grey lines is proportional to the information gain (importance in quality of prediction) for that sensor type. In our case, CO2 has the highest information gain followed by AT, whereas RT and AV do not provide as much information. This provides a choice to trigger the model when just the features with higher information gains have arrived without waiting for all the features, as the quality of prediction will not be too bad and we save on time to insight.

T(x) duration is shown by the dotted double headed arrow. Its least in case of a) when all sensor values arrive in order, slightly more in case of b) when sensor values arrive slightly out of order and a lot more in case of c) when the arrival rates differ a lot.

We define a single transaction time as T(x), where T is the transaction and x is the corresponding time stamp. Figure 2 shows that we have defined a transaction as the total time it takes for all four sensor (CO2,AV,AT,RT) data values in a room to get pushed to their respective Kafka topics via the Kafka producer on the sensors, the time to perform any necessary processing, such as aggregating the data based on their topics and creating and storing key-value pairs in Ignite through the Kafka consumer code. When these respective scripts are executed, their starting time and end times are logged. We then analyzed the performance impact of the execution times across the producer, consumer, and modeling phases while generating twenty-four hours' worth of forecasting values. For all results shown, we conducted five runs per experiment to characterize run time variances and minimize any random errors. The plots in Figure 3 constitute the average of all the runs. Given that we quiesced the system before each run, we observed minimal run-to-run variance.

IV. Occupancy Prediction & Forecasting

Based on discussions with first response teams and facilities management team there was a need to predict current occupancy but also the occupancy in a future time interval. Hence we evaluated several forecasting techniques and used Linear Regression to predict the next ten set of values for each of the four features (CO2,AV,RT,AT). To forecast the feature values the forecasting model we use a predefined time window of the historic feature values to learn the pattern and then guess the next certain number of feature sets. We set the model to predict the next ten feature sets. The longer history the model looks at, the better is the guess at the future set. However a limitation of this approach is the inability to detect inflection points. These are important since they effect the actuation of the control systems attached to the sensors. We are currently exploring ways to tackle this limitation by using ensemble techniques to get forecasts from multiple models like Linear Regression, Logistic Regression, ARIMA, etc. Once we have the forecast feature set, we use that with the trained Random Forest occupancy model for scoring, yielding forecasted occupancy. An important difference between the Random Forest model and the Linear Regression model is that the Random Forest model was trained offline. We use it only for scoring online, whereas the Linear Regression model is learning and updating online. In future work we could use advanced modeling techniques like Deep Learning to potentially improve the quality of forecast but at the expense of longer training times.

The goal of this study was to empirically determine the impact of using the different topologies mentioned in section II above on how close to real-time can we make predictions while maintaining high quality predictions. In previous work we concluded our model needed all four features to provide the best prediction. In a real time scenario there can be situations when all the values may not arrive to the modeling phase at the same time, as shown in Figure 2 and the trained model has to either score with fewer features than trained on or must wait for all features to arrive. In the case of missing features, the quality of prediction will decrease and if the most relevant feature, that is the one with highest information gain is absent, the prediction may be meaningless. One way to tackle this is to use statistical techniques to impute some of the missing values; however, this impacts predictions. Alternatively our learning pipeline could wait for all the features to arrive and then predict the class label. The challenge with waiting is to ensure values arrive in the correct order. For example, the four features for a real world time stamp T(i) should all arrive before the next set of four features for real world time stamp T(i+1). In the worst case, predictions will be delayed which dilutes the near real-time aspect of the system and thus the utility of the prediction is reduced.

V. Results

The performance impact of topology on IoT stream processing in terms of total execution time and phase-wise execution times are shown in Figure 3. When there is minimal contention in the data flow, the time to prediction is minimized. When contention is high, this increases to time to prediction. Interestingly, data aggregation and segregation, which essentially is a data transformation step within the topologies is notably different between the topologies. The aggregation time for each transaction type is further explained in Figure 2.

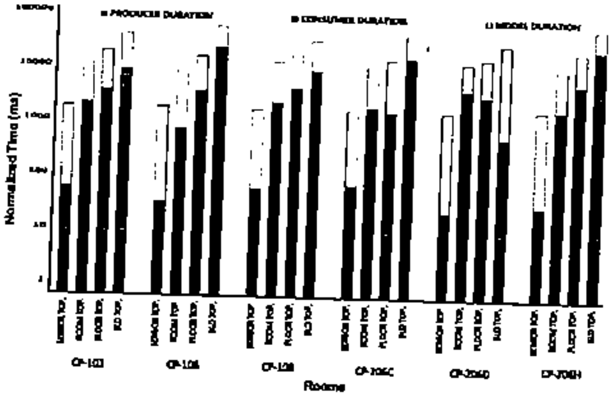

Figure 3. Phase Wise Execution Times

In Figure 3 the y-axis represents the execution time (in milliseconds) relative to the start time of the producer phase and the x-axis compares the topologies. The phase wise execution time follows a consistent trend across all the rooms. The producer phase includes transit time from the producer (raspberry PIs as hardware sensors) to the respective Kafka topics. The consumer phase starts once the consumer pulls the data from the topics and ends after it transforms the data into required tuples and writes to the key-value store in Ignite. The modeling phase runs when the machine learning pipeline picks up the tuple from ignite and scores the predictions followed by occupancy forecasting. Each of the phases is described in further detail below.

A. *Producer phase*

As shown in figure 3 the producer duration is consistent across topologies. This is as expected because there is no blocking or waiting time for a producer to write to a topic irrespective of topology. In the case of the sensor topology each topic is being written to by a single producer, whereas in the case of the building topology a single topic is being written to by multiple producers. Consequently, the producer phase could be longer in the latter case. Our experimental results suggest otherwise, though we suspect our experiments did not exhibit a sufficient load to showcase this impact in the producer phase.

B. Consumer phase

The consumer phase pulls data from the respective topics, aggregates and transforms them into a key value schema as explained before, and stores in Ignite. In the case of the sensor topology each consumer must pull data from the respective topics and create the key value pair; hence it has the lightest computational load. However, in the case of the room, floor and building topology more sensors write to a single topic. In these cases every consumer has to read the messages from its topic, parse and segregate them into individual sensor values and then aggregate into the appropriate key-value pair before it can be written to Ignite. So as we progress from sensor topology towards building topology, the workload of the consumer increases which is supported by the results as well. We also observed that the degree to which sensor data arrived out of order caused the consumer to wait for the right set of values in case of sensor topology. Doing multiple runs averaged out the differences in the case of a single room.

C. Modeling phase

The modeling phase is divided into two phases - current occupancy prediction and forecast occupancy prediction. The current occupancy prediction nearly overlaps with the ending of the consumer phase since it just reads the latest tuple from Ignite and scores it against the trained Random Forest room level occupancy model. The forecast occupancy model as explained in Section IV uses a certain time window of features so that it is able to forecast a specific number of future feature values. The scoring is then done using the forecast feature values. So the time for forecast depends on how quickly the forecasting model can use the required time window of features. In case of sensor topology, at the end of each consumer phase only one set of values corresponding to a T(x) is available, which then gets written to Ignite. It must then wait for the next set of values to come through the producer and consumer phase before writing to Ignite. However, in case of the other extreme i.e. the building topology, at the end of every consumer phase we have a set of six values that are written to Ignite. So it reduces the time required to build up the size of the historic feature set. In the case of room topology, we have one set of values at the end of each consumer phase, but this does not require the aggregation time the sensor topology requires. Consequently, the computational load is reduced for the room topology relative to the sensor topology. In case of floor topology, we have three sets of values which can be written to Ignite after each consumer phase completes. These analogies are supported by the results shown in above plots.

The room CP-206D shows anomalous behaviour for consumer and modeling phase which can be attributed to extremely sparse data that could be collected for that room. Experimental observation shows that sparsity accentuates degree of disorder. This is discussed below.

We further explored the challenges introduced due to out of order arrival of sensor data, which lead to increased aggregation time. The plots in Figure 3 show that although the volume and transmission rate of data being collected from each room is the same, due to varying sparsity and varying degrees of out of order of data arrivals across the different rooms, we see a difference in consumer and modeling phase execution time for the same topology across different rooms. This is because a single sensor value quickly reaching its corresponding topic is not enough since it is the transaction time that is required. Therefore even if one of the sensor values arrive out of order, the total transaction time increases as explained in Figure 2. Since the plotted results are averaged over five sets of runs (standard deviation was minimal) it shows that in the minimal contention scenario there are always values arriving out of order as compared to the other topologies, where there is more contention. Therefore we conclude that increased contention in the pipeline reduces the degree of disorder with the trade off being an increased delay in the total execution time. We are running further experiments to formulate an analytical model to estimate aggregation time due to the data transformations in our experiment.

Table I

COMPARING PREDICTIONS ACROSS TOPOLOGIES : T4 >T3 >T2 >T1 I.E. T4 OCCURS LATER IN THAN T3 AFTER THE PREDICTION PIPELINE HAS BEEN STARTED.

Topology / Timestamp	T1	T2	T3	T4
Sensor	2	2	2	2
Room	2	2	2	2
Floor	0	0	1	1
Building	0	0	1	0

Table I shows that the quality of modeling was affected by the time it took for the sensor values to reach storage within Ignite. For the building topology, which has the lowest arrival rate and has 6 values being written to ignite at a time, we see that our model predicted zero occupancy several times. This was due to the lack of values within Ignite to serve as input to the model; consequently the model assumed all values were zero. This revealed that the modeling phase must be configured to operate at a frequency independent of the consumer phase, but dependent on the topology. We are currently exploring the configuration of synchronization gearing ratios as well as leveraging statistical imputation techniques to handle missing values within our models.

VI. RELATED WORK

There has been considerable work in IoT systems that leverage analytical systems for real-time processing [5], [6] and sensor driven architectures [7], [8]. Other work has proposed leveraging cloud computing as a means to extend scalability, accepting the trade-offs of higher latency. For example, [9] conducted a case study in which Arduino boards and Raspberry Pi boards were used to transmit sensor data into a cloud based infrastructure to examine trade-offs between security, scalability, and efficiency in smart home sensor networks. The results showed that for wireless and wired network setups, scalability and security are concerns, while real-time results are obtainable.

Edge computing has recently emerged to minimize latency for real-time systems [10]. Just as [11] did with their Geelytics system, we shifted the focus from cloud to edge computing using a fog server. However, our system provides flexible software topology management techniques rather than handling highly distributed IoT systems. We show that not only can real time results be computed more efficiently by edge computing, but overall QoS including the scalability, security, and latency challenges proposed in [9] can be managed. We have shown that by choosing a suitable processing topology for data management, we can more effectively use existing edge servers and reduce latency.

Similar to our approach, there has been work to determine the effective physical node arrangements in network topologies of ad hoc cyber-physical systems [12], [13], as well as topology control algorithms for how to maintain and manage these nodes [14]. In many cases, node or sensors arrangements are constrained by building or geographical blueprints and real-time analytics are computed based on existing sensor deployments. Our system provides multiple ways to manage data flows through real-time analytical pipelines and enables these to be tuned to minimize latency.

VII. CONCLUSION

In this paper, we explored the impact of alternative real-time streaming topologies within the edge server of IoT analytical systems. We evaluated these topologies in terms of the time to insight from our machine learning models as well as the quality of predictions. Our results show that topology impacts stream processing in multiple ways and real world parameters like missing values, out of order arrivals, varying sparsity have a significant impact as we scale up the density of sensor deployments.

VIII. ACKNOWLEDGEMENTS

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Activity 1

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Android Applications UI Development Intelligent Tutoring System

Hazem A. Al Rekhawi, Samy S. Abu-Naser
Department of Information Technology, Faculty of Engineering and Information Technology, Al-Azhar University
Gaza, Palestine
Email: *abunaser@alazhar.edu.ps*

Abstract: The paper describes the design of a web based intelligent tutoring system for teaching Android Applications Development to students to overcome the difficulties they face. The basic idea of this system is a systematic introduction into the concept of Android Application Development. The system presents the topic of Android Application Development and administers automatically generated problems for the students to solve. The system is automatically adapted at run time to the student's individual growth. The system provides obvious support for adaptive demonstration constructs. An initial assessment study was done to examine the effect of using the intelligent tutoring system on the performance of students enrolled in Smartphone Applications Development in the University College of Applied Sciences, Gaza. The results showed a positive impact on the evaluators.

Keywords: Intelligent Tutoring System, Android, Java, Problem Generation, Droid-Tutor.

1. INTRODUCTION

Intelligent Tutoring Systems (ITSs) can be traced back to the early 1970s, when Carbonell tried to combine methods of Artificial Intelligence (AI) with Computer Aided Instruction (CAI) [9]. Therefore, the first generation of ITSs is more or less a sort of "intelligent" CAI. Their focal task is specified by Lelouche: "The basic principle of 'intelligent' CAI is that it should identify the taught material" [15]. Knowledge about the trained material is implanted in the ITS in form of expert systems, that is, the expert module [3,11]. The integration of insights of cognitive science in ITSs, has led to what nowadays is termed an Intelligent Tutoring System [2]. In addition to the knowledge about the trained material, these systems have understanding about pedagogical approaches and understanding about the student, realized as pedagogical module and student module, respectively.

The traditional ITS architecture was designated by Clancey, comprises of the components: student module, expert module, pedagogical module, and user interface [10]. The identification of the components varies. Occasionally, depending on the teaching domain, a module for automatic generation of exercises is likewise part of the ITS. While the ITS's ingredients appear to be part of common agreement in the ITS community, the role and the functionality of each of the components varies a lot [1,3]. The reason for this can partly be seen in the different application domains. One can easily imagine that training in mathematics places different demands on ITSs than clinical medicine training. Another reason might be the realization of different learning theories in ITS. Case-based learning, described in the former section, places special demands on an ITS that are rather different in problem-oriented education. These sensible features often unavoidably lead to mixed and unrivaled systems. But even in the same application domain and established on the same education style, ITSs are often not analogous and based on a whole different clarification of the same architecture. Furthermore, regarding only the ITS architecture on a more nonconcrete level, it turn out to be tough to find motives for heterogeneous understandings at all. A mixture of content and delivery functions, which is seemingly not based on visions of research but on traditions of ITS development, can be found in ITS understandings.

In other ITSs, the expert knowledge base is a modest database deprived of own functionality [17]. The same condition can be found in the dissimilar ways the pedagogical knowledge module is realized and embedded in the ITS. Thus, there are ITSs that involve a set of interacting and more or less distinct subsystems, and there are ITSs containing of passive components plus a component that encapsulates the execution. Execution in this context contains the interaction with the student, the evaluation of the student's behavior and success, and the provision of contents and navigation. Thus, two standpoints on the same architecture can be established, replicating different clarification of the same modules: ITS architecture contains either distinct independent subsystems or reflexive components with unified implementation system.

Both viewpoints have their benefits and drawbacks. However, the main system's thinking concerning the understanding of the components should be made clear to offer comparability of ITSs and reusability of ITS components. The benefit of this approach is that the central navigating component might be reused in different ITSs, as it is clearly detached from the databases and the user interface. Figure 1 illustrate the recommended ITS architecture with the tutoring process module is outlined.

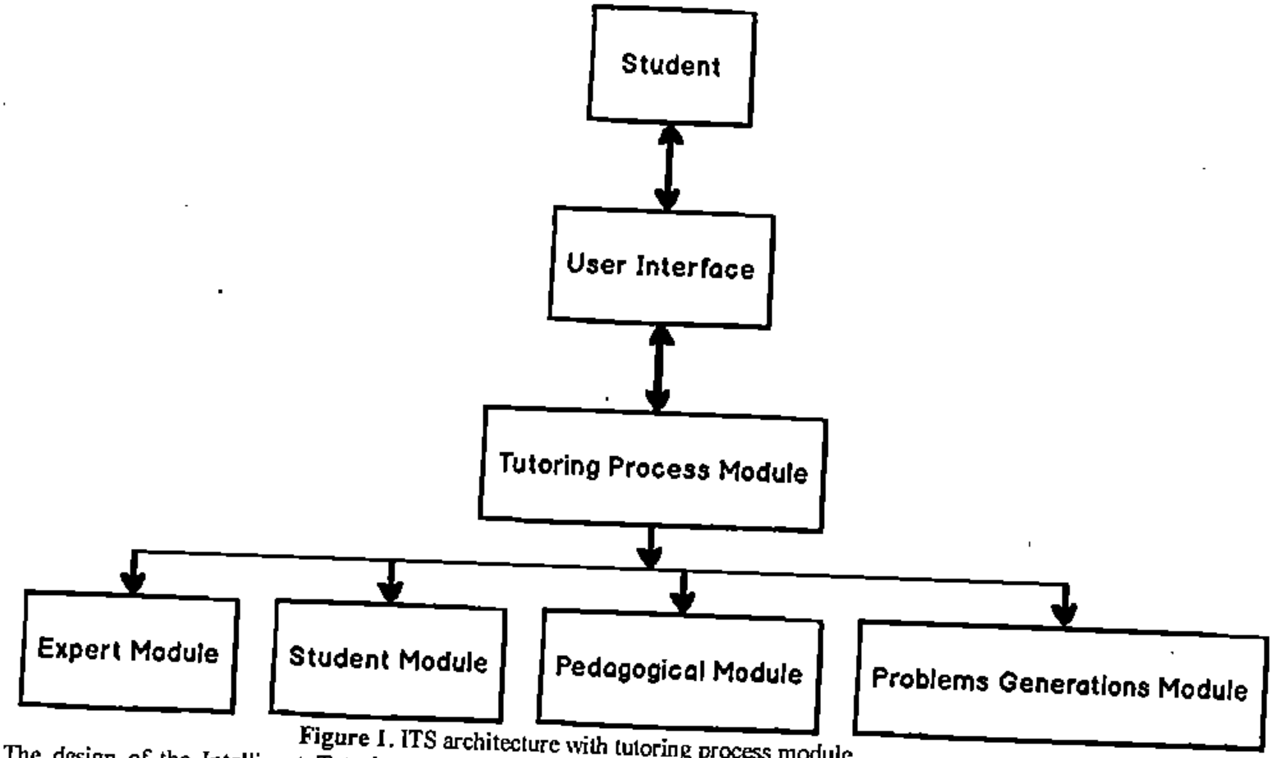

Figure 1. ITS architecture with tutoring process module.

The design of the Intelligent Tutoring System for Learning Android Applications Development (Droid-Tutor) adopted the ITS architecture with automatically generated problems module.

The benefits of the Droid-Tutor are:

- Building an intelligent tutoring system for problems for which the responses might not be usually quantitative.
- Creating limitless number of problems automatically, thereby providing as much practice with problem-solving as the student wants.
- Having a system that adapt at run time to the student's individual growth.
- Using students' previous knowledge of Java in the development of android applications.
- Teaching students how to deal with problems and solve them.
- Evaluating student level through MCQ, correct and error on several levels of difficulty.
- Providing a complete teaching material for the student in android applications development containing a lot of exercises and practical examples.
- Providing videos that explain some lessons in Android applications development, making learning easier for students.
- Designing of Android applications according to the standards of mobile applications design.
- Building interactive android applications and publishing it on Google Play Store.

2. DROID-TUTOR DESIGN

There are many Intelligent Tutoring Systems (ITS) that were designed and developed for many fields such as: a comparative study between Animated Intelligent Tutoring Systems (AITS) and Video-based Intelligent Tutoring

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Systems (VITS) [37], cloud computing[34], Computer Networks [52], ADO-Tutor: Intelligent Tutoring System for leaning ADO. NET [53],CPP-Tutor for C++ Programming Language [30], effectiveness of E-learning [30, 36], effectiveness of the CPP-Tutor [57], E-learning system [24], Health problems related to addiction of video game playing [47], Java Expression Evaluation [36] , Linear Programming [42], learning Computer Theory [60], Learning Java Objects [3], Mathematics Intelligent Tutoring System [43], Oracle Intelligent Tutoring System (OITS) [48], parameter passing in Java programming [35], Photoshop (CS6) Intelligent Tutoring System [59], predicting learners performance using NT and ITS [41], stomach disease Intelligent Tutoring System [52], teaching advanced topics in information security [57], teaching AI searching algorithms [40], teaching database [38], teaching DES information security algorithm[55], teaching grammar English tenses [49], teaching Mongo Database [56], teaching the 7 Characteristics for Living Things [59], right letter pronunciation in reciting the Holy Quran [44] , and Diabetes Intelligent Tutoring System [51], CSS-Tutor: An intelligent tutoring system for CSS and HTML[45], Design and Development of an Intelligent Tutoring System for C#[46].

3. DROID-TUTOR IS UNIQUE WITH RESPECT TO THE PREVIOUS WORK IN THE FOLLOWING MANNER:

- The system was built to look like the most familiar interactive interfaces like OS desktops, including (icons, drag and drop features, tabs menus, and pop-up windows) which are all integrated in one single window.
- The intelligent tutoring system was built for problems for which the answers might not be always quantitative [1,2].
- WebToTeach is related to Droid-Tutor [5], but it administers instructor pre-prepared problems, and does not generate the problems automatically. Droid-Tutor can generate unlimited number of problems automatically, thereby providing as much practice with problem-solving as the student needs.

Kashy have shown that the use of problem generation systems has increased student performance by 10% in Physics, largely due to limitless time spent on the task [13].

4. DROID-TUTOR IS DESIGNED TO HELP STUDENTS LEARN ANDROID APPLICATIONS DEVELOPMENT BY:

1. Gradually teaching the Android Applications Development material to the students. The system is supported with a student controlled voice narrator, which acts as a facility during learning.
2. Repeatedly solving automatically generated problems and obtaining the proper feedback.
3. Droid Tutor is designed with amazing android text lessons and video training materials.
4. The possibility of measuring the level of the student through exercises and questions.
5. The possibility of advising the student how to handle errors and solve them quickly.

The Droid-Tutor is designed to be used as a supplement to the traditional method of teaching (Android Development textbook and Instructor), either during a laboratory session, after class training, or for homework assignments. Droid-Tutor has the following modules: Pedagogical Module, Problems Generation Module, and Expert Module, Student Module, and Tutoring process module.

4.1 Droid-Tutor Pedagogical Module Design

It has been noticed that students are having difficulties in understanding the concepts of Android Applications Development. To overcome these difficulties, an Intelligent Tutoring System for teaching Android Applications Development called Droid-Tutor have been developed to students enrolled in Android Applications Development Course in the Mobile Applications Development Department at University College of Applied Sciences in Gaza. Droid-Tutor gradually introduces students to the concept of Android Applications Development and automatically generates problems for the students to solve. The key sections that draws the main structure of the tutoring material [18,19,20] are:

4.2 Android Overview and history

- Mobile phones revolution
- What is Android? Android Features, Android Versions
- Android Devices on the market
- Android Architecture
- The Advantage of adopting Android as a Developer
- Android Applications

- Android Development Environment
- Android Development Prerequisites

4.3 Basics Android User Interface

- Android Applications Components
- Installing Android Studio Environment
- Create First Android Application and Run AVD
- Anatomy of Android Application
- Layout Manager and Android Views
- Android UI Control
- Activity Lifecycle
- Views Events Handling
- Build Styles and Themes
- Dealing with Container Views and Adapters
- Build Menu Groups and Items
- Build Android Dialogs
- Intent and Intent Filters

4.4 Advanced Android Applications Design

- Android Fragments and Fragment Manager
- Android Drawable Styles
- Android Animations
- Android Material Designs
- Advanced UI Examples
- Localizations and Multilanguage's
- Support Multiscreen mobile and tablet

4.5 Problems Generation Module of Droid-Tutor

A number of problems have been lately recognized as a potential shortcoming of encoding a limited set of problems into a tutor [16]. A technique used in literature to dynamically generate problems is by BNF-like grammar [14]. In this technique, problems are generated by arbitrarily instantiating templates written in the grammar. Each template can be prudently planned with specific pedagogical aims in mind.

Problem Generation Module is accountable for generating the template of code, theses templates cover the core topics of Android Applications Development which are (android user interface, applications components, Activity Lifecycle, Layout Manager, Android views, Android Dialogs, Fragments and Advanced Android Material Design). The module depends on randomly structuring of the pieces of codes which forms the templates that consist of (layout manager, values resource, themes and styles, Custom Data Adapter, return types, arguments data types, classes, methods, and arguments names). These structures are imported from pre-defined lists of keywords. The template is generated with a previously intended problem each time it is requested, followed by a related question and possible solutions. The questions have different styles including either asking the student to correct an Android code, write an Android code, multiple choice, or true/false.

4.6 Expert Module of Droid-Tutor

Expert Module was implemented to gather the necessary information for generating the feedback [4]. The expert module is capable of solving the generated problems by parsing the template. Since the expert module can execute any code, it can generate the correct answer for a problem on its own, and determine whether the user's answer is correct/incorrect. In addition to whether the user's answer is correct/incorrect, the module can provide the student with the correct answer when it is requested. Furthermore, the module provides the student the proper feedback in response to the student's answer.

4.7 Student Module of Droid-Tutor

A new student must create his own account to have a profile. The profile has information about the student such as his name, dates of login, score of each session, and learning progress during each session. The student's score can be

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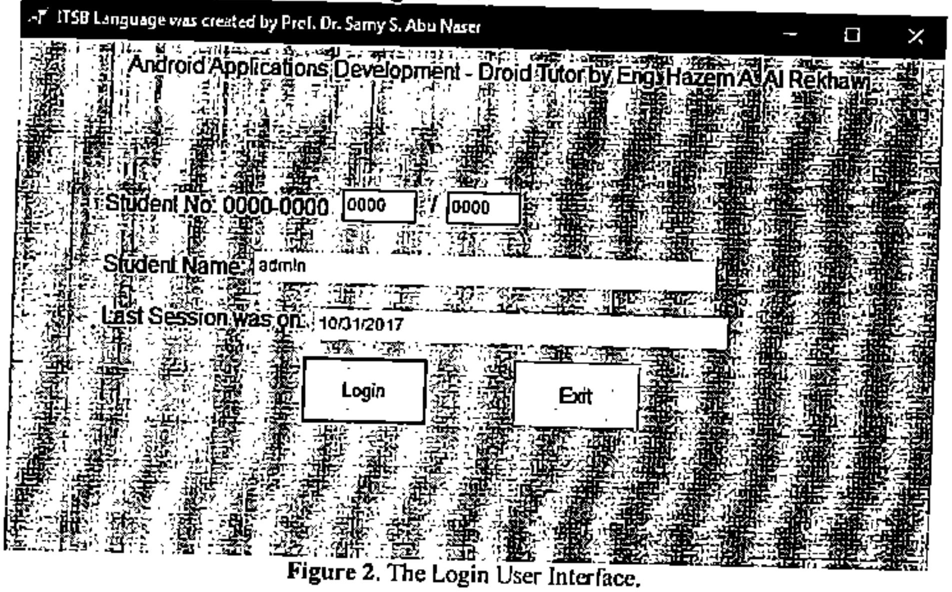
viewed at any time during the session that describes the student performance in solving problems in the following subjects: casting, classes and inheritance.

4.8 Tutoring process Module of Droid-Tutor

Tutoring process module works as a coordinator that controls the functionality of the whole system.

4.9 Droid-Tutor User Interface Design

The Droid Tutor is uniquely designed and easy for the student and here is a screenshot and explanation for each interface, you can see figures from Figure 2 to Figure 14.

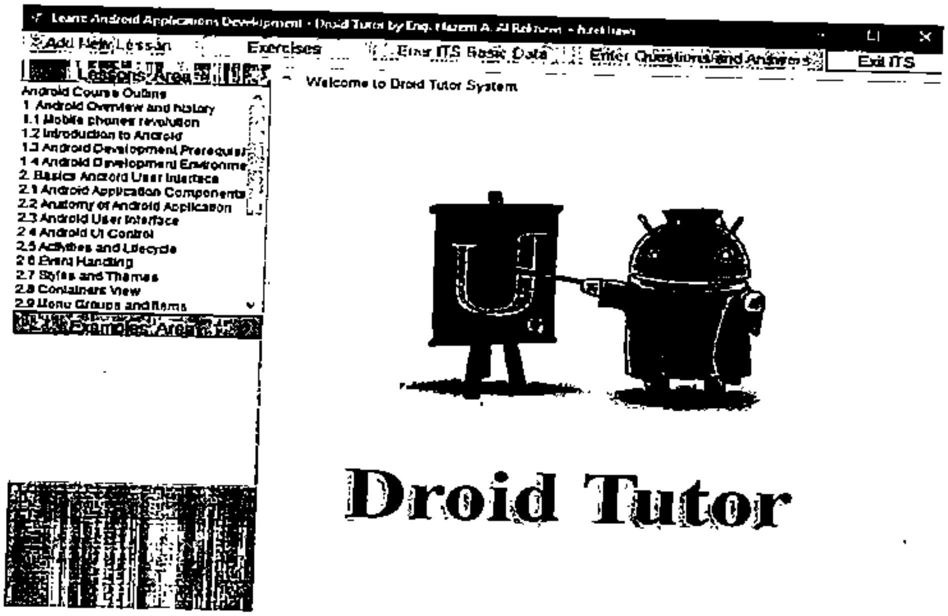


Student No: 0000-0000 0000 / 0000

Student Name: admin

Last Session was on: 10/31/2017

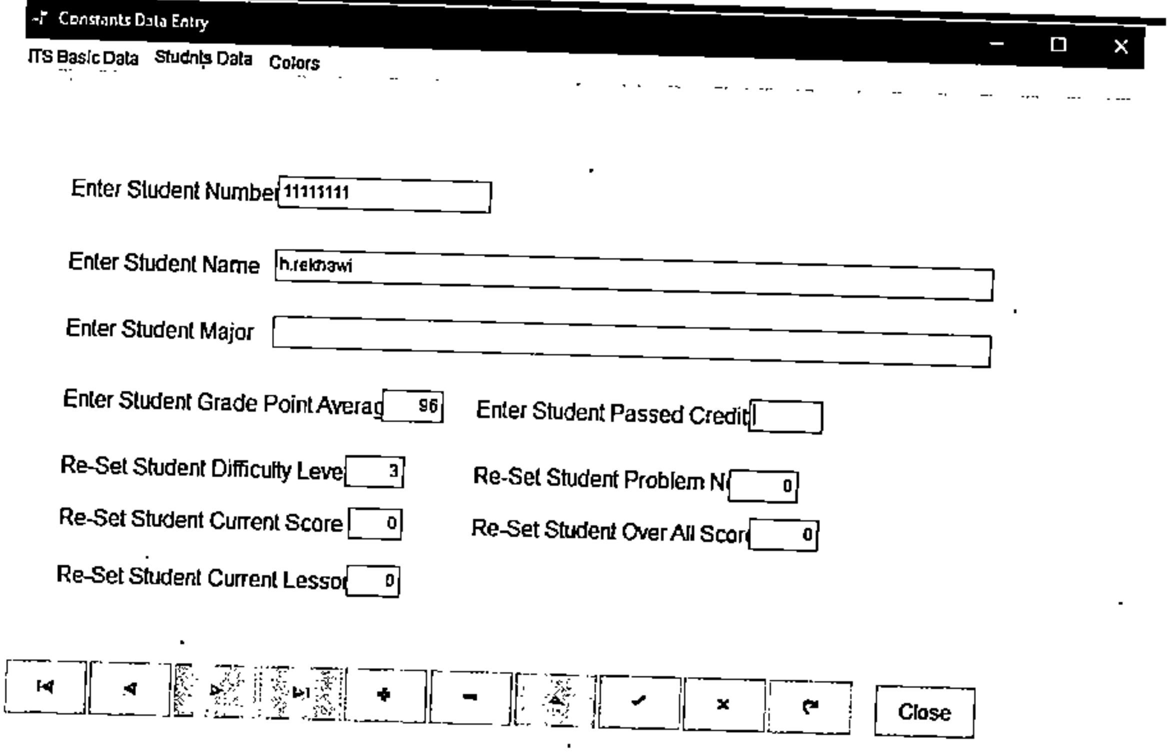
Figure 2. The Login User Interface.



Welcome to Droid Tutor System

Android Course Outline
1 Android Overview and history
1.1 Mobile phones revolution
1.2 Introduction to Android
1.3 Android Development Prerequisi
1.4 Android Development Environme
2. Basics Android User Interface
2.1 Android Application Components
2.2 Anatomy of Android Application
2.3 Android User Interface
2.4 Android UI Control
2.5 Activities and Lifecycle
2.6 Event Handling
2.7 Styles and Themes
2.8 Containers View
2.9 Menu Groups and Items

Figure 3. The Main User Interface.



Enter Student Number 11111111

Enter Student Name h.reknawi

Enter Student Major

Enter Student Grade Point Averag 96

Enter Student Passed Credit

Re-Set Student Difficulty Leve 3

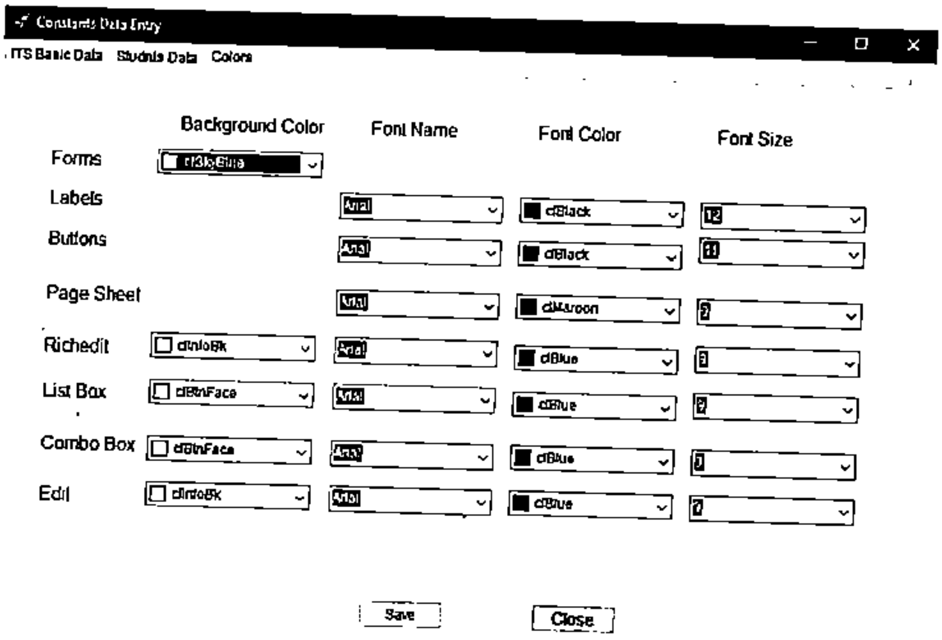
Re-Set Student Problem N 0

Re-Set Student Current Score 0

Re-Set Student Over All Scor 0

Re-Set Student Current Lesso 0

Figure 4. Student Data Interface.



	Background Color	Font Name	Font Color	Font Size
Forms	clSkyBlue			
Labels		Arial	clBlack	12
Buttons		Arial	clBlack	11
Page Sheet		Arial	clMaroon	[illegible]
Richedit	clInfoBk	Arial	clBlue	[illegible]
List Box	clBtnFace	Arial	clBlue	[illegible]
Combo Box	clBtnFace	Arial	clBlue	[illegible]
Edit	clInfoBk	Arial	clBlue	[illegible]

Figure 5. Controls Fonts and Colors User Interface.

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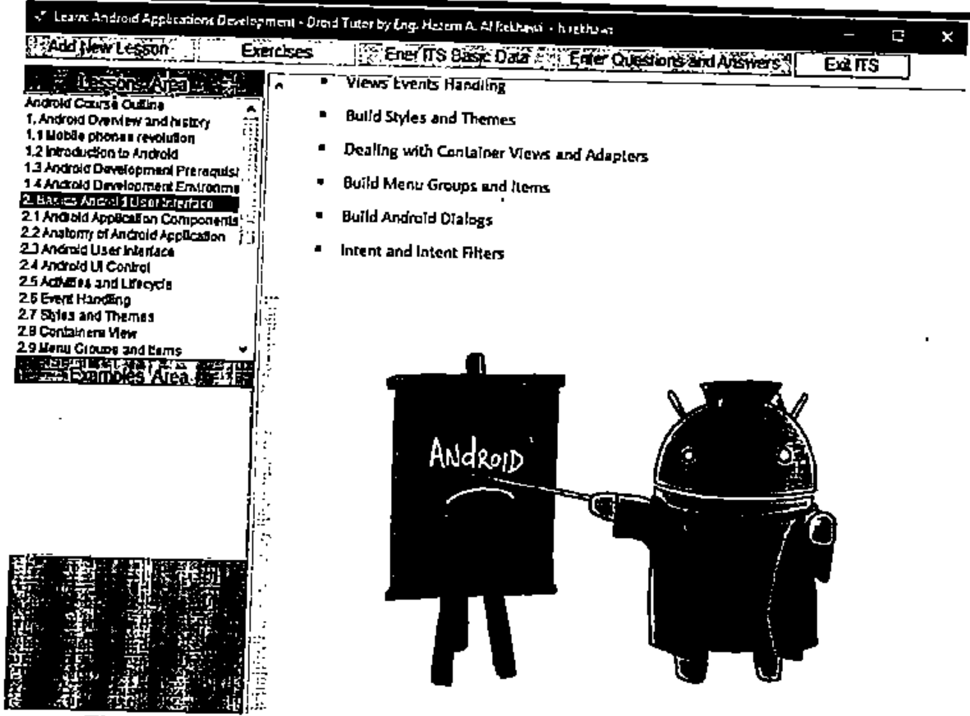
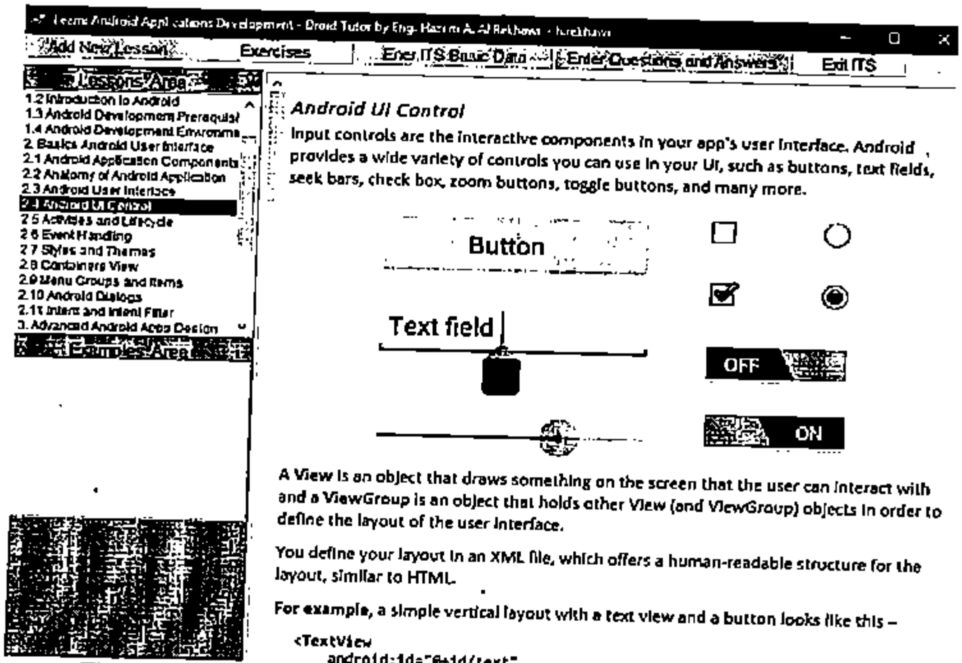


- Views Events Handling
- Build Styles and Themes
- Dealing with Container Views and Adapters
- Build Menu Groups and Items
- Build Android Dialogs
- Intent and Intent Filters

Figure 6. Learning Material Android Applications Development Screenshot 1.



Android UI Control

Input controls are the interactive components in your app's user interface. Android provides a wide variety of controls you can use in your UI, such as buttons, text fields, seek bars, check box, zoom buttons, toggle buttons, and many more.

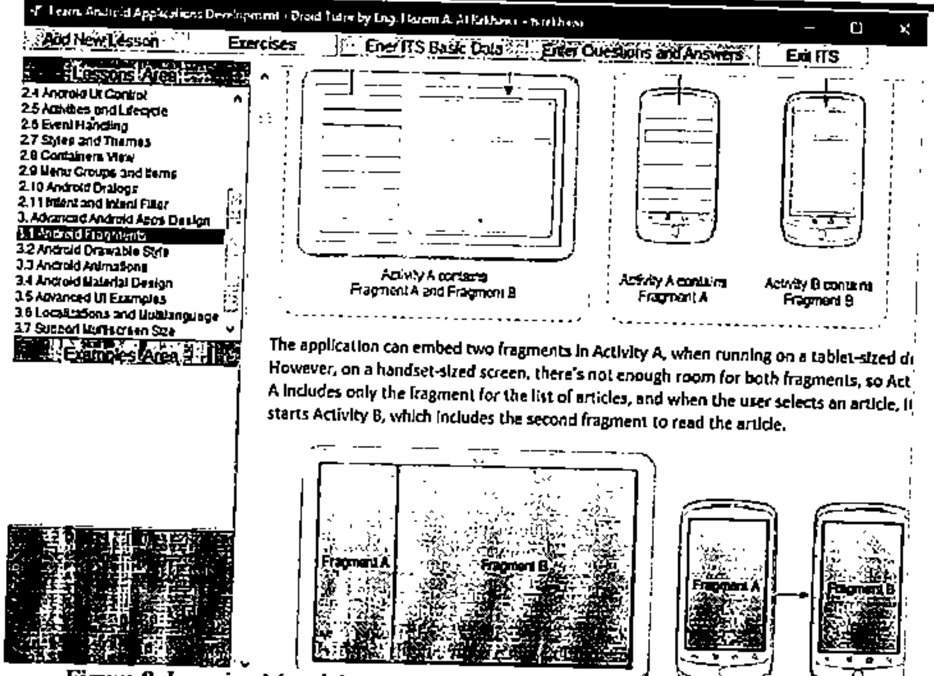
A View is an object that draws something on the screen that the user can interact with and a ViewGroup is an object that holds other View (and ViewGroup) objects in order to define the layout of the user interface.

You define your layout in an XML file, which offers a human-readable structure for the layout, similar to HTML.

For example, a simple vertical layout with a text view and a button looks like this –

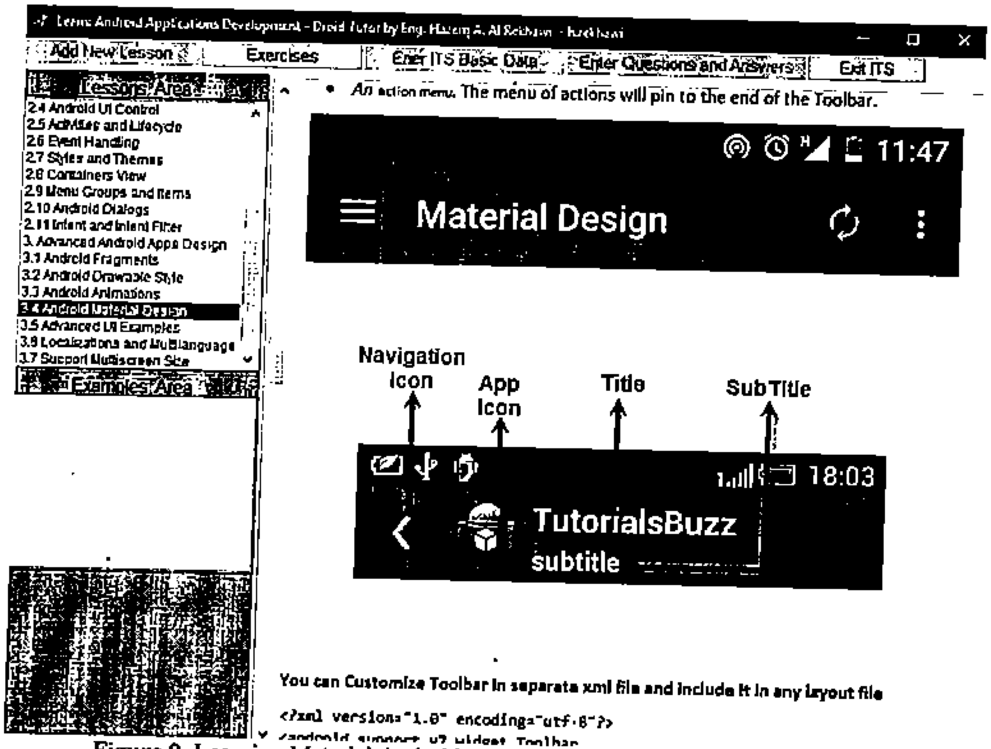
```
<TextView
     android:id="@+id/text"
```

Figure 7. Learning Material Android Applications Development Screenshot 2.



The application can embed two fragments in Activity A, when running on a tablet-sized d
However, on a handset-sized screen, there's not enough room for both fragments, so Act
A includes only the fragment for the list of articles, and when the user selects an article, it
starts Activity B, which includes the second fragment to read the article.

Figure 8. Learning Material Android Applications Development Screenshot 3.

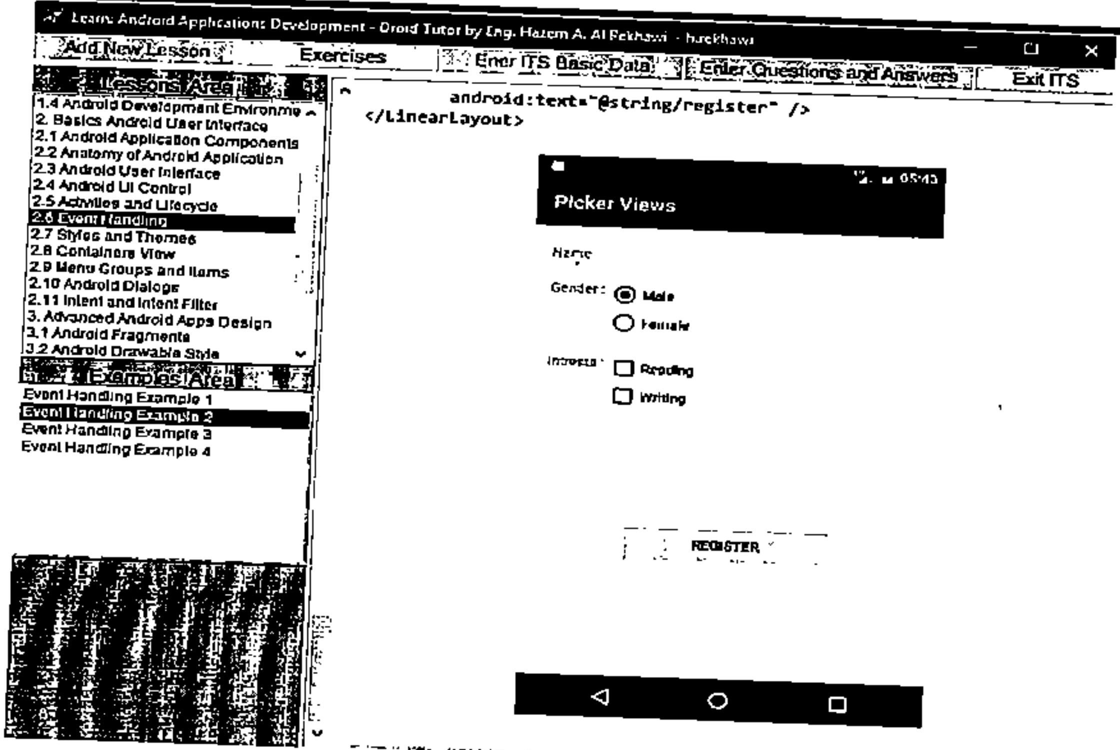


- An action menu. The menu of actions will pin to the end of the Toolbar.

You can Customize Toolbar in separate xml file and include it in any layout file

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.v7.widget.Toolbar
```

Figure 9. Learning Material Android Applications Development Screenshot 4.



```
        android:text="@string/register" />
</LinearLayout>
```

Figure 10. Examples of Lessons User Interface.

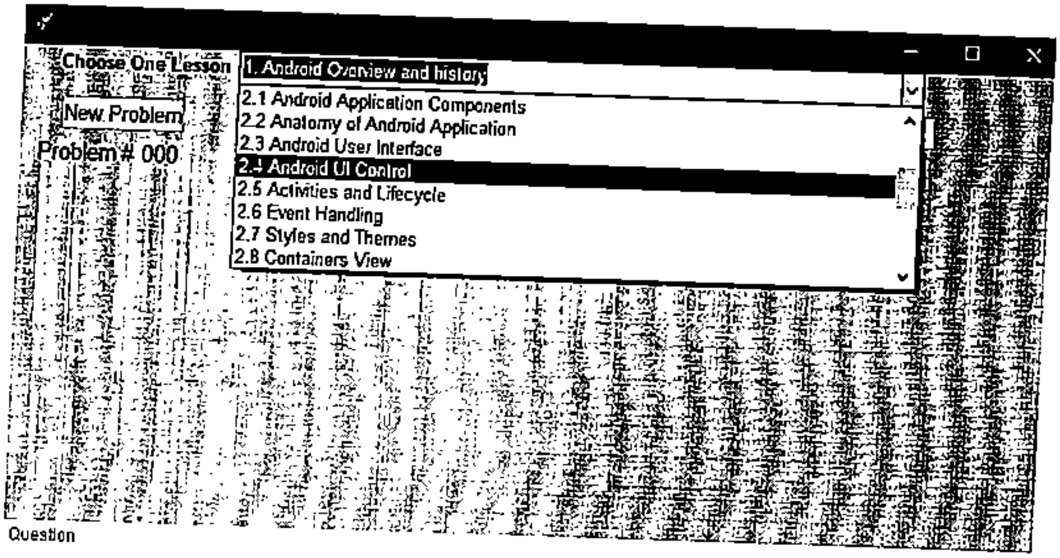


Figure 11. Exercises and Questions User Interface.

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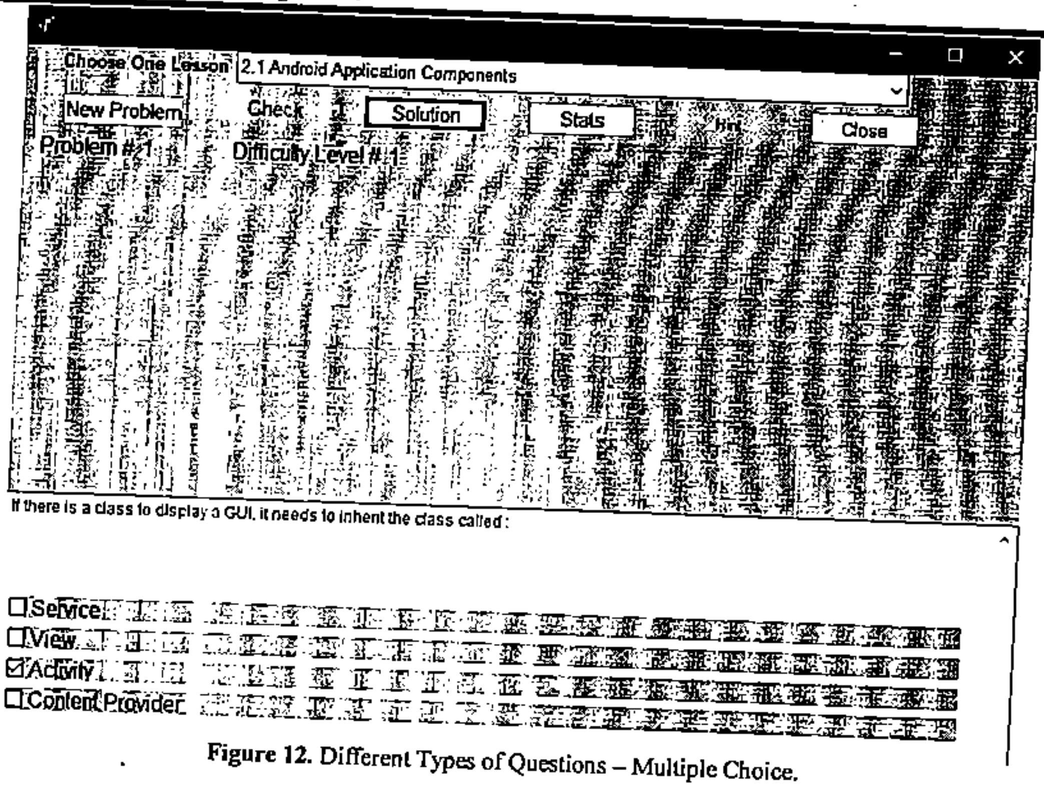
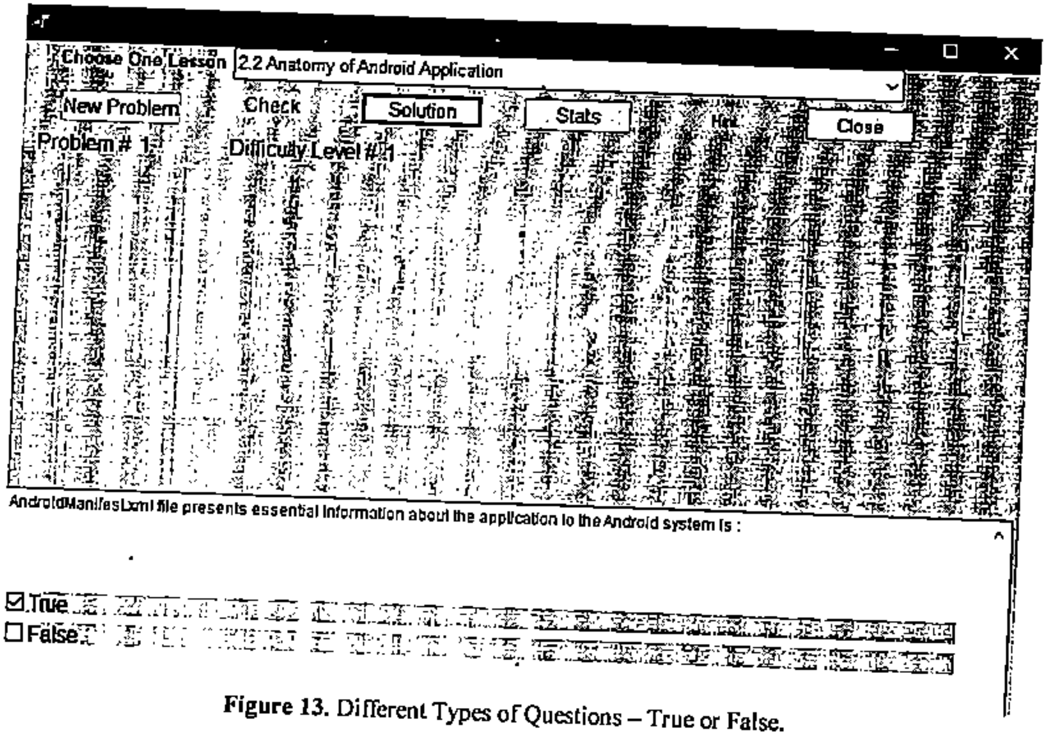


Choose One Lesson: 2.1 Android Application Components

If there is a class to display a GUI, it needs to inherit the class called :

☐ Service
☐ View
☑ Activity
☐ Content Provider

Figure 12. Different Types of Questions – Multiple Choice.

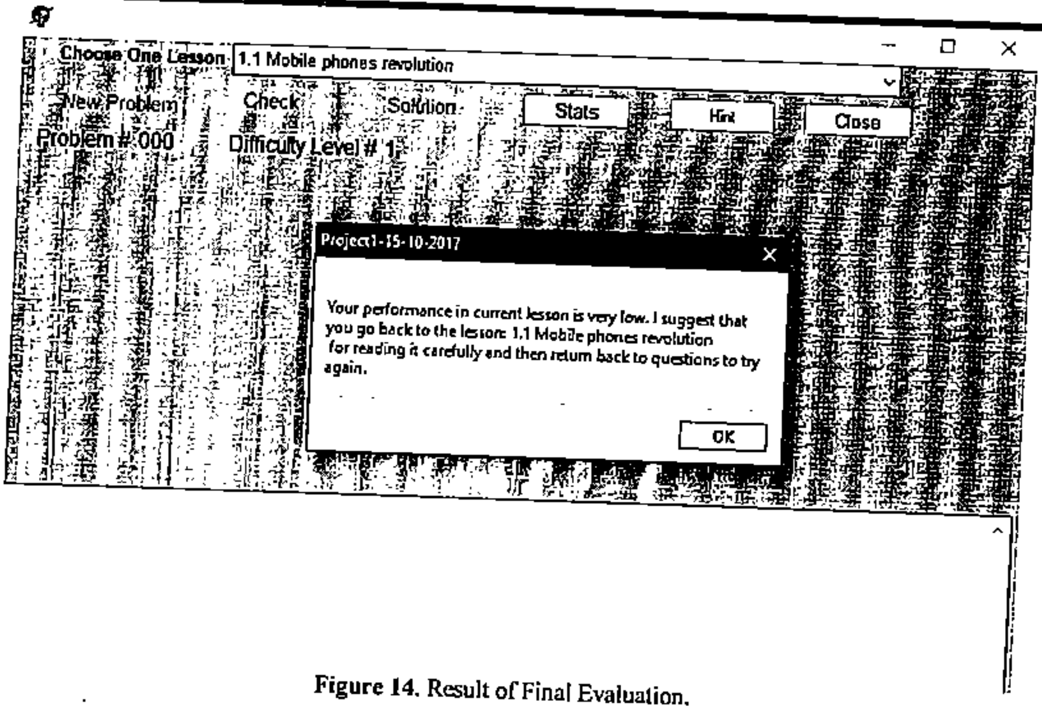


Choose One Lesson: 2.2 Anatomy of Android Application

AndroidManifest.xml file presents essential information about the application to the Android system is :

☑ True
☐ False

Figure 13. Different Types of Questions – True or False.



Your performance in current lesson is very low. I suggest that you go back to the lesson: 1.1 Mobile phones revolution for reading it carefully and then return back to questions to try again.

Figure 14. Result of Final Evaluation.

5. EVALUATION OF THE DROID-TUTOR

An initial evaluation of the Droid-tutor was carried out by the lecturers and their students who enrolled in android applications development course during the first semester of 2017/2018 in Mobile Applications Development Department at University College of Applied Sciences in Gaza. A questioner consisting of the items in table 1 was filled out by each evaluator (Lecturers and Students). A group of 4 lecturers and 25 students participated in the evaluation of the system. Table 1 shows the overall rating of the lecturers and students who evaluated the system.

Table 1: Shows the rating of the of the Droid-Tutor by lecturers and students

Item #	Item	Rating %	
		Lecturers	**Students**
1	The Quality of the Droid-Tour Design	94%	96%
2	The importance of the topic covered (Android Applications Development)	96%	98%
3	Would you benefit from using the Droid-Tutor?	92%	98%
4	Do you recommend using Droid-Tutor for android applications development course as a supportive tool?	100%	100%
5	Would you like to see similar tutoring system in other courses?	100%	100%

Form the summary of Table 1, the evaluation of the Droid-Tutor showed a positive impact on the evaluators (Lecturers and students). Furthermore, they recommend that similar systems for other courses to be implemented.

6. CONCLUSIONS AND FUTURE WORKS

The design of an Intelligent Tutoring System called Droid-Tutor was described in this paper. Droid-Tutor was designed for teaching Android Applications Development to students to overcome their difficulties. Droid Tutor presents the topic of Android Applications Development to the student and administers automatically generated problems for him to solve. Droid-Tutor is dynamically adapted at run time to the student's individual progress. An initial evaluation of Droid-Tutor was carried out by the lecturers and students taken the Android Applications Development course in the University College of Applied Sciences in Gaza. The outcome of the evaluation was positive and suggested that other intelligent tutoring systems be designed for other courses. We recommend a comprehensive evaluation of the system to be carried out next time the course is offered.

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[56] Android Tutorial Point website. https://www.androidtutorialpoint.com/
[57] Google page on GitHub site. https://github.com/googlesamples
[58] Mobile development category at tuts plus website. https://code.tutsplus.com/categories/mobile-development
[59] Android Development by Vogella Website. http://www.vogella.com/tutorials/android.html
[60] Full Android Development Course by tutorials point website https://www.tutorialspoint.com/android/

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

Computer

CLASS : Second year **SEM- I** **ACADEMIC YEAR 2018-19**

Date: 6/10/18

Attendance Fast learner

Title of activity 2		Hands on Practical Assignment
ROLL NO	NAME	Topics
21510620181124510056	VAIBHAVI SARJERAO PATIL	Implementation of various Linked List algorithms such as insertion , deletion, reverse , search, count number of nodes etc
21510620181124510058	NISHA BHAGWAN CHAUDHARI	
21510620171124510002	DUHITA SUHAS NEVE	
21510620171124510016	AKSHADA NILESH BADGUJAR	Implementation of various Tree algorithms such as insertion, preorder, inorder, postorer traversals
21510620171124510021	SONALI PRAMOD SONAWANE	
21510620171124510041	SHUBHANGI PRAVIN SONAR	

Coordinator

Nimale

H.O.D.
Computer

Activity2

Program for tree traversal

```
#include <stdio.h>
#include <stdlib.h>

struct node {
   int data;

   struct node *leftChild;
   struct node *rightChild;
};

struct node *root = NULL;

void insert(int data) {
   struct node *tempNode = (struct node*) malloc(sizeof(struct
node));
   struct node *current;
   struct node *parent;

   tempNode->data = data;
   tempNode->leftChild = NULL;
   tempNode->rightChild = NULL;

   //if tree is empty
   if(root == NULL) {
      root = tempNode;
   } else {
      current = root;
      parent = NULL;

      while(1) {
         parent = current;

         //go to left of the tree
         if(data < parent->data) {
            current = current->leftChild;

            //insert to the left
            if(current == NULL) {
               parent->leftChild = tempNode;
               return;
            }
         }  //go to right of the tree
         else {
            current = current->rightChild;

            //insert to the right
            if(current == NULL) {
               parent->rightChild = tempNode;
               return;
            }
         }
      }
   }
}

struct node* search(int data) {
   struct node *current = root;
```

```
      printf("Visiting elements: ");

      while(current->data != data) {
         if(current != NULL)
            printf("%d ",current->data);

         //go to left tree
         if(current->data > data) {
            current = current->leftChild;
         }
         //else go to right tree
         else {
            current = current->rightChild;
         }

         //not found
         if(current == NULL) {
            return NULL;
         }
      }

      return current;
   }

   void pre_order_traversal(struct node* root) {
      if(root != NULL) {
         printf("%d ",root->data);
         pre_order_traversal(root->leftChild);
         pre_order_traversal(root->rightChild);
      }
   }

   void inorder_traversal(struct node* root) {
      if(root != NULL) {
         inorder_traversal(root->leftChild);
         printf("%d ",root->data);
         inorder_traversal(root->rightChild);
      }
   }

   void post_order_traversal(struct node* root) {
      if(root != NULL) {
         post_order_traversal(root->leftChild);
         post_order_traversal(root->rightChild);
         printf("%d ", root->data);
      }
   }

   int main() {
      int i;
      int array[7] = { 27, 14, 35, 10, 19, 31, 42 };

      for(i = 0; i < 7; i++)
         insert(array[i]);

      i = 31;
      struct node * temp = search(i);
```

```
    if(temp != NULL) {
      printf("[%d] Element found.", temp->data);
      printf("\n");
    }else {
      printf("[ x ] Element not found (%d).\n", i);
    }

    i = 15;
    temp = search(i);

    if(temp != NULL) {
      printf("[%d] Element found.", temp->data);
      printf("\n");
    }else {
      printf("[ x ] Element not found (%d).\n", i);
    }

    printf("\nPreorder traversal: ");
    pre_order_traversal(root);

    printf("\nInorder traversal: ");
    inorder_traversal(root);

    printf("\nPost order traversal: ");
    post_order_traversal(root);

    return 0;
}
```

Activity 2

```
//PGM FOR DOUBLY LINKED LIST TO INSERT NODE FOR PARTICULAR
POSITION
#include<stdio.h>
#include<stdlib.h>
void deletb();
void insertb();
void deletp();
void insertp();
void deletee();
void inserte();
void show();
void reverse();
void search();
void Length();
struct link
{
  int info;
  struct link *next,*prev;
};
   struct link *start=NULL;
   struct link *end=NULL;
   struct link *temp,*move,*back;
   int pos,count,item,no;
  void main()
  {
   int ch;
   //clrscr();
       printf("\n*****MAIN MENU*****\n");
       printf("1 : Insert at begining\n");
       printf("2 : Insert at particular position\n");
       printf("3 : Insert at end\n");
       printf("4 : Delete from begining\n");
       printf("5 : Delete from particular position\n");
       printf("6 : Delete from end\n");
       printf("7 : Show :Forward\n");
       printf("8 : Show :Reverse\n");
       printf("9: Search\n");
       printf("10 : Exit \n************************");
do{
printf("\n\nEnter Your Choice \n");
scanf("%d",&ch);
switch(ch)
{
  case 1 :  insertb();  break;
  case 2 :  insertp();  break;
  case 3 :  inserte();  break;
  case 4 :  deletb();   break;
  case 5 :  deletp();  break;
  case 6 :  deletee(); break;
  case 7 :  show();    break;
  case 8 :  reverse(); break;
  case 9 :  search();  break;
  case 10 :  exit(0);
  default: printf("Incorrect Choice...");
  }
  }while(ch!=10);
  }
```

```
        void insertb()
        {
                                   temp=((struct link *)malloc
    (sizeof(struct link)));
                                 printf("\nEnter Value to be inserted
    in node==>");
                             scanf("%d",&no);
                             temp->info=no;
                             temp->next=NULL;
                             temp->prev=NULL;
                               if(start==NULL)
                             {
                               start=temp;
                               end=temp;
                             }
                             else

                               {
                                   temp->next=start;
                                   start->prev= temp;
                                   start=temp;
                             }
                printf("\n %d Successfully inserted at
    Begining",no);

       }
    void inserte()
       {
                              temp=((struct link *)malloc(sizeof
    (struct link)));
                              printf("\nEnter Value into node to
    inserted==>");
                           scanf("%d",&no);
                           temp->info=no;
                           temp->next=NULL;
                           temp->prev=NULL;

                           if(end==NULL)
                             end=start=temp;
                            else
                            {
                             end->next=temp;
                             temp->prev=end;
                             end=temp;
                            }
               printf("\n%d Successfully inserted at end ",no);
      }
      void insertp()
      {

              temp=((struct link *)malloc(sizeof(struct link)));

                        printf("\nEnter Position==>");
                        scanf("%d",&pos);
                   printf("\nEnter Value into node to
  inserted==>");
```

```
                           scanf("%d",&no);
                           temp->info=no;
                           temp->next=NULL;
                           temp->prev=NULL;

                        if(start==NULL && pos !=1)
    printf("\n%d Cannot be inserted as Position should be I",no);
                          else
                           if(pos==1)
                          {
                            if(start==NULL)
                            {
                             start=temp;
                             end=temp;
                             }
                            else

                            {
                                 temp->next=start;
                                 start->prev=temp;
                                start=temp;
                               }

             printf("\n %d Successfully inserted at first
  position",no);
                         }
                        else
                         {
                         move=start;
                         count=1;
                         while((count<pos)&&(move->next!=NULL))
                         {
                              back=move;
                              move=move->next;
                                   count++;
                         }
                         if(count==pos)
                         {
                              back->next=temp;
                              temp->prev=back;
                          move->prev=temp;
                          temp->next=move;
      printf("\n%d Successfully inserted at pos %d",no,pos);
                        }
                        else
                        if(count==pos-1)
                       {
                        move->next=temp;
                        temp->prev=move;
                        end=temp;
           printf("\n%d Successfully inserted at last position
",no);
                      }
                  else
                    if(count<pos)
```

```
                       {
                         printf("Invaild position Input...");

                       }


                 }
                 }
  void deletb()

  {


                              //delete from I position
                        if(start==NULL)
                                  printf("List is empty..
  \nElement cannot be deleted..\n");
                        else
                        {
                          item=start->info;
                          if(start->next==NULL)
                              start=end=NULL;
                          else
                          {
                             start=start->next;
                             start->prev=NULL;
                          }
                        printf("Deleted element is...%d",item);
                    }
 }
 void deletee()
  {
 //delete from last
                       if(end==NULL)
       printf("\nList is empty..\nElement cannot be deleted..
 \n");

                       else
                    {
                       item=end->info;
                       if(end->prev==NULL)

                            start=end=NULL;
                       else
                        {
                         end=end->prev;
                         end->next=NULL;
                        }
                      printf("Deleted element is %d..",item);
                   }
}
void deletp()
{


                 printf("\nEnter Position==>");
                 scanf("%d",&pos);
                 if(pos==1)
                      {
                        if(start==NULL)
                              printf("Link list is Empty..");
```

```
                           else
                           {
                           item=start->info;
                           if(start->next==NULL)
                                         start=end=NULL;
                           else
                           {
                             start=start->next;
                             start->prev=NULL;
                           }
                          printf("Item Deleted is...%d",item);
                           }
                        }
                       else
                        {
                        move=start;
                        count=1;
                        while((count<pos)&&(move->next!=NULL))
                        {
                              back=move;
                              move=move->next;
                              count++;
                        }
                        if(count==pos)
                       {
                               if(move->next!=NULL)
                              {
                             item=move->info;
                             back->next=move->next;
                             (move->next)->prev=back;
                                       printf("\n %d
Successfully deleted from pos %d",item,pos);
                                }
                               else
                               {
                               item=move->info;
                               back->next=NULL;
                               end=back;
                                         printf("\nElement %d
Successfully delted from last ",item);
                               }
                      }
                        if(count<pos)
                            printf("Invaild pos...");
                }
       }
   void    show()
     {
       struct link *move;
       if(start==NULL)
       {
       printf("Link List Is Empty");

       }
       else
       {
```

```
           move=start;
           printf("Link List Elements Are==>\n");
           while(move!=NULL)
           {
            printf("%d\t",move->info);
            move = move->next;
         }
         }
         }
  void reverse()
  {
        struct link *move;
        if(end==NULL)
        {
        printf("Link List Is Empty");
        } .
        else
        {
         move=end;
         printf("Reverse Link List Elements Are==>\n");
         while(move!=NULL)
         {
          printf("%d\t",move->info);
          move = move->prev;
        }
         }
 }
void search()
{
       struct link *move;
       int item1,c=1,flag=0;
       printf("\nEnter the item to search.\n");
       scanf("%d",&item1);
       if(start==NULL)
            printf("Link List Is Empty");
       else
          {
         move=start;
         while(move!=NULL&&flag==0)
         {
           if(move->info==item1)
              flag=1;
          else
          {
            c++;
            move = move->next;
          }
       }
        }
      if(flag==0)
         printf("\nItem not present..") ;
      else
      printf("Item found at pos %d",c);
}
```

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

Computer

CLASS : Second year

SEM- I

ACADEMIC YEAR 2018-19

Date :20/10/18

Attendance Fast learner

Title of activity 3		Case Study
ROLL NO	NAME	Topics
2151062018112451 0056	VAIBHAVI SARJERAO PATIL	Software Quality and Reliability
21510620181124510058	NISHA BHAGWAN CHAUDHARI	
21510620171124510002	DUHITA SUHAS NEVE	
21510620171124510016	AKSHADA NILESH BADGUJAR	Data Mining Application in Ecommerce
21510620171124510021	SONALI PRAMOD SONAWANE	
21510620171124510041	SHUBHANGI PRAVIN SONAR	

Coordinator

H.O.D.
Computer

"Transforming Lives, Inventing Future"

A
Case Study
On

SOFTWARE QUALITY AND RELIABILITY

By

Vaibhavi Sarjerao Patil
Nisha Bhagwan Chaudhari
Duhita Suhas Neve

Department of Computer Engineering
K.C.E. S's College of Engineering & Information Technology,
Jalgaon (M.S.)
Year 2018 - 2019
Sem I

"Transforming Lives, Inventing Future"

A
Case Study
On
DATA MINING APPLICATION IN ECOMMERCE

By

Akshada N. Badgujar
Sonali P. Sonawane
Shubhangi P. Sonar

Department of Computer Engineering
K.C.E. S's College of Engineering & Information Technology,
Jalgaon (M.S.)

Year 2018 - 2019
Sem I

K.C.E. SOCIETY's

COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

DEPARTMENT OF COMPUTER ENGINEERING

Academic Year 2018-19 SEM – I

DATE: 15/9/2018

Important Notice

Remedial lectures have been arranged for the students having less marks in Mid Sem Examination of A.Y 2018-19 Sem I. Subject wise schedule for remedial lectures will be displayed on notice board.

MSE Coordinator

Mrs. Pooja V. Naval

HOD

Mrs. Minal. T. Kolhe

K. C. E. Society's
COLLEGE OF ENGINEERING & I.T., Jalgaon
DEPARTMENT OF COMPUTER ENGINEERING

SEM : I YEAR : 2018-19 Remedial Time Table

CLASS : Second year **CLASS ROOM NO. 205**

Wef :- 17/09/2018

Time / Day	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
.00 TO 10:00						
10:00 TO 11:00						DM
11:00 TO 11:10	**RECESS 1**					
11:10 TO 12:10						DS
12:10 TO 1:10						CAO
1:10TO 1:45	**RECESS 2**					
1:45 TO 2:45						
2:45 TO 3:45						
5 TO 4:45	M-III	M-III	DEM	DEM	CAO	

SUBJECT	**THEORY**
CAO	AVINASH SURYAWANSHI
DM	AVINASH SURYAWANSHI
DEM	LEENA WAGHULDE
DS	POOJA NAVAL
M-III	SUNANDA PATIL

TIME TABLE INCHARGE		HOD-COMP
Ms. H.V. Talele	Ms. P. V. Naval	Mrs.MINAL KOLHE

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON - 425001
Department Of Computer Engineering
Academic Year 2018-2019 SEM - I
REMEDIAL LECTURES AFTER MID SEM EXAM

Second year

SUB-DEM

ROLL NO.	NAME OF STUDENTS	DATES														
		18/9	20/9	27/9	3/10	4/10	10/10	11/10	17/10	24/10	25/10					
21510620171124510007	NIKHIL PRAKASH TIWARI	P	P	P	P	P	P	P	P	P	P					
21510620171124510005	DAMINI SATISH PATIL	P	P	P	P	P	P	P	P	P	P					
21510620181124510064	SHRADDHA SUNIL RAUL	P	A	A	P	P	A	P	P	P	P					
21510620181124510078	JAYASHRI PRABHAKAR MARATHE	P	P	P	A	P	P	A	P	A	P					
21510620181124510069	PATIL SHUBHAM BHAGWAN	P	P	P	P	P	P	P	P	P	P					
21510620181124510065	ASHISH GANESH MISHRA	A	P	P	P	P	P	P	P	P	P					
21510620171124510009	VIVEK KISHOR TALELE	P	P	P	P	P	P	P	P	P	A					
21510620171124510010	HEMANT DINKAR GOSAVI	P	P	A	A	P	P	P	P	P	P					
21510620181124510077	NILIMA VIKAS PATIL	P	A	P	A	P	A	P	P	P	P					
21510620181124510075	RANE SURAJ SUNIL	P	P	P	P	P	P	P	P	P	P					
21510620181124510079	POOJA KRISHNANAND RANE	P	P	P	A	P	P	P	P	P	P					
21510620171124510006	DHANSHRI NATHU MALI	A	P	P	P	A	P	P	P	P	A					
21510620171124510014	ANAM MOHD IQBAL	P	P	A	P	P	A	P	P	P	P					
21510620171124510026	JIVHESH MILIND SALI	P	P	P	P	P	P	P	P	P	P					
21510620171124510048	SHARADA SANTOSH AHIRE	P	A	P	P	P	P	P	P	P	P					
21510620171124510029	VIVEK MANOHAR PATIL	P	P	P	A	P	A	P	P	P	P					
21510620171124510024	MADHURI VASUDEV TELI	A	P	A	P	P	P	A	P	A	P					
21510620171124510031	KRISHNA VIRENDRA MAHAJAN	A	P	P	P	P	P	P	P	P	A					
21510620181124510059	HARSHALI GANESH JANGLE	P	A	P	P	P	P	P	P	P	P					
21510620181124510068	SWARALI VIJAY KULKARNI	P	P	P	P	P	P	P	P	P	P					
21510620171124510027	CHETASHREE SUNIL ZAMBRE	P	P	P	P	P	P	P	P	P	P					
21510620181124510076	KAVITA DILIP PATIL	P	P	A	P	P	P	A	A	P	P					
21510620171124510034	MAYUR PRALADH PATIL	P	P	P	P	A	A	P	P	P	P					

SUBJECT INCHARGE

L.R. Waghulde

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering
Academic Year 2018-2019 SEM – I
REMEDIAL LECTURES AFTER MID SEM EXAM

Second year

SUB- CAO

PRN NO.	NAME OF STUDENTS	DATES														
		21/9	22/9	28/9	29/9	5/10	6/10	12/10	13/10	19/10	20/10					
2151062017I124510009	VIVEK KISHOR TALELE	P	P	P	P	P	P	P	P	P	P					
2151062017I124510010	HEMANT DINKAR GOSAVI	P	P	P	P	P	P	P	P	P	P					
2151062018I124510036	SWATI GULABRAO PATIL	P	P	P	P	P	P	P	A	P	P					
2151062017I124510034	MAYUR PRALADH PATIL	P	P	A	P	P	P	A	P	P	P					
2151062017I124510037	PRAJAKTA AVINASH ASODEKAR	A	P	P	P	P	P	P	P	P	P					
2151062017I124510028	DIKSHITA YOGENDRA ATTARDE	P	P	P	P	P	P	P	P	P	P					
2151062017J124510023	SHREYASH ABHAY PATIL	P	P	P	A	P	P	P	P	P	P					
2151062018I124510080	PATIL BHAUSAHEB SITARAM	P	P	P	P	P	P	A	P	P	P					

SUBJECT INCHARGE
A. V. Suryawanshi

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering
Academic Year 2018-2019 SEM – I
REMEDIAL LECTURES AFTER MID SEM EXAM

Second year

SUB- DS

PRN NO.	NAME OF STUDENTS	DATES														
		22/9	29/9	6/10	13/10	20/10										
21510620171124510034	MAYUR PRALADH PATIL	P	P	P	P	P										
21510620171124510037	PRAJAKTA AVINASH ASODEKAR	P	P	P	P	A										

SUBJECT INCHARGE
P.V. Naval

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON - 425001
Department Of Computer Engineering
Academic Year 2018-2019 SEM – I
REMEDIAL LECTURES AFTER MID SEM EXAM

Second year

SUB- DM

PRN NO.	NAME OF STUDENTS	DATES														
		22/9	29/9	6/10	13/10	20/10										
21510620181124510065	ASHISH GANESH MISHRA	P	P	P	P	P										
21510620171124510026	JIVHESH MILIND SALI	P	P	P	P	A										

SUBJECT INCHARGE
H. V. Talele

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

Department Of Computer Engineering

Academic Year 2018-2019 SEM – I

EXTRA LECTURES AFTER MID SEM EXAM

Second year

SUB- M-III

PRN NO.	NAME OF STUDENTS	DATES														
		17/9	18/9	24/9	25/9	1/10	8/10	9/10	15/10	16/10						
2151062018l124510078	JAYASHRI PRABHAKAR MARATHE	P	A	P	P	P	P	P	P	P						
2151062018l124510063	EKTA LAXMAN PATIL	P	P	P	P	P	A	P	P	P						
2151062018l124510080	PATIL BHAUSAHEB SITARAM	P	P	P	P	P	P	P	P	P						
2151062018l124510065	ASHISH GANESH MISHRA	P	P	P	A	P	P	P	P	P						
2151062018l124510069	PATIL SHUBHAM BHAGWAN	P	P	A	P	P	P	P	P	P						
2151062018l124510066	MAYUR BALU KOLI	P	A	P	P	P	P	P	P	P						
2151062018l124510064	SHRADDHA SUNIL RAUL	P	A	P	A	P	P	P	A	P						
2151062017l124510009	VIVEK KISHOR TALELE	P	P	A	P	P	P	P	P	P						
2151062017l124510010	HEMANT DINKAR GOSAVI	P	P	P	P	P	P	P	P	P						
2151062017l124510026	JIVHESH MILIND SALI	P	P	P	A	P	P	P	P	P						
2151062018l124510054	PRANJAL GULAB MORE	P	P	A	P	P	P	A	P	P						
2151062018l124510035	MAHIMA PANDHARINATH MALI	P	P	P	P	P	P	P	P	P						
2151062017l124510027	CHETASHREE SUNIL ZAMBRE	P	P	P	P		P	P	P	P						
2151062018l124510053	GEETA SHANTARAM BHOI	P	P	P	P	P	P	P	P	P						
2151062018l124510037	SUVARNA YASHWANT PATIL	P	P	P	P	P	P	P	P	P						

SUBJECT INCHARGE
S.R. Patil

K.C.E. SOCIETY's

COLLEGE OF ENGINEERING & I.T. JALGAON – 425001

DEPARTMENT OF COMPUTER ENGINEERING & IT

Academic Year 2018-19 SEM – II

DATE: 16|3|2019

Important Notice

Remedial lectures have been arranged for the students having less marks in Mid Sem Examination of 2018-19 Sem II. Subject wise schedule for remedial lectures will be displayed on notice board.

Minal

MSE Coordinator

Mrs. Pooja V. Naval

HOD

Mrs. Minal. T. Kolhe

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., Jalgaon

DEPARTMENT OF COMPUTER ENGINEERING

SEM : II YEAR : 2018-19 REMEDIAL LECTURES

CLASS : SE (COMP) **CLASS ROOM NO. (Morn: 205 Noon:206)**

WEF :- 21/03/2019

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
09:00 TO 10:00						
10:00 TO 11:00						
11:00 TO 11:45						
11:45 TO 12:45						
12:45 TO 1:45						
1:45 TO 2:00	RECESS 2					
02:00 TO 03:00						OOP
03:00 TO 04:00						OS
04:00 TO 05:00	Prob. & Stat.	Prob. & Stat.	DAA	DAA	OS	SS

SUBJECT	THEORY
DAA	AVINASH SURYAWANSHI
OS	PRADNYA VIKHAR
OOP	RUPALI ZAMBRE
SS	PRIYANSHI BORASE
Prob. & Stat.	SUNANDA PATIL

TIME TABLE INCHARGE	HOD-COMP
Ms.POOJA NAVAL	Mrs.MINAL KOLHE
Ms. HARSHA TALELE	

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering
Academic Year 2018-2019 SEM – II
REMEDIAL LECTURES AFTER MID SEM EXAM

Second year

SUB- OS

PRN NO.	NAME OF STUDENTS	DATES														
		29/3	30/3	5/4	12/4	20/4										
2151062017l124510034	MAYUR PRALADH PATIL	P	P	P	P	P										
2151062017l124510031	KRISHNA VIRENDRA MAHAJAN	P	P	P	P	P										
2151062017l124510037	PRAJAKTA AVINASH ASODEKAR	P	P	P	P	P										
2151062017l124510029	VIVEK MANOHAR PATIL	P	P	P	P	P										
2151062017l124510009	VIVEK KISHOR TALELE	P	P	P	A	P										
2151062017l124510028	DIKSHITA YOGENDRA ATTARDE	P	P	P	P	P										
2151062017l124510010	HEMANT DINKAR GOSAVI	P	P	P	P	A										
2151062017l124510023	SHREYASH ABHAY PATIL	P	P	P	P	P										
2151062017l124510007	NIKHIL PRAKASH TIWARI	P	A	P	P	P										
2151062017l124510011	NEHA SUNIL PATIL	P	P	P	P	P										
2151062018l124510064	SHRADDHA SUNIL RAUL	P	P	P	P	P										

SUBJECT INCHARGE
P. A. Vilchar

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering
Academic Year 2018-2019 SEM – II
REMEDIAL LECTURES AFTER MID SEM EXAM

Second year

SUB- DAA

PRN NO.	NAME OF STUDENTS	DATES													
		27/3	28/3	3/4	4/4	10/4	11/4	18/4	24/4	25/4					
21510620181124510066	MAYUR DALU KOLI	P	P	P	P	P	P	P	P	P					
21510620181124510063	EKTA LAXMAN PATIL	P	P	P	P	P	P	P	P	P					
21510620171124510037	PRAJAKTA AVINASH ASODEKAR	P	P	P	P	P	A	P	P	P					
21510620171124510048	SHARADA SANTOSH AHIRE	P	P	P	P	P	P	P	A	P					
21510620181124510064	SHRADDHA SUNIL RAUL	P	P	A	P	P	P	P	P	P					
21510620181124510079	POOJA KRISHNANAND RANE	P	P	P	P	P	P	P	P	P					
21510620171124510028	DIKSHITA YOGENDRA ATTARDE	P	P	P	P	P	P	P	P	P					
21510620171124510045	SNEHAL YUVRAJ PATIL	P	P	P	P	P	P	P	P	P					
21510620181124510054	PRANJAL GULAB MORE	P	P	P	P	P	P	P	P	P					
21510620181124510049	KOMAL ISHWAR PATIL	P	A	P	P	A	P	P	P	A					
21510620181124510059	HARSHALI GANESH JANGLE	P	P	P	A	P	P	P	P	P					
21510620181124510067	KAJAL BHIKANSING NIKHUMB	P	P	P	P	P	P	P	P	P					
21510620181124510055	ASHWINI ANIL BHADANE	P	P	P	P	P	P	P	P	P					
21510620171124510025	SAVITA RAVINDRA BADGUJAR	P	P	P	P	P	P	P	P	P					
21510620181124510068	SWARALI VIJAY KULKARNI	P	P	A	P	P	P	P	P	P					
21510620181124510053	GEETA SHANTARAM BHOI	P	P	P	P	P	P	A	P	P					
21510620171124510034	MAYUR PRALADH PATIL	P	P	P	P	P	P	P	P	P					
21510620171124510009	VIVEK KISHOR TALELE	P	P	P	P	P	P	P	P	P					
21510620171124510026	JIVHESH MILIND SALI	P	P	P	P	P	P	P	P	P					
21510620171124510029	VIVEK MANOHAR PATIL	P	P	P	P	P	P	P	P	P					
21510620181124510077	NILIMA VIKAS PATIL	P	P	P	P	P	A	P	P	P					
21510620171124510010	HEMANT DINKAR GOSAVI	P	P	P	P	P	P	P	P	P					
21510620171124510038	MANISH CHANDRAKANT	P	P	P	P	P	P	P	A	P					
21510620181124510036	SWATI GULABRAO PATIL	P	P	P	A	A	P	P	P	P					
21510620181124510051	PUJA GUNWANT WANI	P	A	P	P	P	P	P	P	P					
21510620181124510078	JAYASHRI PRABHAKAR MARATHE	P	P	P	P	P	P	P	P	P					

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering
Academic Year 2018-2019 SEM – II
REMEDIAL LECTURES AFTER MID SEM EXAM

Second year

SUB- P&S

PRN NO.	NAME OF STUDENTS	DATES														
		25/3	26/3	1/4	2/4	8/4	9/4	15/4	16/4	22/4	23/4					
21510620171124510048	SHARADA SANTOSH AHIRE	P	P	P	P	P	P	P	P	P	P					
21510620171124510031	KRISHNA VIRENDRA MAHAJAN	P	P	P	P	P	P	P	P	P	P					
21510620171124510007	NIKHIL PRAKASH TIWARI	P	P	P	P	P	P	P	P	P	A					
21510620181124510066	MAYUR BALU KOLI	P	P	P	P	P	P	P	A	P	P					
21510620181124510063	EKTA LAXMAN PATIL	A	P	P	P	A	P	P	P	P	P					
21510620171124510034	MAYUR PRALADH PATIL	P	P	P	P	P	P	P	P	P	P					
21510620171124510009	VIVEK KISHOR TALELE	P	P	P	P	P	P	P	P	P	P					
21510620171124510010	HEMANT DINKAR GOSAVI	P	P	P	P	P	A	P	P	P	P					
21510620181124510036	SWATI GULABRAO PATIL	P	P	P	P	P	P	P	P	P	P					

SUBJECT INCHARGE
S. R. Patil

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering
Academic Year 2018-2019 SEM – II
REMEDIAL LECTURES AFTER MID SEM EXAM

Second year

SUB- OOP

PRN NO.	NAME OF STUDENTS	DATES														
		28/3	30/3	20/4	27/4											
21510620171124510026	JIVHESH MILIND SALI	P	P	P	P											
21510620171124510029	VIVEK MANOHAR PATIL	P	P	P	P											
21510620171124510009	VIVEK KISHOR TALELE	A	P	P	P											
21510620171124510034	MAYUR PRALADH PATIL	P	P	P	P											
21510620181124510077	NILIMA VIKAS PATIL	P	P	P	P											
21510620171124510023	SHREYASH ABHAY PATIL	P	P	P	P											
21510620171124510031	KRISHNA VIRENDRA MAHAJAN	P	A	P	P											

SUBJECT INCHARGE
Rupali S. Zambre

K.C.E. SOCIETY'S COLLEGE OF ENGINEERING & I.T. JALGAON – 425001
Department Of Computer Engineering
Academic Year 2018-2019 SEM – II
REMEDIAL LECTURES AFTER MID SEM EXAM

Second year

SUB- SS

PRN NO.	NAME OF STUDENTS	DATES														
		23/3	30/3	20/4	27/4											
2151062017I124510009	VIVEK KISHOR TALELE	P	P	P	P											
2151062017I124510034	MAYUR PRALADH PATIL	P	P	P	P											
2151062017I124510037	PRAJAKTA AVINASH ASODEKAR	P	P	P	P											

SUBJECT INCHARGE
Avinash Y. Surya

KCES's COLLEGE OF ENGINEERING & MANAGEMENT, JALGAON

DEPARTMENT OF MECHANICAL ENGINEERING

NOTICE

Date-09-09-2018

Following students of SE, TE & BE mechanical are hereby informed that there remedial lectures will start from 13 SEP. 2018 to end of next month so its mandatory to attend the remedial lectures of all subject. List is prepared student who secure less than 15 mark in class test

SR NO	NAME
1	NILESH B.PATIL
2	PATIL SACHINE B.
3	PATIL HITESH PANDURANG
4	Bhavsar shubham p

SR NO	NAME
1	FEGADE HEMANT
2	MAHAJAN G. NIMBA
3	BHOLE JUGAL
4	PAWAR DEVENDRA CHOTU
5	PATIL A.KAUTIK

SR NO	NAME
1	PATIL MAYUR ISHARWARLAL
2	KADAM AKSHAY CHANDRAKANT
3	PATIL SURYABHAN BHIMRAO
4	PATIL SAGAR ARUN
5	THAKUR HITESH BAPU

Class Teachers

HOD(Mech)

1) M. M. Nehete (SE)
2) S. m. Khaire (TE)
3) H. R. Nehete (BE)

KCES's COLLEGE OF ENGINEERING & MANAGEMENT, JALGAON

DEPARTMENT OF MECHANICAL ENGINEERING

NOTICE

Date-09-09-2018

Following students of SE, TE & BE mechanical are hereby informed that there extra activities will start from 13 SEP. 2018 to end of next month so its mandatory to attend all activities. List is prepared student who secure more than and equal to 18 mark in class test

SR NO	NAME
1	KOLHE VIDHY
2	DUSE PRATIKSHA
3	KIRAN BHOSALE
4	UMESH N PATIL.

SR NO	NAME
1	BHOGE ROHINI GOPAL
2	SINKAR
3	SUNASKAR A. SURESH
4	ZOPE MUGHDHA

SR NO	NAME
1	JANGID JONU JAYSING
2	KALE PRANAV
3	DESAI AANAD B.
4	PATIL DEVENDRA

HOD (Mech)

Class Teachers

1) M.M. Nehete (SE) MNehete
2) S.M. Khaire (TE)
3) H.R. Nehete (BE)

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., Jalgaon

MECHANICAL ENGINEERING DEPARTMENT

SEM : I **YEAR : 2018 - 19** **W.E.F. : 13/09/2018**

CLASS : SE **CLASS ROOM NO. : 006**

CLASS TEACHER: MR.M.M.NEHETE

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
9:00 TO 0:00 AM	FMM	MSM	M-III	THERMAL		
0:00 TO 1:00 AM						
1:00 TO [illegible] M	RECESS					
1:45 TO 12:45						
2:45 TO 1:45PM						
1:45 TO 02:00 M	RECESS					
2:00 TO 3:00PM						
3:00 TO 4:00PM						

ATCHES: S1: 01-15 S2 : 16 - 30 S3 : 31- 45 S4 : 46 -60 S5 : 61 -71

SUBJECT	THEORY	PRACTICALS	LAB
[illegible]M	MR. M.B.PAWAR		
MSM	MR.D.K.THAKUR		
M-III	MR. M.D.SALUNKE		
THERMAL	MR. K.B.PATIL		

CLASS TEACHER	TIME TABLE COORDINATOR	HOD
MR.M.M.NEHETE	MR. D.K. THAKUR	MR. M.D. SALUNKE

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., Jalgaon

MECHANICAL ENGINEERING DEPARTMENT

SEM : II **YEAR : 2018 - 19** **W.E.F. : 17/03/2019**

CLASS : SE **CLASS ROOM NO. -006**

CLASS TEACHER: MR.M.M.NEHETE

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
09:00 TO 10:00 AM	SOM	TOM-1	MP-1	NM		
10:00 TO 1:00 AM						
1:00 TO 11[illegible]M	RECESS					
1:45 TO 12:45						
2:45 TO 1:45PM						
1:45 TO 02:00 PM	RECESS					
2:00 TO 3:00PM						
3:00 TO 4:00PM						

ATCHES: S1: 01-15 S2 : 16 - 30 S3 : 31- 45 S4 : 46 -60 S5 : 61 -71

SUBJECT	THEORY	PRACTICALS	LAB
[illegible]P-1	MR D.S.PATIL		
TOM-1	MR.D.K.THAKUR		
NM	MR M.B.PAWAR		
SOM	MR M.D.SALUNKE		

CLASS TEACHER	TIME TABLE COORDINATOR	HOD
MR.M.M.NEHETE	MR. D.K. THAKUR	MR. M.D. SALUNKE

SE Mechanical evaluation for slow learner

		subject				
SR NO.	student name	FMM	MSM	M-III	MP-I	Avg.
1	Nikam nilesh	10	12	18	16	14
2	patil sachine B.	10	14	12	8	11
3	Patil Hitesh	8	12	10	8	10
4	bhavsar shubham	12	10	10	12	11
5	yavalkar prasad	8	10	12	8	10

COORDINATOR

HOD MECH.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT
CLASS : SE (MECH)
SEM- I
ACADEMIC YEAR 2018-19
Subject : Fmm
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
DATES OF REM. LECTURE		17-9-18	23-9-18	24-9-18	30-9-18	1-10-18
1	NIKAM NILESH	A	P	P	P	P
2	PATIL SACHIN B.	P	P	A	P	P
3	PATIL HITESH P.	P	P	P	P	A
4	BHAVSAR SHUBHAM	P	P	A	A	P
5	YAVALKAR PRASAD	P	P	P	A	P

Subject teacher

H.O.D.
MECHANICAL

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT
SEM- I

CLASS : SE (MECH)
Subject : Fmm

ACADEMIC YEAR 2018-19
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
DATES OF REM. LECTURE		8-10-18	15-10-18	22-10-18	29-10-18	5-11-18
1	NIKAM NILESH	P	P	P	A	P
2	PATIL SACHIN B.	P	A	P	P	P
3	PATIL HITESH P.	P	P	P	A	P
4	BHAVSAR SHUBHAM	P	P	P	P	A
5	YAVALKAR PRASAD	P	A	P	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT
SEM- I

CLASS : SE (MECH)
Subject : MSM

ACADEMIC YEAR 2018-19
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
DATES OF REM. LECTURE		18-9-18	23-9-18	25-9-18	30-9-18	2-10-18
1	NIKAM NILESH	P	A	P	P	P
2	PATIL SACHIN B.	P	P	P	P	A
3	PATIL HITESH P.	P	P	P	A	P
4	BHAVSAR SHUBHAM	P	P	P	P	A
5	YAVALKAR PRASAD	P	P	A	P	P

(M)Nehete

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : SE (MECH)
Subject : msm

SEM- I

ACADEMIC YEAR 2018-19
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
DATES OF REM. LECTURE		9-10-18	16-10-18	23-10-18	30-10-18	6-11-18
1	NIKAM NILESH	P	A	P	P	P
2	PATIL SACHIN B.	P	P	P	A	P
3	PATIL HITESH P.	P	P	P	A	P
4	BHAVSAR SHUBHAM	P	A	P	P	P
5	YAVALKAR PRASAD	P	P	P	A	P

MNehete
Subject teacher

H.O.D.
MECHANICAL

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : SE (MECH)
SEM- I
ACADEMIC YEAR 2018-19

Subject : M - III

Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
DATES OF REM. LECTURE		19-9-18	23-9-18	26-9-18	30-9-18	3-10-18
1	NIKAM NILESH	P	A	P	P	P
2	PATIL SACHIN B.	P	P	P	P	A
3	PATIL HITESH P.	P	A	P	P	A
4	BHAVSAR SHUBHAM	P	P	P	P	A
5	YAVALKAR PRASAD	P	P	A	P	P

Subject teacher

H.O.D.
MECHANICAL

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : SE (MECH) SEM- I ACADEMIC YEAR 2018-19

Subject : m-III

Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
DATES OF REM. LECTURE		10-10-18	17-10-18	24-10-18	31-10-18	7-11-18
1	NIKAM NILESH	P	P	A	P	P
2	PATIL SACHIN B.	P	A	P	P	P
3	PATIL HITESH P.	P	P	P	A	P
4	BHAVSAR SHUBHAM	P	A	P	P	P
5	YAVALKAR PRASAD	P	P	P	A	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT
SEM- I

CLASS : SE (MECH)
Subject : MP- II

ACADEMIC YEAR 2018-19
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
DATES OF REM. LECTURE		20-9-18	23-9-18	27-9-18	30-9-18	4-10-18
1	NIKAM NILESH	P	P	A	P	A
2	PATIL SACHIN B.	P	A	P	P	A
3	PATIL HITESH P.	P	P	P	P	A
4	BHAVSAR SHUBHAM	P	P	A	P	P
5	YAVALKAR PRASAD	P	P	P	A	P

MNehete
Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : SE (MECH)
SEM- I
ACADEMIC YEAR 2018-19

Subject : MP-I

Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
	DATES OF REM. LECTURE	11-10-18	18-10-18	25-10-18	1-10-18	8-10-18
1	NIKAM NILESH	A	P	P	P	A
2	PATIL SACHIN B.	P	P	P	P	A
3	PATIL HITESH P.	P	A	P	P	P
4	BHAVSAR SHUBHAM	P	P	P	P	A
5	YAVALKAR PRASAD	P	P	P	P	A

Subject teacher

H.O.D.
MECHANICAL

SE Mechanical evaluation for fast learner (2018-19)

SR NO.	Name of student	FMM	MSM	M-III	MP-1	Avg.
01	Kolhe vidhy	17	18	18	17	18
02	Duse pratiksha	20	18	20	18	19
03	Kiran bhosale	20	18	18	17	19
04	Umesh patil	20	18	20	20	19

Coordinator

HOD

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : SE (MECH) SEM- I ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

	Title of activity	GD	Extra. pra.	Extra. pract.
	Date of activity	24-9-18	15-10-18	22-10-18
SR. NO	NAME	Activity 1	Activity 2	Activity 3
	KOLHE VIDHY	P	P	P
	DUSE PRATIKSHA	P	P	A
	KIRAN BHOSALE	P	P	P
	UMESH N. PATIL	P	P	P

Coordinator 1 Coordinator 2 Coordinator 3

H.O.D.
MECHANICAL

Name of The Activity : Group discussion for fast learner			
Date:	22/10/2018	**Department/ Committee**	Mechanical
Branch:	**Mechanical**	**Coordinator Name:**	Prof D.K.Thakur Prof.H.R.Nehete
Time:	10AM to 12 PM	**Activity for Class/group student Number**	SE Mechanical
Venue:	KCESS COIT JALGAON	**Nature: Academic/ Co curricular/Extra curricular/ Environmental/ Social/other**	Co curricular

Topic/ Subject of the Activity	**Group discussion for fast learner**
Objective for conducting activity	1. To take a pledge to promote and encourage our college student 2. To produce quality Engineers for the bright future of our country
Methodology	❖ This event were organized in the Department of Mechanical Engineering under Mechanical Engineering Student Association in order to inculcate the competitive spirit among the budding engineers.
Out Come	• The main aim of this program to enhance potential of student and promote them for extra activities so they can improve their skill in daily life

KCES's College of Engineering &ITJalgaon

List of Students present for the programme

NAME OF PROGRAME:- **group discussion for fast learner**

DATE:-

SR NO	NAME OF PARTICIPANTS	CLASS	SIGNATURE
01	kolhe Vidhy B	SE	P
02	Duse pratiskha	SE	P
03	Kiran Bhosale	SE	P
04	Umesh N. patil	SE	P

HOD
MECHAN

Photos

SE Mechanical evaluation for slow learner

subject

SR NO.	student name	SOM	TOM-I	MP-1	NM	Avg.
1	Nikam nilesh	8	10	18	11	11.75
2	patil sachine B.	9	11	12	8	10
3	Patil Hitesh	8	11	10	8	9
4	bhavsar shubham	11	10	10	12	10.75
5	yavalkar prasad	8	10	12	7	9

COORDINATOR

HOD MECH.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT
SEM- I I

CLASS : SE (MECH)
Subject : Som

ACADEMIC YEAR 2018-19
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
DATES OF REM. LECTURE		18-3-19	24-3-19	25-3-19	1-4-19	7-4-19
1	NIKAM NILESH	P	P	P	A	P
2	PATIL SACHIN B.	P	P	P	P	A
3	PATIL HITESH P.	P	P	P	P	A
4	BHAVSAR SHUBHAM	P	P	A	P	P
5	YAVALKAR PRASAD	P	P	A	P	P

Subject teacher

H.O.D.
MECHANICAL

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : SE (MECH) SEM- I I ACADEMIC YEAR 2018-19

Subject : SOM

Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		16-4-19	10-4-19	15-4-19	21-4-19	22-4-19
1	NIKAM NILESH	P	A	P	P	P
2	PATIL SACHIN B.	P	P	P	P	A
3	PATIL HITESH P.	P	P	P	P	A
4	BHAVSAR SHUBHAM	P	P	P	P	P
5	YAVALKAR PRASAD	P	P	A	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : SE (MECH)
SEM- I I
ACADEMIC YEAR 2018-19
Subject : TOM-I
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
DATES OF REM. LECTURE		19-3-19	24-3-19	26-3-19	2-4-19	9-4-19
1	NIKAM NILESH	P	A	P	P	A
2	PATIL SACHIN B.	P	P	P	P	A
3	PATIL HITESH P.	A	P	P	P	P
4	BHAVSAR SHUBHAM	A	P	P	P	P
5	YAVALKAR PRASAD	P	P	P	A	P

Subject teacher

H.O.D.
MECHANICAL

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : SE (MECH) SEM- I I ACADEMIC YEAR 2018-19

Subject : TOM

Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		14-4-19	16-4-19	22-4-19	23-4-19	29-4-19
1	NIKAM NILESH	A	P	P	P	P
2	PATIL SACHIN B.	P	P	P	A	P
3	PATIL HITESH P.	A	P	P	P	P
4	BHAVSAR SHUBHAM	P	A	P	P	P
5	YAVALKAR PRASAD	P	P	P	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : SE (MECH)
SEM- I I
ACADEMIC YEAR 2018-19

Subject : MP-I
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
DATES OF REM. LECTURE		20-3-19	24-3-19	27-3-19	3-4-19	7-4-19
1	NIKAM NILESH	P	P	P	P	A
2	PATIL SACHIN B.	P	A	P	P	P
3	PATIL HITESH P.	P	P	A	P	P
4	BHAVSAR SHUBHAM	P	A	P	P	P
5	YAVALKAR PRASAD	P	P	A	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : SE (MECH)
SEM- I I
ACADEMIC YEAR 2018-19

Subject : MP-I

Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		10-4-19	14-4-19	17-4-19	22-4-19	24-4-19
1	NIKAM NILESH	P	P	P	A	P
2	PATIL SACHIN B.	P	P	A	P	P
3	PATIL HITESH P.	P	P	P	A	P
4	BHAVSAR SHUBHAM	P	P	P	P	A
5	YAVALKAR PRASAD	P	P	P	A	P

Mehete

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : SE (MECH)
SEM- I I
ACADEMIC YEAR 2018-19

Subject : NM

Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
DATES OF REM. LECTURE		21-3-19	24-3-19	28-3-19	4-4-19	7-4-19
1	NIKAM NILESH	P	P	A	P	P
2	PATIL SACHIN B.	P	A	P	P	P
3	PATIL HITESH P.	P	P	P	P	A
4	BHAVSAR SHUBHAM	P	P	P	A	P
5	YAVALKAR PRASAD	P	A	P	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : SE (MECH)
SEM- I I
ACADEMIC YEAR 2018-19

Subject : NM
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		11-4-19	14-4-19	18-4-19	21-4-19	25-4-19
1	NIKAM NILESH	P	A	P	P	P
2	PATIL SACHIN B.	P	P	P	A	P
3	PATIL HITESH P.	A	P	P	P	P
4	BHAVSAR SHUBHAM	P	A	P	P	P
5	YAVALKAR PRASAD	P	P	P	A	P

Subject teacher

H.O.D.
MECHANICAL

SE Mechanical evaluation for fast learner (2018-19)

SR NO.	Name of student	SOM	TOM	NM	MP-1	Avg.
01	Kolhe vidhy	18	17	18	17	18
02	Duse pratiksha	28	18	20	20	19
03	Kiran bhosale	20	20	18	18	19
04	Umesh patil	20	18	20	20	20

Coordinator.

HOD

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : SE (MECH) SEM- I I ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

Title of activity		GD	Extra. Practi	Extra Practic
Date of activity		18-3-19	8-3-19	17-4-19
SR. NO	NAME	Activity 1	Activity 2	Activity 3
	KOLHE VIDHY	P	A	P
	DUSE PRATIKSHA	P	P	A
	KIRAN BHOSALE	P	P	A
	UMESH N. PATIL	P	P	P

Coordinator 1 Coordinator 2 Coordinator 3

H.O.D.
MECHANICAL

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., Jalgaon

MECHANICAL ENGINEERING DEPARTMENT

WEF 13-9-2018

CLASS : T.E   ROOM NO : 006/211

CLASS TEACHER: PROF. H.R.NEHETE

Time/Day	Mon	Tue	Wed	Thu	Fri	Sat
8-9 Am	HT	M.D-1	TOM-II	ICE	IES	
[illegible]						
[illegible]	RECESS					
[illegible]						
[illegible]						
[illegible]	RECESS					
[illegible]						
[illegible]						

SUBJECT	THEORY	PRACTICALS	LAB
TOM-II	D K THAKUR		
M.D-1	H R NEHETE		
HT	S M KHAIRE		
ICE	M M NEHETE		
IES	A S KOLI		

CLASS TEACHER	TIME TABLE COORDINATOR	HOD
MR H R NEHETE	MR.H.R.NEHETE	MR. M.D. SALUNKE

TE Mechanical evaluation for slow learner (2018-19)

SR NO.	Name of student	HT	MD-1	TOM-II	ICE	Avg.
01	fegade hemant	08	9	8	10	9
02	Mahajan g. nimba	09	8	10	10	9
03	Bhole jugal	10	10	8	8	9
04	Pawar devendra chotu	8	9	8	8	8
05	Patil A.kautik	8	9	9	9	9

Coordinator

HOD

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : TE (MECH)
SEM- I
ACADEMIC YEAR 2018-19
Subject : HT
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect5.
	DATES OF REM. LECTURE	17-9-18	23-9-18	24-9-18	30-9-18	1-10-18
1	FEGADE HEMANT	P	P	P	A	P
2	MAHAJAN G.NIMBA	P	P	A	P	P
3	BHOLE JUGAL	P	A	P	P	P
4	PAWAR DEVENDRA CHOTU	A	P	P	P	P
5	PATIL A. KAUTIK	P	P	A	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : TE (MECH) SEM- I ACADEMIC YEAR 2018-19

Subject : HT

Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		8-10-18	15-10-18	22-10-18	29-10-18	05-11-18
1	FEGADE HEMANT	A	P	P	P	P
2	MAHAJAN G.NIMBA	P	P	A	P	P
3	BHOLE JUGAL	P	P	A	P	P
4	PAWAR DEVENDRA CHOTU	A	P	P	P	P
5	PATIL A. KAUTIK	A	P	P	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT
SEM- I

CLASS : TE (MECH)
Subject : MD-I

ACADEMIC YEAR 2018-19
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect5.
DATES OF REM. LECTURE		18-9-18	23-9-18	25-9-18	30-9-18	2-10-18
1	FEGADE HEMANT	P	P	A	P	P
2	MAHAJAN G.NIMBA	A	P	P	P	A
3	BHOLE JUGAL	P	A	P	A	P
4	PAWAR DEVENDRA CHOTU	P	P	P	P	P
5	PATIL A. KAUTIK	P	P	P	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : TE (MECH) SEM- I ACADEMIC YEAR 2018-19

Subject : MD-I

Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		9-10-18	16-10-18	23-10-18	30-10-18	6-11-18
1	FEGADE HEMANT	A	P	P	P	P
2	MAHAJAN G.NIMBA	P	A	P	P	P
3	BHOLE JUGAL	P	P	P	A	P
4	PAWAR DEVENDRA CHOTU	P	P	A	P	P
5	PATIL A. KAUTIK	A	P	P	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : TE (MECH) SEM- I ACADEMIC YEAR 2018-19

Subject : TOM-II

Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect5.
DATES OF REM. LECTURE		19-9-18	28-9-18	26-9-18	30-9-18	3-10-18
1	FEGADE HEMANT	A	P	P	P	P
2	MAHAJAN G.NIMBA	P	P	P	P	A
3	BHOLE JUGAL	P	P	P	P	P
4	PAWAR DEVENDRA CHOTU	P	P	P	P	A
5	PATIL A. KAUTIK	P	P	A	P	P

Subject teacher

H.O.D.
MECHANICAL

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : TE (MECH) SEM- I ACADEMIC YEAR 2018-19

Subject : TDM - II Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		10-10-18	17-10-18	24-10-18	31-10-18	7-11-18
1	FEGADE HEMANT	A	P	P	P	P
2	MAHAJAN G.NIMBA	P	P	P	P	P
3	BHOLE JUGAL	P	P	P	P	P
4	PAWAR DEVENDRA CHOTU	P	P	P	P	P
5	PATIL A. KAUTIK	P	P	P	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : TE (MECH) SEM- I ACADEMIC YEAR 2018-19

Subject : ICE

Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect5.
DATES OF REM. LECTURE		11-9-18	18-9-18	25-9-18	1-10-18	8-10-18
1	FEGADE HEMANT	A	P	P	P	P
2	MAHAJAN G.NIMBA	P	P	P	P	P
3	BHOLE JUGAL	P	P	P	P	P
4	PAWAR DEVENDRA CHOTU	P	P	A	P	P
5	PATIL A. KAUTIK	A	P	P	P	A

Subject teacher

H.O.D.
MECHANICAL

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : TE (MECH)   SEM- I   ACADEMIC YEAR 2018-19

Subject : ICE   Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		20-9-18	23-9-18	27-9-18	30-9-18	4-10-18
1	FEGADE HEMANT	A	P	P	P	P
2	MAHAJAN G.NIMBA	P	A	P	P	P
3	BHOLE JUGAL	A	P	P	P	A
4	PAWAR DEVENDRA CHOTU	P	P	P	P	A
5	PATIL A. KAUTIK	P	A	P	P	P

Subject teacher

H.O.D.
MECHANICAL

TE Mechanical evaluation for fast learner (2018-19)

SR NO.	Name of student	HT	MD-1	TOM-II	ICE	Avg.
01	Bhoge rohini gopal	18	17	18	17	18
02	Sinker subham	18	18	19	19	19
03	Sunaskar A. Suresh	19	18	18	16	17
04	Zope mugdha	17	19	17	18	18

Coordinator

HOD

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : TE (MECH) SEM- I ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

Title of activity		LtD	Extra. practi	Extra. pr
Date of activity		4-10-18	22-10-18	24-10-18
SR. NO	NAME	Activity 1	Activity 2	Activity 3
	BHOGE ROHINI GOPAL	P	P	P
	SINKER SUBHAM	A	P	P
	SUNASKAR A. SURESH	A	P	P
	ZOPE MUGHDHA	P	A	P

Coordinator 1 Coordinator 2 Coordinator 3

H.O.D.
MECHANICAL

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., Jalgaon

MECHANICAL ENGINEERING DEPARTMENT

WEF 17-3-2019

CLASS T.E ROOM NO 006/211

CLASS TEACHER: PROF. H.R.NEHETE

Time/Day	Mon	Tue	Wed	Thur	Fri	Sat
8-9 Am	**M.D-2**	**NACM**	**TM**	**MQC**	**PBM**	
[illegible]						
[illegible]	RECESS					
[illegible]						
[illegible]						
[illegible]	RECESS					
[illegible]						
[illegible]						

SUBJECT	THEORY	PRACTICALS	LAB
NACM	**H R NEHETE**		
M.D2	**H R NEHETE**		
MQC	**S M KHAIRE**		
PBM	**M M NEHETE**		
TM	**D S PATIL**		

CLASS TEACHER	TIME TABLE COORDINATOR	HOD
MR H R NEHETE	MR. H.R.NEHETE	MR. M.D. SALUNKE

TE Mechanical evaluation for slow learner (2018-19)

SR NO.	Name of student	NACM	MD-2	TM	MQC	Avg.
01	fegade hemant	09	10	8	7	8
02	Mahajan g. nimba	10	8	9	9	9
03	Bhole jugal	6	8	8	8	9
04	Pawar devendra chotu	7	9	8	8	8
05	Patil A.kautik	9	7	9	6	8

Coordinator

HOD

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : TE (MECH)
Subject : NACM

SEM- II

ACADEMIC YEAR 2018-19
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect5.
DATES OF REM. LECTURE		18-3-19	24-3-19	25-3-19	1-4-19	7-4-19
1	FEGADE HEMANT	P	A	P	P	A
2	MAHAJAN G.NIMBA	P	P	P	P	A
3	BHOLE JUGAL	A	P	P	P	A
4	PAWAR DEVENDRA CHOTU	P	P	P	P	P
5	PATIL A. KAUTIK	P	P	P	P	P

Subject teacher

H.O.D.
MECHANICAL

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : TE (MECH) SEM- II ACADEMIC YEAR 2018-19

Subject : NACM

Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		8-4-19	14-4-19	15-4-19	21-4-19	22-4-19
1	FEGADE HEMANT	A	P	P	P	P
2	MAHAJAN G.NIMBA	P	P	P	P	A
3	BHOLE JUGAL	P	P	P	P	P
4	PAWAR DEVENDRA CHOTU	A	P	P	P	P
5	PATIL A. KAUTIK	A	P	P	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : TE (MECH)
SEM- II
ACADEMIC YEAR 2018-19
Subject : MD-II
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect5.
DATES OF REM. LECTURE		19-3-19	24-3-19	26-3-19	2-4-19	9-4-19
1	FEGADE HEMANT	P	P	A	P	P
2	MAHAJAN G.NIMBA	P	P	P	P	P
3	BHOLE JUGAL	A	P	P	P	P
4	PAWAR DEVENDRA CHOTU	A	P	P	P	P
5	PATIL A. KAUTIK	P	P	P	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : TE (MECH)
SEM- II
ACADEMIC YEAR 2018-19

Subject : MD-II

Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		14-4-19	16-4-19	22-4-19	23-4-19	24-4-19
1	FEGADE HEMANT	A	P	P	P	P
2	MAHAJAN G.NIMBA	P	P	A	P	P
3	BHOLE JUGAL	P	A	P	P	P
4	PAWAR DEVENDRA CHOTU	P	P	P	P	P
5	PATIL A. KAUTIK	P	P	P	A	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : TE (MECH) SEM- II ACADEMIC YEAR 2018-19
Subject : TM
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect5.
DATES OF REM. LECTURE		20-3-19	24-3-19	27-3-19	3-3-19	7-3-19
1	FEGADE HEMANT	P	P	A	P	P
2	MAHAJAN G.NIMBA	P	A	P	P	P
3	BHOLE JUGAL	A	P	P	P	P
4	PAWAR DEVENDRA CHOTU	P	P	P	P	P
5	PATIL A. KAUTIK	A	P	P	P	P

Subject teacher

H.O.D.
MECHANICAL

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT
SEM- II

CLASS : TE (MECH)
Subject : TM

ACADEMIC YEAR 2018-19
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		10-4-19	14-4-19	17-4-19	22-4-19	24-4-19
1	FEGADE HEMANT	P	P	P	A	P
2	MAHAJAN G.NIMBA	A	A	P	P	P
3	BHOLE JUGAL	P	P	P	P	P
4	PAWAR DEVENDRA CHOTU	P	P	P	P	P
5	PATIL A. KAUTIK	A	P	P	A	P

Subject teacher

H.O.D.
MECHANICAL

TE Mechanical evaluation for fast learner (2018-19)

SR NO.	Name of student	NACM	MD-2	TM	MQC	Avg.
01	Bhoge rohini gopal	18	17	18	17	18
02	Sinker subham	18	18	19	19	19
03	Sunaskar A. Suresh	19	18	18	16	17
04	Zope mugdha	17	19	17	18	18

Coordinator

HOD

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : TE (MECH) SEM- II ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

Title of activity		GD	Extru P.	Extru, P.
Date of activity		24-3-19	26-3-19	9-4-19
SR. NO	NAME	Activity 1	Activity 2	Activity 3
	BHOGE ROHINI GOPAL	P	P	P
	SINKER SUBHAM	P	P	P
	SUNASKAR A. SURESH	P	P	P
	ZOPE MUGHDHA	A	P	P

Coordinator 1 Coordinator 2 Coordinator 3

H.O.D.
MECHANICAL

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., Jalgaon

MECHANICAL ENGINEERING DEPARTMENT

WEF 13-9-2018

CLASS BE ROOM NO - 006/211

CLASS TEACHER: PROF. R.B.PATIL

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
8-9 Am	RAC	OR	CADCAM	AUTO-1	RES	
[illegible]						
[illegible]	RECESS					
[illegible]						
[illegible]						
[illegible]	RECESS					
[illegible]						
[illegible]						

SUBJECT	THEORY	PRACTICALS	LAB
CADCAM	H R NEHETE		
OR	H R NEHETE		
AUTO-1	R B PATIL		
RAC	S M KHAIRE		
RES	S M NATH		

CLASS TEACHER	TIME TABLE COORDINATOR	HOD
MR R B PATIL	MR. H.R.NEHETE	MR. M.D. SALUNKE

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : BE (MECH) SEM- I ACADEMIC YEAR 2018-19

Subject : RAC

Date

Attendance Slow learner

SR. NO	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
	DATES OF REM. LECTURE	17-9-18	23-9-18	24-9-18	30-9-18	1-10-18
1	PATIL MAYUR ISHAWARLAL	P	P	P	P	P
2	KADAM AKSHAY C.	A	P	P	A	P
3	PATIL SURABHAN B.	P	P	P	P	P
4	PATIL SARAR A.	A	P	P	A	P
5	THAKUR HITESH BAPU	P	P	P	P	A

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : BE (MECH) SEM- I ACADEMIC YEAR 2018-19

Subject : RAC

Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		8-10-18	15-10-18	22-10-18	29-10-18	05-11-18
1	PATIL MAYUR ISHAWARLAL	A	P	P	P	P
2	KADAM AKSHAY C.	P	P	A	P	P
3	PATIL SURABHAN B.	P	A	A	P	P
4	PATIL SARAR A.	P	P	P	P	P
5	THAKUR HITESH BAPU	A	P	P	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : BE (MECH)
Subject : OR

SEM- I

ACADEMIC YEAR 2018-19
Date

Attendance Slow learner

SR. NO	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
DATES OF REM. LECTURE		18-9-18	23-9-18	25-9-18	30-9-18	2-10-18
1	PATIL MAYUR ISHAWARLAL	A	A	P	P	P
2	KADAM AKSHAY C.	P	P	P	P	P
3	PATIL SURABHAN B.	P	P	P	P	P
4	PATIL SARAR A.	A	P	P	P	P
5	THAKUR HITESH BAPU	P	P	P	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : BE (MECH)
SEM- I
ACADEMIC YEAR 2018-19
Subject : OR
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		9-10-18	16-10-18	23-10-18	30-10-18	6-11-18
1	PATIL MAYUR ISHAWARLAL	P	P	P	P	P
2	KADAM AKSHAY C.	P	P	P	P	P
3	PATIL SURABHAN B.	P	P	P	P	P
4	PATIL SARAR A.	P	P	A	P	P
5	THAKUR HITESH BAPU	A	P	P	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : BE (MECH)
SEM- I
ACADEMIC YEAR 2018-19
Subject : CAD, CAM
Date
Attendance Slow learner

SR. NO	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
DATES OF REM. LECTURE		19-9-18	23-9-18	26-9-18	30-9-18	3-10-18
1	PATIL MAYUR ISHAWARLAL	P	P	P	P	A
2	KADAM AKSHAY C.	P	P	P	P	P
3	PATIL SURABHAN B.	A	P	P	P	P
4	PATIL SARAR A.	P	P	P	P	P
5	THAKUR HITESH BAPU	A	P	P	P	A

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : BE (MECH) SEM- I ACADEMIC YEAR 2018-19

Subject : CAD. CAM Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		10-10-18	17-10-18	24-10-18	31-10-18	7-11-18
1	PATIL MAYUR ISHAWARLAL	P	P	P	P	P
2	KADAM AKSHAY C.	P	P	P	P	A
3	PATIL SURABHAN B.	P	P	A	A	P
4	PATIL SARAR A.	P	P	P	P	P
5	THAKUR HITESH BAPU	P	P	P	A	P

Subject teacher

H.O.D.
MECHANICAL

BE Mechanical evaluation for Slow learner (2018-19)

SR NO.	Name of student	RAC	OR	CAD,CAM	RES	Avg.
01	Patil mayor I	08	08	05	08	07
02	Kadam Akshay C.	07	08	08	09	08
03	Patil suryabhan B.	08	07	07	07	07
04	Patil Sagar A.	09	09	09	08	09
05	Thakur Hitesh bapu	07	08	06	09	07

Coordinator

HOD

BE Mechanical evaluation for fast learner (2018-19)

SR NO.	Name of student	RAC	OR	CAD,CAM	RES	Avg.
01	Jangid jonu jaysing	18	18	17	19	18
02	Kale pranav	18	19	17	18	18
03	Desai anad B.	19	18	19	18	18
04	Patil Devendra	19	18	19	19	19

Coordinator

HOD

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : BE (MECH) SEM- I ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

Title of activity		GIQ	Extra p.	Extra p.
Date of activity		4-10-18	22-10-18	22-10-18
SR. NO	NAME	Activity 1	Activity 2	Activity 3
	JANGID JOMU JAYSING	P	P	P
	KALE PRANAV	P	P	P
	DESAI ANAND	P	P	P
	PATIL DEVENDRA	P	P	P

Mehete

Coordinator 1 Coordinator 2 Coordinator 3

H.O.D.
MECHANICAL

Name of The Activity : Conduct extra practical's in workshop for fast learner			
Date:	22/10/2018	**Department/ Committee**	Mechanical
Branch:	BE Mechanical	**Coordinator Name:**	Prof D.K.Thakur Prof.H.R.Nehete
Time:	10AM to 12 PM	**Activity for Class/group student Number**	SE Mechanical
Venue:	KCESS COIT JALGAON	**Nature: Academic/ Co curricular/Extra curricular/ Environmental/ Social/other**	Co curricular

Topic/ Subject of the Activity	**Conduct extra practical's in workshop for fast learner**
Objective for conducting activity	1. To take a pledge to promote and encourage our college student 2. To produce quality Engineers for the bright future of our country
Methodology	❖ This event were organized in the Department of Mechanical Engineering under Mechanical Engineering Student Association in order to inculcate the budding engineers.
Out Come	• The main aim of this program to enhance potential of student and promote them for extracurricular activities during college time

KCES's College of Engineering &ITJalgaon

List of Students present for the programme

NAME OF PROGRAME:- **Conduct extra practical's in workshop for fast learner**

DATE:-

SR NO	NAME OF PARTICIPANTS	CLASS	SIGNATURE
01	Jangid Jonu J.	BE	P
02	Kute pranav	BE	P
03	Desai Anand B.	BE	P
04	patil Devendra.	BE	P

HOD
MECHANICA

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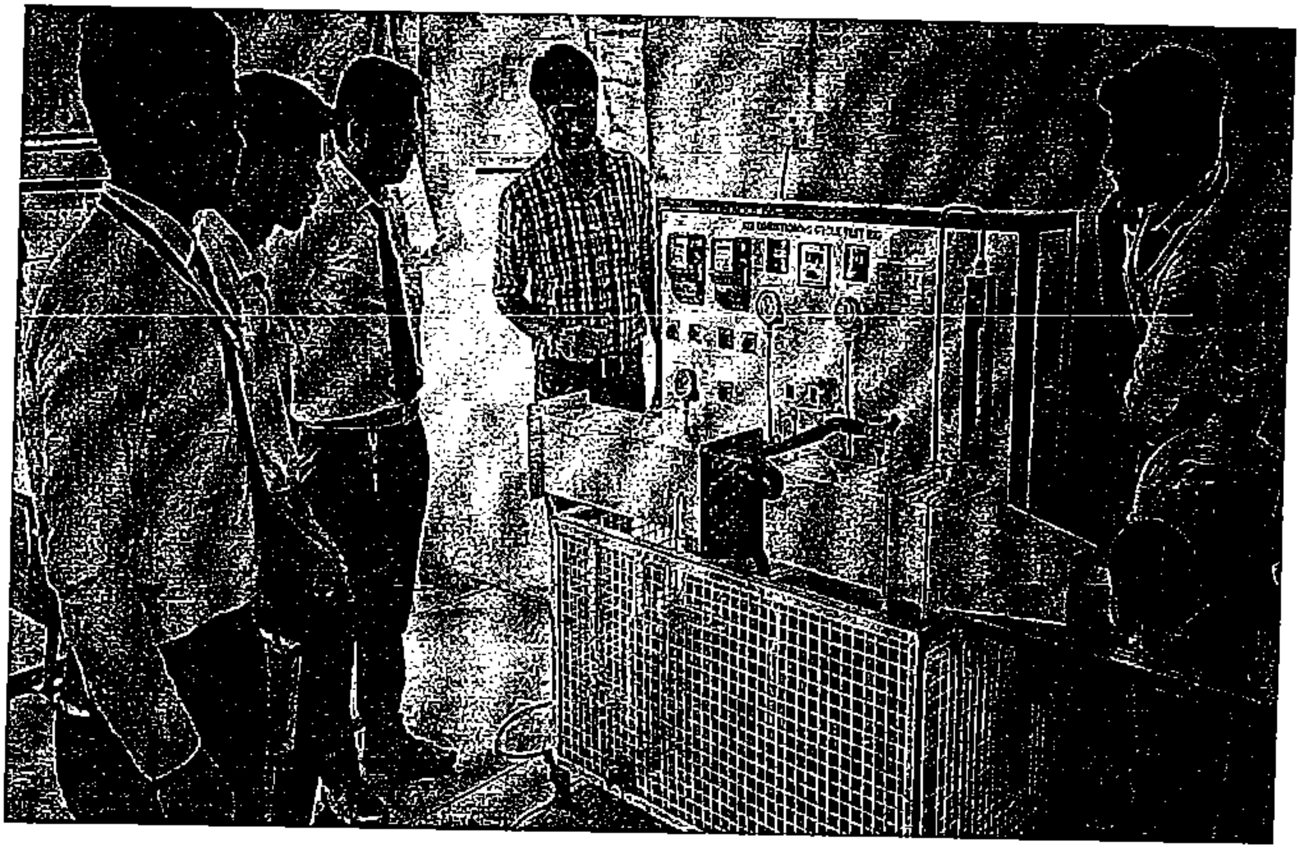
Photos



HOD
MECHANICAL

Name of The Activity : Conduct extra practical's in workshop for fast learner			
Date:	22/10/2018	**'Department/ Committee**	Mechanical
Branch:	**SE Mechanical**	**Coordinator Name:**	Prof D.K.Thakur Prof.H.R.Nehete
Time:	10AM to 12 PM	**Activity for Class/group student Number**	SE Mechanical
Venue:	KCESS COIT JALGAON	**Nature: Academic/ Co curricular/Extra curricular/ Environmental/ Social/other**	Co curricular

Topic/ Subject of the Activity	**Conduct extra practical's in workshop for fast learner**
Objective for conducting activity	1. To take a pledge to promote and encourage our college student 2. To produce quality Engineers for the bright future of our country
Methodology	❖ This event were organized in the Department of Mechanical Engineering under Mechanical Engineering Student Association in order to inculcate the budding engineers.
Out Come	• The main aim of this program to enhance potential of student and promote them for extracurricular activities during college time

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KCES's College of Engineering &ITJalgaon

List of Students present for the programme

NAME OF PROGRAME:- Conduct extra practical's in workshop for fast learner

DATE:-

SR NO	NAME OF PARTICIPANTS	CLASS	SIGNATURE
01	Kolhe Nidhy	SE	P
02	Ouse pratiksh	SE	P
03	kiran bhosale	SE	P
04	Umesh N. patil	SE	P

HOD
MECHANICAL

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Photos

HOD
MECHANICAL

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Name of The Activity : Conduct extra practical's in workshop for fast learner			
Date:	22/10/2018	**Department/ Committee**	Mechanical
Branch:	**TE Mechanical**	**Coordinator Name:**	Prof D.K.Thakur Prof.H.R.Nehete
Time:	10AM to 12 PM	**Activity for Class/group student Number**	SE Mechanical
Venue:	KCESS COIT JALGAON	**Nature: Academic/ Co curricular/Extra curricular/ Environmental/ Social/other**	Co curricular

Topic/ Subject of the Activity	**Conduct extra practical's in workshop for fast learner**
Objective for conducting activity	1. To take a pledge to promote and encourage our college student 2. To produce quality Engineers for the bright future of our country
Methodology	❖ This event were organized in the Department of Mechanical Engineering under Mechanical Engineering Student Association in order to inculcate the budding engineers.
Out Come	• The main aim of this program to enhance potential of student and promote them for extracurricular activities during college time

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KCES's College of Engineering &ITJalgaon
List of Students present for the programme

NAME OF PROGRAME:- Conduct extra practical's in workshop for fast learner

DATE:-

SR NO	NAME OF PARTICIPANTS	CLASS	SIGNATURE
01	Bhoge rohini G.	TE	P
02	Sinkar shubham	TE	P
03	Sunaskar A. suresh	TE	P
04	Zope mughdha.	TE	P

HOD
MECHANIC

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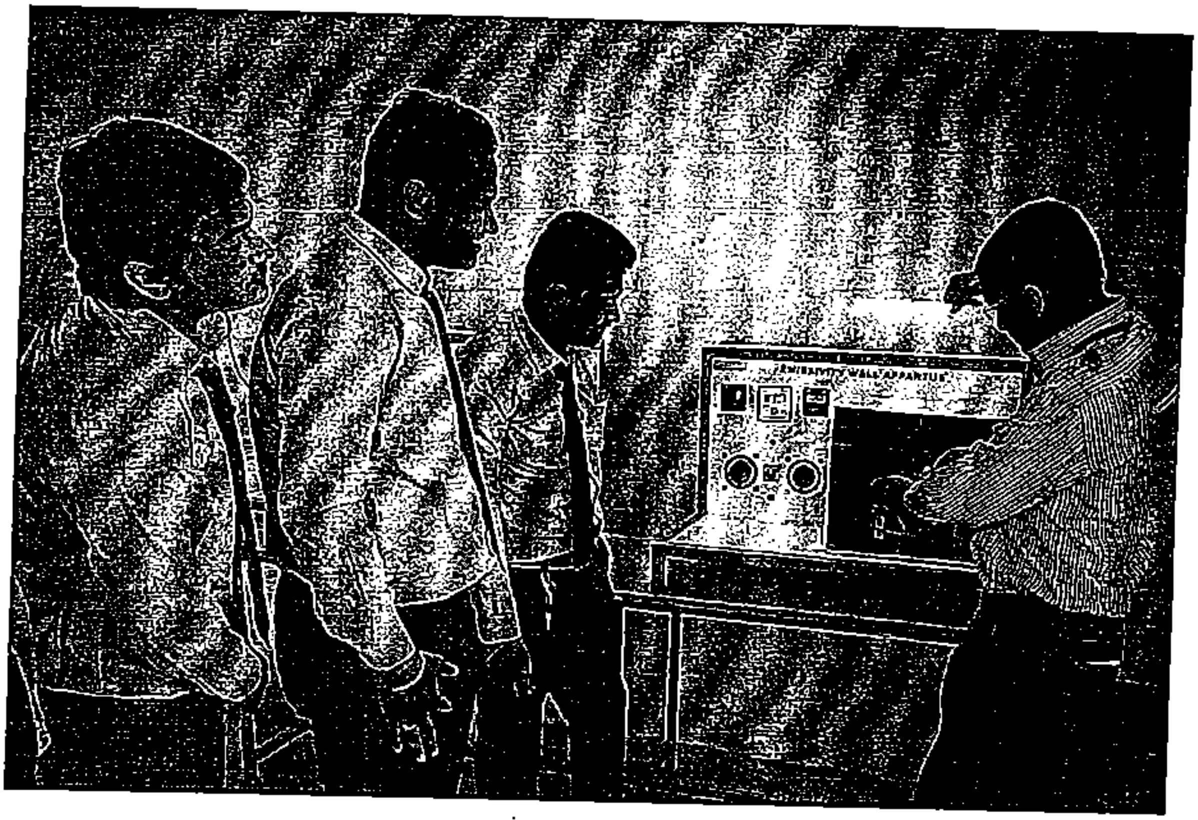
Photos



HOD
MECHANICAL

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., Jalgaon

MECHANICAL ENGINEERING DEPARTMENT

WEF 17/3/2019

CLASS: BE ROOMNO: 006/211

CLASS TEACHER: PROF. R.B.PATIL

Time/Day	Mon	Tue	Wed	Thu	Fri	Sat
8-9 Am	MV	FEAST	AUTO-II	PPE		
[illegible]						
	RECESS					
[illegible]						
[illegible]						
	RECESS					
[illegible]						
[illegible]						

SUBJECT	THEORY	PRACTICALS	LAB
MV	R B PATIL		
PPE	D K THAKUR		
AUTO-II	R B PATIL		
FEAST	S M KHAIRE		

CLASS TEACHER	TIME TABLE COORDINATOR	HOD
MR R B PATIL	MR. H.R.NEHETE	MR. M.D. SALUNKE

BE Mechanical evaluation for Slow learner (2018-19)

SR NO.	Name of student	MV	FEAST	AUTO-2	PPE	Avg.
01	Patil mayor I	07	07	05	08	06
02	Kadam Akshay C.	06	08	08	09	08
03	Patil suryabhan B.	08	07	07	07	07
04	Patil Sagar A.	09	09	09	08	09
05	Thakur Hitesh bapu	07	08	06	09	07

Coordinator

HOD

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : BE (MECH)
Subject : MV
SEM- II
ACADEMIC YEAR 2018-19
Date

Attendance Slow learner

SR. NO	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
DATES OF REM. LECTURE		18-3-19	24-3-19	25-3-19	1-4-19	7-4-19
1	PATIL MAYUR ISHAWARLAL	P	P	P	P	P
2	KADAM AKSHAY C.	P	P	P	P	P
3	PATIL SURABHAN B.	A	P	A	P	A
4	PATIL SARAR A.	P	P	P	A	P
5	THAKUR HITESH BAPU	P	P	P	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : BE (MECH)
Subject : MV
SEM- II
ACADEMIC YEAR 2018-19
Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		14-4-19	18-4-19	15-4-19	21-4-19	22-4-29
1	PATIL MAYUR ISHAWARLAL	P	P	P	P	P
2	KADAM AKSHAY C.	P	P	P	P	P
3	PATIL SURABHAN B.	P	P	P	P	P
4	PATIL SARAR A.	A	A	A	A	P
5	THAKUR HITESH BAPU	P	P	P	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : BE (MECH) SEM- II ACADEMIC YEAR 2018-19

Subject : FEAST

Date

Attendance Slow learner

SR. NO	NAME	Rem.lect.1.	Rem.lect.2.	Rem.lect.3.	Rem.lect.4.	Rem.lect.5.
DATES OF REM. LECTURE		19-3-19	24-3-19	26-3-19	2-4-19	9-4-19
1	PATIL MAYUR ISHAWARLAL	P	P	P	P	P
2	KADAM AKSHAY C.	P	P	P	P	P
3	PATIL SURABHAN B.	P	P	P	P	P
4	PATIL SARAR A.	P	P	P	P	P
5	THAKUR HITESH BAPU	A	P	P	P	P

Subject teacher

H.O.D.
MECHANICAL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : BE (MECH)
SEM- II
ACADEMIC YEAR 2018-19

Subject : FEAST

Date

Attendance Slow learner

SR. NO.	NAME	Rem.lect.6.	Rem.lect.7.	Rem.lect.8.	Rem.lect.9.	Rem.lect10.
DATES OF REM. LECTURE		14-4-19	16-4-19	22-4-19	23-4-19	24-4-19
1	PATIL MAYUR ISHAWARLAL	P	P	P	A	P
2	KADAM AKSHAY C.	P	P	P	P	P
3	PATIL SURABHAN B.	A	P	P	P	A
4	PATIL SARAR A.	P	P	P	A	P
5	THAKUR HITESH BAPU	P	P	P	A	P

Subject teacher

H.O.D.
MECHANICAL

BE Mechanical evaluation for fast learner (2018-19)

SR NO.	Name of student	MV	FEAST	AUTO-2	PPE	Avg.
01	Jangid jonu jaysing	18	18	17	19	18
02	Kale pranav	18	19	17	18	18
03	Desai anad B.	19	18	19	18	18
04	Patil Devendra	19	18	19	19	19

Coordinator

HOD

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
MECHANICAL DEPARTMENT

CLASS : BE (MECH) SEM- II ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

	Title of activity	GD	Babu. P	Babu. P.
	Date of activity	24-3-19	26-3-19	9-4-19
SR. NO	NAME	Activity 1	Activity 2	Activity 3
	JANGID JOMU JAYSING	P	P	P
	KALE PRANAV	P	P	P
	DESAI ANAND	P	A	P
	PATIL DEVENDRA	A	P	P

MMehale
Coordinator 1

Coordinator 2

Coordinator 3

H.O.D.
MECHANICAL

TOM MCQ QUESTION

1. Which of the following disciplines provides study of inertia forces arising from the combined effect of the mass and the motion of the parts

(a) theory of machines
(b) applied mechanics
(c) mechanisms
(d) kinetics
(e) kinematics.

provides study of relative motion between the parts of a machine

(a) theory of machines
(b) applied mechanics
(c) mechanisms
(d) kinetics
(e) kinematics.

3. Which of the following disciplines provides study of the relative motion between the parts of a machine and the forces acting on the parts

(a) theory of machines
(b) applied mechanics
(c) mechanisms
(d) kinetics
(e) kinematics.

4. The type of pair formed by two elements which are so connected that one is constrained to turn or revolve about a fixed axis of another element is known as

(a) turning pair
(b) rolling pair
(c) sliding pair
(d) spherical pair
(e) lower pair,

5. Which of the following is a lower pair

(a) ball and socket i
(b) piston and cylinder
(c) cam and follower
(d) (a) and (b) above
(e) belt drive.

6. If two moving elements have surface contact in motion, such pair is known as

(a) sliding pair
(b) rolling pair
(c) surface pair
(d) lower pair

(e) higher pair.

7. The example of lower pair is
(a) shaft revolving in a bearing
(b) straight line motion mechanisms
(c) automobile steering gear
(d) all of the above
(e) none of the above.

8. Pulley in a belt drive acts as
(a) cylindrical pair
(b) turning pair
(c) rolling pair
(d) sliding pair
(e) surface pair.

9. The example of rolling pair is
(a) bolt and nut
(b) lead screw of a lathe
(c) ball and socket joint
(d) ball bearing and roller bearing
(e) all of the above.

10. Any point on a link connecting double slider crank chain will trace a
(a) straight line
(b) circle
(c) ellipse
(d) parabola
(e) hyperbola.

11. The purpose of a link is to
(a) transmit motion
(b) guide other links
(c) act as a support
(d) all of the above
(e) none of the above.

12. A universal joint is an example of
(a) higher pair
(b) lower pair
(c) rolling pair
(d) sliding pair
(e) turning pair.

13. Rectilinear motion of piston is converted into rotary by
(a) cross head
(b) slider crank
(c) connecting rod
(d) gudgeon pin
(e) four bar chain mechanism.

14. Pitch point on a cam is
(a) any point on pitch curve
(b) the point on cam pitch curve having the maximum pressure angle
(c) any point on pitch circle
(d) the point on cam pitch curve having the minimum pressure angle
(e) none of the above.

15. The values of velocity and acceleration of piston at near dead center for a slider-crank mechanism will be
(a) 0, and more than co2r
(b) 0, and less than coV
(c) 0, 0
(d) cor, 0
(e) none of the above.

16. The example of spherical pair is
(a) bolt and nut
(b) lead screw of a lathe
(c) ball and socket joint
(d) ball bearing and roller bearing
(e) none of the above.

17. Cross head and guides form a
(a) lower pair
(b) higher pair
(c) turning pair
(d) rolling pair
(e) sliding pair.

19. A circular bar moving in a round hole is an example of
(a) incompletely constrained motion
(b) partially constrained motion
(c) completely constrained motion
(d) successfully constrained motion
(e) none of the above

20. If some links are connected such that
motion between them can take place in more than one direction, it is called
(a) incompletely constrained motion
(b) partially constrained motion
(c) completely constrained motion
(d) successfully constrained motion
(e) none of the above.

21. If there are L number of links in a
mechanism then number of possible inversions is equal to
(a) L + 1
(b) L – 1
(c) L
(d) L + 2
(e) L – 2.

22. Kinematic pairs are those which have two
elements that
(a) have line contact
(b) have surface contact
(c) permit relative motion
(d) are held together
(e) have dynamic forces.

24. The lower pair is a
(a) open pair
(b) closed pair
(c) sliding pair
(d) point contact pair
(e) does not exist.

25. Automobile steering gear is an example of
(a) higher pair
(b) sliding pair
(c) turning pair
(d) rotary pair
(e) lower pair.

SOM SUBJECT MCQ QUESTION

1. Strain is defined as the ratio of
(a) change in volume to original volume
(b) change in length to original length
(c) change in cross-sectional area to original cross-sectional area
(d) any one of the above
(e) none of the above.

2. Hooke's law holds good up to
(a) yield point
(b) limit of proportionality
(c) breaking point
(d) elastic limit
(e) plastic limit.

3. Young's modulus is defined as the ratio of
(a) volumetric stress and volumetric strain
(b) lateral stress and lateral strain
(c) longitudinal stress and longitudinal strain
(d) shear stress to shear strain
(e) longitudinal stress and lateral strain.

4. The unit of Young's modulus is
(a)mm/mm
(b)kg/cm
(c)kg
(d)kg/cm2
(e)kg cm2.

5.Deformation per unit length in the direction of force is known as
(a)strain
(b) lateral strain
(c) linear strain
(d) linear stress
(e) unit strain.

6. It equal and opposite forces applied to a body tend to elongate it, the stress so produced is called
(a) internal resistanpe
(b) tensile stress
(c) transverse stress
(d) compressive stress
(e) working stress.
7. The materials having same elastic properties in all directions are called
(a) ideal materials

(b) uniform materials
(c) isotropic materials
(d) paractical materials
(e) elastic materials.

8. A thin mild steel wire is loaded by adding loads in equal increments till it breaks. The extensions noted with increasing loads will behave as under
(a) uniform throughout
(b) increase uniformly
(c) first increase and then decrease
(d) increase uniformly first and then increase rapidly
(e) increase rapidly first and then uniformly.

9. Modulus of rigidity is defined as the ratio of
(a) longitudinal stress and longitudinal strain
(b) volumetric stress and volumetric strain
(c) lateral stress and lateral strain
(d) shear stress and shear strain
(e) linear stress and lateral strain.

10. If the radius of wire stretched by a load is doubled, then its Young's modulus will be
(a) doubled
(b) halved
(c) become four times
(d) become one-fourth
(e) remain unaffected.

11. The ultimate tensile stress of mild steel compared to ultimate compressive stress is
(a) same
(b) more
(c) less
(d) more or less depending on other factors
(c) unpredictable.

12. Tensile strength of a material is obtained by dividing the maximum load during the test by the
(a) area at the time of fracture

(b) original cross-sectional area
(c) average of (a) and (b)
(d) minimum area after fracture
(e) none of the above.

13. The impact strength of a material is an index of its
(a) toughness
(b) tensile strength
(c) capability of being cold worked
(d) hardness
(e) fatigue strength.

14. The Young's modulus of a wire is defined as the stress which will increase the length of wire compared to its original length
(a) half
(b) same amount
(c) double
(d) one-fourth
(e) four times.

15. Percentage reduction of area in performing tensile test on cast iron may be of the order of
(a) 50%
(b) 25%
(c) 0%
(d) 15%
(e) 60%.

16. The intensity of stress which causes unit strain is called
(a) unit stress
(b) bulk modulus
(c) modulus of rigidity
(d) modulus of elasticity
(e) principal stress.

17. True stress-strain curve for materials is plotted between
(a) load/original cross-sectional area and change in length/original length
(b) load/instantaneous cross-sectional area original area and log.

(c) load/instantaneous cross-sectional area
and change in length/original length
(d) load/instantaneous area and instantaneous
area/original area
(e) none of the above.

18. During a tensile test on a specimen of 1 cm cross-section, maximum load observed was 8 tonnes and area of cross-section at neck was 0.5 cm2. Ultimate tensile strength of specimen is
(a) 4 tonnes/cm2
(b) 8 tonnes/cm2
(c) 16 tonnes/cm2
(d) 22 tonnes/cm2
(e) none of the above.

19. For steel, the ultimate strength in shear
as compared to in tension is nearly
(a) same
(b) half
(c) one-third
(d) two-third
(e) one-fourth.

20. Which of the following has no unit
(a) kinematic viscosity
(b) surface tension
(c) bulk modulus
(d) strain
(c) elasticity.

MANUFACTURING MCQ QUESTION

1. Work study is concerned with
(a) improving present method and finding standard time
(b) motivation of workers
(c) improving production capability
(d) improving production planning and control
(e) all of the above.

2. Basic tool in work study is
(a) graph paper
(b) process chart
(c) planning chart
(d) stop watch
(e) analytical mind.

3. What does symbol 'O' imply in work study
(a) operation
(b) inspection
(c) transport
(d) delay/temporary storage
(e) none of the above.

4. What does symbol 'D' imply in work study
(a) inspection
(b) transport
(c) delay/temporary storage
(d) permanent storage
(e) none of the above.

5. What does symbol 'V' employin work study
(a) operation
(b) inspection
(c) delay/ temporary Storage
(d) permanent storage
(e) none of the above.

6. Material handling in automobile industry is done by
(a) overhead crane
(b) trolley
(c) belt conveyor(d) all of the above
(e) none of the above.

7. String diagram is used when
(a) team of workers is working at a place
(b) material handling is to be done
(c) idle time is to be reduced
(d) all of the above
(e) none of the above.

8. Work study is most useful

(a) where production activities are involved
(b) in judging the rating of machines
(c) in improving industrial relations
(d) in judging the output of a man and improving it
(e) where men are biggest contributor to success of a project.

9. Micromotion study is
(a) enlarged view of motion study
(b) analysis of one stage of motion study
(c) minute and detailed motion study
(d) subdivision of an operation into therbligs and their analysis
(e) motion study of small components upto mirco-seconds.

10. In micromotion study, therblig is described by
(a) a symbol
(b) an event
(c) an activity
(d) micro motions
(e) standard symbol and colour.

11. The allowed time for a job equals standard time plus
(a) policy allowance
(b) interference allowance
(c) process allowance
(d) learning allowance
(e) unforeseen allowance.

12. Micromotion study involves following number of fundamental hand motions
(a) 8
(b) 12
(c) 16
(d) 20
(e) 24

13. The standard time for a job is
(a) total work content
(b) base time + relaxation time
(c) total work content + basic time
(d) total work content + delay contingency allowance
(e) total work content + relaxation time.

14. Work study is done with the help of
(a) process chart
(b) material handling
(c) stop watch
(d) all of the above
(e) none of the above.

15. Scheduling gives information about
(a) when work should start and how much work should be completed during a certain period

(b) when work should complete
(c) that how idle time can be minimized
(d) proper utilisation of machines
(e) none of the above.

16. Expediting function consists in keeping a watch on
(a) operator's activity
(b) flow of material and in case of trouble locate source of trouble
(c) minimising the delays
(d) making efficient despatching

17. Choose the wrong statement Time study is used to
(a) determine overhead expenses
(b) provide a basis for setting piece prices or incentive wages
(c) determine standard costs
(d) determine the capability of an operator to handle the number of machines
(e) compare alternative methods.

18. Job evaluation is the method-of determining the
(a) relative worth of jobs
(b) skills required by a worker
(c) contribution of a worker
(d) contribution of a job
(e) effectiveness of various alternatives.

19. Micromotion study is
(a) analysis of a man-work method by using a motion picture camera with a timing device in the field of view
(b) motion study* observed on enhanced time intervals
(c) motion study of a sequence of operations conducted systematically
(d) study of man and machine conducted simultaneously
(e) scientific, analytically procedure for determining optimum work method.

20. Per cent idle time for men or machines is found by
(a) work sampling
(b) time study
(c) method study
(d) work study
(e) ABC analysis.

21. TMU in method time measurement stands for
(a) time motion unit
(b) time measurement unit
(c) time movement unit
(d) technique measurement unit
(e) time method unit.

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ACADEMIC JOURNALS

Journal of Mechanical Engineering Research

Full Length Research Paper

Transient thermal analysis of different types of IC engine cylinder fins by varying thickness and introducing slots

A. N. Mohan Das[1,2*], G. Harish[1,3], D. Purrab[1], J. Sachin[1] and G. Suraj[1]

[1]Department of Mechanical Engineering, Dayananda Sagar College of Engineering, Bengaluru-560078, India
[2]Department of Mechanical Engineering, University of Visvesvaraya College of Engineering, Bengaluru-560001, India.
[3]Department of Mechanical Engineering, University of Visvesvaraya College of Engineering, Bengaluru-560001, India.

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Fins are extended surfaces used between two fluids for heat transfer between the hotter and colder fluid or between a solid and a fluid. There are various types of fins, viz. angular fins, circular fins, and rectangular fins. Engine piston chamber is the most precarious part of any automobile imperiled to extreme thermal shocks, hence prone to thermal stresses. Therefore, fins are introduced to cool the cylinder, which helps to improve engine performance considerably. In this study, rectangular and circular types of fins were selected, and its effect on temperature distribution and heat flux has been studied for with and without the introduction of slots. Firstly, different fins were modelled by using AUTODESK FUSION 360, then meshing and post-processing were done using ANSYS WORKBENCH. The results (plots of temperature and heat flux distribution) obtained for various case studies have been analyzed and compared which showcased that the slotted circular fin geometry having higher fin thickness (3 mm in this case) is the preferred fin geometry compared to other types of fin.

Key words: Fins, Autodesk fusion 360, Ansys workbench 2020 academic Software, temperature distribution, and heat flux.

INTRODUCTION

In an IC engine, the combustion of the fuel mixture occurs inside the cylinder generating high- pressure and high-temperature gases (around 2000-2500°C). The heat produced during combustion in the IC engine should be retained at a higher level to increase thermal efficiency. However, at the same time, to prevent thermal wear, the unwanted heat must be removed from the engine, which requires additional advanced active cooling systems; otherwise it would result in scorching of lubricant films among several poignant devices and might cause seizures or bonding of elements. Thus, it is required to optimize these high temperatures to about 100-200°C to ensure optimum working conditions. Very high cooling rates are not looked for as they drastically affect the engine's performance by reducing its thermal efficiency. So, it is necessary to design the cooling system to prevent cooling during engine warm-up. Consequently, the cooling systems help the engine to perform effectively

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*Corresponding author. E-mail: mohandasakkur@gmail.com. Tel: +91 9739166636.

by maintaining its maximum working temperature, which helps to produce more heat energy as well.

Unwanted heat transferred to the engine parts must be removed rapidly, to avoid seizure of the engine due to scorching (thermal wear). Thus, air-cooled engines are used in most light vehicles as they are more compact and lighter in weight to achieve the engine's desired working conditions (Mokheimer, 2003; Hoang et al., 2019; Patel et al., 2019). Studies have illustrated that "the rate at which heat energy transfer takes place is dependent upon conduction and convection modes along its directions from surface temperature 'T_s' to surrounding temperature 'T_∞' "; it is presumed as,

$$\text{Heat Transfer Rate} = hA\,(T_s - T_\infty) \qquad (1)$$

Where, 'h' is the coefficient of convective heat energy transfer, and 'A' is the area of heat flow.

From Equation 1, it has been observed that the rate of heat energy transfer could be enhanced by increasing the value of 'h' or 'A'. But then, an increase in 'h' is not practically feasible, as it requires the installation of additional pumps/fans or requires swapping of the existing ones with a larger one. Thus, the surface area is considerably increased by developing individual protrusions on the exterior of the components called 'fins' to enhance heat transfer rate by conduction and convection. Hence the shape of the fins should be optimized to maximize the energy transfer rate (Aziz and Fang, 2010; Sagar et al., 2017).

Fabrication materials, fin cross-sectional area, and the number of fins used -mainly influence the engine's working effectiveness. Fins are encountered into the engine cylinder outlines because of its easy maintenance, inexpensive technology, and also it ducks some of the disputes like decrease in the strength of the piston, piston rings, and as well reduces the unwanted expansion of cylinder caused by high temperatures. Yet, if fins are more elongated, there are chances of bending, affecting their overall performance. Some of the areas of applications of fins are HVAC systems, power stations, etc.

Chaitanya et al. (2014) modelled a cylinder fin body and conducted transient thermal analysis using ANSYS. They compared Aluminium alloy 6061 with Aluminium Alloy A204 by considering the various parameters such as fin cross section, thickness and material attributes. Srinivasa et al. (2016) investigated the thermal analysis of aluminium alloy 6063 and aluminium alloy 7068 along with the universal aluminium alloy 204 by varying thickness of fins. They showcased that aluminium alloy 6063 with 2.5 mm circular fin gave better effectiveness than the other geometries. Ravindra and Prashant (2018) performed CFD analysis on heat energy transfer through fins with different types of notches cut on them and concluded that the fins with a rectangular notch had a higher thermal energy transfer rate. Sujan et al. (2019) performed thermal analysis on fins and obtained the percentage errors between the actual and the theoretical steady-state thermal analysis values. Arvind et al. (2016) examined the superlative material for improving the rate of heat transfer through fins by performing thermal analysis on various alloy made cylinders, by considering their working conditions, strength and weight of the material.

Rajvinder et al. (2016) illustrate the heat energy transfer in two different materials, such as Cast Iron and Aluminium alloy 6061. From the results obtained, they found a high heat flow rate in Aluminium alloy 6061 than those of other materials. The literature survey unveiled that research works associated with fins are limited and there were no studies based on varying fin parameters, introducing slots in fins and its variation in slot numbers, locations etc. Hence in this work, an attempt has been made to analyze the impact of the introduction of slots and varying fin thickness on the IC engine cylinder by performing transient thermal analysis. A plot of temperature and total heat flux distribution on different engine cylinder fins (varied in fin thickness) is obtained and slots are introduced to improve the heat transfer rate, reducing the material usage and cost as well. Finally, the most optimal fin model for effective heat dissipation is recommended upon inference.

MATERIALS AND METHODS

Initially, a literature survey was conducted from various journal resources, followed by 3D modelling of the different fin geometries using AUTODESK FUSION 360 software. The geometries included rectangular and circular fins. The next stage of the simulation was done in ANSYS WORKBENCH 2020 ACADEMIC software, wherein the transient thermal analysis was carried out on the modelled fins. The material used was Aluminium alloy 6061. The data are contained in the literature surveys; many studies were subjected to steady-state Heat Transfer analysis and plot corresponding temperature distribution. However, the method followed here was to conduct transient thermal analysis and thereby to obtain their temperature and total heat-flux dispersal. Another important aspect of this study was introducing slots and examining their effect on temperature distribution, thus recommending the most optimal engine fin model for heat dissipation. The methodology adopted to complete the fin analysis is depicted in Figure 1.

Modelling of different engine cylinder fins

Rectangular and circular fin profiles bearing 2 and 3 mm thick fins were modelled. The number of fins for each model is 5. The distance between the two top surfaces of the fins is maintained at 13 mm. The engine cylinder's length is 75 mm, and the outer and inner bore diameters are 110 and 70 mm, respectively. Further, (8 × 10 mm) slots were introduced at the centre and the corners, as shown in Table 1. Autodesk Fusion 360 software was used to accomplish this work. The detailed fin parameters are shown in Table 1. The detailed 3D CAD model and its cross-sectional views of rectangular and circular fin geometries are portrayed in Figures 2, 3, 4, and 5.

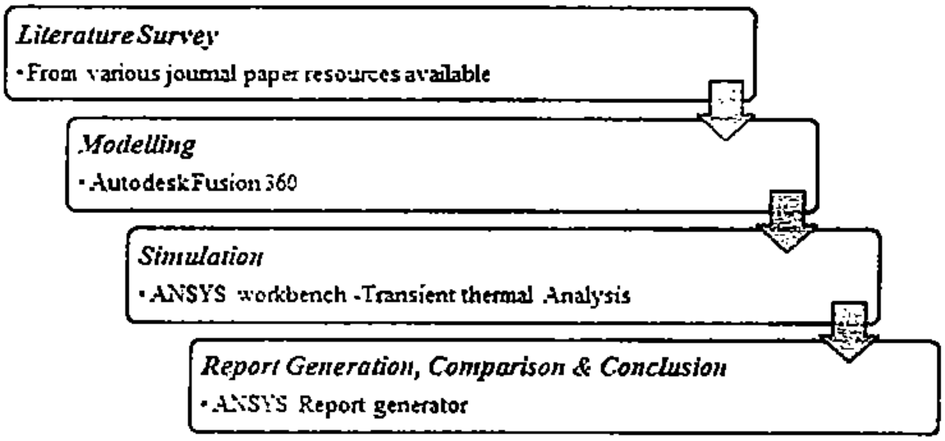

Figure 1. Flow chart of methodology adopted.

Table 1. Fin parameters.

Fin parameters	Fin models: rectangular and circular (in mm)
Fin Thickness	2 and 3
Distance Between Fins	10
Length of Cylinder	75
Outer Bore Diameter	110
Inner Bore Diameter	70
Number of Fins	5
Slot Dimensions	8 ×10
Slot Location	Centre and Corner

Analysis of Modelled Fins

Here, pre- and post-processing of modelled fins are discussed.

Pre-processing

Ansys workbench was used as a modelling tool for different fin geometries. The fundamental fin model was done in Autodesk fusion 360, and further, exported to Ansys workbench to carry out meshing and perform analysis. Triangular mesh was generated to give good results due to its high mesh quality. The meshing of different types of fins is reported in Figures 6, 7, 8 and 9. Transient thermal analysis was carried out, which determines temperatures and other thermal quantities that vary over time-a plot of temperature distribution results in identifying thermal stresses that can cause failure. The Loads and Boundary conditions used to analyze the fins are:

Maximum and Minimum Temperatures are 1500 and 140°C.
Ambient temperature is assumed to be 22°C,
Convection coefficient is 0.000083 W/m^2K. The material used for the present analysis is aluminium alloy 6061.
The material properties of aluminium alloy are depicted in Table 2.

Post processing

All the modelled fin geometries were imported into ANSYS workbench tool, and different boundary phenomena were employed to carry out virtual simulations to plot the temperature distribution and total heat flux. The post-processing results are established and reported in Figures 10-25.

RESULTS AND DISCUSSION

Figures 26-29 illustrate the temperature and total heat flux distribution of various fin profiles along with variations in thickness and slot considerations. It is seen from the figures, the slotted fin geometries are showing a higher temperature and heat flux distribution compared to fin geometries without slots.

Commonly used materials for fin geometries such as cast iron etc. have been subjected to thermal analysis over time; however, in this present study, transient thermal analysis was performed for fin models developed from Aluminium alloy 6061. This material change was done by considering thermal conductivity and also the overall weight of the fin. Aluminium is light in weight and has higher thermal conductivity, so using Aluminium alloy 6061 was considered as a suitable material. It is also inferred that on increasing the fin's thickness, the heat transfer rate is also increased. Further slots in the fin body reduce the fin weight; thereby, resulting in a decrease in the total weight of the engine and an

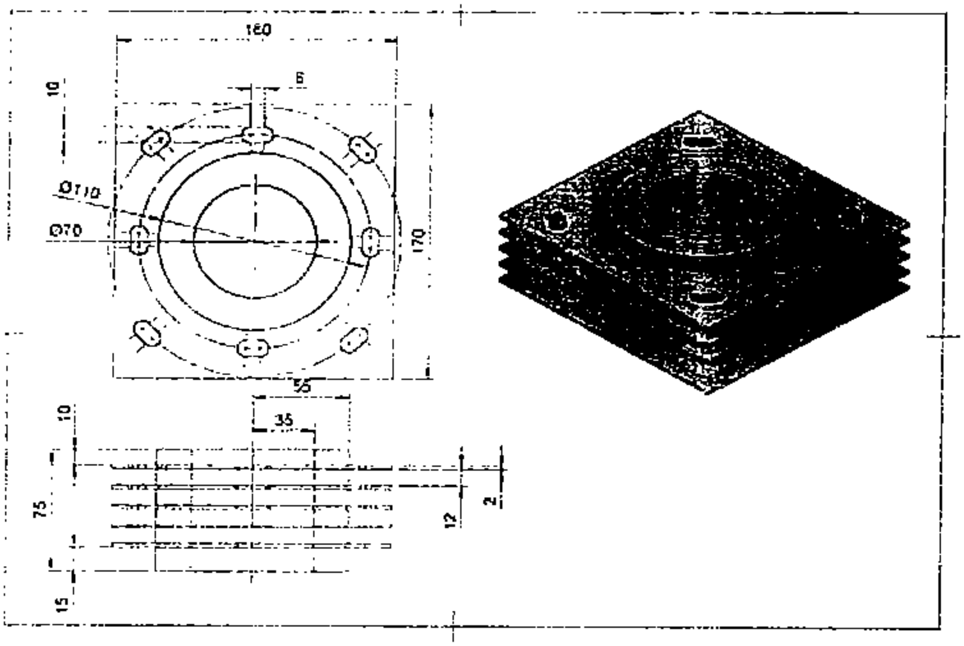

Figure 2. Rectangular fin model of 2 mm thickness with slots.

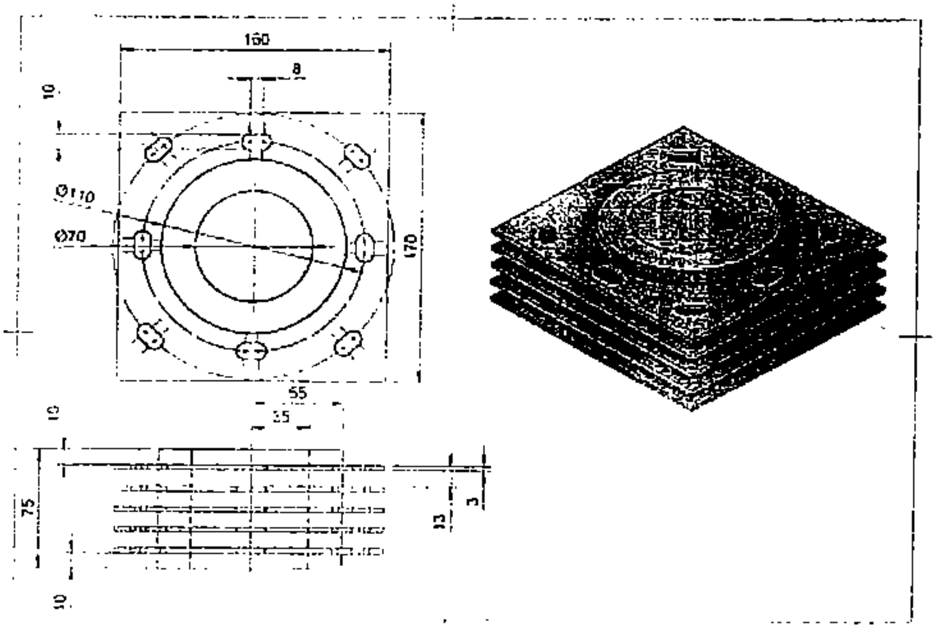

Figure 3. Rectangular fin model of 3 mm thickness with slots.

increase in the fin efficiency by enhancing the rate of heat energy transfer (Figures 26-29). The percentage reduction in temperature upon the introduction of slots in each different fin model of varying thickness is given in Table 3.

% Reduction is given by [(New Value – Original Value) / Original Value] *100

From Table 3, it is observed that Slotted Circular fin of 3mm fin thickness is having the highest percentage of temperature reduction which is 25.12% when compared to the other fin models. This indicates an increase in the heat dissipation rate.

Commonly used materials for fin geometries such as cast iron etc. have been subjected to thermal analysis

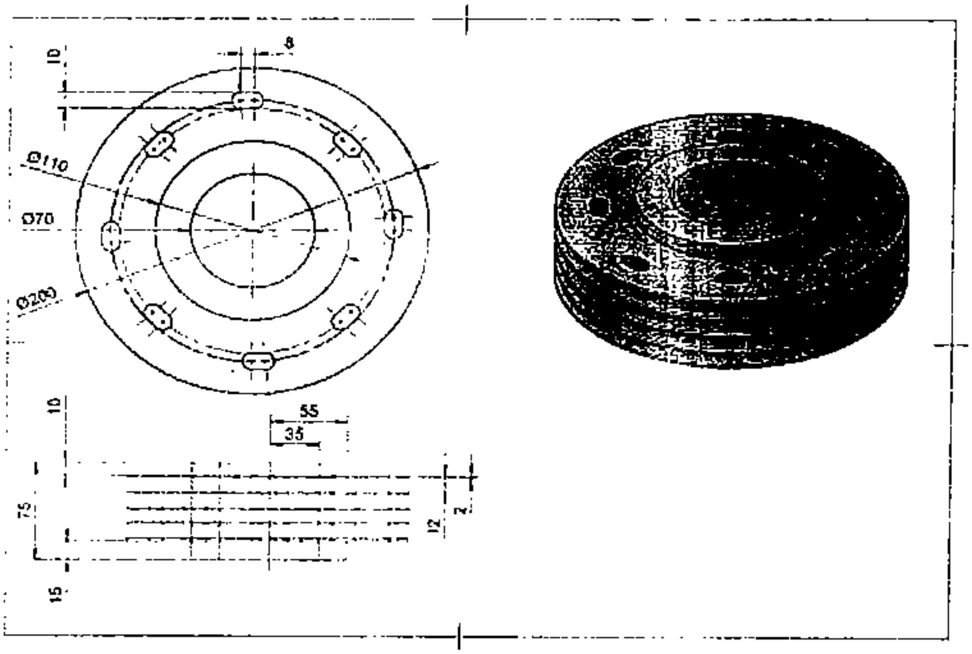

Figure 4. Circular fin model of 2 mm thickness with slots.

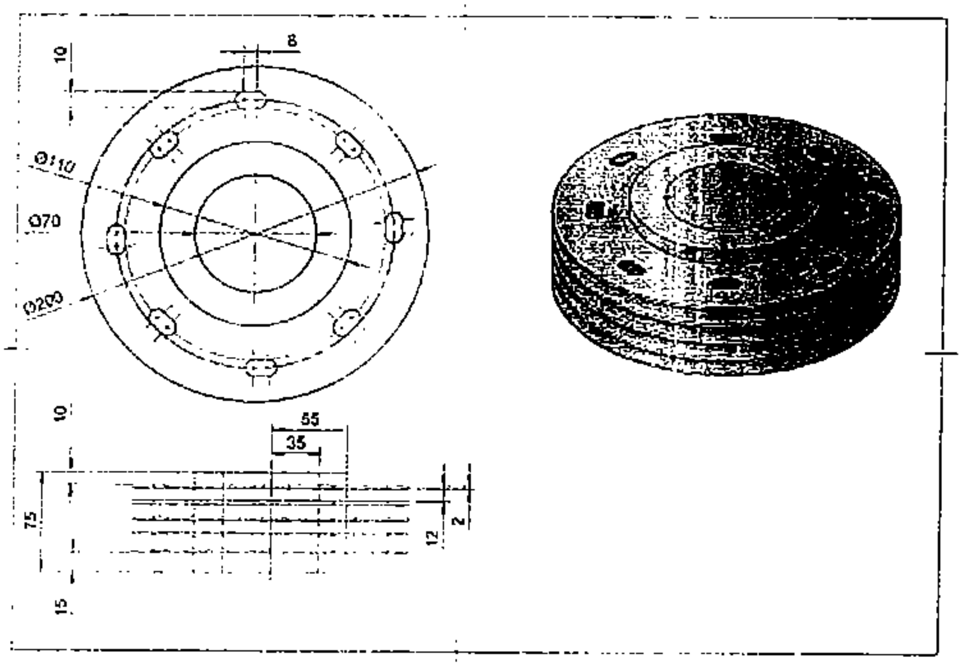

Figure 5. Circular fin model of 3mm thickness with slots.

over time; however, in this present study, transient thermal analysis was performed for fin models developed from Aluminium alloy 6061. This material change was done by considering thermal conductivity and also the overall weight of the fin. Aluminium is light in weight and has higher thermal conductivity, so using Aluminium alloy 6061 is considered as a suitable material. It is also inferred that on increasing the fin's thickness, the heat transfer rate is also increased. Further, slots in the fin body reduce the fin weight; thereby, resulting in a

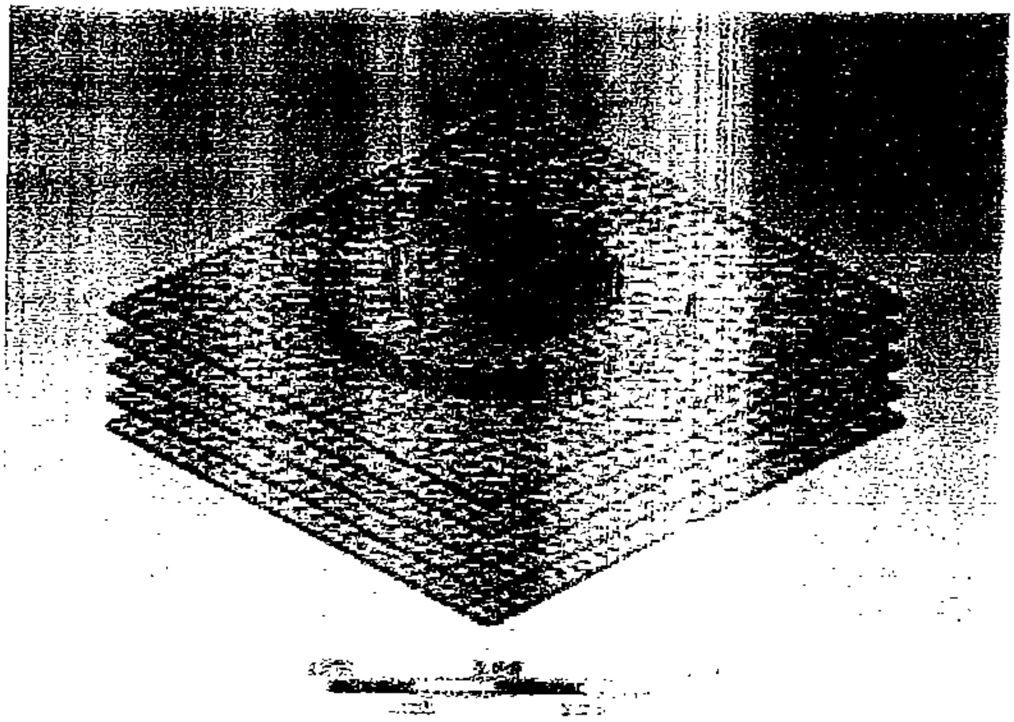

Figure 6. Mesh model of rectangular fin.

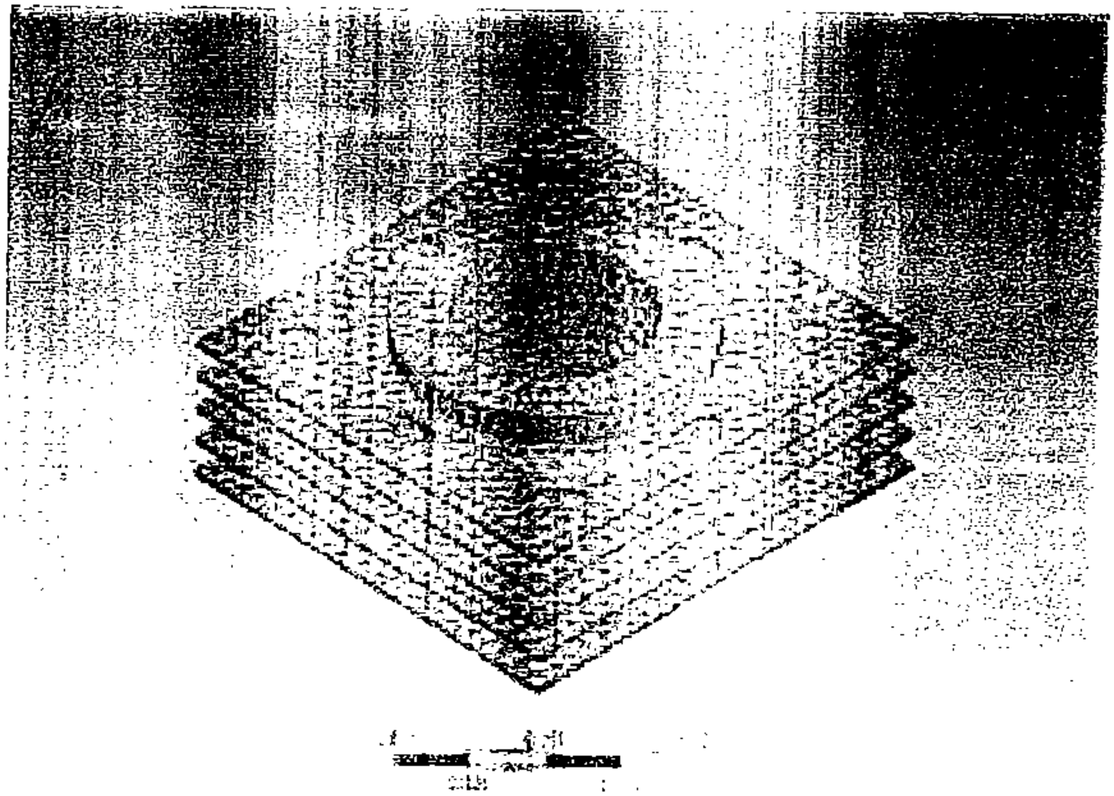

Figure 7. Mesh model of rectangular fin with slots.

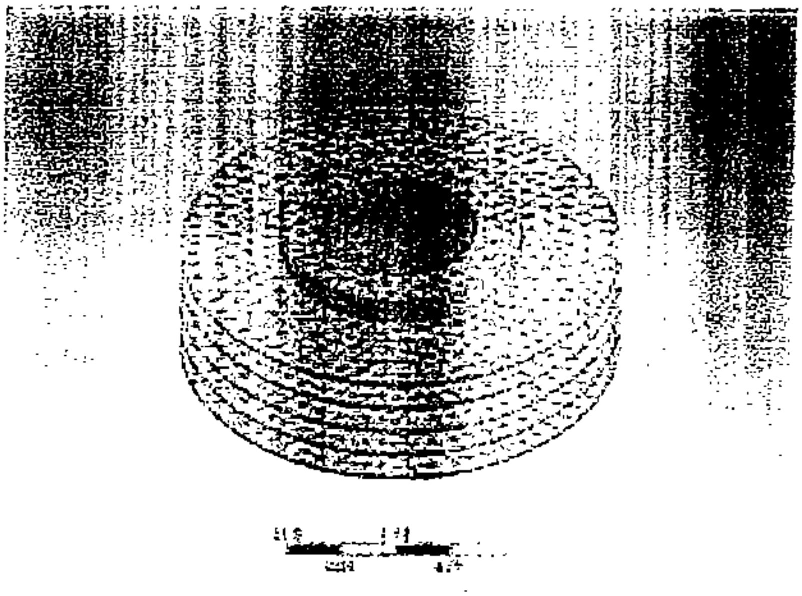

Figure 8. Mesh model of circular fin.

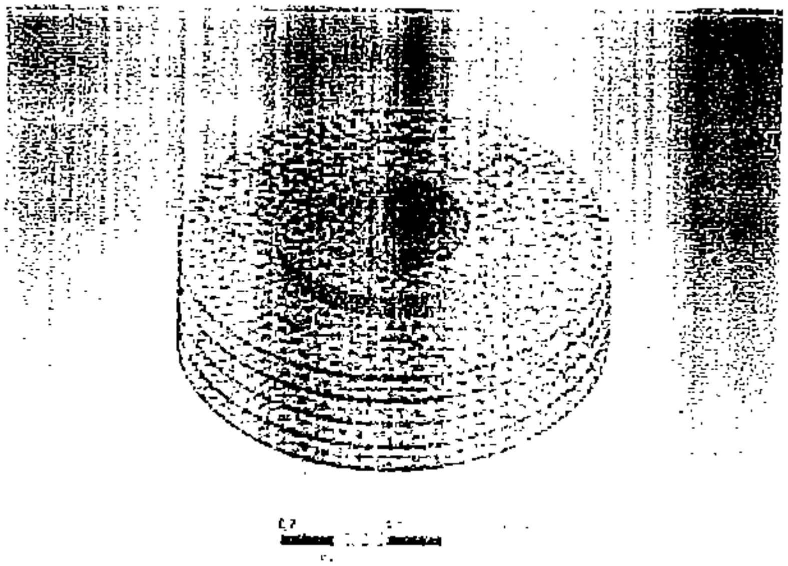

Figure 9. Mesh model of circular fin with slot.

Table 2. Material Properties of Alumunium alloy.

Properties	Values
Poisson's ratio	0.33
Elastic Modulus	69000 N/mm^2
Thermal Conductivity	170 W/mK
Specific Heat	1300 J/kg K
Thermal Expansion Coefficient	2.4×10-5/K
Density	2700Kg/m^3

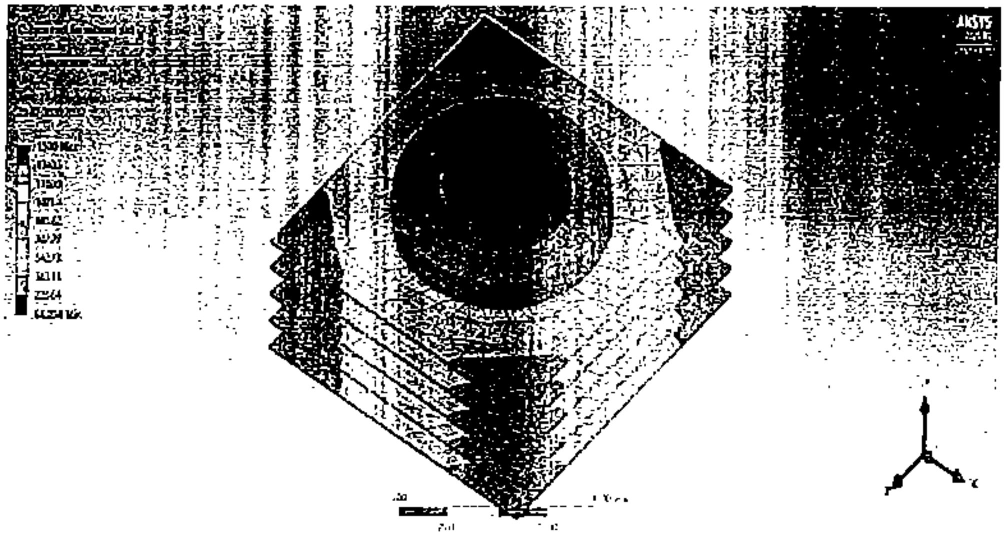

Figure 10. Temperature distribution in rectangular fin 2 mm thickness without slot.

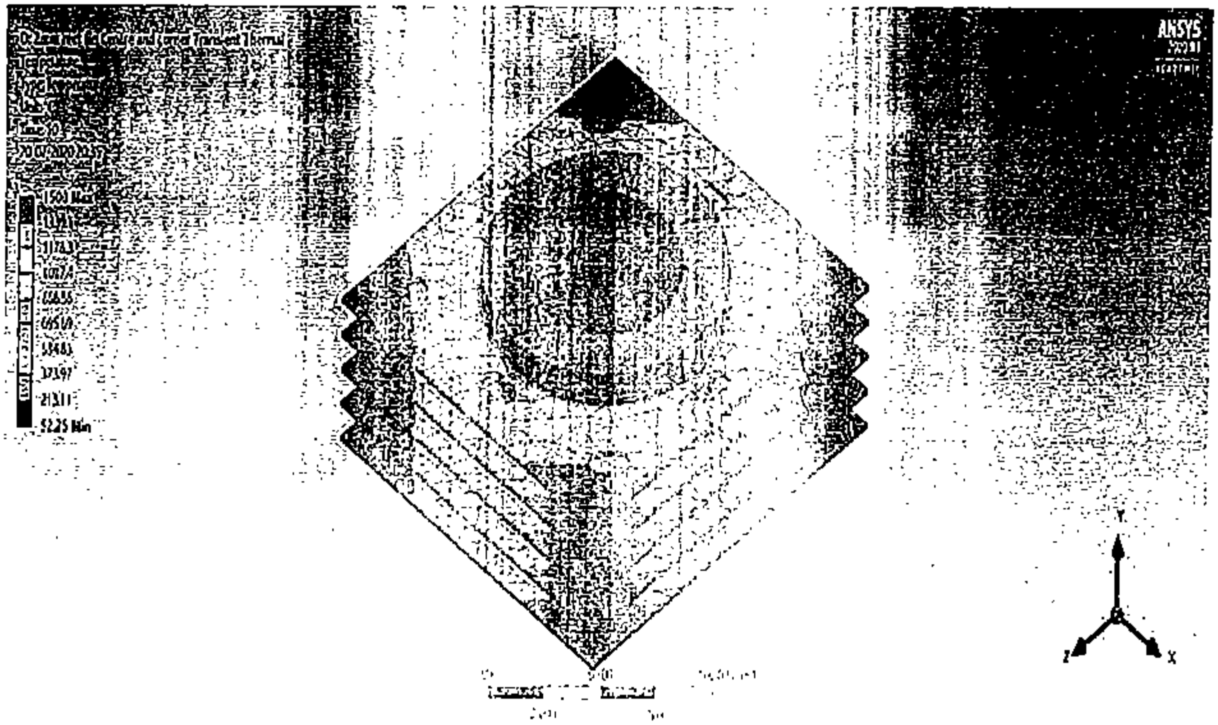

Figure 11. Temperature distribution in rectangular fin 2 mm thickness with slot.

decrease in the total weight of the engine and an increase in the fin efficiency by enhancing the rate of heat energy transfer (Figures 26-29).

The unwanted heat retained by the engine is reduced by slotting as it causes a temperature descent. Further, on slotting and as the fin thickness enhances an improved convective mode of heat transfer is observed. Thus, the amount of heat dissipated to the surrounding has also improved. On average, there was a considerable reduction in the temperature of the engine parts (Rajvinder et al., 2016; Maan et al., 2018; Awasarmol and Pise, 2017). The results produced by the analysis software are in the form of coloured contours of required parameters. The contours are such that they

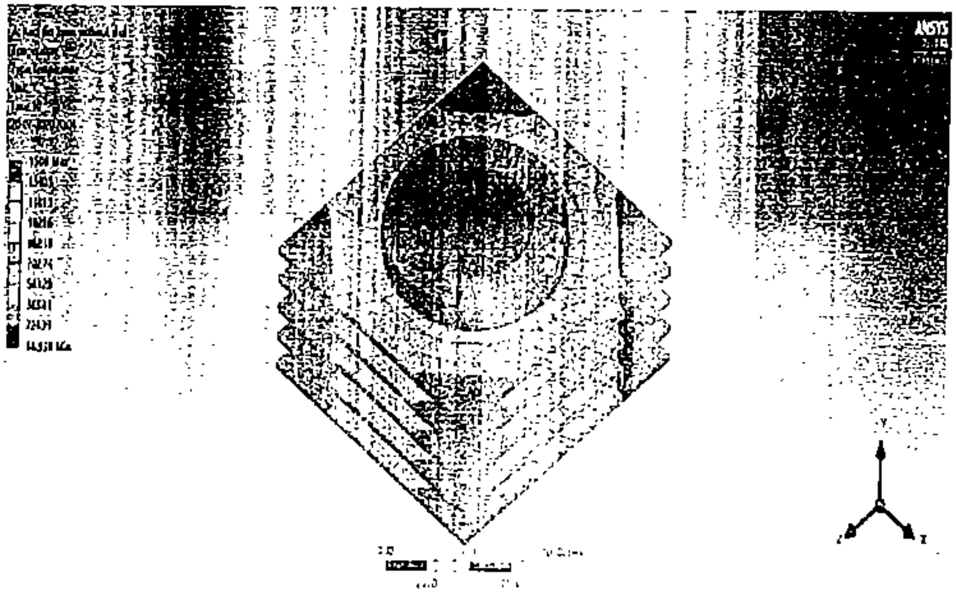

Figure 12. Temperature distribution in rectangular fin 3 mm thickness without slot.

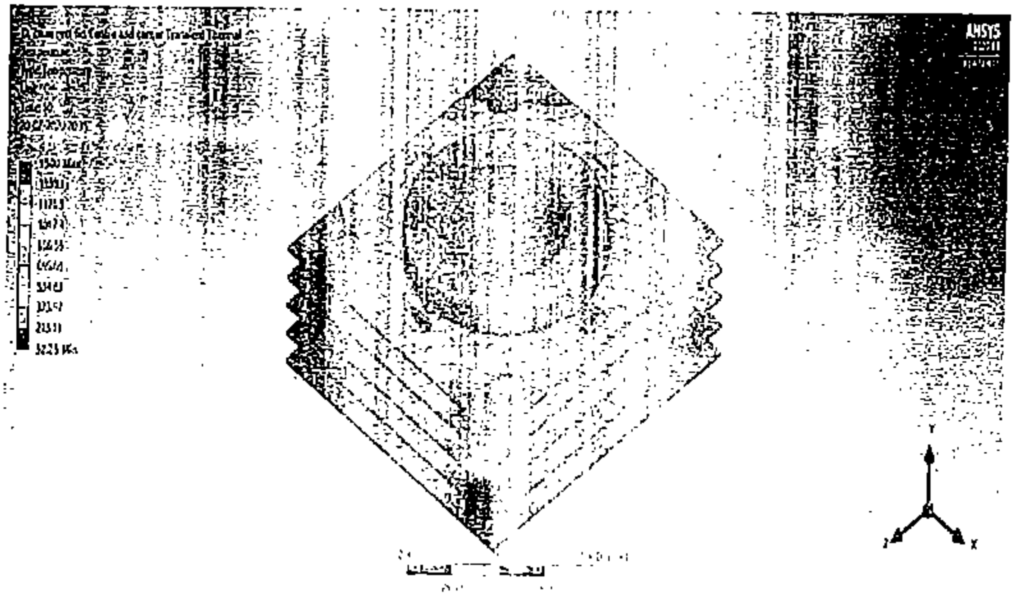

Figure 13. Temperature distribution in rectangular fin 3 mm thickness with slot.

give an idea about the value of the parameter ranges, which are indicated in the legend. Accordingly, the circular fins with slots having a fin thickness of 3mm is observed to be the more efficient fin when compared to the rectangular fin counterpart.

Conclusion

From the above results and discussion, the following are the conclusions arrived at:

(i) Effectiveness of the fin denotes the ratio of the actual heat transfer that takes place from the body having fins to the heat that would be dissipated from the same body without fins. Slotting helps in increasing the effectiveness of the fins. Therefore, the heat transfer rate also increases considerably.

(ii) There is also a reduction in the usage of materials due to slotting, which leads to lower manufacturing costs and the engine fin component's weight. Hence, we can achieve an optimum heat transfer rate with less material

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Journal of Mechanical Engineering Research

Full Length Research Paper

Thermal deformation of a thermal shield material vs. method of heat supply

Lyudmila I. Gracheva

G. S. Pisarenko Institute for Problems of Strength, National Academy of Sciences of Ukraine, Kiev 01014, Ukraine.

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This work aims to analyze the thermal deformation of a thermal shield laminated material under a uniform or one-sided heating of up to 600°C/min. The material is made of a fiberglass composite polymer material based on phenol-phormaldehyde matrix. This work describes the method used to study the kinetics of thermal deformation of the composite material at different heating rates and a high-temperature of gas flow (2500°C). The state of the stressed-deformed samples made of a reinforced plastic is computed and used to measure the expanded temperature of the materials under one-sided heating. It is shown that under both force and thermal loading, the linear dependence of the coefficient of thermal deformation α_T on temperature, stresses in the sample developed to prevent the bending of free samples. For a bent sample, there is no stress gradient ($\Delta\sigma = 0$) under increased heating rate of the loaded samples, leading to an increase in the stress gradient values. The data are compared with dilatometry results obtained at a uniform temperature field and heating rates of 20 to 1100°C.

Key words: Thermal shield, spacecraft, re-entry, composite material, high temperature, fiberglass, dilatometer.

INTRODUCTION

Thermal shield materials (TSMs) used for aircraft and aerospace technologies are classical examples of objects operating under extreme loads. Extreme conditions are defined by temperature, acting mechanical stresses, and also by the degree of chemical aggression of an external medium, intense radiation, abrasive erosion action etc.

In real conditions, thermal shield materials are exposed to thermal and chemical force simultaneously.

Changes in both the velocity and temperature of an incoming flow affect the thermal load on spacecraft characteristics.

Figure 1 shows the dependencies of parameters of high-temperature gas flow acting on the side surface of a re-entry spacecraft based on the descent time *t* from the earth orbit (Dimitrienko, 1997).

In heating process, both physical and chemical transformations occur in thermal shield laminates that radically change the structure, composition, and density of thermal shield materials.

Non-reversible changes of thermo-physical properties of the materials occur, such as decrease of density, increase of gas penetration, appearance of secondary porousness, change of thermal conductivity of materials in the direction of reinforcement and at right angles for all types of composites (Dzenis and Ponomaryov, 1989; Perepelkin, 1992).

The major types of surface or local destruction of the materials are as follows (Polezhaev and Jurevich, 1976; Tadmor and Gogos, 2006; Malkin, 1991; Khobragade and Deshmukh, 2005):

E-mail: ligrachyo@gmail.com or ligrachyo@ipp.kiev.ua.

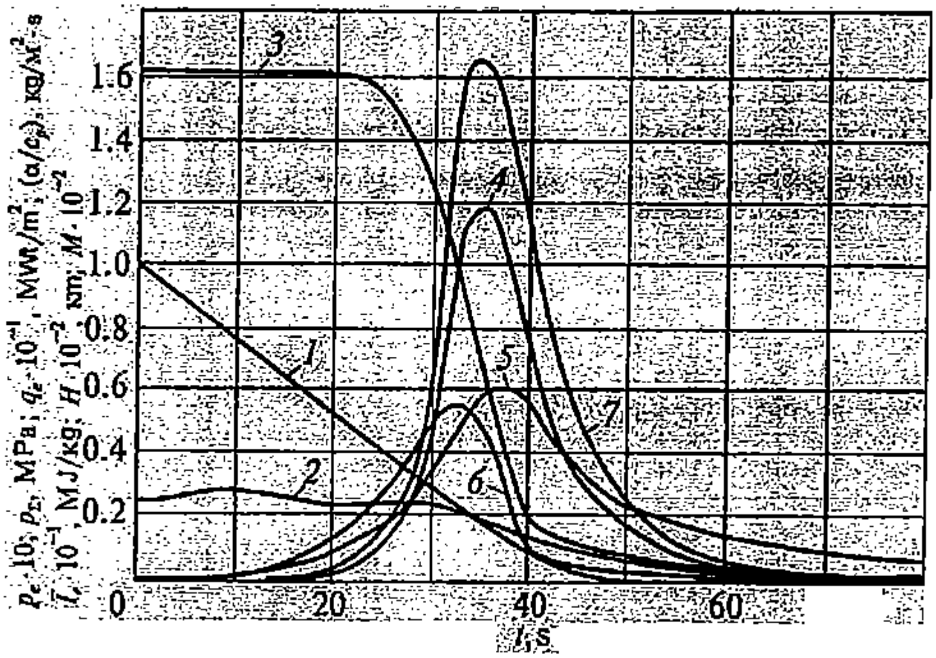

Figure 1. Dependence of parameters of gaseous dynamic flow acting on a side surface of a re-entry spacecraft vs. descent time t from the Earth orbit (H -1; M – 3; I_e – 3; p_e – 4; α/c_p – 5; q_o – 6; p_Σ - 7) [1].

(1) Thermal destruction under the action of supercritical thermal flows due to change in the state of matter (melting, evaporation, sublimation);
(2) Mechanical destruction due to thermal stresses caused by thermal expansion (shrinkage) of thermal shield materials under physical and chemical transformations at high temperatures;
(3) Mechanical destruction in friction contact or while hitting moving solid objects quickly;
(4) Chemical destruction in reactions with aggressive media (liquid or gaseous).

The most important mechanism involved in the interaction between materials in ambient medium is the correspondence of experimental studies on the natural conditions of operation of a specific structure or model.

MATERIALS AND METHODS

To choose a thermal shield material for specific purposes, designers need to have laboratory setups that imitate conditions of material operation at maximal thermal loading to overcome the threshold of ablation of the surface of thermal shield materials.

To study the deformation and destruction of the models of thermal shield structures, special gaseous dynamics setups are created in the Institute for Problems of Strength (Kiev, Ukraine); they provide a possibility to test models of cylindrical, conical, prismatic shapes with length and width (diameter) of more than 300 mm.

A source of a high-temperature flow (up to 2500°C) was a gas jet of combustion products (kerosene in oxygen) in an aircraft-type camera (Voloshchenko et al., 1980).

Large-size models of a conical shape were used to study the kinetics of destruction and heat resistance of the thermal shield elements under erosive high-temperature and corrosive high-density gaseous flow (Figure 2) (Gracheva and Kharchenko, 2006).

Cracks can develop themselves both at lower (a) and upper (b) butt, or they can go across the side surface of a shell (c). In any case, they develop along generatrix of a conical model of thermal shield laminate due to the action of stretching stresses. These in turn appear due to shrinkage of thermal deformations in the laminate under high-temperature heating.

The destruction can be caused by the accumulation of defects in the volume of the material that occurs in mechanical loading and thermal cycling under intense action of radiation.

Under extreme conditions, critical accumulation of defects may occur within a sufficiently short timeframe.

Glass plastics are traditional materials used for the thermal shield of the side surface of the re-entry spacecraft in the dense layers of the atmosphere.

The mechanism of thermal shield laminates is based on destroying the surface layer to create an operational thermal regime for either inner layers or a whole structure.

Thermo-mechanical destruction is a result of the action of thermal stresses that appear in a thermal shield laminate under intensive one-sided heating. Its distribution through the material thickness can be represented as (Lehnitsky, 1977):

$$\sigma \cong -\alpha_t E\left(T - T_0 - \int_0^\delta \frac{\partial T}{\partial x}\,dx\right),$$

where δ is the material thickness.

Direct measurements of the working layers of a thermal shield are practically impossible due to high temperatures and fast

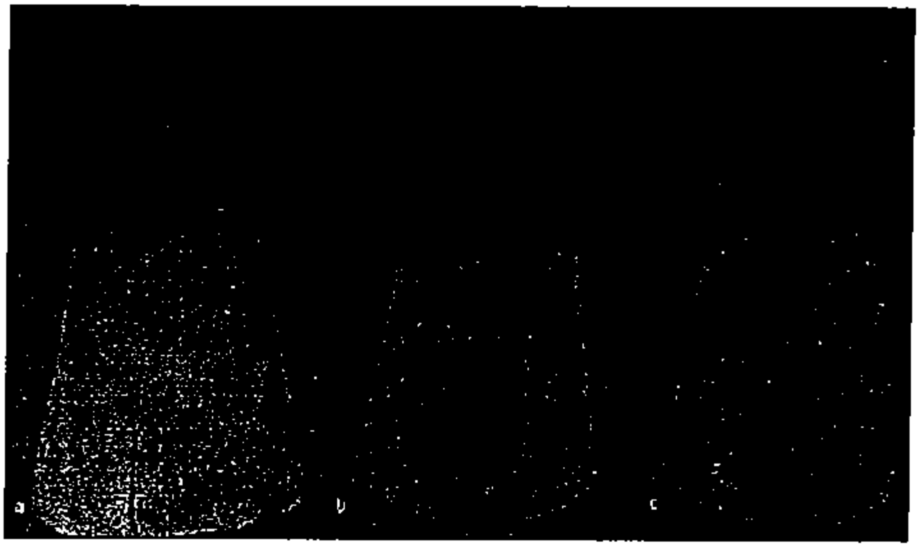

Figure 2. Destruction of surface layers of a thermal shield made of a polymer composite material tested at a high-temperature of gas flow.

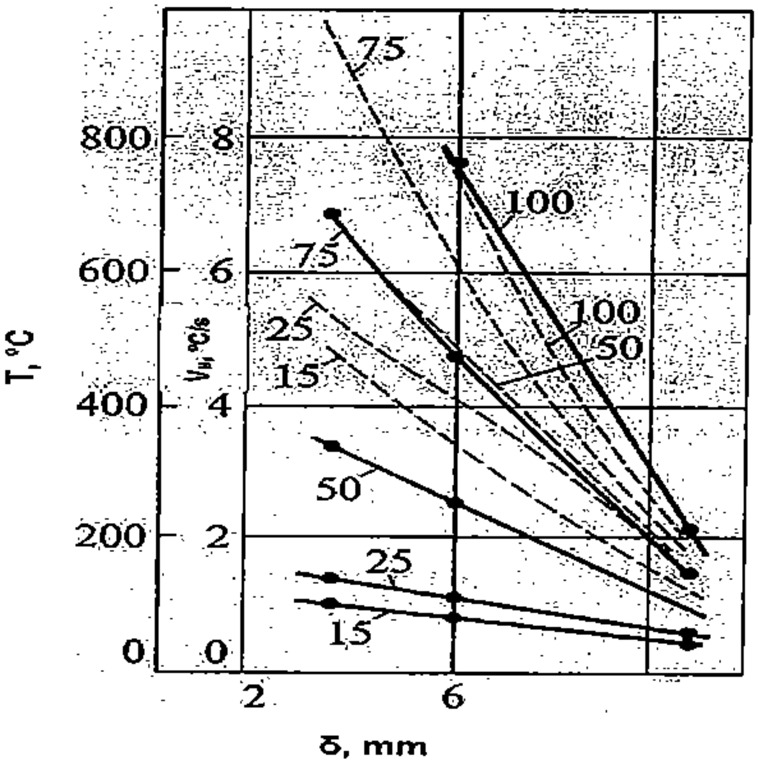

Figure 3. Temperature distribution (continuous lines) and heating rates (dashed) over the thickness of a fiberglass laminate under one-sided convective heating in a high-temperature of gas flow [Gracheva (2006].

timeframe for all the processes. Therefore, to make conclusions on the working efficiency of thermal shield structures one can just rely on conditions close to real ones.

Figure 3 shows the results of thermometry of an outer layer of a thermal shield laminate in a weakly conical model (Figure 2); it was tested in a high-temperature jet of a gaseous dynamics setup that simulates operation of the structure under real conditions.

The reliability of composite materials destroyed by heat like thermal shield laminates is defined mainly by the character and magnitude of thermal deformations (TDs) due to increased temperature.

Thermal expansion analysis allows one to make conclusions about the working efficiency of thermal shield materials. Especially important are studies of linear thermal expansion coefficients conducted under real modeling conditions.

The goals of this study are (i) to determine the thermal expansion of a typical thermal shield laminate of a re-entry spacecraft, made of a fiberglass based on a polymer, under one-sided or uniform heating (ii) to analyze and compare the data obtained on the thermal expansion of a thermal shield material under varying types of delivering heating.

The dependence of temperature T of thermal shield laminate surface upon the time of descent of the apparatus in dense layers of the atmosphere is based on the physical modeling of natural environment for a thermal shield (temperature, heating and cooling rates, composition and pressure of a gaseous medium) (Table 1).

A trajectory of the spacecraft descent, divided into time sections, was used to study the thermal deformation of composite polymer thermal shield material with heating/cooling rates corresponding to real ones (Gracheva, 2019).

Here, the most reinforced plastics used on a thermo-reactive matrix are considered; their temperature deformations are changeable; they can shrink up to 5% or more in high-temperature heating. This, in certain cases, can destroy thermal shield laminate before depleting its thermal shield properties.

RESULTS AND DISCUSSION

Thermal deformation of a TSM under uniform heating

Fiberglass plastics are traditional materials used for the thermal shield material of the side surface of a re-entry spacecraft in the dense layers of the atmosphere.

Thermal shield material CCTF is a fiberglass, made by the method of hot pressing of silica fabric filled with phenol-phormaldehyde resin, a type of resol. Temperature deformation of CCTF was studied at the temperature range of 20 to 1100°C, with changing heating rates under homogeneous and one-sided thermal action. Deformation measurement was made by an automatic registering system using an opto-electronic method, excluding errors from the pressure of indentors on a softening sample (Marasin et al., 1991).

To control the temperature of the sample, a heating rate was brought about using platinum-rhodium thermocouples placed inside the sample.

Dilatometry was implemented in the air at heating rates of V_h equal to 10, 20, 25, 50, 75, and 100°C/min. Heating of the sample can be considered homogeneous. Thus, at a maximal level of heating rate (V_h = 100°C/min), the temperature gradient from the center to the sample surface was 3-7°C. After achieving the temperature T = 550-600°C, the readings of two thermocouples (in the center of the sample and on its surface) were practically the same. Due to the small temperature drops over the sample thickness, thermal stresses were not taken into account. Temperature stresses arising due to the inhomogeneity of properties of material in its cross-section were not considered as the samples were thin (Voloshchenko et al., 1980).

Figure 4 shows the curves of the relative thermal deformation of samples of 3 mm × 10 mm × 60 mm size, heated at different heating rates (with each given heating rate seven or eight samples were tested) (Tretyachenko and Gracheva, 1986). In a general case, the curve of the expansion-shrinkage of the reinforced plastic is characterized by the following processes:

(1) Expansion of the material up to the temperatures of solidification of a binder;
(2) Sample shrinkage caused by the decomposition of the polymer binder with gases getting out at this temperature, and also when coke starts forming;
(3) A simultaneously occurring shrinkage of the fiberglass in pyrolysis and a volume increase of the sample due to voids and cracks formed, on one hand, and thermal expansion of the coke formed, on the other hand;
(4) Completing mainly of pyrolysis.

It is seen in Figure 4, with an increase in the heating rate, the expansion zone increases. The beginning of the shrinkage and intersection point of thermal deformation curves crossed by the temperature axis shifted towards the range of higher temperatures. The largest shrinkage is observed in the samples heated at the lowest rate.

Curves of thermal expansion of composite polymer materials destroyed by heat are poly-extreme and changeable. For such materials, analytic presentation of thermal deformation as a function of temperature is difficult due to a number of factors: first of all, a heating rate, which is connected to the time of occurring phase and structural transitions in the polymer matrix.

Analytical dependence of TD vs. temperature and heating time

Despite the rather complicated character of the curves of thermal deformation of composites based on destructive matrices, their analytic presentation is possible with statistical and regression analysis.

To determine the average values of deformation characteristics, confirm the shape of a generalized empirical dependence, and determine the necessary volume of data to build the function ε=f(T), an algorithm was developed to automatically process the experimentally results obtained from the thermal deformation of fiberglass TSP-F based on temperature and time factors.

The code, implemented based on a least squares for an exponential, power, and polynomial dependencies, is a library of primary modules that allow one to smooth out experimentally obtained data.

In using polynomial dependence, not only coefficients of the polynome are defined but also its degree, which are the best for a given dependence in the sense of minimal discrepancy (Dreiper and Smith, 2016).

Table 1. Values of temperature and heating rate of TSM at various time intervals of the descent trajectory.

Time, *t* (s)	*T* (°C)	*Heating rate* (°C/s)
20...200	520	2.6 (156)
200...300	1200	10 (600)
310...470	1200	3.6 (216)
470...510	700	1.1 (66)
610...1000	260	-

Values in °C/min are shown in parentheses.

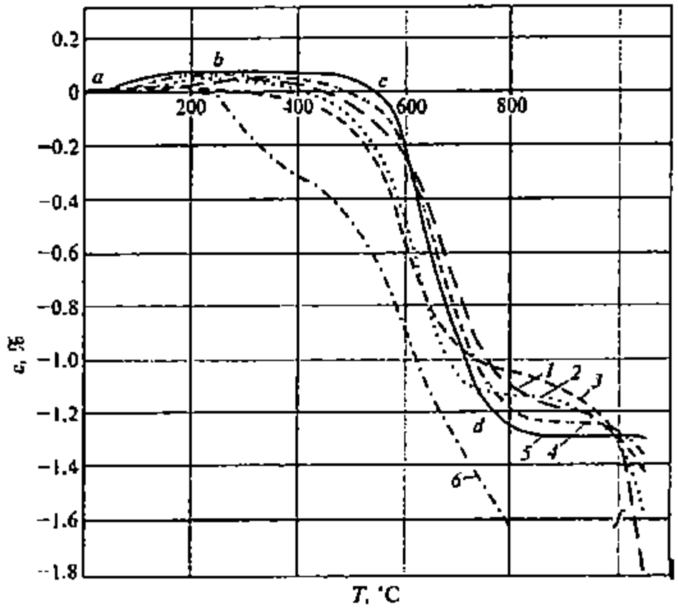

Figure 4. Dependence of the relative thermal deformation of fiberglass TSP-F on temperature at heating rates of °C/min: 1 – 10; 2 – 20; 3 -25; 4 – 50; 5 – 75; 6- 5.

To compute unknown coefficients of the method of least squares, the Gauss method of solving linear algebraic equations was used. The process of solving it consists of steps of smoothening table values of given functions and formation of the matrix of coefficients obtained.

It is shown that among polynomials of 3rd-10th order used to build a generalized empirical dependence by the method of least squares, the best (in the sense of minimal discrepancy) happened to be polynomials of 4-5th degree of the type:

$$\varepsilon(T,\tau) = \frac{\Delta l}{l_0} = 0.182\times10^{-12}T^4 - 0.326\times10^{-9}T^3 +$$
$$0.152\times10^{-6}T^2 - 0.204\times10^{-4}T + 0.759\times10^{3}$$

Figure 5 shows the computed data on thermal expansion of fiberglass TSP-F under heating rates of 25 and 75°C/min.

Results of a numerical experiment using established polynomial dependence showed relatively high coincidence with thermal deformation dependencies obtained under homogeneous heating at the rates of 10, 50, 75, 100°C/min (Figure 4).

Thermal deformation of TSM in one-sided heating

The dependencies of thermal deformation of a composite material are obtained in a homogeneous heating-through of the samples. Real operating conditions of high-temperature composites are characterized by a sharp non-homogeneity of temperatures over the thickness of a thermal shield laminate caused by intense heat flows directed inside the structure. To determine the dependence of thermal deformation of fiberglass on

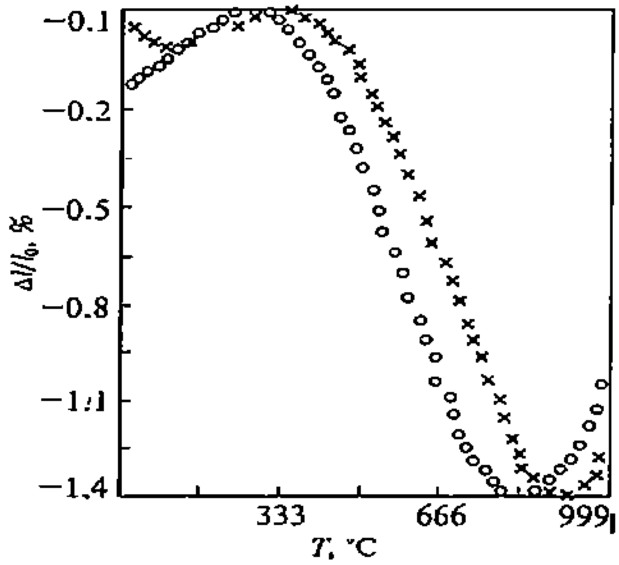

Figure 5. Dependence of relative thermal deformation of glass plastic on temperature (numerical experiment) at heating rates of °C/min, x – 25; o – 75.

temperature and time in one-sided heating on a dilatometric setup, a series of experiments were performed under changing heating rates in the air.

As a model, a narrow sample was chosen; its thickness corresponded to the structure thickness, and its length exceeded the influence zones of edge effects. To model the influence of action of non-heated layers of the laminate into pyrolysis layers, the sample was loaded according to the scheme of bending from the side of a cooled surface (Figure 6). The bend was compensated in the process of testing by continuously rotating a circular platform 14, established on a rod 8. To achieve the bend,indicator arrow 11 would have to remain in the zero position, thus providing a horizontal placement of the sample 2 throughout the experiment (Gracheva, 2004).

In the layer at a distance of 3 mm from the heated surface of the sample, fiducials 18 was set (Figure 6); it was registered in the heating process automatically. Heating rate in the studied layer was 25, 50, and 100°C/min (Gracheva, 2016).

Temperature distributions in the sample were defined using platinum-platinum/rhodium thermocouples; it was set on a heated surface (Tp_1), in the middle of the sample at a depth of the tested layer (Tp_2), and on the opposite from the heating side of the sample (Tp_3). Thermocouple 2 was the leading one in testing, and according to its readings, the heating program was set.

Results of the samples from fiberglass CCTF in a one-sided heating at different rates are as shown in Figure 7.

Temperature in the studied layer of the sample was set as a linear function of time: $T_2(\tau) = T_0 + V_h\tau$, where $T_0 =$ 20°C - initial temperature; τ - time of thermal action. Temperature on the cooled side of the sample in testing was changed insignificantly (25-28°C) for all heating rates and is not shown in the figure.

Temperature field over the sample thickness at different time was defined according to the accepted heating scheme; it corresponded to conditions of regular regime and the test results obtained. Experiment scheme in defining temperature field gives an opportunity to consider a sample as an infinite plate heated from one side on linear dependence with sustaining temperature constant on the other side. Analysis of temperature curves (Figure 7) allows one to assume that temperature fields can be described by a polynomial of the second degree (Tret'yachenko et al., 1981):

$$T = Ay^2 + By + D$$

where y – distance to the heated surface. Constants A, B, D are defined from boundary conditions:

$$T_{y=0} = T_1,\ T_{y=1} = T_2,\ T_{y=0} = T_3,$$

where T_1, T_2, T_3 – temperatures obtained experimentally. Results of computation of temperature fields over the sample thickness at heating rates of 25 and 100°C/min showed that (Gracheva, 2005) decrease of the heating rate gets closer to the distribution of temperatures over the cross-section of the sample to a linear one.

Change of mechanical and thermo-physical properties of fiberglass under the conditions of increasing one-sided thermal action is inherently connected to the state of structure of the material in the heating process. Heat supplied in the initial moment to the heated surface of the sample is absorbed by a material and is brought to the

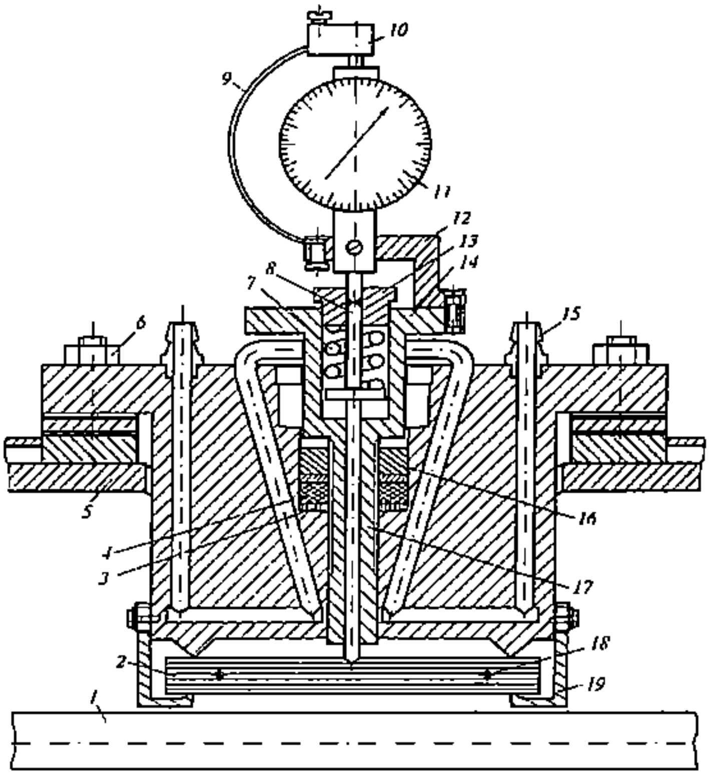

Figure 6. Placement of the sample in a testing chamber under one-side heating: 1- carborundum heater; 2 - sample; 3 - supporting rings; 4 - rubber rings; 5 - chamber wall; 6 - bolt connection; 7 - spring; 8 - rod; 9 - semi-ring with a tenso-resistor; 10 - clamp; 11 - indicator; 12 - support; 13, 16 - support nuts; 14 - circular platform; 15 - tubulure; 17 - ram; 18 - fiducial; 19 - sample supports.

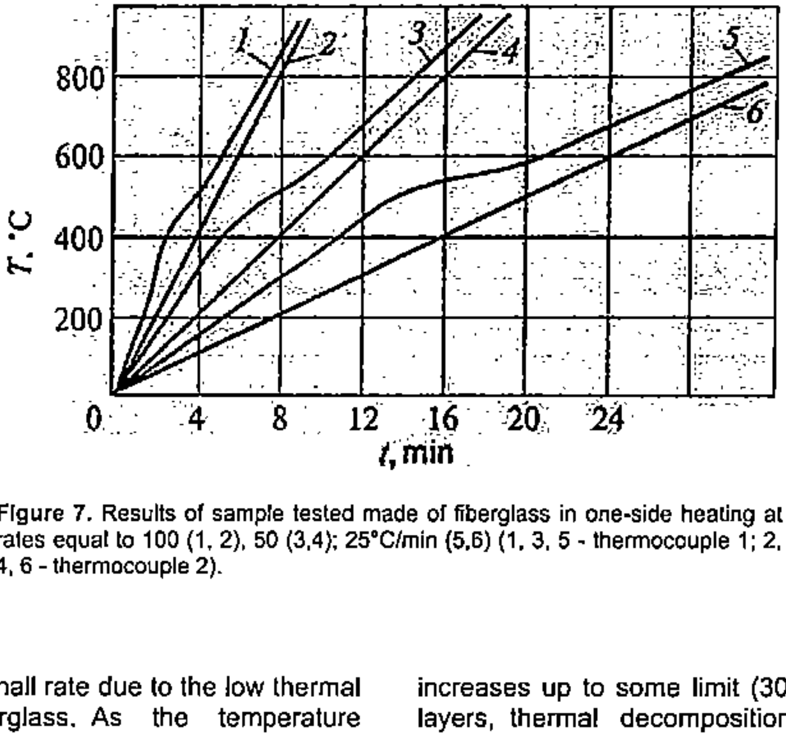

Figure 7. Results of sample tested made of fiberglass in one-side heating at rates equal to 100 (1, 2), 50 (3,4); 25°C/min (5,6) (1, 3, 5 - thermocouple 1; 2, 4, 6 - thermocouple 2).

lower lying layers with a small rate due to the low thermal conductivity of the fiberglass. As the temperature increases up to some limit (300 - 400°C) in the surface layers, thermal decomposition of the binder starts

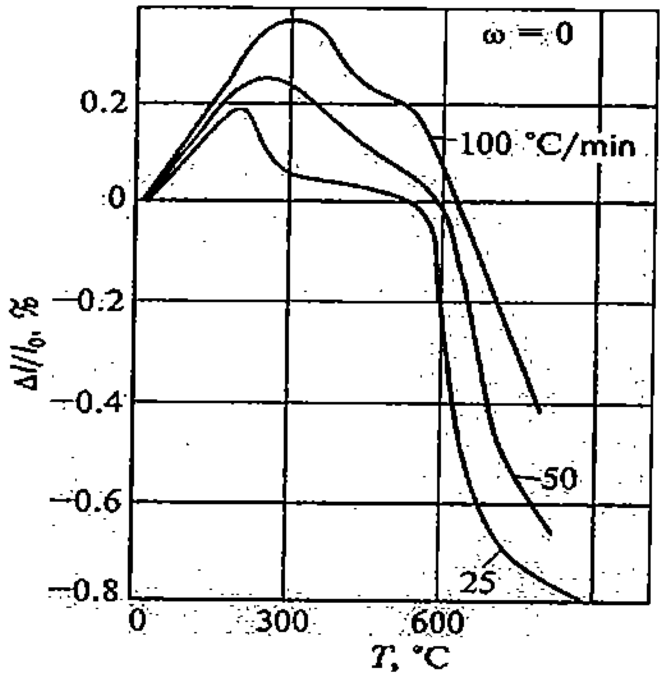

Figure 8. Dependence of the relative deformation of fiberglass TSP-F on temperature in one-sided heating.

depending not only on temperature of testing but also on duration of thermal action. With an increased temperature and time of heat supply, the zone of thermal destruction permanently shifts from a heated material inside, and the remaining thermal coke; it is indicated by decreased rate of temperature increase T_1 after the start of pyrolysis (Figure 7).

Results of temperature deformation of fixed samples in one-sided thermal action are shown in Figure 8. In the experiment, the sample bending ω was excluded by sample loading from the side opposite to heating. The bend ω in one-sided heating in a free, non-fixed state was recorded separately (Figure 9) (Gracheva, 2006 and 2016).

On the given curves it is seen that in one-sided heating, the curves of thermal deformation sharply shift to the zone of large values of deformations and temperatures, if they are compared with analogous curves obtained for the same material under conditions of a homogeneous temperature field. For comparison, Table 2 shows some characteristic points of curves of thermal deformation of samples from fiberglass in a homogeneous and in one-sided heating.

The difference of values of similar points under non-equal types of thermal action at a heating rate of 50°C/min is higher than that at the heating rate of 25°C/min. Thus, if the largest expansion for V_h = 25°C/min is higher than that in one-sided heating as much as 2.2 times, then at V_h =50°C/min it is as high as almost 3 times. Also, the values of shrinkages obtained at temperature 800°C and heating rate of 25°C/min in one-sided heating are lower than the corresponding values in a homogeneous heating 1.67 times; while at 50°C/min, it is 1.93. For the temperatures used to cross the curves of thermal deformation, the *x*-axis obtained in one-sided heating also shifted in the area of large values for V_h = 25°C/min - on 15%; for V_h = 50°C/min - on 20%.

Physically it is clear that the conditions of the experiment are such that on the opposite, cooled side of the sample there is constant room temperature. Even though in the surface layers of the material, there is high temperature shrinkage as a result of thermal destruction, the medium layers of the material under given heating rates and corresponding temperature fields are in the zone of thermal expansion. This defines, in general, the integral characteristic of thermal deformation of the material.

Thus, dependencies of thermal deformation defined in one-sided heating of mechanically loaded fiberglass samples based on phenol-phormaldehyde, witness a substantial decrease in the level of shrinkage in the material simultaneously with increase in the zone of expansion compared to the curves obtained under conditions of homogeneous heating at the same temperatures.

A thermal stressed state

Computation of a stressed-deformed state was performed

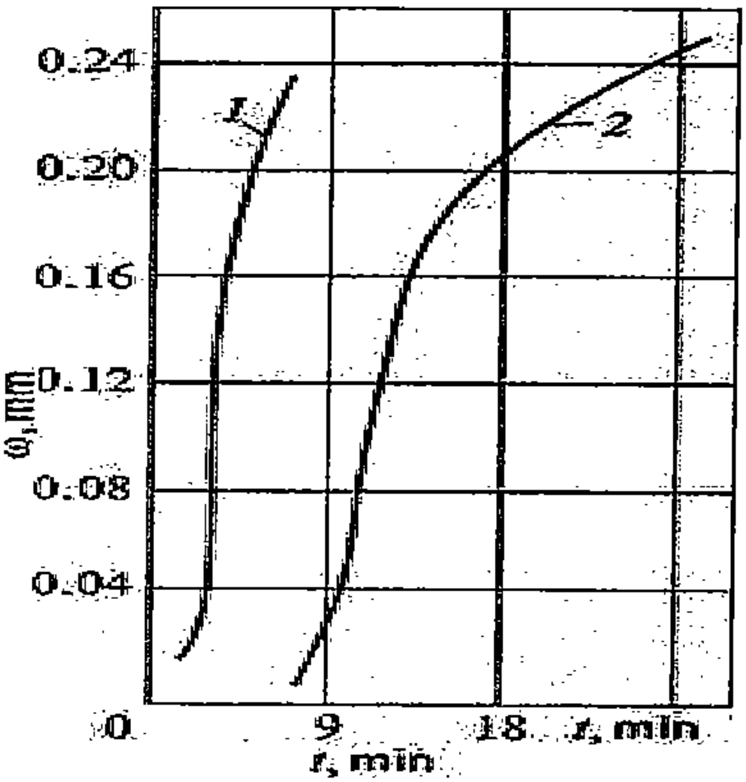

Figure 9. Bending of samples from fiberglass in one-sided heating: 1 – V_h = 100°C/min; 2 – V_h = 25°C/ min.

Table 2. Characteristic points of curves of thermal deformation in both uniform and one-sided heating.

Heating	V_h = 25°C/min			V_h = 50°C/min		
	$\max \frac{\Delta l}{l_0}$	$\frac{T\Delta l}{l_0} = 0$	$\min \frac{\Delta l}{l_0}$	$\max \frac{\Delta l}{l_0}$	$\frac{T\Delta l}{l_0} = 0$	$\min \frac{\Delta l}{l_0}$
Uniform	0.091	480	-1.3	0.094	500	1.2
One-sided	0.2	550	-0.78	0.27	600	0.62

for rectangular samples from a reinforced plastic, operating under conditions of a force load and thermal load. Having characteristics of thermal deformation and temperature distribution in sample cross-section, one can evaluate thermal stresses that cause sample bend in one-sided heating. The problem was solved considering an elastic equilibrium of a homogenous orthotropic body (Becker, 2014; Tanigawa et al., 1995).

To determine thermal stresses in the loaded (straightened) sample, we use the expression,

$$\sigma = \left[\left(\frac{\Delta l}{l_0}\right)_S - \left(\frac{\Delta l}{l_0}\right)_T\right] E_T \tag{1}$$

where $(\Delta l/l_0)_s$ - relative elongation of the straightened sample; $(\Delta l/l_0)_T$ - relative elongation of the homogeneously heated sample (dilatometric values); E_T - Young modulus at a given temperature. A stressed state of the bent (free) sample was obtained by putting in a field of stresses (Equation 1) of the bend stress with an opposite sign:

$$\sigma_b = \left\{\left[\left(\frac{\Delta l}{l_0}\right)_s - \left(\frac{\Delta l}{l_0}\right)_T\right] \pm \frac{z}{\rho}\right\} E_{T_t} \tag{2}$$

where ρ - radius of neutral plane of the sample of the thickness δ with coordinates x, y, z: $y \leq z \leq \delta - y_1$ (Grigirenko et al., 2018).

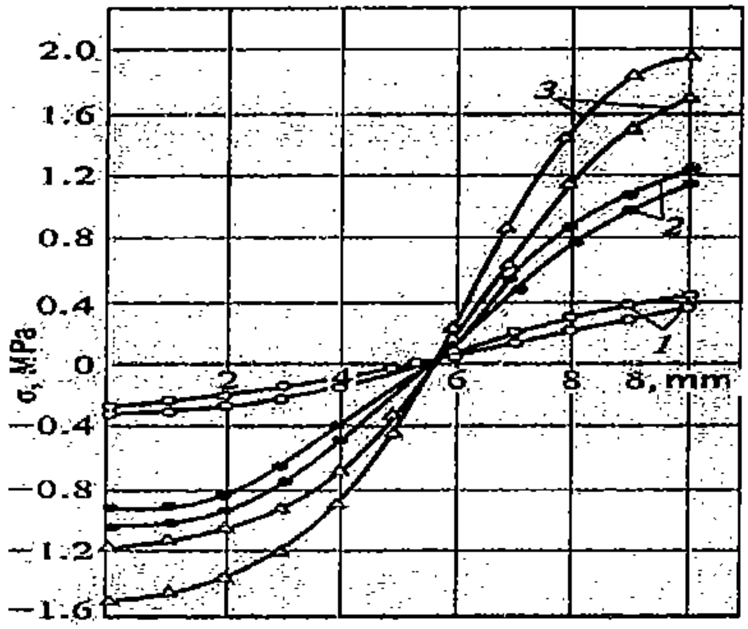

Figure 10. Distribution of stresses in samples from fiberglass in one-sided heating: 1 (o) - τ = 1.5 min; 2 (•) - τ = 2 min; 3 (Δ) - τ = 3 min (continuous curves – straightened sample; non-continuous – bent)

Distribution of stresses in the sample heated at the rate of 100°C/min and a given depth is shown in Figure 10. In computation, the dependence $(\Delta l/l_0)_T$ on the heating rate over the material thickness was taken into account. Numerals I and II designate curves of distribution of stresses in the loaded and free samples were correspondingly heated at the rate of 25°C/min for 8 min when the heat started, that is, the peak moment of the values of thermal expansion. Increase in the heating rate for both free and loaded sample in the range of linear dependence of the coefficient of thermal deformation on temperature (up to T = 300°C) causes increase in the stress gradients. Temperature increase above 300°C for fiberglass leads to an increase in the plasticity of the material that achieves its maximum at the temperatures when transition of curves of thermal deformations (Figure 8) takes place, from positive to negative (Gracheva, 2019).

Thus, due to the rheological properties of the binder, the material, in a general case, is unloaded and stresses will be not that high, as the problem is solved in elastic sense.

At the temperature range of non-linear behavior of α_T, stresses appear just to prevent a free bending of the sample, that is, for a bent sample, the gradient of stresses is absent ($\Delta\sigma = 0$).

Figure 11 shows an integral TD of weakly-conical shell, made of fiberglass fabric CCTF. It was obtained in a test of high-temperature gas flow at a high density (q ~ 500 kcal/m^{2}s; T_{max} ~ 2500°C) under modelling conditions of a re-entry spacecraft in dense atmospheric layers (Malkin, 1991).

At the temperature of deformation of fiberglass obtained in one-sided heating set-up on DTM, there was thermal expansion of the outer layers of large-size models of thermal shield structures (L = 340 mm, D = 240 mm) under testing conditions close to natural ones (Figure 2) (Gracheva, 2019).

Conclusion

An experimental and analytical study of thermal deformation of thermal shield material under one-sided heating and real modeling conditions is implemented; comparison is made with dilatometry data obtained in a homogeneous temperature field.

A research method used to study the kinetics of thermal deformation of composite materials under one- sided heating is described.

It is demonstrated that under one-sided heating, the absolute values obtained from samples deformed by thermal heat made of fiberglass based on phenol-phormaldehyde matrix increase more than twice compared to the values obtained for the same thicknesses at the same temperature-time interval.

An increase in the heating rate under one-sided heating, and uniform heating shifts deformation curves to the region of larger values and temperatures. This is due to the decrease in the time of thermal action necessary for phase transitions to occur in the material.

One-sided heating causes an increase in the stress

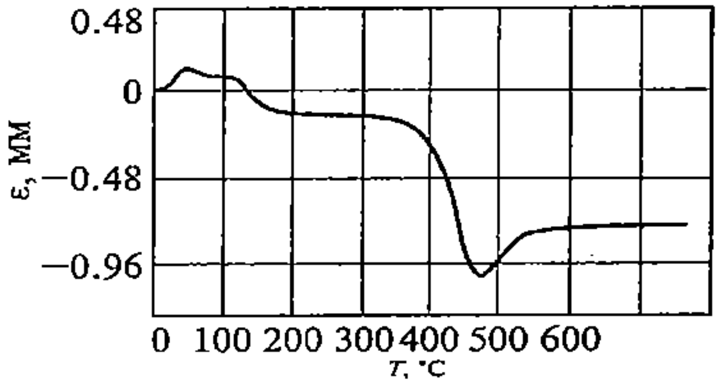

Figure 11. Thermal deformation of the fiberglass laminate TSP-F tested at a high-temperature flow of the gas-dynamic set-up, IPS NAS of Ukraine.

level at high heating rates (100°C/min), of up to 14-15% in the stretching zone, up to 30% in the compression zone, and almost three-fold increase in the level of stresses of both signs at low heating rates (25°C/min).

There is a correspondence between the values of thermal deformation obtained under conditions of one-sided heating and an integral thermal deformation of large-size models of a thermal shield tested under real modeling conditions.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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Full Length Research Paper

Development of a mathematical model to study the impact of state of charge dependent exchange current density on the generated voltage hysteresis of silicon anode-based lithium half cells

Al-Mustasin Abir Hossain

Department of Mechanical Engineering, School of Engineering and Computer Science (ENCS),
Washington State University, Vancouver, WA, United States.

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In this work, three different types of Silicon (porous, nano and bulk) anode-based coin cells are manufactured and lithiation-delithiation battery cycling tests are conducted. During the experiment, a capacity difference is witnessed at the beginning and the end point of the battery cycling loop. This capacity difference during battery cycling is reduced by implementing side-reaction correction technique on the exchange current density using Tafel kinetics formula. A huge voltage gap known as voltage hysteresis is generated during the battery cycling experiment of all three type cells. Here, a physics based mathematical model is developed to identify the main reason behind this voltage hysteresis generation. The impact of hydrostatic stress is checked on this generated voltage hysteresis. The stress induced voltage values are found significantly low to have impact on voltage hysteresis. Next, key parameters are identified which can control this stress. Then, new sets of exchange current density equation (average, linear and logarithmic) as a function of State of Charge (SOC) are developed. It is observed that, with the application of logarithmic SOC dependent exchange current density equation, voltage curve is fitted the best with the experimental result and the generated hysteresis can be minimized by controlling this SOC based exchange current density equation. Details of this study will provide more explanation.

Key words: Hysteresis, state of charge, Tafel, model, battery, parameters

INTRODUCTION

Lithium-Ion Batteries (LIBs) are regarded as most renowned energy storage capacity systems for electronic devices and heavy electric vehicles (Zhang, 2011). It has been suggested that the performance of the Lithium-Ion batteries can be improved significantly if the graphite in anode can be replaced with silicon (Si) as silicon has much high energy density and high specific capacity (Ashuri et al., 2016; Li et al., 2014) than traditional

E-mail: al-mustasin.hossain@wsu.edu.

graphite. However, there are some problems associated with silicon (Si). Si experiences a huge volume expansion (~300%) during lithiation and contraction during delithiation cycling (Di Leo et al., 2015). The stresses generated with these large volume changes have been recognized as the reason for surface cracking and pulverization of silicon electrodes that leads to loss of electrical conductivity and capacity fading during battery cycling (Baker et al., 2017). During lithiation-delithiation battery cycling experiment in silicon anode-based LIBs, a voltage gap known as voltage hysteresis is witnessed. This hysteresis is detrimental for the health of the batteries. To optimize the silicon anode battery design, a simple physics-based mathematical model that can predict this reason behind these problems in silicon is required. In the past, various researchers have developed single spherical particle mathematical model on silicon anode-based LIBs (Yang et al., 2014; Hossain et al., 2020b; Cheng and Verbrugge, 2008; Jin et al, 2019). However, nobody used any experimental data to validate their model. It was also stated that Silicon (Si) particle experiences volume expansion during lithiation. None of the model developers have taken this phenomenon into their account. Battery scientists earlier reported that key parameters cannot remain constant during battery cycling (Li et al., 2014). Nobody has considered this case under their research while developing mathematical model. In our work, we included all these key features in model development. Here, a physics-based electrochemical model has been developed which can mathematically predict the cause behind this voltage hysteresis generation. A modified version of Butler-Volmer (BV) equation including voltage stress induced voltage term as well as Jin et al. (2019) has been developed. Cheng and Verbrugge (2008) developed an analytical solution to calculate hydrostatic stress. We used their analytical solution to calculate stress induced voltage. Here, our principal target is to figure out the main reason behind this voltage hysteresis during lithiation-delithiation battery cycling in silicon anode-based lithium-ion batteries by developing our own mathematical model.

Firstly, three different types of silicon cells (Porous, Nano and Bulk) were prepared by our collaborators. Thereafter, lithiation-delithiation battery cycling experiments were conducted on these three types of coin cell. During battery cycling, some by-products were generated on the interphase of the electrolyte and anode as capacity differences has been witnessed. In order to get rid of this capacity differences, Side-Reaction (SR) rectification was required. Side-reaction correction was done by implementing Tafel regime. Next, one dimensional, half-cell, single particle physics based electrochemical model was developed to validate the experimental results. In the past, Jin et al. (2019) in their work, proposed hydrostatic stress generated from volumetric changes was the main reason of this voltage gap. However, it was necessary to recheck by conducting our own experiment and building mathematical model, whether hydrostatic stress is the main reason, or any other parameters are associated with this voltage hysteresis generation. Therefore, parametric sensitivity analysis was conducted and key parameters figured out. By controlling these parameters as a function, generated voltage hysteresis was successfully minimized during lithiation-delithiation battery cycling. New sets of exchange current density equations were developed. We are the first one in this field to develop new sets of theories related with exchange current density. We created three new sets of equation (linear, logarithmic, and average) and implemented these equations as function of state of charge (SOC) in our model development. It was noticed that logarithmic equation of exchange current density as a function of SOC fits best with our experimental result. From this observation, there was a clear indication that, exchange current density is the most important parameter which is the main reason for voltage hysteresis generated during battery cycling. The impacts of stress induced voltage on voltage hysteresis were also checked. As the present study progresses more elaborate explanation will emerge.

EXPERIMENTAL

Battery cycling test

Three different types of cells were manufactured for us by our collaborators. Thereafter, battery cycling was done for all three different types of cells. First, we lithiated the battery to lowest cut off 0.099 [V] then again delithiated back to highest cut off 1.2 [V] without any rest. After lithiation-delithiation process, one entire cycle was completed. Further, specific capacity was calculated for each voltage point of all the cycles for all three different types of cells and then the capacities were normalized by dividing each point with maximum capacity. In this experiment, measured 0.054 [mA] current was applied.

Side reaction correction

During battery cycling, each time capacity differences between starting and ending point of the cycle were noticed as shown in Figure 1a. These capacity differences were generated because of the side-reactions as by-products were formed when Tafel chemical kinetics occurred at the interphase between electrolyte and anode. We can reduce this capacity differences by implementing side-reaction correction formula on the exchange current densities (Sethuraman et al. 2012; Hossain, 2020). Sethuraman et al. (2012) applied Tafel regime formula for SR correction in their research. Same formulas were applied in the experiment for the side reaction correction on the exchange current density.

$$i_{0,SR} = i_0 * \exp\left(\frac{\alpha_{SR}F}{RT}\left(V - U_{SR}\right)\right) \tag{1}$$

The transfer coefficient for the side reaction, α_{SR}, was assumed to be 0.5 (Hossain et al., 2020a). While, Tafel kinetics did not provide an clear balance potential (i_0 and U are related), A value of U_{SR} = 0.8 vs. Li/Li$^+$ was assumed to estimate $i_{0,SR}$ (Sethuraman et al. 2012; Li et al., 2012, Hossain, 2020). Then, we calculated the side-

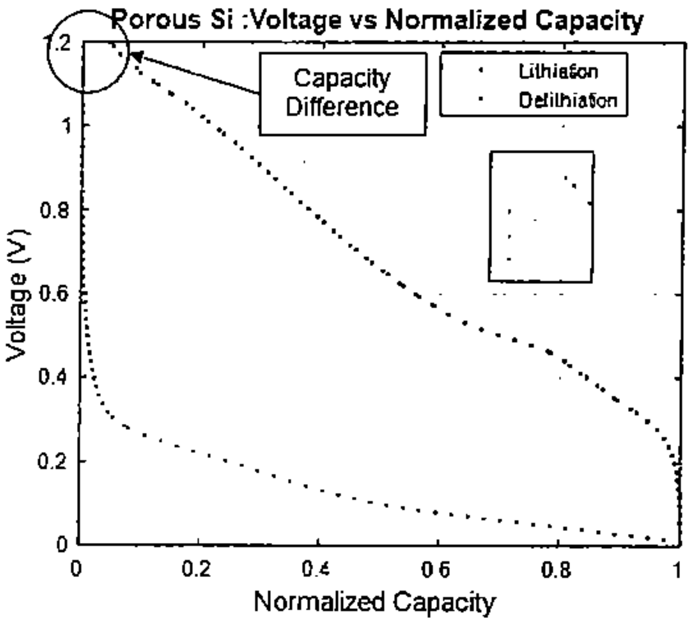

Figure 1a. Voltage vs Normalized Capacity before Side Reaction Correction. Red dots indicate Lithiation and Black dots denote delithiation.

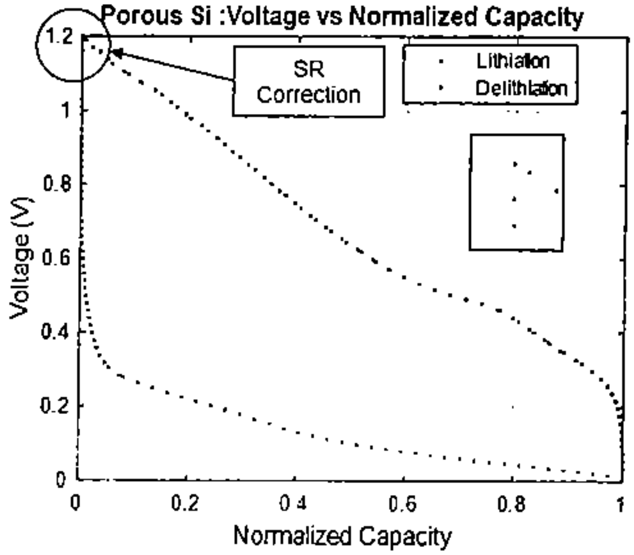

Figure 1b. Voltage vs Normalized Capacity after Side Reaction Correction. Red dots indicate Lithiation and Black dots denote delithiation.

reaction current, $i_{0,SR}$ through the cycle assuming an i_0 such that the marching was eliminated from the cycling data. Open circuit potential (OCP) we got from the experiment was applied in this study.

Side-reaction correction for cycle No. 7 of porous silicon cell was demonstrated in the Figure 1(a) and (b). Figure 1(a) showed the capacity difference at the end of the cycling before the side reaction correction of the Voltage curve. Whereas Figure 1(b), Voltage vs Normalized Capacity graph exhibited the battery cycling scenario after side-reaction correction. For example, in cycle No. 7, $i_{0,SR}$ value was calculated to be -1.05161×10^{-08} A/cm^2.

Voltage hysteresis

We produced Voltage [V] vs Normalized Capacity graphs for silicon anode-based LIBs as it is presented in the Figure 2a and 2b.

From Figure 2a, it is clear that, huge voltage hysteresis was

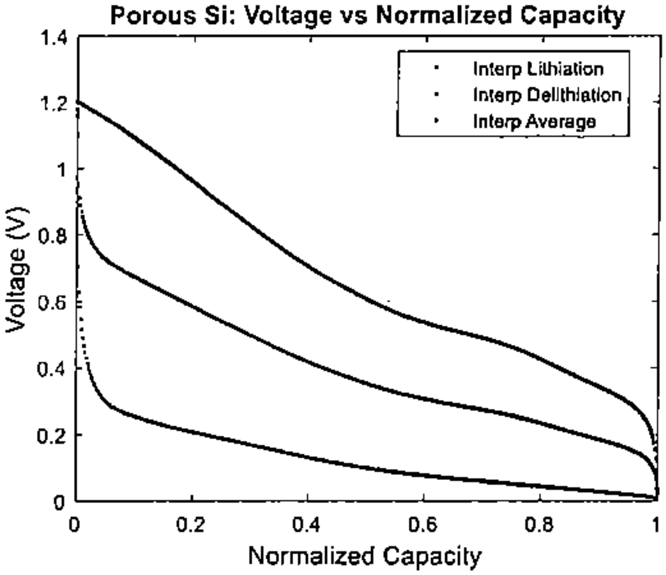

Figure 2a. Battery cycling experiment of silicon anode-based lithium-ion half cells. Huge voltage gap is noticed. It is called voltage hysteresis.

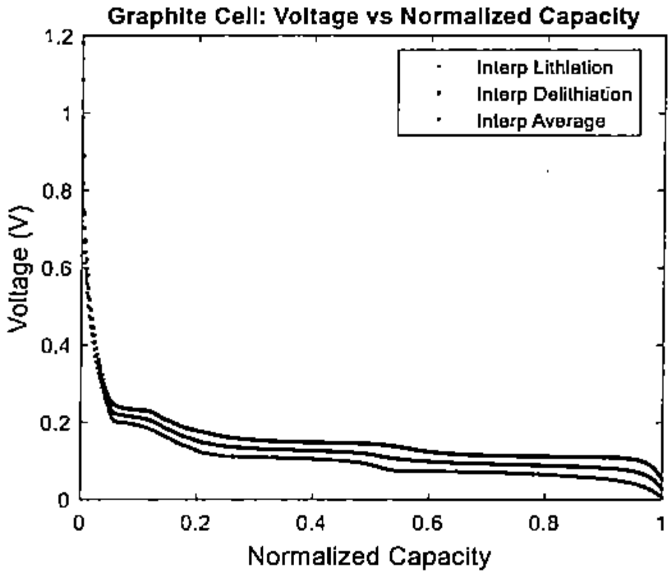

Figure 2b. Battery cycling experiment of graphite anode-based lithium-ion half cells. No voltage hysteresis is witnessed.

created on silicon anode cell during battery cycling. Whereas, in case of graphite anode, voltage gap generation was almost insignificant (Figure 2b).

From, this experiment, it was evident that, voltage hysteresis generation is a specific occurrence in silicon anode-based lithium-ion batteries.

In this current work, we want to mathematically investigate the reason behind this voltage hysteresis generation. So, our objective in this work was to mathematically scrutinize the reason behind this voltage hysteresis phenomenon. Therefore, we developed a physics based one dimensional single spherical particle mathematical model and investigated the cause of voltage hysteresis occurrence.

Model development

Mass balance equation

Since our current mathematical model is a single particle one-

Table 1. Governing equations and boundary conditions for porous electrode (half-cell) model.

Governing equations	Boundary conditions
Mass balance in solid phase (spherical coordinate) (c_s: lithium concentration)	
$\frac{\partial c_s}{\partial t} = D\frac{\partial^2 c_s}{\partial r^2} + 2\frac{D}{r}\frac{\partial c_s}{\partial r}$	$D\frac{\partial c}{\partial r}\|_{r=R} = -\frac{i_{app}(t)}{a_V LF}$; $D\frac{\partial c}{\partial r}\|_{r=0} = 0$
Average concentration profile in solid phase	
$\epsilon FL\frac{dc_{av}(t)}{dt} = i_{app}(t)$	
Modified Butler-Volmer voltage equation	
$V = U + \frac{\sigma_h \Omega}{F} + \frac{2RT}{F}\sinh^{-1}\left(\frac{i_{app}(t)}{2i_0 a_V LF}\right)$	

dimensional half-cell model, the model developed in this study assumed the silicon particle to be a single-phase system. The governing equations and boundary conditions (Table 1) for this model have been discussed in the paper. These equations are comprised of mass balance in the solid phases and the modified Butler-Volmer equation coupled with hydrostatic stress induced voltage to describe the core electrochemical reaction at the interfaces. The hydrostatic stress in the surface layer due to surface effects was comprised of two different sections. One depended on the average concentration $c_{av}(R)$ which means that the diffusion induced deformation. The other one was concentration independent. To estimate diffusion coefficients in the particle using data, we numerically solved Fick's law (Equation 2) in spherical coordinates.

$$\frac{\partial c_s}{\partial t} = D_s\frac{\partial^2 c_s}{\partial r^2} + 2\frac{D_s}{r}\frac{\partial c_s}{\partial r} \tag{2}$$

The boundary and initial conditions are (Figure 3),

$$D\frac{\partial c_s}{\partial r} = -\frac{i_{app}(t)}{a_V LF} \quad \text{for} \quad r = r_0 \tag{3}$$

$$D\frac{\partial c_s}{\partial r} = 0 \quad \text{for} \quad r = 0 \tag{4}$$

$$c_{s,0} = c_0 \quad \text{for} \quad t = 0 \tag{5}$$

Where r_0 is the particle radius [m], c_s is the lithium concentration [mol/m^3], $c_{s,0}$ is the initial lithium concentration [mol/m^3], D_s is the diffusion coefficient [m^2/s], i_{app} is the current density [A/m^2], aV is the surface-to-volume ratio [1/m], L is cell thickness [m], F is the Faraday's constant [c/mol]. $i_{app}(t)$ is denoted as applied current as a function of time. In estimating the diffusion coefficients, both particle volume changes and stress effects were ignored.

Modified Butler-Volmer equation

In this model, hydrostatic stress induced voltage in Butler-Volmer (BV) equation was included. The electrode particle goes all the way through the volumetric strain during the lithiation/delithiation battery cycling that results in stress generation inside the spherical particle. This stress generation due to lithium battery cycling in the electrode particle is calculated by the hydrostatic stress as reported by Cheng and Verbrugge (2008). The Butler-Volmer equation can be expressed,

$$j_n = \frac{i_0}{F}\left\{\exp\left[\frac{F(V-U)-\sigma_h\Omega}{2RT}\right] - \exp\left[-\frac{F(V-U)-\sigma_h\Omega}{2RT}\right]\right\} \tag{6}$$

j_n is net flux [mol/m^2/s]. It is defined as

$$j_n = \frac{i_{app}(t)}{a_V LF} \tag{7}$$

Therefore, Equation (6) can be expressed as follows,

$$\frac{i_{app}(t)}{a_V LF} = \frac{i_0}{F}\left\{\exp\left[(1-\alpha)\frac{F(V-U)-\sigma_h\Omega}{RT}\right] - \exp\left[-\alpha\frac{F(V-U)-\sigma_h\Omega}{RT}\right]\right\} \tag{8}$$

Where, σ_h is hydrostatic stress at the surface layer of electrode, [N/m^2], Ω is the partial molar volume [m^3/mol], α is the symmetric coefficient, i_0 is the exchange current density [A/m^2], R is the universal gas constant [J/kg/K], T is the temperature [K]. If we use α= 0.5, Equation (8) can be written as,

$$V = U + \frac{\sigma_h\Omega}{F} + \frac{2RT}{F}\sinh^{-1}\left(\frac{i_{app}(t)}{2i_0 a_V LF}\right) \tag{9}$$

Cheng and Verbrugge (2008) developed analytical solution for hydrostatic stress calculation at their work. Expressed as

$$\sigma_h(r_0) = \frac{2E\Omega}{9(1-\nu)}\left[S_1 c_{av}(r_0) - c_s(r_0)\right] + S_2 \tag{10}$$

Here, S_1 and S_2 are the constants. These two can be written as:

$$S_1 = \frac{1\frac{K^S}{R}\frac{(1+\nu)}{E}}{1+\frac{2K^S}{R}\frac{1-2\nu}{E}} \qquad 11)$$

$$S_2 = -\frac{\frac{2\tau^0}{R}}{1+\frac{2K^S}{R}\frac{1-2\nu}{E}} \tag{12}$$

Where, K^s is the surface modulus [N/m], τ^0 is the deformation-independent surface tension [J/m^2], E is the Young's modulus [GPa], ν is Poisson's ratio. σ_h is hydrostatic stress [GPa], c_{av} is denoted as average lithium concentration [mol/m^3]. σ_h & c_{av} are used here as variable.

In our physics based mathematical model, we identified key parameters essential for our experimental validation. However, in our work, we developed new sets of equations for exchange current density and make those as a function of state of charge (SOC). Therefore, we implemented these new equations in our model and checked with experimental results. How we developed these key parameters is discussed in the next segment. State of charge (SOC) as defined,

$$SOC = \frac{c_s}{c_{max}} \tag{13}$$

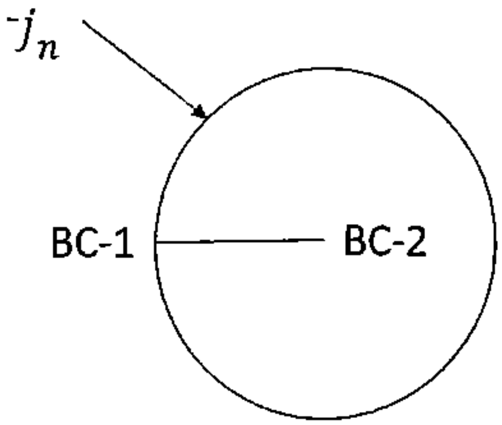

Figure 3. Schematic diagram of a spherical particle.
Source: Hossain and Kim (2020).

Here c_s is the lithium concentration [mol/m^3] and c_{max} is denoted as maximum concentration [mol/m^3].

Pharr et al. (2013) studied about surface cracking at the electrode. Surface cracking is directly related with surface-to-volume ratio, *aV*. Constant particle radius was used to calculate *aV*. Surface-to-volume ratio could be calculated as below,

$$a_V = \frac{N * 4\pi r_0^2}{\frac{1}{\epsilon} N * \frac{4}{3}\pi r_0^3} = \frac{3\epsilon}{r_0} \tag{14}$$

Where, ϵ is volume ratio of silicon, N is the number of particles, here N=1. Surface-to-volume ratio is an important parameter related with exchange current density.

Modified exchange current density

In our model, instead of going with traditional exchange current density equation, we developed new sets of exchange current density equations. First, we took constant values and made an average as follows,

$$i_{0_{S},SR_{avg}} = \frac{i_{01}+i_{02}}{2} \tag{15}$$

Next, we developed linear equation for exchange current density as a function of state of charge (SOC) as defined,

$$i_{0_{SOC},SR_{linear}} = (i_{02} - i_{01})SOC + i_{02} \tag{16}$$

Then, we developed logarithmic equation for $i_{0,SR}$ as a function of SOC,

$$i_{0_{SOC},SR_{logarithmic}} = 10^{[\log_{10}(i_{01}) + SOC \log_{10}(i_{02}/i_{01})]} \tag{17}$$

The derivation of Equation 17 is shown in Appendix 1.

In Figure 4, how exchange current density changes with state of charge is shown.

When, *SOC= 0*, it defines unlithiated state. In unlithiated state, $i_{0,SR}$ value is denoted as i_{01} [A/m^2]. As, SOC values keep increasing, $i_{0,SR}$ value goes increasing. Therefore, when we have, SOC = 1, it indicates fully lithiated state. In this state, $i_{0,SR}$ value becomes as i_{02} [A/m^2].

We used all the equations to check which one matches the best with the experimental result. Equation (15) shows $i_{0,SR}$ remains constant throughout whereas Equation (16) showed linear increment of exchange current density as a function of SOC and Equation (17) exhibited the logarithmic increment of the same as a function of SOC.

Solution procedure

We implemented all the mathematical model equations and boundary conditions using finite element package COMSOL Multiphysics 5.5. Model parameters such as electrode design, thermodynamics, transport, kinetic, and mechanical properties are listed in Table 1. In our experiment, we completed several complete battery cycling test in Standard Condition such as 25C (room temperature). For experimental validation, we chose cycle no.9 for all three different types of silicon (porous, nano and bulk) anode-based cell as we found stability in SEI layer formation. The validity of the parameter choice is checked by comparing the physics model to experiments, as shown in Table 2.

RESULTS AND DISCUSSION

In analyzing electrodes at high C-rates, relatively thin-layer electrodes are considered as an ideal design as the transport limitations in the electrolyte phase is overlooked. The case is confirmed in our ideal electrode using the porous electrode model. At first, we generated Voltage vs Normalized Capacity graph from our experimental data. Then, we corrected side-reaction generated from chemical kinetics using Tafel regime. Using all the equations we developed in our mathematical model, we tried to validate our experimental result.

From our literature survey and sensitivity analysis, key parameters were identified. All the parameter values were chosen as constant for these key parameters except exchange current density values. We developed three new sets of exchange current density equation as a function of state of charge (SOC) (Equations 15, 16 and

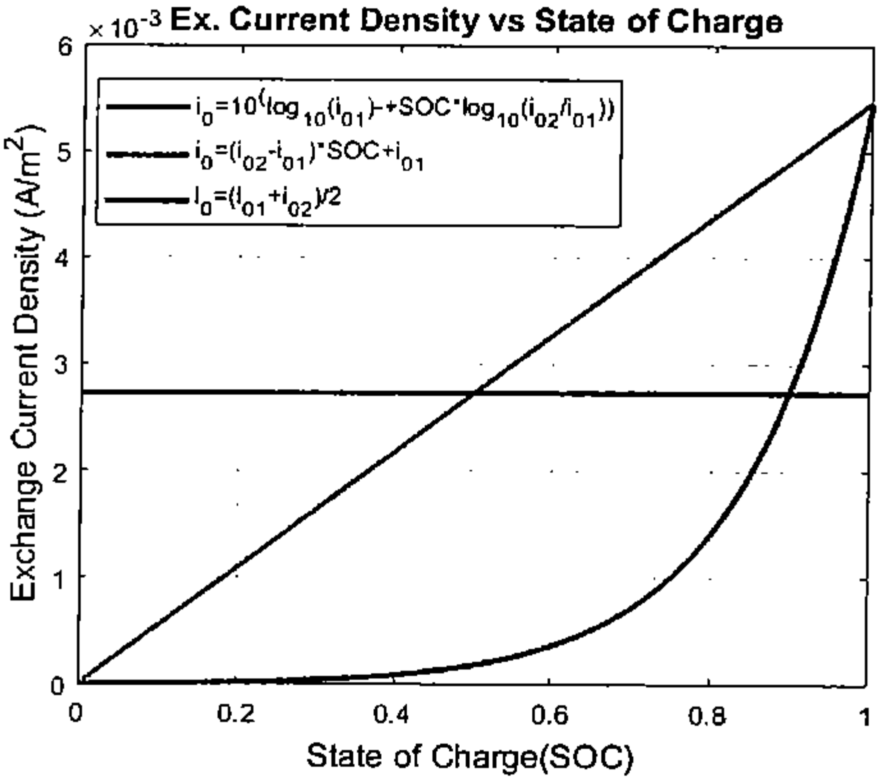

Figure 4. Development of three different types of exchange current density equations a function of state of charge (SOC).

Table 2. List of model parameters used in this study.

Parameter	**Value**	**Description**	**References**
r_0	500×10^{-9}	Initial particle radius [m]	Hossain (2020b)
D_s	2×10^{-15}	Solid diffusivity [m²/s]	"
Capa	Calculated from experiment	Columbic capacity [mAh/g]	Measured
i_{01}	6.46×10^{-6}	Exchange current density-1 [A/m²]	Hossain (2020b)
i_{02}	5.46×10^{-3}	Exchange current density-2 [A/m²]	"
c_{max}	$\rho \times \frac{Capa}{F}$	Maximum concentration [mol/m³]	Kim (2014)
C-rate	Calculated from experiment	C-Rate [1/h]	Measured
c_{01}	$x_0 \times c_{max}$	Initial concentration [mol/m³]	"
E	100	Young's modulus constant [GPa]	Pal (2014)
ν	0.27	Poisson's ratio constant	Lu (2016)
ε	0.6517	Volume ratio of silicon	Liang (2014)
L	116×10^{-6}	Thickness of electrode [m]	Hossain (2020a)
F	96487	Faraday constant [C/mol]	"
R	8.314	Universal gas constant [J/mol/K]	"
T	298	Temperature [K]	Wu (2012)
ρ	2330	Density of silicon [kg/m³]	"
x_0	0.0001	Initial SOC of silicon 0.0001	Sikha (2014)
Ω	4.26×10^{-6}	Partial molar volume [m³/mol]	Song (2016)
K^s	5	Surface modulus [N/m]	"
τ_0	1	Deformation-Independent surface tension [J/m²]	"
m	1.043798×10^{-3}	Mass of the cell [kg]	Measured

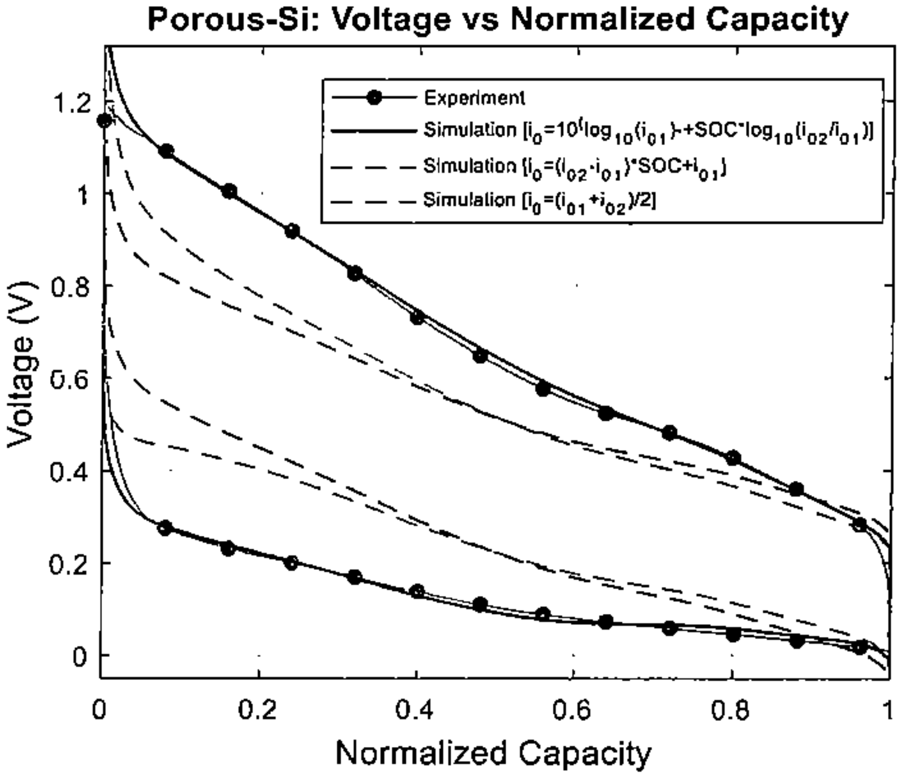

Figure 5a. Experimental validation of Voltage vs Normalized Capacity graph for Porous Si Cell.

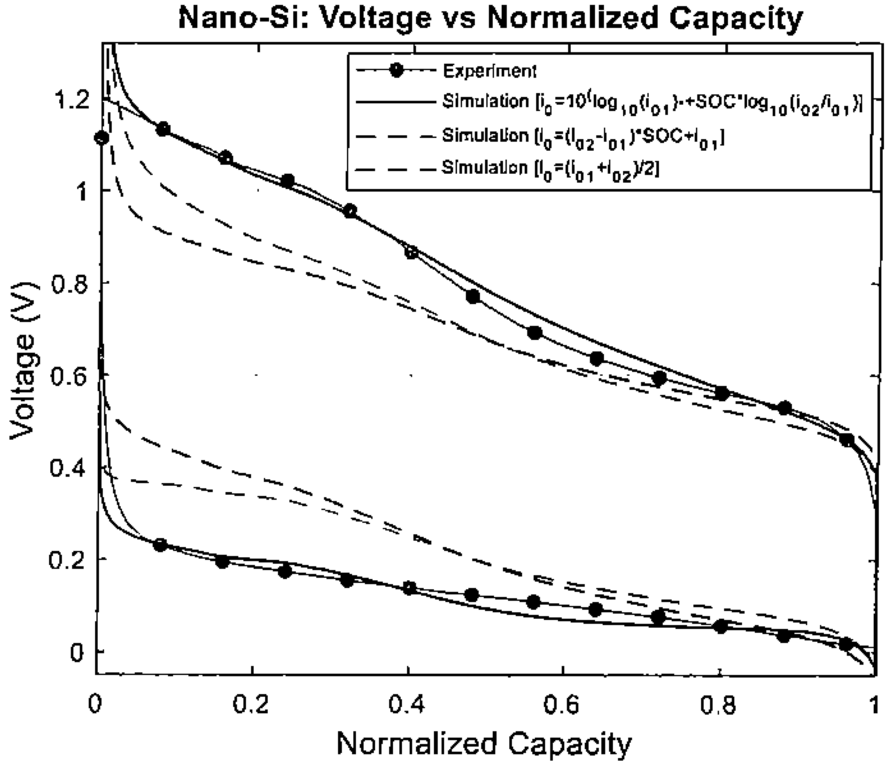

Figure 5b. Experimental validation of Voltage vs Normalized Capacity graph for Nano Si Cell.

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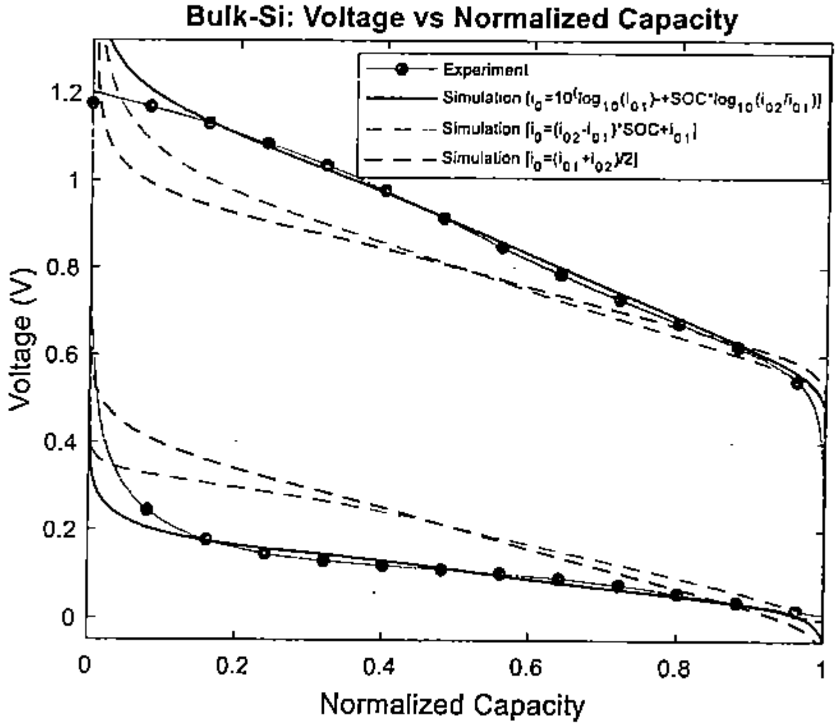

Figure 5c. Experimental validation of Voltage vs Normalized Capacity graph for Bulk Si Cell.

17) and implemented those in our mathematical model and then we tried to match with our experimental result as shown in Figure 5. Here, in Figure 5(a, b and c), red dotted lines denote experimental result for all three cells [(a) Porous, (b) Nano and (c) Bulk]. Blue solid lines indicate voltage vs normalized capacity generated using logarithmic exchange current density as a function of state of charge (SOC); cyan dashed line defines linear exchange current density as a function of SOC and purple dashed line used to indicate average exchange current density (constant). It can be noticed that Voltage [V] vs Normalized Capacity graph generated with average exchange current density and linear SOC based exchange current density did not match with experimental result. Whereas logarithmic exchange current density equation as function of SOC fitted best with the experimental result of three different kinds of silicon anode (Porous, Nano and Bulk). By changing the values of exchange current density values in Equation 17, the shape of the voltage curve can be changed heavily.

From these observations, it can be clearly seen that by controlling exchange current density, the shape of the voltage curve can be changed. Other key parameters such as solid diffusivity, partial molar volume, Young's modulus, and Poisson's ratio have very low impact on voltage hysteresis.

Next, stress induced voltage ($\sigma_h\Omega$) was calculated and value was found to be approximately 2x10^{-4} [V] for porous cell as the blue line denotes, 3.5×10^{-4} [V] was found for nano cell as the red line denotes and 4×10^{-4} [V] was found for bulk cell as bulk line denotes which quite low to have impact on voltage hysteresis generation as shown in Figure 6. For other cycles of porous, nano, and bulk cell the case was found same. On the other hand, by changing exchange current densities, voltage curves shapes can be controlled. Therefore, it is a clear indication that state of charge (SOC) dependent exchange current density is the key parameter which can control voltage hysteresis generated during lithiation/ delithiation battery cycling of silicon anode-based lithium-ion batteries. By controlling exchange current density, voltage hysteresis can be minimized.

Conclusion

In this work, we thoroughly investigated the cause of voltage gap generation during lithiation-delithiation cycling of silicon anode-based lithium-ion cell at the particle scale by combining experimental and modeling techniques. First, we conducted battery cycling test. Then we corrected the side-reaction on exchange current density using Tafel kinetics. Voltage hysteresis was witnessed during cycling. We developed a physics-based mathematical model to identify the main reason behind this voltage gap. Earlier researchers reported that hydrostatic stress generation is the main cause. In our model, we analyzed hydrostatic stress and noticed that

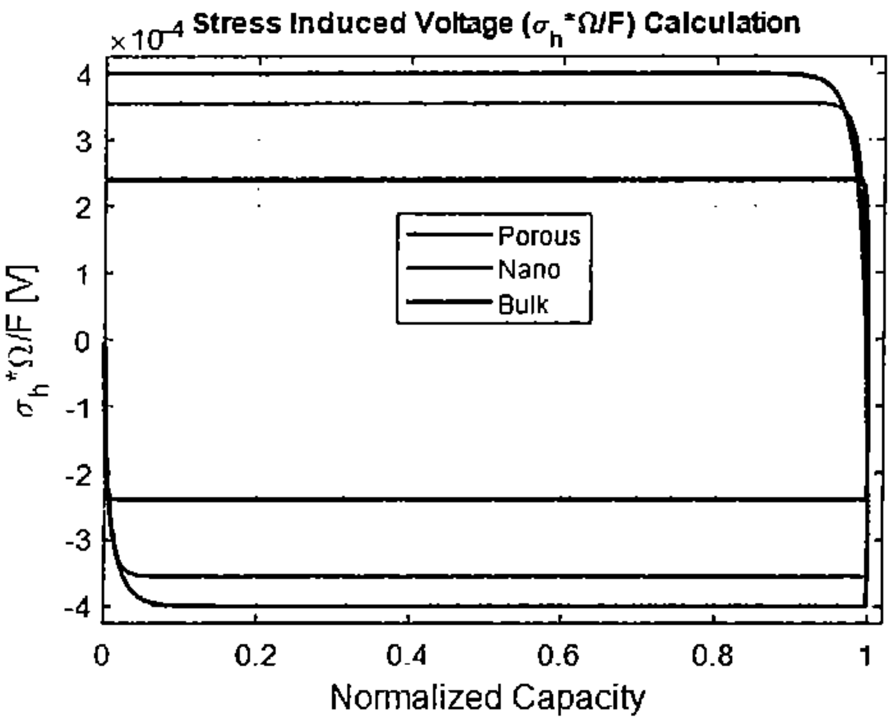

Figure 6. Graph plotting of stress induced voltage ($\sigma_h\Omega/F$) vs. normalized capacity.

stress induced voltage does not have enough impact with this hysteresis. Next, we identified some key parameters to see the influence on the voltage hysteresis. Doing so, we did not find any influence. Then, we focused on the exchange current and developed new sets of theories based on state of charge (SOC). Significant impacts have been found on the generated voltage hysteresis during battery cycling. With the logarithmic equation of exchange current density as function of SOC, we found the best match with our experimental and simulation results. Simulation results suggested that, state of charged based exchange current density is the most influential parameter for voltage hysteresis generation in silicon anode-based LIBs. So, it can be stated that, exchange current density is the main reason of voltage hysteresis occurrence during lithiation/delithiation battery cycling of silicon anode-based lithium-ion batteries.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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APPENDIX

Exchange current density's logarithmic equation development

In our model, we defined that exchange current density would increase if state of charge (SOC) could have been increased from 0 to 1. Therefore, one dimensional logarithmic equation for the exchange current density Equation (17) has been developed as follows (Hossain and Cha (2020b)).

$$i_0 = i_{01} \quad at \quad x = 0 \qquad \text{(A1)}$$

$$i_0 = i_{02} \quad at \quad x = 1 \qquad \text{(A2)}$$

From, the above two equations, we developed logarithmic equation function as below

$$i_0 = 10^{ax+b} \qquad \text{(A3)}$$

Then, Equation [A3] became

$$i_0 = 10^{b} = i_{01}\ at\ x = 0\ or\ b = \log_{10} i_{01} \qquad \text{(A4)}$$

Again when, x=1, Equation [A3] reformed as

$$i_0 = 10^{a+b} = i_{02}\ at\ x = 1 \text{ or } a = \log_{10}\frac{i_{02}}{i_{01}} \qquad \text{(A5)}$$

Therefore, putting the value of Equations (A4) and (A5) into (A3), we built the equation as below

$$i_0 = 10^{\left[\log_{10} i_{01} + x\log_{10}\frac{i_{02}}{i_{01}}\right]} \qquad \text{(A6)}$$

Now, if we replace x with state of charge (SOC) then our equation became as the Equation (17)

$$i_{0_{SOC}-SR_{logarithmic}} = 10^{[\log_{10}(i_{01}) + SOC\log_{10}(i_{02}/i_{01})]}$$

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K.C.E. SOCIETY'S
COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JALGAON
Electrical Engineering Department
Academic Year 2018-19 SEM – II

DATE: 17/03/2019

Important Notice

All SE Electrical Engineering students are hereby inform that, students who secured marks less than 12 in internal sessional exams are considered as a slow learner and for improvement of their result remedial lectures will be conducted from 19/03/2019 of each subject as per the remedial lecture timetable. So, kindly attend remedial lectures and complete the activities given by subject teacher.

The list of students is attached.

HOD
Mr. Kalpesh M. Mahajan

K.C.E. SOCIETY'S
COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JALGAON
Electrical Engineering Department
Academic Year 2018-19 SEM – II

DATE: 17/03/2019

Important Notice

All SE Electrical Engineering students are hereby inform that, students who secured marks more than 17 in internal sessional exams are considered as a fast learner students and following activities will be conducted by Electrical Engineering Department. So, kindly attend all the activities conduct by department.

Schedule of activities
1] Aptitude Test-
2] Videos (NPTEL)-
3] Classroom Presentation-

HOD
Mr. Kalpesh M. Mahajan

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K.C.E. SOCIETY'S

COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JALGAON

Electrical Engineering Department

Academic Year 2018-19 SEM – II

DATE: 04/03/2019

Important Notice

All TE and BE Electrical Engineering students are hereby inform that, students who secured marks more than 17 in internal sessional exams are considered as a fast learner students and following activities will be conducted by Electrical Engineering Department. So, kindly attend all the activities conduct by department.

Schedule of activities

1] Aptitude Test-

2] Videos (NPTEL)-

3] Classroom Presentation-

HOD

Mr. Kalpesh M. Mahajan

K.C.E. SOCIETY'S

COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JALGAON

Electrical Engineering Department

Academic Year 2018-19 SEM – II

DATE: 04/03/2019

Important Notice

All TE and BE Electrical Engineering students are hereby inform that, students who secured marks less than 12 in internal sessional exams are considered as a slow learner and for improvement of their result remedial lectures will be conducted from 06/03/2019 of each subject as per the remedial lecture timetable. So, kindly attend remedial lectures and complete the activities given by subject teacher.

The list of students is attached.

HOD

Mr. Kalpesh M. Mahajan

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT
CLASS : SE (ELECT) SEM- II ACADEMIC YEAR 2018-19
SLOW LEARNER LIST

Date:- 17/03/2019

ROLL NO	NAME
229	PATIL SHUBHAM ANKUSH
263	SANANSE DEVIDAS PRAKASH
264	SONAWANE SHUBHANGI SUBHASH
266	BAVISKAR GAURAV VIJAY

H.O.D.
Electrical Engg.Dept.

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT
CLASS : TE (ELECT) SEM- II ACADEMIC YEAR 2018-19
SLOW LEARNER LIST

Date :- 04/03/2019

ROLL NO	NAME
306	BHARAMBE DNYANESHWAR SUHAS
313	CHAVAN CHETAN SUPADU
318	JALANKAR PANKAJ B.
323	MAHAJAN MONIKA I.
325	MALI BHUSHAN P.
328	NAGDA SHERNIK PANKAJ
329	NEMADE TUSHAR U.
333	PATIL NIKHIL RAVINDRA
338	RADE GAURAV C.
339	RANE HITENDRA RAMDAS
344	SARODE NIKHIL PRASHANT
345	SHANKPAL AKSHAY S.
346	SHINDE YOGESH RAJU
348	SHIRSATH AKSHAY B.
351	SONAWANE ADITYA SANJAY
352	SONAWANE YASHWANT S.
355	TAYADE HARSHADA B.
356	THAKRE SHUBHAM D.
360	WANI SAURABH GAJANAN

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H.O.D.
Electrical Engg.Dept.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT
CLASS : BE (ELECT) SEM- II ACADEMIC YEAR 2018-19
SLOW LEARNER LIST

Date:- 04/03/2019

ROLL NO	NAME
417	JETHE SACHIN
420	KUWAR AKASH ASHOK
434	PATIL LALIT R.
450	THAKARE PAVAN S.
458	PATIL MAYUR NARENDRA
461	SURWADE AMOL VIKAS
462	ROKADE BHUSHAN A.
463	ROKADE HARSHAD A.
464	DEORE LALIT RAJENDRA

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H.O.D.
Electrical Engg.Dept.

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT
CLASS : SE (ELECT) SEM- II ACADEMIC YEAR 2018-19
FAST LEARNER LIST

Date:- 17/03/2019

ROLL NO	NAME
201	SONAWANE SARIKA KAILAS
205	PATIL MOHIT LILADHAR
208	PATIL NEHA GAJANAN
211	PATIL CHETAN KISHOR
224	PATIL TEJASWINI UMAKANT
253	YEOLE SHREYA KAILAS
254	DEWANG PRIYANKA DINESH

H.O.D.
Elect Engg.Dept

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

ELECTRICAL ENGINEERING DEPARTMENT

CLASS : TE (ELECT)   SEM- II   ACADEMIC YEAR 2018-19

FAST LEARNER LIST

Date:- 04/03/2019

ROLL NO	NAME
301	BACHHAV SHUBHANGI R.
311	CHAUDHARI SUJATA S.
319	JOSHI HRISHIKESH PRADIP
322	MAHAJAN PRATIKSHA P.
362	ZOPE NIKHIL RAJENDRA

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H.O.D.
Elect Engg.Dept

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

'LASS : BE (ELECT) SEM- II ACADEMIC YEAR 2018-19

FAST LEARNER LIST

Date:-04/03/2019

ROLL NO	NAME
401	AKOLKAR SHITAL S.
408	CHAUDHARI AKSHAY
432	PATIL JAYESH B.

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H.O.D.
Elect Engg.Dept

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K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., JALGAON

DEPARTMENT OF ELECTRICAL ENGINEERING

REMEDIAL LECTURE TIMETABLE

SEM : II YEAR : 2018-19 W.E.F. : 19-03-2019

CLASS : S.E (ELECTRICAL) **CLASS ROOM NO. 209**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
8.00 to 9.00	INES	PS-I	ADE	EMC-I	EIE	NMP
4.00 to 5.00	EIE	EMC-I	PS-I	NMP	EMC-I	ADE

THEORY	Faculty
PS I	Mrs. S. Y. SAPAKALE
ADE	Mr. P. G. BHANGALE
EMC I	Mr. S. S. SANANSE
EI&E	Mr. K. M. MAHAJAN
NM&P	Ms.R. M. PATIL
INES	Mr. R. V. PATIL

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TIME TABLE CO-ORDINATOR

ASST. PROF. S. S. SANANSE

HOD-ELECTRICAL

ASST PROF. K. M. MAHAJAN

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KCES's COLLEGE OF ENGG & I.T JALGAON
DEPARTMENT OF ELECTRICAL ENGINEERING
EVALUATION SHEET FOR SLOW AND FAST LEARNER

MIDSEM CLASS-SE ELECTRICAL 2018-19 SEM-II

R. NO.	NAME OF THE STUDENT	EMC-I	PS-I	EIE	NMP	ADE	INES	Average
201	SONAWANE SARIKA KAILAS	19	19	20	20	19	16	18.83333
202	PATIL VEDANT SATISH	12	13	14	11	19	16	14.16667
203	BARHATE POORVA PRADIP	20	19	16	18	19	6	16.33333
204	THORAT SHRADDHA SANJAY	20	19	17	18	16	11	16.83333
205	PATIL MOHIT LILADHAR	16	19	17	14	19	19	17.33333
206	DIVYANSHU JAGTAP	12	16	11	11	19	15	14
207	SONONE VAISHNAVI ASHOK	20	19	18	11	13	16	16.16667
208	PATIL NEHA GAJANAN	20	19	19	15	19	11	17.16667
209	DALAL MAYURI SANJAY	12	13	12	14	16	13	13.33333
210	BHOSLE JAGRUTI ASHOKRAO	18	19	13	14	15	16	15.83333
211	PATIL CHETAN KISHOR	19	16	18	15	19	17	17.33333
212	INGALE LITESH SUNIL	17	15	16	13	11	15	14.5
213	SHAIKH MOHAMMAD WAJAHAT RAZA	11	19	13	15	18	11	14.5
214	JAVHARE AMOL LAXMIKANT	7	14	8	17	18	12	12.66667
215	SAPKALE URMILA DHANSING	16	16	13	17	14	14	15
216	KOLI HARSHALI SANJAY	17	19	18	15	11	13	15.5
217	PATIL HIMANSHU KISHOR	15	19	19	11	11	9	14
218	BONDE MAYUR SADASHIV	11	9	13	8	15	20	12.66667
219	VARKE KASHINATH SUDHAKAR	12	13	12	11	14	19	13.5
220	PATIL UJJWAL LILADHAR	14	19	15	15	14	15	15.33333
221	FARDEEN KHAN	13	13	9	16	15	14	13.33333
222	RAJPUT PRATIK PRABHAKAR	9	14	8	12	13	16	12

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223	SHIRSATH KHUSHABU KISHOR	20	15	15	20	15	14	16.5
224	PATIL TEJASWINI UMAKANT	19	19	20	20	17	11	17.66667
225	DESHMUKH SWATI BALAVANT	15	16	11	12	17	18	14.83333
226	PATIL KAJAL ANANDSING	14	18	18	18	15	16	16.5
227	AHIRE MRUNAL PURUSHOTTAM	16	18	18	19	11	11	15.5
228	PATIL PRATIKSHA BALU	14	17	14	17	8	13	13.83333
229	PATIL SHUBHAM ANKUSH	11	12	11	11	11	12	11.33333
230	PACHPANDE AMOL KIRAN	18	16	11	7	15	16	13.83333
231	AMBATKAR PAWANKUMAR ASHOK	16	13	15	16	16	20	16
232	PATIL YOGESH RAJENDRA	11	15	14	17	12	19	14.66667
233	CHAUDHARI NEHAL CHANDRAKUMAR	13	15	14	15	20	15	15.33333
234	PATIL HARSHAL CHAMPALAL	12	18	15	11	20	14	15
235	BORASE PANJABRAO BHARAT	16	18	13	12	12	14	14.16667
236	MALI ROHAN RAJENDRA	6	13	15	14	18	12	13
237	PATIL BHAVANA ISHWAR	17	17	17	13	19	15	16.33333
238	ANKITA BHIKAN PATIL	18	18	17	9	17	18	16.16667
239	JADHAV PRASHANT PREMRAJ	15	19	15	20	11	19	16.5
240	CHAUDHARI PARESH RAMESH	10	13	11	19	7	18	13
241	PATIL PARESH SANTOSH	12	12	8	15	16	19	13.66667
242	PATIL PANKAJ VIJAY	10	12	11	14	17	19	13.83333
243	MORE HEMANT ATMARAM	17	19	15	14	15	19	16.5
244	BAGUL RUPALI SANJAY	10	13	8	12	11	19	12.16667
245	KHADSE GAURAV KADU	10	16	8	15	12	18	13.16667
246	SHIMPI JAYASHREE VIJAY	12	18	18	18	14	16	16
247	PATIL ISHWAR ANKUSH	18	13	14	19	13	16	15.5
248	RANDHE MILIND KAMLAKAR	19	15	11	18	9	18	15
249.	INGALE ATUL GAJANAN	14	14	9	19	20	19	15.83333
250	VISHAL MADHAVARAV KOLI	10	14	10	19	19	14	14.33333
251	DHIRAJ RAVINDRA BADGUJAR	8	12	8	19	15	10	12
252	CHAUDHARI MAYUR KAILAS	9	15	13	19	11	19	14.33333
253	YEOLE SHREYA KAILAS	20	18	18	18	15	18	17.83333
254	DEWANG PRIYANKA DINESH	20	19	18	16	14	19	17.66667

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255	MAHAJAN PRIYANKA DEVIDAS	12	18	15	16	14	19	15.66667
256	PATIL HARSHADA NIVRUTTI	15	19	16	18	15	19	17
257	AMAN SUNIL KOLHE	14	19	15	19	13	19	16.5
258	PAWAR MAYUR ANIL	17	19	14	14	15	18	16.16667
259	PATIL UMESH SAHEBRAO	19	19	14	10	17	16	15.83333
260	WAGH SUDHIR RAVINDRA	10	18	14	8	17	16	13.83333
261	SHUKLA NIKHIL CHANDRAMOHAN	15	16	16	9	15	17	14.66667
262	SONAWANE RAGINI SANTOSH	4	16	16	20	11	17	14
263	SANANSE DEVIDAS PRAKASH	9	7	8	20	8	15	11.16667
264	SONAWANE SHUBHANGI SUBHASH	9	9	8	12	11	11	10
265	BHANGALE YOGRAJ SHASHIKANT	13	16	12	15	15	14	14.16667
266	BAVISKAR GAURAV VIJAY	12	12	8	12	9	15	11.33333

ISE Co-ordinator

H/O.D

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : SE (ELECT) SEM- II ACADEMIC YEAR 2018-19

Subject INES Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	25/03	01/04	08/04	15/04	22/04							
229	PATIL SHUBHAM ANKUSH	P	P	P	P	P							
263	SANANSE DEVIDAS PRAKASH	P	P	P	P	P							
264	SONAWANE SHUBHANGI SUBHASH	P	P	P	P	P							
266	BAVISKAR GAURAV VIJAY	P	P	P	P	P							

Subject Teacher
R.V. Patil,

H.O.D.
Electrical Engg.Dept.

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT
CLASS : SE (ELECT) SEM- II
Subject Power system-I ACADEMIC YEAR 2018-19
Attendance Slow learner Date

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	20/03	26/03	27/03	02/04	03/04	09/04	10/04	16/04	23/04	24/04		
229	PATIL SHUBHAM ANKUSH	P	P	P	P	P	P	P	P	P	P		
263	SANANSE DEVIDAS PRAKASH	P	P	P	P	P	P	P	P	P	P		
264	SONAWANE SHUBHANGI SUBHASH	P	P	P	P	P	P	P	P	P	P		
266	BAVISKAR GAURAV VIJAY	P	P	P	P	P	P	P	P	P	P		

Subject Teacher
Ms. S.Y. Sapkale.

H.O.D.
Electrical Engg.Dept.

NMP- R.M. Pa

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : SE (ELECT) SEM- II ACADEMIC YEAR 2018-19

Subject NMP

Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	23/3	28/3	30/3	4/4	11/4	18/4	20/4	25/4	27/4	2/5	5/5	
229	PATIL SHUBHAM ANKUSH	P	P	P	P	P	P	P	P	P	P	P	
263	SANANSE DEVIDAS PRAKASH	P	P	P	P	P	P	P	P	.	P	P	
264	SONAWANE SHUBHANGI SUBHASH	P	P	P	P	P	.	P	P	P	P	P	
266	BAVISKAR GAURAV VIJAY	P	P	P	-	P	P	P	P	P	P	P	

RMPatil.
Subject Teacher
Miss. R.M. Patil.

H.O.D.
Electrical Engg.Dept.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : SE (ELECT) SEM- II ACADEMIC YEAR 2018-19

Subject ADE Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	20/03	23/03	27/03	30/03	03/04	10/04	20/04	24/04	27/04	04/05		
229	PATIL SHUBHAM ANKUSH	P	P	P	P	P	P	P	P	P	P		
263	SANANSE DEVIDAS PRAKASH	P	P	P	P	P	P	P	P	P	P		
264	SONAWANE SHUBHANGI SUBHASH	P	P	P	P	P	P	P	P	P	P		
266	BAVISKAR GAURAV VIJAY	P	P	P	P	P	P	P	P	P	P		

Subject Teacher
Prof. P. G. Bhangale

H.O.D.
Electrical Engg.Dept.

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EMC-I : S.S. [illegible]

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : SE (ELECT) SEM- II ACADEMIC YEAR 2018-19

Subject EMC - I Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	19/3	22/3	26/3	28/3	29/3	2/4	4/4	5/4	9/4	11/4	12/4	18/4
229	PATIL SHUBHAM ANKUSH	P	P	P	P	P	P	P	P	P	P	P	P
263	SANANSE DEVIDAS PRAKASH	P	P	P	P	P	P	P	P	P	P	.	P
264	SONAWANE SHUBHANGI SUBHASH	P	P	P	P	P	P	P	P	.	P	P	P
266	BAVISKAR GAURAV VIJAY	P	P	P	P	.	P	P	P	P	P	P	P

Subject Teacher
Mr. S.S. Sananse

H.O.D.
Electrical Engg.Dept.

EIE K. M. Mahaj

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT
SEM- II

CLASS : SE (ELECT)
Subject EIE
ACADEMIC YEAR 2018-19
Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
DATES OF REM. LECTURE		22/3	25/3	29/3	1/4	5/4	8/4	12/4	15/4	22/4	26/4	29/4	
229	PATIL SHUBHAM ANKUSH	P	P	.	P	P	P	P	P	P	P	P	
263	SANANSE DEVIDAS PRAKASH	P	P	P	P	P	P	P	P	P	P	P	
264	SONAWANE SHUBHANGI SUBHASH	P	P	P	.	P	P	P	P	P	P	P	
266	BAVISKAR GAURAV VIJAY	P	P	P	P	P	P	P	P	P	P	P	

Subject Teacher
Mr. K. M. Mahajan.

H.O.D.
Electrical Engg.Dept.

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., JALGAON

DEPARTMENT OF ELECTRICAL ENGINEERING

REMEDIAL LECTURE TIMETABLE

SEM : II YEAR : 2018-19 W.E.F. : 06-03-2019

CLASS : TE (ELECTRICAL) **CLASS ROOM NO. 209/210**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
8.00 to 9.00	CS-I	EM-II	MPMC	EMD	CS-I	CS-I
4.00 to 5.00	MPMC	MPMC	EM-II	MPMC	EM-II	EM-II

THEORY	Faculty
CS I	Mr. R. V. PATIL
EM II	Mr. U. R. KOTHOKE
MPMC	Mr. S. M. NATH
EMD	Mr. P. D KULKARNI
~~EDP~~	~~Mr. R. R.~~ WAGHULDE

TIME TABLE CO-ORDINATOR

ASST. PROF. S. S. SANANSE

H.O.D-ELECTRICAL

ASST. PROF. K. M. MAHAJAN

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KCES'S COLLEGE OF ENGG & I.T JALGAON

DEPARTMENT OF ELECTRICAL ENGINEERING

EVALUATION SHEET FOR SLOW AND FAST LEARNER

ISE(BEST OF TWO) CLASS- TE ELECTRICAL

EVALUATION SHEET FOR SLOW AND FAST LEARNER

SEM-II

R. NO	NAME OF THE STUDENT	MPMC (ISE-I)	MPMC (ISE-II)	BEST OF TWO	EM-II (ISE-I)	EM-II (ISE-II)	BEST OF TWO	EMD (ISE-I)	EMD (ISE-II)	BEST OF TWO	CS-I (ISE-I)	CS-I (ISE-II)	BEST OF TWO	EDP (ISE-I)	EDP (ISE-II)	BEST OF TWO	Average
301	BACHHAV SHUBHANGI R.	20	AB	20	11	17	17	19	AB	19	12	20	20	17	AB	17	18.5
302	BADGUJAR JAYESH S.	6	AB	6	11	AB	11	0	AB	0	14	AB	14	AB	AB	AB	14
303	BADGUJAR TWINKAL K.	AB	10	10	13	AB	13	14	AB	14	17	AB	17	16	AB	16	16.33333
304	BARHATE CHAITALI D.	19	AB	19	18	AB	18	20	AB	20	18	AB	18	16	AB	16	16.66667
305	BARI AJINKYA ANIL	18	AB	18	15	AB	15	12	AB	12	18	AB	18	AB	13	13	14.66667
306	BHARAMBE DNYANESHWAR	8	AB	8	12	AB	12	4	AB	4	8	AB	8	AB	AB	AB	8
307	BHARAMBE VIDYA P.	20	AB	20	13	AB	13	14	AB	14	18	AB	18	9	AB	9	12
308	BHOI YOGITA PRAKASH	19	AB	19	13	17	17	15	19	19	15	19	19	10	16	16	16
309	BONDE HEMANTKUMAR R.	0	18	18	0	6	6	8	14	14	0	19	19	AB	15	15	17
310	CHAUDHARI DHANSHRI A.	19	AB	19	17	17	17	19	AB	19	19	AB	19	14	AB	14	15.66667
311	CHAUDHARI SUJATA S.	19	AB	19	18	AB	18	11	AB	11	19	AB	19	AB	17	17	17.66667
312	CHAUDHARI TEJASVINI	15	AB	15	18	AB	18	15	AB	15	16	AB	16	16	AB	16	16
313	CHAVAN CHETAN SUPADU	AB	12	12	AB	12	12	AB	18	18	AB	13	13	AB	2	2	7.5
314	GURUCHAL SONALI SANJAY	17	AB	17	15	AB	15	8	AB	8	10	AB	10	11	AB	11	10.66667
315	HALADE AMOL EKNATH	14	AB	14	16	AB	16	9	17	17	11	AB	11	11	AB	11	11
316	INGALE SAGAR SUNIL	10	AB	10	12	AB	12	13	AB	13	10	AB	10	11	AB	11	10.66667
317	JAGTAP SATYAWAN B.	AB	10	10	AB	11	11	AB	8	8	AB	8	8	AB	13	13	10.5
318	JALANKAR PANKAJ B.	13	AB	13	13	AB	13	8	AB	8	8	AB	8	AB	AB	AB	8
319	JOSHI HRISHIKESH PRADIP	17	AB	17	18	AB	18	13	19	19	10	20	20	16	AB	16	18
320	KHARE SAGAR RAJESH	AB	16	16	12	AB	12	4	16	16	AB	15	15	8	AB	8	11.5
321	KOLHE AADITI P.	8	AB	8	12	AB	12	10	11	11	16	AB	16	8	AB	8	10.66667
322	MAHAJAN PRATIKSHA P.	19	AB	19	11	16	16	13	19	19	11	19	19	18	AB	18	18.5
323	MAHAJAN MONIKA I.	12	AB	12	12	AB	12	12	AB	12	16	AB	16	2	11	11	10
324	MAHAJAN VIJAY ANIL	13	AB	13	13	AB	13	19	AB	19	9	14	14	13	AB	13	13.5
325	MALI BHUSHAN P.	8	12	12	12	AB	12	8	AB	8	10	AB	10	9	AB	9	9.333333
326	MALI RAHUL RAMESH	11	AB	11	17	AB	17	15	AB	15	10	AB	10	17	AB	17	14.66667
327	METKAR PRASAD MAHESH	18	AB	18	15	AB	15	20	AB	20	10	18	18	15	AB	15	16.5
328	NAGDA SHERNIK PANKAJ	AB	11	11	13	AB	13	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB
329	NEMADE TUSHAR U.	9	AB	9	9	AB	9	16	AB	16	9	AB	9	8	AB	8	8.333333
330	PAKHARE NIKITA GAJANAN	18	AB	18	17	AB	17	19	AB	19	17	AB	17	13	AB	13	14.33333

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[illegible] S.M.Nath

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

ELECTRICAL ENGINEERING DEPARTMENT

CLASS : TE (ELECT)

SEM- II

Subject - MPMC

ACADEMIC YEAR 2018-19

Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	6/3	11/3	12/3	13/3	14/3	18/3	19/3	20/3	25/3	26/3	27/3	28/3
306	BHARAMBE DNYANESHWAR SUHAS	P	P	P	P	P	P	P	P	P	P	P	P
313	CHAVAN CHETAN SUPADU	P	P	P	.	P	P	P	P	P	P	P	P
318	JALANKAR PANKAJ B.	P	P	P	P	P	.	P	P	P	P	P	P
323	MAHAJAN MONIKA I.	P	P	P	P	P	P	P	.	P	P	P	P
325	MALI BHUSHAN P.	P	P	.	P	P	P	P	P	P	P	P	P
328	NAGDA SHERNIK PANKAJ	P	P	P	P	P	P	P	P	P	P	P	P
329	NEMADE TUSHAR U.	P	.	P	P	P	P	P	P	P	P	P	P
333	PATIL NIKHIL RAVINDRA	P	P	.	P	P	P	P	P	P	P	P	P
338	RADE GAURAV C.	P	P	P	P	P	P	P	P	P	.	P	P
339	RANE HITENDRA RAMDAS	P	P	P	P	P	P	P	P	P	P	.	P
344	SARODE NIKHIL PRASHANT	P	P	.	P	P	P	P	P	P	P	P	P
345	SHANKPAL AKSHAY S.	P	P	P	P	P	.	P	P	P	P	P	P
346	SHINDE YOGESH RAJU	P	P	P	P	P	P	P	.	P	P	P	P
348	SHIRSATH AKSHAY B.	P	P	P	.	P	P	P	P	P	P	P	P
351	SONAWANE ADITYA SANJAY	P	P	P	P	P	P	P	P	P	P	P	P
352	SONAWANE YASHWANT S.	P	.	P	P	P	P	P	P	P	P	P	P
355	TAYADE HARSHADA B.	P	P	P	P	P	P	P	P	P	P	P	P
356	THAKRE SHUBHAM D.	P	P	P	P	.	P	P	P	P	P	P	P
360	WANI SAURABH GAJANAN	P	P	P	P	P	P	P	.	P	P	P	P

Subject Teacher

S.M. Nath

H.O.D.

Electrical Engg.Dept.

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EMD - 2.2.1

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : TE (ELECT)
Subject EMD
SEM- II
ACADEMIC YEAR 2018-19
Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	7/3	14/3	28/3	4/4	11/4	18/4						
306	BHARAMBE DNYANESHWAR SUHAS	P	P	P	P	P	P						
313	CHAVAN CHETAN SUPADU	P	P	P	P	P	P						
318	JALANKAR PANKAJ B.	P	P	P	P	P	P						
323	MAHAJAN MONIKA I.	P	P	P	P	P	P						
325	MALI BHUSHAN P.	P	P	P	P	P	P						
328	NAGDA SHERNIK PANKAJ	P	P	P	P	P	P						
329	NEMADE TUSHAR U.	P	P	P	P	P	P						
333	PATIL NIKHIL RAVINDRA	P	P	P	P	P	P						
338	RADE GAURAV C.	P	P	P	P	P	P						
339	RANE HITENDRA RAMDAS	P	P	P	P	P	P						
344	SARODE NIKHIL PRASHANT	P	P	P	P	P	P						
345	SHANKPAL AKSHAY S.	P	P	P	P	P	P						
346	SHINDE YOGESH RAJU	P	P	P	P	P	P						
348	SHIRSATH AKSHAY B.	P	P	P	P	P	P						
351	SONAWANE ADITYA SANJAY	P	P	P	P	P	P						
352	SONAWANE YASHWANT S.	P	P	P	P	P	P						
355	TAYADE HARSHADA B.	P	P	P	P	P	P						
356	THAKRE SHUBHAM D.	P	P	P	P	P	P						
360	WANI SAURABH GAJANAN	P	P	P	P	P	P						

Subject Teacher
Prof. P. P. Kulkarni

H.O.D.
Electrical Engg.Dept.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : TE (ELECT) SEM- II ACADEMIC YEAR 2018-19

Subject - Control system - I

Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	08/03	09/03	11/03	15/03	16/03	18/03	22/03	23/03	25/03	29/03	30/03	01/04
306	BHARAMBE DNYANESHWAR SUHAS	P	P	P	P	P	P	P	P	P	P	P	P
313	CHAVAN CHETAN SUPADU	P	P	P	P	P	P	P	P	P	P	P	P
318	JALANKAR PANKAJ B.	P	P	P	P	P	P	P	P	P	P	P	P
323	MAHAJAN MONIKA I.	P	P	P	P	P	P	P	P		P	P	P
325	MALI BHUSHAN P.		P	P	P	P	P	P	P	P	P	P	P
328	NAGDA SHERNIK PANKAJ	P	P	P	P	P		P	P	P	P	P	P
329	NEMADE TUSHAR U.	P	P		P	P	P	P	P	P	P	P	P
333	PATIL NIKHIL RAVINDRA	P	P	P	P	P	P	P	P	P	P	P	P
338	RADE GAURAV C.	P	P	P	P	P	P	P	P	P	P	P	P
339	RANE HITENDRA RAMDAS	P	P	P	P	P	P	P	P	P	P	P	P
344	SARODE NIKHIL PRASHANT	P	P	P	P	P	P	P	P	P	P	P	P
345	SHANKPAL AKSHAY S.	P	P	P	P	P	P	P	P	P	P	P	P
346	SHINDE YOGESH RAJU	P	P	P	P	P	P	P	P	P	P	P	P
348	SHIRSATH AKSHAY B.	P	P	P	P	P	P	P	P	P	P	P	P
351	SONAWANE ADITYA SANJAY	P	P	P	P	P	P	P	P	P	P	P	P
352	SONAWANE YASHWANT S.	P	P	P	P	P	P	P	P	P	P	P	P
355	TAYADE HARSHADA B.	P	P	P	P	P	P	P	P	P	P	P	P
356	THAKRE SHUBHAM D.	P	P	P	P	P	P	P	P	P	P	P	P
360	WANI SAURABH GAJANAN	P	P	P	P	P	P	P	P	P	P	P	P

Subject Teacher
Mr. R.V. Patil

H.O.D.
Electrical Engg.Dept.

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Kothke

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

ELECTRICAL ENGINEERING DEPARTMENT

CLASS : TE (ELECT)
SEM- II
ACADEMIC YEAR 2018-19
Subject EM - II
Date

Attendnnce Slow learner

ROLL NO	NAME	Rom.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rom.lect.11	Rom.lect.12
DATES OF REM. LECTURE		06/03	08/03	09/03	10/03	13/03	15/03	16/03	19/03	20/03	22/03	23/03	26/03
306	BHARAMBE DNYANESHWAR SUHAS	P	P	.	P	P	P	P	.	P	P	P	P
313	CHAVAN CHETAN SUPADU	.	P	P	P	P	.	P	P	P	.	P	P
318	JALANKAR PANKAJ B.	P	P	P	.	P	P	.	P	P	P	.	P
323	MAHAJAN MONIKA I.	P	.	P	P	.	P	P	P	.	P	P	.
325	MALI BHUSHAN P.	P	P	P	P	P	P	P	P	P	P	P	P
328	NAGDA SHERNIK PANKAJ	P	P	.	P	P	.	P	.	P	P	P	P
329	NEMADE TUSHAR U.	.	P	P	P	P	P	P	P	P	.	P	P
333	PATIL NIKHIL RAVINDRA	P	P	P	.	P	P	P	P	P	P	.	P
338	RADE GAURAV C.	P	P	P	P	.	P	.	P	P	P	P	P
339	RANE HITENDRA RAMDAS	P	P	P	P	P	P	P	P	P	P	P	P
344	SARODE NIKHIL PRASHANT	P	.	P	P	P	P	P	P	.	.	P	P
345	SHANKPAL AKSHAY S.	P	P	P	P	P	.	P	P	P	P	P	P
346	SHINDE YOGESH RAJU	P	P	P	.	P	P	P	P	P	P	.	P
348	SHIRSATH AKSHAY B.	P	P	P	P	P	P	P	.	P	P	P	P
351	SONAWANE ADITYA SANJAY	.	P	P	P	.	P	P	P	P	.	P	P
352	SONAWANE YASHWANT S.	P	P	P	P	P	.	P	P	.	P	P	P
355	TAYADE HARSHADA B.	P	.	P	.	P	P	P	P	P	P	.	P
356	THAKRE SHUBHAM D.	.	P	.	P	P	P	.	P	P	P	P	P
360	WANI SAURABH GAJANAN	P	P	P	.	P	P	P	P	P	P	.	P

Subject Teacher

Prof. U. R. Kothoke

H.O.D.
Electrical Engg.Dept.

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., JALGAON

DEPARTMENT OF ELECTRICAL ENGINEERING

REMEDIAL LECTURE TIMETABLE

SEM : II YEAR : 2018-19 W.E.F. : 06-03-2019

CLASS : BE (ELECTRICAL) **CLASS ROOM NO. 210**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
8.00 to 9.00	PSS	SGP	PSDP	FPQ	PSS	PSS
4.00 to 5.00	SGP	PSDP	SGP	PSDP	FPQ	FPQ

THEORY	Faculty
PSS	Ms. P. P. BHOLE
SGP	Mr. C. N. PANAT
PSDP	Mr. R. R. WAGHULDE
FACTS&PQ	Mr. K. M. MAHAJAN

TIME TABLE CO-ORDINATOR

ASST. PROF. S. S. SANANSE

HOD-ELECTRICAL

PROF. K. M. MAHAJAN

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KCES'S COLLEGE OF ENGG & I.T JALGAON
DEPARTMENT OF ELECTRICAL ENGINEERING
EVALUATION SHEET FOR SLOW AND FAST LEARNI EVALUATION SHEET FOR SLOW AND FAST LEARNER

ISE(BEST OF TWO) CLASS-BE ELECTRICAL 2018-19 SEM-II

R. NO	NAME OF THE STUDENT	PSS (ISE-I)	PSS (ISE-II)	BEST OF TWO	SGP (ISE-I)	SGP (ISE-II)	BEST OF TWO	PSDP (ISE-I)	PSDP (ISE-II)	BEST OF TWO	FPQ (ISE-I)	FPQ (ISE-II)	BEST OF TWO	Average
401	AKOLKAR SHITAL S.	18	20	20	20	20	20	18	19	19	20	AB	20	19.66667
402	BHARAMBE UJWALA P.	8	17	17	16	18	18	16	10	16	14	13	14	14.25
403	BHAVSAR TEJAL R.	AB	10	10	AB	18	18	AB	15	15	AB	9	9	11
404	BHOLE HEMANGI G.	13	9	13	19	16	19	14	15	15	17	8	17	14.25
405	BHOLE RAJASHRI SURESH	13	13	13	15	19	19	18	2	18	15	AB	15	16
406	BORLE PARAG SUNIL	11	7	11	12	AB	12	6	15	15	12	AB	12	13
407	BORNARE SAURABH R.	0	9	9	12	0	12	14	14	14	8	11	11	11
408	CHAUDHARI AKSHAY S.	14	AB	14	17	AB	17	15	AB	15	17	AB	17	16.33333
409	CHAUDHARI DHANASHRI	18	AB	18	16	AB	16	17	AB	17	15	AB	15	15.66667
410	CHAUDHARI KAPIL VIKAS	2	18	18	15	19	19	15	AB	15	13	AB	13	13.66667
411	CHAUDHARI POOJA N.	0	11	11	15	17	17	13	AB	13	14	1	14	10.5
412	DANDGAVAL DEVEN G.	7	19	19	15	1	15	17	AB	17	11	12	12	13
413	GAIKWAD PRAVIN K.	AB	3	3	AB	12	12	11	AB	11	9	AB	9	9.666667
414	GHISADI SANJAY D.	9	AB	9	10	AB	10	12	AB	12	15	AB	15	14
415	JADHAV PRIYANKA	13	7	13	16	19	19	12	14	14	11	AB	11	12
416	JAGTAP GOPAL KAILAS	6	19	19	15	19	19	13	14	14	AB	13	13	13.33333
417	JETHE SACHIN	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB
418	KHARE PARAG L.	0	16	16	9	18	18	11	13	13	13	12	13	12.75
419	KINAGE VAIBHAV K.	10	17	17	19	20	20	14	16	16	13	AB	13	14
420	KUWAR AKASH ASHOK	AB	AB	AB	AB	11	11	AB	AB	AB	AB	AB	AB	AB
421	MAHAJAN GUNJAN Y.	8	19	19	19	20	20	14	15	15	13	AB	13	13.66667
422	MAHAJAN RUPESH KISHOR	5	12	12	15	4	15	16	19	19	8	9	9	11.25

423	MAHAJAN VALMIK GOPAL	3	13	13	8	8	8	14	AB	14	5	10	10	9.75
424	NARKHEDE MAYUR VIJAY	AB	8	8	AB	17	17	AB	18	18	AB	12	12	14
425	NEHETE DIPAK DAGADU	10	AB	10	15	AB	15	AB	6	6	10	AB	10	8.666667
426	PARIHAR PRATIKSHA	10	AB	10	14	AB	14	16	AB	16	16	AB	16	16
427	PATEL VICKY BHARAT	7	15	15	14	16	16	8	15	15	12	6	12	11.25
428	PATIL AKSHAY D.	10	13	13	14	17	17	10	14	14	15	AB	15	14.66667
429	PATIL BHAVESH DEELIP	0	16	16	12	15	15	12	12	12	16	AB	16	14.66667
430	PATIL DIPAK BHARAT	10	4	10	14	5	14	11	10	11	15	AB	15	13.66667
431	PATIL HITENDRA M.	12	8	12	17	AB	17	16	AB	16	15	7	15	13.25
432	PATIL JAYESH B.	11	7	11	15	AB	15	17	AB	17	16	AB	16	16.33333
433	PATIL KAMALESH R.	15	AB	15	20	AB	20	18	12	18	13	11	13	13.75
434	PATIL LALIT R.	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB
435	PATIL LOKESH ANANDA	14	AB	14	14	AB	14	8	AB	8	12	AB	12	10.66667
436	PATIL NITIN PRAKASH	6	16	16	8	16	16	9	10	10	14	AB	14	12.66667
437	PATIL SAGAR N.	AB	13	13	AB	17	17	AB	16	16	AB	AB	AB	16
438	PATIL SAGAR PRAKASH	5	12	12	14	8	14	3	14	14	14	AB	14	14
439	PATIL SAGAR VILAS	9	4	9	14	15	15	13	AB	13	12	AB	12	12.33333
440	PATIL SMITA SANJIV	9	15	15	16	18	18	18	AB	18	12	AB	12	14
441	PATIL TEJAS VITTHAL	9	12	12	11	18	18	13	14	14	6	11	11	10.5
442	PATIL URVASHI SUNIL	4	15	15	18	20	20	11	18	18	13	12	13	14
443	PATIL VIJAY D.	7	11	11	11	18	18	11	10	11	10	AB	10	10.33333
444	PAWARA RANJANA G.	AB	18	18	12	18	18	13	16	16	8	AB	8	10.66667
445	RANE PALLAVI G.	10	7	10	17	18	18	16	14	16	14	AB	14	14.66667
446	SAVDEKAR DEEPAK ANIL	1	14	14	9	8	9	5	8	8	9	AB	9	8.666667
447	SHARMA AMITA	3	15	15	12	16	16	14	14	14	10	AB	10	11.33333
448	SHIMPI CHANDRAKANT	19	8	19	19	19	19	17	15	17	18	11	18	16
449	SHINDE MANISH R.	10	10	10	11	19	19	12	9	12	12	14	14	13
450	THAKARE PAVAN S.	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB
451	TOKE BHAIRAVI KIRAN	12	13	13	20	19	20	14	AB	14	16	AB	16	15.33333
452	WARKE DHAVAL R.	8	16	16	16	18	18	10	12	12	11	AB	11	11.33333
453	YEWALE NAMRATA M.	11	10	11	16	AB	16	3	15	15	12	AB	12	13

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454	ZOPE KIRTI SHANKAR	2	13	13	8	17	17	5	14	14	8	AB	8	10
455	SONAWANE POORNIMA	8	AB	8	8	AB	8	12	AB	12	9	AB	9	10
456	GAWALI KIRAN VISHNU	AB	13	13	AB	14	14	0	13	13	8	AB	8	9.666667
457	MAHAJAN VARUN N.	AB	13	13	17	18	18	16	18	18	15	AB	15	16
458	PATIL MAYUR NARENDRA	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB
459	PATIL SAGAR MADHUKAR	2	11	11	8	11	11	9	0	9	12	3	12	9
460	PAWAR VIVEK THANSING	2	9	9	8	11	11	12	10	12	11	AB	11	11.33333
461	SURWADE AMOL VIKAS	AB	1	1	12	1	12	11	14	14	8	0	8	7.5
462	ROKADE BHUSHAN A.	2	0	2	8	8	8	13	8	13	4	2	4	5.75
463	ROKADE HARSHAD A.	4	0	4	8	1	8	6	8	8	1	0	1	2.5
464	DEORE LALIT RAJENDRA	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB
465	TAP RAMESH K	8	2	8	8	10	10	6	12	12	9	AB	9	10

ISE Co-ordinator

H.O.D.

[illegible]

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : BE (ELECT) SEM- II ACADEMIC YEAR 2018-19

Subject FPQ

Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	7/3	8/3	9/3	14/3	15/3	16/3	22/3	23/3	28/3	29/3	30/3	
417	JETHE SACHIN												
420	KUWAR AKASH ASHOK	P	P	P	P	P	P	P	P	P	P	P	
434	PATIL LALIT R.	P	P	P	P		P	P	P		P	P	
450	THAKARE PAVAN S.	P	P	P	P	P	P		P	P	P	P	
458	PATIL MAYUR NARENDRA			P		P	P	P	P	P		P	
461	SURWADE AMOL VIKAS	P	P	P	P	P	P	P	P	P	P	P	
462	ROKADE BHUSHAN A.	P	P		P	P		P	P	P	P		
463	ROKADE HARSHAD A.	P		P	P	P	P			P	P	P	
464	DEORE LALIT RAJENDRA	P	P	P	P	P	P	P	P	P	P	P	

Subject Teacher

(Prof K. M. Mahajan)

H.O.D.
Electrical Engg.Dept.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : BE (ELECT) SEM- II ACADEMIC YEAR 2018-19

Subject PSDP Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	12/3	13/3	14/3	19/3	20/3	26/3	27/3	28/3	2/4	3/4	4/4	
417	JETHE SACHIN	P		P	P	P	P				P	P	
420	KUWAR AKASH ASHOK	P	P	P		P	P		P	P		P	
434	PATIL LALIT R.	P	P		P			P	P	P	P	P	
450	THAKARE PAVAN S.	P	P	P		P	P	P	P	P	P	P	
458	PATIL MAYUR NARENDRA		P	P	P	P	P	P	P	P	P	P	
461	SURWADE AMOL VIKAS	P	P	P		P	P	P	P	P	P	P	
462	ROKADE BHUSHAN A.	P	P	P	P	P	P	P	P	P	P	P	
463	ROKADE HARSHAD A.				P		P			P	P	P	
464	DEORE LALIT RAJENDRA	P	P	P	P	P		P	P		P	P	

Subject Teacher
Prof R.R. Waghulde

H.O.D.
Electrical Engg.Dept.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : BE (ELECT)
SEM- II
ACADEMIC YEAR 2018-19
Subject PSS
Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
DATES OF REM. LECTURE		08/03	09/03	11/03	15/03	16/03	18/03	22/03	23/03	25/03	29/03	30/03	01/04
417	JETHE SACHIN	P	P	P	P	P	•	P	P	P	P	P	P
420	KUWAR AKASH ASHOK	P	•	P	P	P	P	•	P	•	P	P	P
434	PATIL LALIT R.	P	P	•	P	P	P	P	-	P	P	P	P
450	THAKARE PAVAN S.	P	•	P	P	-	P	P	P	P	•	P	P
458	PATIL MAYUR NARENDRA	•	P	P	•	P	P	P	P	P	P	P	•
461	SURWADE AMOL VIKAS	P	P	P	P	P	•	P	P	P	P	•	P
462	ROKADE BHUSHAN A.	P	P	P	P	P	P	P	P	P	P	P	P
463	ROKADE HARSHAD A.	P	P	•	P	P	P	P	•	P	P	P	P
464	DEORE LALIT RAJENDRA	P	•	P	P	P	P	P	P	•	P	P	P
		P	P	P	P	•	P	P	P	P	P	P	P.

Bhole
Subject Teacher

P. P. Bhole

H.O.D.
Electrical Engg.Dept.

SGP - C.N. Panat

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : BE (ELECT)
SEM- II
ACADEMIC YEAR 2018-19
Subject SGP
Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	11/02	12/03	13/13	18/03	19/03	20/03	25/03	26/03	27/03	4/04		
417	JETHE SACHIN	P	P	.	P	P	.	P	P	P	P		
420	KUWAR AKASH ASHOK	P	P	P	.	.	P	P	P	.	P		
434	PATIL LALIT R.	P	.	P	P	P	P	.	P	P	.		
450	THAKARE PAVAN S.	.	P	P	P	P	P	P	.	P	P		
458	PATIL MAYUR NARENDRA	P	P	P	P	P	P	.	P	.	P		
461	SURWADE AMOL VIKAS	P	.	P	P	P	P	P	P	P	P		
462	ROKADE BHUSHAN A.	P	P	P	P	.	P	P	P	P	P		
463	ROKADE HARSHAD A.	P	P	.	P	P	.	P	P	P	P		
464	DEORE LALIT RAJENDRA	.	P	P	P	P	P	P	P	.	P		
											P		

Panat
Subject Teacher

prof. C. N. Panat

H.O.D.
Electrical Engg.Dept.

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : SE (ELECT)

SEM- II

ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

Title of activity		Guest Lecture		
Date of activity		07/02/2019	20/03/2019	25/03/2019
ROLL NO	NAME	Activity 1	Activity 2	Activity 3
201	SONAWANE SARIKA KAILAS	P	P	P
205	PATIL MOHIT LILADHAR	P	P	P
208	PATIL NEHA GAJANAN	P	P	P
211	PATIL CHETAN KISHOR	P	P	P
224	PATIL TEJASWINI UMAKANT	P	P	P
253	YEOLE SHREYA KAILAS	P	P	P
254	DEWANG PRIYANKA DINESH	P	P	P

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Elect Engg.Dept.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : TE (ELECT)   SEM- II   ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

Title of activity		Guest Lecture	Aptitude Test	NPTEL videos.
Date of activity		07/02/2019	20/03/2019	25/03/2019
ROLL NO	NAME	Activity 1	Activity 2	Activity 3
301	BACHHAV SHUBHANGI R.	P	P	P
311	CHAUDHARI SUJATA S.	P	P	P
319	JOSHI HRISHIKESH PRADIP	P	P	P
322	MAHAJAN PRATIKSHA P.	P	P	P
362	ZOPE NIKHIL RAJENDRA	P	P	P

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : BE (ELECT) **SEM- II** **ACADEMIC YEAR 2018-19**

Date

Attendance Fast learner

Title of activity		Guest Lecture	Aptitude Test	NPTEL Videos
Date of activity		07/02/2019	20/03/2019	25/03/2019
ROLL NO	NAME	Activity 1	Activity 2	Activity 3
401	AKOLKAR SHITAL S.	P	P	P
408	CHAUDHARI AKSHAY	P	P	P
432	PATIL JAYESH B.	P	P	P

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KCES's College of Engineering and Information Technology, Jalgaon

Electrical Engineering Department

Aptitude Questions for Fast Learner

Date-07/03/2019

1. What do you understand by the term CAPCODE?
a) an encryption scheme
b) an addressing scheme
c) an error-detection scheme
d) a decryption scheme

2. The "forward" PCs channel is ________
a) from the base to mobile
b) from the mobile to base
c) from mobile to mobile
d) from base to base

3. What is the full form of MSC?
a) Mobile Service Cellular
b) Mobile Switching Center
c) Mobile Switching Control
d) Mobile Servicing Council

4. LNA stands for ________
a) low noise amplifier
b) low noise amplification
c) low narrow amplification
d) low narrow amplifier

5. The "payload" in a communication satellite consists of ________
a) power amplifiers
b) batteries
c) transponders
d) transducers

6. What is the height of the geosynchronous orbit above the equator?
a) 3,578km
b) 35,780km
c) depends on escape velocity
d) depends on satellite velocity

7. Notch filter is a band pass filter.
a) True
b) False

8. For what modulation index, we can expect maximum undistorted power output of a transmitter?
a) 50%
b) 100%
c) 25%
d) 0

9. Modulation is used to allow the use of practical antennas.
a) True
b) False

10. Which of the following statement is incorrect about modulation?
a) It is used to allow the use of practical antennas
b) It is used to separate different transmissions
c) It is used to reduce the required bandwidth
d) It is used to ensure that the message is transmitted over long distances

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

ELECTRICAL ENGINEERING DEPARTMENT

CLASS : SE (ELECT) SEM- II ACADEMIC YEAR 2018-19

Aptitude Test Marks

Date-11/03/2019

ROLL NO	NAME	Marks
201	SONAWANE SARIKA KAILAS	18
205	PATIL MOHIT LILADHAR	16
208	PATIL NEHA GAJANAN	20
211	PATIL CHETAN KISHOR	20
224	PATIL TEJASWINI UMAKANT	18
253	YEOLE SHREYA KAILAS	18
254	DEWANG PRIYANKA DINESH	16

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT
CLASS : TE (ELECT) SEM- II ACADEMIC YEAR 2018-19

Aptitude Test Marks

Date-11/03/2019

ROLL NO	NAME	Marks
301	BACHHAV SHUBHANGI R.	18
311	CHAUDHARI SUJATA S.	18
319	JOSHI HRISHIKESH PRADIP	16
322	MAHAJAN PRATIKSHA P.	15
362	ZOPE NIKHIL RAJENDRA	20

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

ELECTRICAL ENGINEERING DEPARTMENT

'LASS : BE (ELECT)   SEM- II   ACADEMIC YEAR 2018-19

Aptitude Test Marks

Date-11/03/2019

ROLL NO	NAME	Marks
401	AKOLKAR SHITAL S.	20
408	CHAUDHARI AKSHAY	20
432	PATIL JAYESH B.	18

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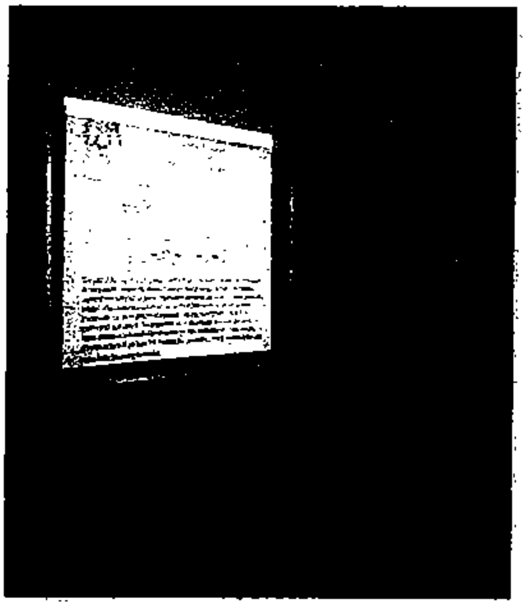
Elect Engg.Dept

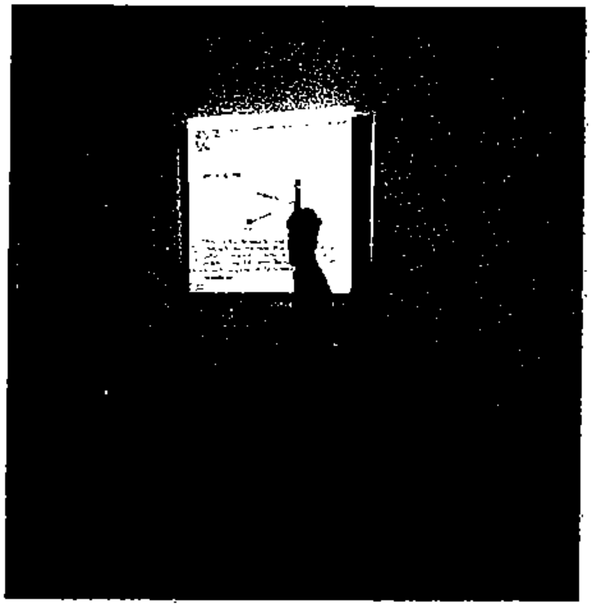
KCES's College of Engineering & IT Jalgaon

Activity Report

Name of The Activity : Classroom presentation for Fast learner students.			
Category of activity	**Curricular**	**Co-curricular**	**Extra-curricular**
Date:	**19/03/2019**	**Participants profile:**	**SE,TE,BE Fast learner students**
Name of Co-ordinator (S)	➢ **Prof. U.R.Kothoke** ➢ **Ms. R.V.Patil**		
Guest/ Experts (If any)			
Objective for conducting activity	➢ **To Improve Learning methodologies of students** ➢ **To improve communication skill of students** ➢ **To improve stage daring of students**		
Methodology	➢ **Offline presentation**		
Out Come	➢ **Students are able to improve their communication skills.** ➢ **Students are able to understand teaching learning methods.**		

Photos:





IQAC coordinator

Principal

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KCES's COLLEGE OF ENGG & I.T JALGAON
DEPARTMENT OF ELECTRICAL ENGINEERING
EVALUATION FOR SLOW AND FAST LEARNER

MIDSEM CLASS-SE ELECTRICAL SEM-I

R. NO.	NAME OF THE STUDENT	EM-III	EEM	FMTE	M & I	NAS	EE	Average
201	SONAWANE SARIKA KAILAS	19	19	20	20	19	16	18.83333
202	PATIL VEDANT SATISH	12	13	14	11	19	16	14.16667
203	BARHATE POORVA PRADIP	20	19	16	18	19	6	16.33333
204	THORAT SHRADDHA SANJAY	20	19	17	18	16	11	16.83333
205	PATIL MOHIT LILADHAR	16	19	17	14	19	19	17.33333
206	DIVYANSHU JAGTAP	12	16	11	11	19	15	14
207	SONONE VAISHNAVI ASHOK	20	19	18	11	13	16	16.16667
208	PATIL NEHA GAJANAN	20	19	19	15	19	11	17.16667
209	DALAL MAYURI SANJAY	12	13	12	14	16	13	13.33333
210	BHOSLE JAGRUTI ASHOKRAO	18	19	13	14	15	16	15.83333
211	PATIL CHETAN KISHOR	19	16	18	15	19	17	17.33333
212	INGALE LITESH SUNIL	17	15	16	13	11	15	14.5
213	SHAIKH MOHAMMAD WAJAHAT RAZA	11	19	13	15	18	11	14.5
214	JAVHARE AMOL LAXMIKANT	7	14	8	17	18	12	12.66667
215	SAPKALE URMILA DHANSING	16	16	13	17	14	14	15
216	KOLI HARSHALI SANJAY	17	19	18	15	11	13	15.5
217	PATIL HIMANSHU KISHOR	15	19	19	11	11	9	14
218	BONDE MAYUR SADASHIV	11	9	13	8	15	20	12.66667
219	VARKE KASHINATH SUDHAKAR	12	13	12	11	14	19	13.5
220	PATIL UJJWAL LILADHAR	14	19	15	15	14	15	15.33333
21	FARDEEN KHAN	13	13	9	16	15	14	13.33333
22	RAJPUT PRATIK PRABHAKAR	9	14	8	12	13	16	12

223	SHIRSATH KHUSHABU KISHOR	20	15	15	20	15	14	16.5
224	PATIL TEJASWINI UMAKANT	19	19	20	20	17	11	17.66667
225	DESHMUKH SWATI BALAVANT	15	16	11	12	17	18	14.83333
226	PATIL KAJAL ANANDSING	14	18	18	18	15	16	16.5
227	AHIRE MRUNAL PURUSHOTTAM	16	18	18	19	11	11	15.5
228	PATIL PRATIKSHA BALU	14	17	14	17	8	13	13.83333
229	PATIL SHUBHAM ANKUSH	11	12	11	11	11	12	11.33333
230	PACHPANDE AMOL KIRAN	18	16	11	7	15	16	13.83333
231	AMBATKAR PAWANKUMAR ASHOK	16	13	15	16	16	20	16
232	PATIL YOGESH RAJENDRA	11	15	14	17	12	19	14.66667
233	CHAUDHARI NEHAL CHANDRAKUMAR	13	15	14	15	20	15	15.33333
234	PATIL HARSHAL CHAMPALAL	12	18	15	11	20	14	15
235	BORASE PANJABRAO BHARAT	16	18	13	12	12	14	14.16667
236	MALI ROHAN RAJENDRA	6	13	15	14	18	12	13
237	PATIL BHAVANA ISHWAR	17	17	17	13	19	15	16.33333
238	ANKITA BHIKAN PATIL	18	18	17	9	17	18	16.16667
239	JADHAV PRASHANT PREMRAJ	15	19	15	20	11	19	16.5
240	CHAUDHARI PARESH RAMESH	10	13	11	19	7	18	13
241	PATIL PARESH SANTOSH	12	12	8	15	16	19	13.66667
242	PATIL PANKAJ VIJAY	10	12	11	14	17	19	13.83333
243	MORE HEMANT ATMARAM	17	19	15	14	15	19	16.5
244	BAGUL RUPALI SANJAY	10	13	8	12	11	19	12.16667
245	KHADSE GAURAV KADU	10	16	8	15	12	18	13.16667
246	SHIMPI JAYASHREE VIJAY	12	18	18	18	14	16	16
247	PATIL ISHWAR ANKUSH	18	13	14	19	13	16	15.5
248	RANDHE MILIND KAMLAKAR	19	15	11	18	9	18	15
249	INGALE ATUL GAJANAN	14	14	9	19	20	19	15.83333
250	VISHAL MADHAVARAV KOLI	10	14	10	19	19	14	14.33333
251	DHIRAJ RAVINDRA BADGUJAR	8	12	8	19	15	10	12
252	CHAUDHARI MAYUR KAILAS	9	15	13	19	11	19	14.33333
253	YEOLE SHREYA KAILAS	20	18	18	18	15	18	17.83333
254	DEWANG PRIYANKA DINESH	20	19	18	16	14	19	17.66667

255	MAHAJAN PRIYANKA DEVIDAS	12	18	15	16	14	19	15.66667
256	PATIL HARSHADA NIVRUTTI	15	19	16	18	15	19	17
257	AMAN SUNIL KOLHE	14	19	15	19	13	19	16.5
258	PAWAR MAYUR ANIL	17	19	14	14	15	18	16.16667
259	PATIL UMESH SAHEBRAO	19	19	14	10	17	16	15.83333
260	WAGH SUDHIR RAVINDRA	10	18	14	8	17	16	13.83333
261	SHUKLA NIKHIL CHANDRAMOHAN	15	16	16	9	15	17	14.66667
262	SONAWANE RAGINI SANTOSH	4	16	16	20	11	17	14
263	SANANSE DEVIDAS PRAKASH	9	7	8	20	8	15	11.16667
264	SONAWANE SHUBHANGI SUBHASH	9	9	8	12	11	11	10
265	BHANGALE YOGRAJ SHASHIKANT	13	16	12	15	15	14	14.16667
266	BAVISKAR GAURAV VIJAY	12	12	8	12	9	15	11.33333

ISE Co-ordinator

H.O.D

K.C.E. SOCIETY'S

COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JALGAON

Electrical Engineering Department

Academic Year 2018-19 SEM – I

DATE: 10/09/2018

Important Notice

All SE Electrical Engineering students are hereby inform that, students who secured marks more than 17 in internal sessional exams are considered as a fast learner students and following activities will be conducted by Electrical Engineering Department. So, kindly attend all the activities conduct by department.

Schedule of activities

1] Aptitude Test-

2] Videos (NPTEL)-

3] Classroom Presentation-

HOD

Mr. Kalpesh M. Mahajan

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K.C.E. SOCIETY'S

COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JALGAON

Electrical Engineering Department

Academic Year 2018-19 SEM – I

DATE: 10/09/2018

Important Notice

All SE Electrical Engineering students are hereby inform that, students who secured marks less than 12 in internal sessional exams are considered as a slow learner and for improvement of their result remedial lectures will be conducted from 12/09/2018 of each subject as per the remedial lecture timetable. So, kindly attend remedial lectures and complete the activities given by subject teacher.

The list of students is attached.

HOD

Mr. Kalpesh M. Mahajan

K.C.E. SOCIETY'S
COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JALGAON
Electrical Engineering Department
Academic Year 2018-19 SEM – I

DATE: 01/09/2018

Important Notice

All TE and BE Electrical Engineering students are hereby inform that, students who secured marks more than 17 in internal sessional exams are considered as a fast learner students and following activities will be conducted by Electrical Engineering Department. So, kindly attend all the activities conduct by department.

Schedule of activities
1] Aptitude Test-
2] Videos (NPTEL)-
3] Classroom Presentation-

HOD
Mr. Kalpesh M. Mahajan

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K.C.E. SOCIETY'S
COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JALGAON
Electrical Engineering Department
Academic Year 2018-19 SEM – I

DATE: 01/09/2018

Important Notice

All TE and BE Electrical Engineering students are hereby inform that, students who secured marks less than 8 in internal sessional exams are considered as a slow learner and for improvement of their result remedial lectures will be conducted from 03/09/2018 of each subject as per the remedial lecture timetable. So, kindly attend remedial lectures and complete the activities given by subject teacher.
The list of students is attached.

HOD
Mr. Kalpesh M. Mahajan

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT
CLASS : SE (ELECT) SEM- I ACADEMIC YEAR 2018-19
SLOW LEARNER LIST

Date:- 10/09/2018

ROLL NO	NAME
229	PATIL SHUBHAM ANKUSH
263	SANANSE DEVIDAS PRAKASH
264	SONAWANE SHUBHANGI SUBHASH
266	BAVISKAR GAURAV VIJAY

H.O.D.
Electrical Engg.Dept.

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT
CLASS : TE (ELECT) SEM- I ACADEMIC YEAR 2018-19

SLOW LEARNER LIST

Date:- 01/09/2018

ROLL NO	NAME
302	BADGUJAR JAYESH S.
317	JAGTAP SATYAWAN B.
329	NEMADE TUSHAR U.
351	SONAWANE ADITYA SANJAY
357	THOMARE NILESH AJAY
360	WANI SAURABH GAJANAN

H.O.D.
Electrical Engg.Dept.

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT
CLASS : BE (ELECT) SEM- I ACADEMIC YEAR 2018-19

SLOW LEARNER LIST

Date.-01/09/2018

ROLL NO	NAME
407	BORNARE SAURABH R.
420	KUWAR AKASH ASHOK
450	THAKARE PAVAN S.
461	SURWADE AMOL VIKAS
463	ROKADE HARSHAD A.

H.O.D.
Electrical Engg.Dept.

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : SE (ELECT) SEM- I ACADEMIC YEAR 2018-19

FAST LEARNER LIST

Date:- 10/09/2018

ROLL NO	NAME
201	SONAWANE SARIKA KAILAS
205	PATIL MOHIT LILADHAR
208	PATIL NEHA GAJANAN
211	PATIL CHETAN KISHOR
224	PATIL TEJASWINI UMAKANT
253	YEOLE SHREYA KAILAS
254	DEWANG PRIYANKA DINESH

H.O.D.
Elect Engg.Dept

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT
CLASS : TE (ELECT) SEM- I ACADEMIC YEAR 2018-19
FAST LEARNER LIST

Date:-01/09/2018

ROLL NO	NAME
301	BACHHAV SHUBHANGI R.
308	BHOI YOGITA PRAKASH
312	CHAUDHARI TEJASVINI ANANDA
313	CHAVAN CHETAN SUPADU
318	JALANKAR PANKAJ B.
322	MAHAJAN PRATIKSHA P.
330	PAKHARE NIKITA GAJANAN
334	PATIL RUSHABH SOPAN
353	SONGIRE JIGNESH MOHAN

H.O.D.
Elect Engg.Dept

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

ELECTRICAL ENGINEERING DEPARTMENT

CLASS : BE (ELECT) SEM- I ACADEMIC YEAR 2018-19

FAST LEARNER LIST

Date:- 01/09/2018

ROLL NO	NAME
401	AKOLKAR SHITAL S.
448	SHIMPI CHANDRAKANT RAJENDRA
449	SHINDE MANISH R.
451	TOKE BHAIRAVI KIRAN

H.O.D.
Elect Engg.Dept

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., JALGAON

DEPARTMENT OF ELECTRICAL ENGINEERING

REMEDIAL LECTURE TIMETABLE

SEM : I YEAR : 2018-19 W.E.F. : 12-09- 2018

CLASS : S.E (ELECTRICAL) **CLASS ROOM NO. 209**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
8.00 to 9.00	FMTE	EE	FMTE	EM-III	EM-III	NAS
1.45 to 2.45						M&I
2.45 to 3.45						EM-III
4.00 to 5.00	NAS	EEM	M&I	M&I	EEM	EEM

THEORY	Faculty
FM&TE	Mr. R. D. MAHAJAN
M&I	Mrs. S. Y. SAPAKALE
EEM	Mr. K. V. SAITAWAL
NAS (PGB)	Mr. P. G. BHANGALE
EM-III	Ms. KAJAL SHARMA
EE	Mr. R. V. PATIL

CLASS TEACHER
ASST. PROF. K. V. SAITWAL

TIME TABLE CO-ORDINATOR
ASST. PROF. S. S. SANANSE

HOD-ELECTRICAL
ASST PROF. K. M. MAHAJAN

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EM-II Kajal Sharma.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : SE (ELECT) SEM- I ACADEMIC YEAR 2018-19

Subject - EM-II Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
DATES OF REM. LECTURE		14|9	15|9	21|9	22|9	27|9	28|9	29/9	4/10	5/10	6/10	11/10	12/10
229	PATIL SHUBHAM ANKUSH	P	P	P	P	P	P	P	P	P	P	P	P
263	SANANSE DEVIDAS PRAKASH	P	P	P	P	P	P	P	P	P		P	P
264	SONAWANE SHUBHANGI SUBHASH	P	P	P		P	P	P	P	P	P	P	P
266	BAVISKAR GAURAV VIJAY	P	P	P	P	P		P	P	P	P	P	P

Subject Teacher

Mrs. kajal sharma.

H.O.D.
Electrical Engg.Dept.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT
CLASS : SE (ELECT) SEM- I ACADEMIC YEAR 2018-19
Subject FE Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	25/09	03/10	10/10	17/10	24/10	31/10						
229	PATIL SHUBHAM ANKUSH	P	P	P	P	P	P						
263	SANANSE DEVIDAS PRAKASH	P	P	P	P	P	P						
264	SONAWANE SHUBHANGI SUBHASH	P	P	P	P	P	P						
266	BAVISKAR GAURAV VIJAY	P	P	P	P	P	P						
					P	P	P						

Subject Teacher
R.V. Patil

H.O.D.
Electrical Engg.Dept

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FMTE - KDM

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : SE (ELECT)
SEM- I
ACADEMIC YEAR 2018-19
Subject → FMTE
Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	12/9	17/9	19/9	24/9	26/9	1/10	3/10	8/10	10/10	15/10	17/10	
229	PATIL SHUBHAM ANKUSH	P	P	P	P	P	P	P	P	-	P	P	
263	SANANSE DEVIDAS PRAKASH	P	P	P	P	P	.	P	P	P	P	P	
264	SONAWANE SHUBHANGI SUBHASH	P	P	P	P	P	P	P	P	P	P	P	
266	BAVISKAR GAURAV VIJAY	P	P	P	P	P	.	P	P	P	P	P	

Subject Teacher

Mr. R. D. Mahajan

H.O.D.
Electrical Engg.Dept.

579

M&I 5/5

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : SE (ELECT) SEM- I ACADEMIC YEAR 2018-19

Subject - M&I

Date

Attendnnce Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	12/9	15/9	19/9	22/9	26/9	27/9	29/9	3/10	4/10	6/10	10/10	11/10
229	PATIL SHUBHAM ANKUSH	P	P	P	P	P	P	P	P	P	P	P	P
263	SANANSE DEVIDAS PRAKASH	P	P	P	P		P	P	P	P	P	P	P
264	SONAWANE SHUBHANGI SUBHASH	P	P	P	P	P		P	P	P	P	P	P
266	BAVISKAR GAURAV VIJAY	P	P	P	P	P	P	P	P	P		P	P

Subject Teacher
Mrs. S.Y. Sapkale

H.O.D.
Electrical Engg.Dept.

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EEM K.V.S.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : SE (ELECT) SEM- I ACADEMIC YEAR 2018-19

Subject – EEM Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
DATES OF REM. LECTURE		14/9	15/9	21/9	22/9	25/9	28/9	29/9	5/10	6/10	9/10	12/10	19/10
229	PATIL SHUBHAM ANKUSH	P	P	P		P	P	P	P	P	P	P	P
263	SANANSE DEVIDAS PRAKASH	P		P	P	P	P	P	P	P	P	P	P
264	SONAWANE SHUBHANGI SUBHASH	P	P	P	P	P	P	P	P	P	P	P	P
266	BAVISKAR GAURAV VIJAY	P	P	P	P	P	P	P	P		P	P	P

Subject Teacher
Mr. K.V. Saitwal

H.O.D.
Electrical Engg.Dept.

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NAS P.G. Bhangale

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : SE (ELECT) SEM- I ACADEMIC YEAR 2018-19
Subject - NAS Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	15/9	17/9	22/9	24/9	29/9	1/10	6/10	8/10	19/10	15/10		
229	PATIL SHUBHAM ANKUSH	P	P	P	.	P	P	P	P	P	P		
263	SANANSE DEVIDAS PRAKASH	P	P	P	P	P	P	P	P	P	P		
264	SONAWANE SHUBHANGI SUBHASH	P	P	P	P	P	P	.	P	P	P		
266	BAVISKAR GAURAV VIJAY	P	P	.	P	P	P	P	P	P	P		

Subject Teacher
Mr. P.G. Bhangale

H.O.D.
Electrical Engg.Dept.

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K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., JALGAON

DEPARTMENT OF ELECTRICAL ENGINEERING

REMEDIAL LECTURE TIMETABLE

SEM : I YEAR : 2018-19 W.E.F. : 03-09-2018

CLASS : TE (ELECTRICAL) **CLASS ROOM NO. 209/210**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
8.00 to 9.00	EMC-II	PE	EME	IOM	PS-II	
10.00 to 11.00						EMC-II
11.00 to 11.10						
11.10 to 12.10						PE
12.10 to 01.10						EME
01.10 to 1.45						
1.45 to 2.45						IOM
2.45 to 3.45						PS-II
4.00 to 5.00	PE	EMC-II	PS-II	EME	EME	

THEORY	Faculty
EMC-II	Mr. R. V. PATIL
PS-II	Mr. P. D KULKARNI
PE	Mr. K. V. SAITWAL
EME	Mr. M. SONAWANE
IOM	Mr. R. R. WAGHULDE

CLASS TEACHER

ASST. PROF. R. V. PATIL

TIME TABLE CO-ORDINATOR

ASST. PROF. S. S. SANANSE

H.O.D-ELECTRICAL

ASST. PROF. K. M. MAHAJAN

KCES'S COLLEGE OF ENGG & I.T JALGAON
DEPARTMENT OF ELECTRICAL ENGINEERING
EVALUATION SHEET FOR SLOW AND FAST LEARNER

ISE(BEST OF TWO) CLASS TE ELECTRICAL SEM-I

R. NO	NAME OF THE STUDENT	EM/C-II (ISE-I)	EM/C-II (ISE-II)	BEST OF TWO	PS-II (ISE-I)	PS-II (ISE-II)	BEST OF TWO	PE (ISE-I)	PE (ISE-II)	BEST OF TWO	EME (ISE-I)	EME (ISE-II)	BEST OF TWO	IOM (ISE-I)	IOM (ISE-II)	BEST OF TWO	Average
301	BACHHAV SHUBHANGI R.	20	AB	20	16	15	16	15	18	18	15	18	18	17	18	18	17.8
302	BADGUJAR JAYESH S.	8	AB	8	8	AB	8	7	AB	7	6	AB	6	AB	AB	AB	6
303	BADGUJAR TWINKAL K.	18	AB	18	11	16	16	11	AB	11	13	AB	13	8	AB	8	9.666667
304	BARHATE CHAITALI D.	19	AB	19	17	AB	17	12	17	17	16	AB	16	17	AB	17	16.66667
305	BARI AJINKYA ANIL	14	AB	14	8	AB	8	6	13	13	13	AB	13	9	AB	9	10.33333
306	BHARAMBE DNYANESHWAR	14	AB	14	8	AB	8	12	AB	12	10	AB	10	13	AB	13	12
307	BHARAMBE VIDYA P.	19	AB	19	12	AB	12	12	AB	12	15	AB	15	17	AB	17	16.33333
308	BHOI YOGITA PRAKASH	18	AB	18	18	19	19	18	17	18	16	AB	16	17	18	18	17.25
309	BONDE HEMANTKUMAR R.	19	0	19	0	16	16	6	17	17	17	17	17	8	AB	8	12.5
310	CHAUDHARI DHANSHRI A.	20	16	20	12	19	19	12	19	19	15	AB	15	17	18	18	17
311	CHAUDHARI SUJATA S.	20	13	20	13	19	19	18	19	19	16	11	16	9	19	19	14.8
312	CHAUDHARI TEJASVINI	17	AB	17	9	16	16	AB	18	18	AB	20	20	AB	17	17	18.5
313	CHAVAN CHETAN SUPADU	17	0	17	0	AB	0	4	AB	4	10	18	18	AB	AB	AB	18
314	GURUCHAL SONALI SANJAY	17	AB	17	8	2	8	9	16	16	14	AB	14	17	AB	17	16
315	HALADE AMOL EKNATH	14	6	14	9	19	19	9	14	14	12	AB	12	18	AB	18	16
316	INGALE SAGAR SUNIL	17	0	17	8	0	8	9	AB	9	17	AB	17	12	AB	12	13.66667
317	JAGTAP SATYAWAN B.	AB	0	0	AB	0	0	8	AB	8	4	AB	4	8	AB	8	6.666667
318	JALANKAR PANKAJ B.	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	18	18	AB	AB	AB	18
319	JOSHI HRISHIKESH PRADIP	18	AB	18	11	19	19	11	18	18	17	AB	17	17	AB	17	17
320	KHARE SAGAR RAJESH	14	4	14	12	AB	12	10	9	10	4	9	9	17	AB	17	13
321	KOLHE AADITI P.	17	AB	17	11	AB	11	15	12	15	15	AB	15	14	AB	14	14.33333
322	MAHAJAN PRATIKSHA P.	19	AB	19	16	19	19	17	19	19	18	20	20	19	AB	19	19.5
323	MAHAJAN MONIKA I.	19	AB	19	12	16	16	6	AB	6	17	AB	17	8	AB	8	11
324	MAHAJAN VIJAY ANIL	14	0	14	12	AB	12	7	15	7	4	13	13	12	AB	12	12.5
325	MALI BHUSHAN P.	12	3	12	10	AB	10	9	11	11	10	AB	10	13	AB	13	12
326	MALI RAHUL RAMESH	17	0	17	15	AB	15	17	AB	17	4	10	10	17	AB	17	13.5
327	METKAR PRASAD MAHESH	20	13	20	17	AB	17	11	17	17	18	10	18	18	AB	18	16
328	NAGDA SHERNIK PANKAJ	8	AB	8	8	AB	8	9	AB	9	6	AB	6	13	AB	13	10.66667
329	NEMADE TUSHAR U.	14	0	14	0	8	8	7	9	9	10	AB	10	8	AB	8	8.666667

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330	PAKHARE NIKITA GAJANAN	19	AB	19	16	19	19	17	16	17	1	20	20	16	AB	16	18
331	PATIL BHARAT RAJENDRA	13	AB	[illegible]	8	AB	8	19	AB	19	11	AB	11	17	AB	17	15
332	PATIL KAPIL MANOHAR	AB	0	AB	12	AB	12	9	AB	9	12	AB	12	14	AB	14	13.33333
333	PATIL NIKHIL RAVINDRA	19	AB	19	12	AB	12	12	AB	12	16	AB	16	16	AB	16	16
334	PATIL RUSHABH SOPAN	16	0	16	12	AB	12	16	AB	16	19	AB	19	18	AB	18	18.33333
335	PATIL TEJAS NARENDRA	9	AB	9	8	AB	8	14	AB	14	5	11	11	13	AB	13	12
336	PATIL YOGESH PRABHAKAR	15	AB	15	13	AB	13	10	AB	10	8	AB	8	14	AB	14	12
337	PAWAR VANDANA DIPAK	18	AB	18	11	19	19	11	16	16	15	AB	15	11	14	14	13.5
338	RADE GAURAV C.	12	0	12	0	11	11	10	AB	11	0	18	18	10	AB	10	14
339	RANE HITENDRA RAMDAS	8	AB	8	0	8	8	4	AB	4	15	AB	15	9	AB	9	11
340	RATHOD AJINKYA BALIRAM	17	AB	17	12	AB	12	10	17	17	16	AB	16	16	AB	16	16
341	SAKHARE JAYESH UMAKANT	AB	13	13	12	AB	12	8	11	11	8	AB	8	14	AB	14	12
342	SAPKALE NILESH JANARDAN	11	AB	11	15	AB	15	11	AB	11	AB	18	18	13	AB	13	15.5
343	SARAF SHUBHAM C.	8	AB	8	12	AB	12	18	AB	18	8	AB	8	13	AB	13	11.33333
344	SARODE NIKHIL PRASHANT	12	AB	12	0	AB	0	10	AB	10	5	AB	5	12	AB	12	9.666667
345	SHANKPAL AKSHAY S.	AB	3	3	AB	9	9	AB	16	16	AB	12	12	AB	14	14	13
346	SHINDE YOGESH RAJU	AB	AB	AB	AB	8	8	AB	3	3	AB	16	16	AB	10	10	13
347	SHINDE NARENDRA D.	12	4	12	0	11	11	10	AB	10	8	AB	8	12	AB	12	10.66667
348	SHIRSATH AKSHAY B.	8	AB	8	8	AB	8	7	8	8	9	AB	9	12	AB	12	11
349	SISODE NIKITA PRALHAD	18	AB	18	16	AB	16	11	AB	11	17	AB	17	AB	17	17	17
350	SONAWANE SHWETA V.	8	5	8	8	15	15	4	15	15	11	AB	11	12	AB	12	11.66667
351	SONAWANE ADITYA SANJAY	9	AB	9	0	AB	0	12	AB	12	10	AB	10	8	AB	8	8.666667
352	SONAWANE YASHWANT S.	16	AB	16	14	AB	14	17	AB	17	7	16	16	13	AB	13	14.5
353	SONGIRE JIGNESH MOHAN	16	5	16	15	AB	15	11	16	16	17	AB	17	18	AB	18	17.66667
354	TADAVI ASIF SALEEM	9	0	9	12	AB	12	4	5	5	12	AB	12	13	AB	13	12.66667
355	TAYADE HARSHADA B.	15	AB	15	10	AB	10	10	AB	10	9	AB	9	19	AB	19	15.66667
356	THAKRE SHUBHAM D.	16	AB	16	12	AB	12	13	AB	13	5	8	8	16	AB	16	12
357	THOMARE NILESH AJAY	18	AB	18	8	AB	8	10	AB	10	0	0	0	10	AB	10	5
358	TOKE DHANANJAY JIVAN	4	AB	4	AB	AB	AB	AB	11	11	AB	11	11	AB	AB	AB	11
359	WAGH JAYESH R.	12	2	12	8	AB	8	9	AB	9	13	AB	13	13	AB	13	13
360	WANI SAURABH GAJANAN	14	AB	14	8	16	16	10	AB	10	8	AB	8	8	AB	8	8
361	WANI AKSHAY DIGAMBAR	15	AB	15	8	0	8	14	16	16	13	AB	13	13	AB	13	13
362	ZOPE NIKHIL RAJENDRA	14	1	14	8	AB	8	10	AB	10	12	AB	12	12	AB	12	12

E Co-ordinator

H.O.D

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PE K.V. S[illegible]

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : TE (ELECT)
SEM- I
ACADEMIC YEAR 2018-19
Subject PE
Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
DATES OF REM. LECTURE		3|9	4|9	8|9	10|9	11|9	15|9	17|9	18|9	21|9	1|10	6|10	8|10
302	BADGUJAR JAYESH S.	P	P	P	P	P	P	P	P	P	P	P	P
317	JAGTAP SATYAWAN B.	P	.	P	P	P	P	P	P	P	P	P	P
329	NEMADE TUSHAR U.	P	P	P	P	P	P	.	P	P	P	P	P
351	SONAWANE ADITYA SANJAY	P	P	P	P	P	P	P	P	P	P	P	P
357	THOMARE NILESH AJAY	P	P	P	P	P	P	P	P	P	.	P	P
360	WANI SAURABH GAJANAN	P	P	P	P	P	P	P	P	P	P	P	P

Subject Teacher

Mr.. K.V. Saitwal .

H.O.D.
Electrical Engg.Dept.

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT
CLASS : TE (ELECT) SEM- I ACADEMIC YEAR 2018-19
Subject - PS II
Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
DATES OF REM. LECTURE		5/9	7/9	8/9	12/9	14/9	15/9	19/9	21/9	22/9	3/10		
302	BADGUJAR JAYESH S.	P	P	P	P	P	P	P	P	P	P		
317	JAGTAP SATYAWAN B.	P	P	P	P	P	P	P	P	P	P		
329	NEMADE TUSHAR U.	P	P	P	P	P	P	P	P	P	P		
351	SONAWANE ADITYA SANJAY	P	P	P	P	P	P	P	P	P	P		
357	THOMARE NILESH AJAY	P	P	P	P	P	P	P	P	P	P		
360	WANI SAURABH GAJANAN	P	P	P	P	P	P	P	P	P	P		

Subject Teacher
Prof. P. D. Kulkarni

H.O.D.
Electrical Engg.Dept.

IOM -

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : TE (ELECT)
SEM- I
ACADEMIC YEAR 2018-19
Subject IOM
Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	6/9	8/9	15/9	22/9	27/9	29/9	4/10	6/10				
302	BADGUJAR JAYESH S.	P	P	P	P	P	P	P	P				
317	JAGTAP SATYAWAN B.	P	P	P	P	P		P	P				
329	NEMADE TUSHAR U.	P	P	P	P	P	P	P					
351	SONAWANE ADITYA SANJAY	P		P	P	P	P		P				
357	THOMARE NILESH AJAY	P	P			P	P	P	P				
360	WANI SAURABH GAJANAN	P	P	P	P	P	P	P	P				

Subject Teacher
Prof R.R. Waghulde

H.O.D.
Electrical Engg.Dept

588

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : TE (ELECT) SEM- I ACADEMIC YEAR 2018-19

Subject EMC-II Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	03/09	04/09	08/09	10/09	11/09	15/09	17/09	18/09	22/09	01/10	06/10	08/10
302	BADGUJAR JAYESH S.	P	P	P	P	P	P	P	P	P	P	P	P
317	JAGTAP SATYAWAN B.	P	P	P	P	P	P	P		P	P	P	P
329	NEMADE TUSHAR U.	P	P	P	P	P	P	P	P	P	P	P	P
351	SONAWANE ADITYA SANJAY	P	P	P	P	P	P	P	P	P	P	P	P
357	THOMARE NILESH AJAY	P	P	P	P	P	P	P	P	P	P	P	P
360	WANI SAURABH GAJANAN	P	P	P	P	P	P	P	P	P	P	P	P

Subject Teacher
R.V. Patil.

H.O.D.
Electrical Engg.Dept.

EME. Mr. [illegible]

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : TE (ELECT)
SEM- I
ACADEMIC YEAR 2018-19
Subject EME
Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	5/9	6/9	7/9	8/9	12/9	14/9	15/9	19/9	21/9	22/9	3/10	4/10
302	BADGUJAR JAYESH S.	P	P	P	P	P	P	P	P	P	P	P	P
317	JAGTAP SATYAWAN B.	P	P	P	P	P	P	P	P	P	P	.	P
329	NEMADE TUSHAR U.	P	P	P	P	P	P	P	P	P	P	P	P
351	SONAWANE ADITYA SANJAY	P	P	.	P	P	P	P	P	.	P	P	P
357	THOMARE NILESH AJAY	P	P	P	P	P	P	P	P	P	P	P	P
360	WANI SAURABH GAJANAN	P	P	P	P	.	P	P	P	P	P	P	P

Subject Teacher
Mr. Mayur Sonawane.

H.O.D.
Electrical Engg.Dept.

590

K. C. E. Society's

COLLEGE OF ENGINEERING & I.T., JALGAON

DEPARTMENT OF ELECTRICAL ENGINEERING

REMEDIAL LECTURE TIMETABLE

SEM : I YEAR : 2018-19 W.E.F. : 03-09-2018

CLASS : BE (ELECTRICAL) **CLASS ROOM NO. 210**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
8.00 to 9.00	HVE	IDC	PSOC	IEE	IDC	
9.00 to 10.00						PSOC
10.00 to 11.00						ERT
11.00 to 11.10						
11.10 to 12.10						IEE
12.10 to 01.10						HVE
01.10 to 1.45						
1.45 to 2.45						IDC
2.45 to 3.45						HVE
4.00 to 5.00	IDC	HVE	IEE	PSOC	ERT	

THEORY	Faculty
IDC	Mr. U. R. KOTHOKE
HVE	Ms. R. M. PATIL
ERT	Mr. A. S. KOLI
IEE	Mr. B. R. ALONI
PSOC	Mr. S. M. NATH

CLASS TEACHER
ASST. PROF. B. R. ALONI

TIME TABLE CO-ORDINATOR
ASST. PROF. S. S. SANANSE

HOD-ELECTRICAL
PROF. K. M. MAHAJAN

KCES'S COLLEGE OF ENGG & I.T JALGAON
DEPARTMENT OF ELECTRICAL ENGINEERING
EVALUATION SHEET FOR SLOW AND FAST LEARNER

ISE(BEST OF TWO) BE ELECTRICAL SEM-I

R. NO	NAME OF THE STUDENT	IDC (ISE-I)	IDC (ISE-II)	BEST OF TWO	HVE (ISE-I)	HVE (ISE-II)	BEST OF TWO	ERT (ISE-I)	ERT (ISE-II)	BEST OF TWO	IEE (ISE-I)	IEE (ISE-II)	BEST OF TWO	PSOC (ISE-I)	PSOC (ISE-II)	BEST OF TWO	Average
401	AKOLKAR SHITAL S.	17	AB	17	18	AB	18	20	AB	20	20	AB	20	20	AB	20	20
402	BHARAMBE UJWALA P.	15	8	15	18	6	18	16	12	16	8	16	16	10	11	11	12.8
403	BHAVSAR TEJAL R.	AB	17	17	AB	17	17	AB	16	16	AB	16	16	AB	16	16	16
404	BHOLE HEMANGI G.	16	15	16	16	AB	16	17	11	17	18	AB	18	12	11	12	13.25
405	BHOLE RAJASHRI SURESH	13	13	13	18	8	18	16	10	16	16	14	16	13	12	13	13.6
406	BORLE PARAG SUNIL	8	16	16	20	0	20	4	16	16	14	AB	14	2	11	11	9.5
407	BORNARE SAURABH R.	7	15	15	15	0	15	10	AB	10	15	AB	15	0	0	0	3.75
408	CHAUDHARI AKSHAY S.	14	13	14	20	2	20	12	0	12	18	AB	18	8	0	8	8.5
409	CHAUDHARI DHANASHRI	14	6	14	20	3	20	14	17	17	16	17	17	16	4	16	14
410	CHAUDHARI KAPIL VIKAS	17	3	17	17	8	17	10	13	13	17	13	17	14	0	14	11.6
411	CHAUDHARI POOJA N.	16	11	16	18	8	18	10	16	16	12	17	17	AB	14	14	15.5
412	DANDGAVAL DEVEN G.	17	17	17	18	4	18	10	8	10	14	10	14	16	3	16	11.8
413	GAIKWAD PRAVIN K.	14	0	14	8	8	8	AB	14	14	AB	13	13	AB	9	9	11
414	GHISADI SANJAY D.	15	0	15	15	0	15	9	11	11	4	14	14	11	12	12	12.6
415	JADHAV PRIYANKA	17	14	17	12	12	12	13	13	13	14	17	17	13	15	15	15.4
416	JAGTAP GOPAL KAILAS	14	AB	14	18	AB	18	12	16	16	10	16	16	11	14	14	14.2
417	JETHE SACHIN	AB	AB	AB	AB	0	AB	AB	8	8	AB	8	8	AB	AB	AB	8
418	KHARE PARAG L.	13	0	13	16	8	16	8	12	12	8	10	10	AB	10	10	10
419	KINAGE VAIBHAV K.	18	15	18	18	12	18	10	16	16	15	17	17	8	8	8	11.6
420	KUWAR AKASH ASHOK	0	0	0	8	0	8	4	8	8	0	11	11	AB	0	0	5.5
421	MAHAJAN GUNJAN Y.	18	14	18	18	12	18	10	15	15	15	16	16	11	14	14	14.2
422	MAHAJAN RUPESH KISHOR	14	10	14	16	0	16	8	13	13	10	16	16	6	11	11	12
423	MAHAJAN VALMIK GOPAL	16	6	16	19	4	19	8	14	14	6	17	17	2	11	11	11.6
424	NARKHEDE MAYUR VIJAY	AB	17	17	AB	15	15	AB	10	10	AB	13	13	AB	15	15	14
425	NEHETE DIPAK DAGADU	AB	13	13	AB	2	2	AB	14	14	AB	17	17	AB	8	8	12.5
426	PARIHAR PRATIKSHA	16	AB	16	15	AB	15	18	AB	18	15	AB	15	14	AB	14	14.33333
427	PATEL VICKY BHARAT	11	AB	11	10	AB	10	13	0	13	15	AB	15	0	9	9	8.25
428	PATIL AKSHAY D.	14	6	14	14	8	14	12	0	12	15	8	15	AB	16	16	13.75

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429	PATIL BHAVESH DEELIP	16	0	16	12	15	15	AB	14	14	AB	15	15	AB	8	8	11.5
430	PATIL DIPAK BHARAT	14	0	14	10	4	10	12	AB	12	10	15	15	3	11	11	11
431	PATIL HITENDRA M.	17	8	17	19	AB	19	14	11	14	14	14	14	12	9	12	12.2
432	PATIL JAYESH B.	17	5	17	14	0	14	12	AB	12	15	12	15	AB	8	8	10.75
433	PATIL KAMALESH R.	17	6	17	19	4	19	12	0	12	18	0	18	17	0	17	10.4
434	PATIL LALIT R.	AB	AB	AB	AB	6	6	AB	0	0	AB	13	13	AB	13	13	13
435	PATIL LOKESH ANANDA	14	AB	14	19	AB	19	14	AB	14	13	AB	13	0	14	14	10.25
436	PATIL NITIN PRAKASH	14	8	14	10	5	10	10	AB	10	16	10	16	9	4	9	9.6
437	PATIL SAGAR N.	AB	14	14	AB	11	11	AB	AB	AB	AB	14	14	6	14	14	12.4
438	PATIL SAGAR PRAKASH	14	10	14	8	6	8	10	8	10	7	15	15	12	4	12	11.6
439	PATIL SAGAR VILAS	16	13	16	16	11	16	8	9	9	8	14	14	AB	8	8	11
440	PATIL SMITA SANJIV	15	8	15	16	12	16	14	16	16	14	16	16	19	10	19	16
441	PATIL TEJAS VITTHAL	13	7	13	20	AB	20	12	18	18	8	17	17	AB	12	12	14.5
442	PATIL URVASHI SUNIL	14	8	14	20	19	20	10	15	15	15	15	15	12	18	18	15.6
443	PATIL VIJAY D.	16	13	16	12	9	12	10	AB	10	10	15	15	11	8	11	12
444	PAWARA RANJANA G.	14	13	14	16	10	16	15	12	15	19	AB	19	13	12	13	14.25
445	RANE PALLAVI G.	13	17	17	18	15	18	14	14	14	15	16	16	14	11	14	14.2
446	SAVDEKAR DEEPAK ANIL	13	8	13	12	3	12	8	AB	8	14	14	14	6	9	9	10.4
447	SHARMA AMITA	15	15	15	12	9	12	15	14	15	11	14	14	15	17	17	15.4
448	SHIMPI CHANDRAKANT	18	12	18	20	10	20	15	14	15	19	20	20	17	18	18	18.6
449	SHINDE MANISH R.	16	15	16	12	8	12	10	12	12	13	15	15	AB	19	19	17
450	THAKARE PAVAN S.	10	11	10	8	10	10	8	3	8	11	AB	11	AB	4	4	6.333333
451	TOKE BHAIRAVI KIRAN	17	14	17	20	20	20	10	15	15	16	17	17	16	AB	16	16.5
452	WARKE DHAVAL R.	15	14	15	16	13	16	10	12	12	15	14	15	9	8	9	11
453	YEWALE NAMRATA M.	14	17	17	20	12	20	12	13	13	16	AB	16	12	AB	12	13.33333
454	ZOPE KIRTI SHANKAR	16	7	16	20	8	20	10	8	10	15	8	15	6	19	19	13.4
455	SONAWANE POORNIMA	16	AB	16	8	AB	8	12	AB	12	15	AB	15	6	AB	6	9
456	GAWALI KIRAN VISHNU	15	0	15	8	0	8	10	AB	10	11	AB	11	4	11	11	9.25
457	MAHAJAN VARUN N.	14	17	17	AB	4	4	AB	18	18	13	14	14	13	18	18	15.4
458	PATIL MAYUR NARENDRA	9	AB	9	10	AB	10	8	AB	8	12	AB	12	9	AB	9	10
459	PATIL SAGAR MADHUKAR	14	4	14	12	0	12	8	10	10	15	14	15	10	0	10	9.8
460	PAWAR VIVEK THANSING	9	8	9	8	8	8	8	17	17	AB	17	17	AB	10	10	13.5
461	SURWADE AMOL VIKAS	AB	3	AB	AB	2	2	AB	AB	AB	AB	AB	AB	AB	6	6	6
462	ROKADE BHUSHAN A.	12	8	12	0	15	15	10	8	10	8	16	16	4	3	4	8.6
463	ROKADE HARSHAD A.	9	8	9	0	4	4	5	9	9	1	6	6	0	2	2	3.2
464	DEORE LALIT RAJENDRA	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB
465	TAP RAMESH K	10	8	10	0	11	11	AB	13	13	AB	14	14	6	10	10	10.8

ISE Co-ordinator

H.O.D.

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PSO - SM Nath

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : BE (ELECT) SEM- I ACADEMIC YEAR 2018-19
Subject PSOC
Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
DATES OF REM. LECTURE		5/9	6/9	8/9	12/9	15/9	19/9	22/9	3/10	4/10	6/10		
407	BORNARE SAURABH R.	P	P	P	.	P	P	P	P	P	P		
420	KUWAR AKASH ASHOK	.	P	P	P	P	P	P	P	P	P		
450	THAKARE PAVAN S.	P	P	P	P	P	.	P	P	P	P		
461	SURWADE AMOL VIKAS	P	P	P	P	P	P	P	P	P	P		
463	ROKADE HARSHAD A.	P	P	.	P	P	P	P	P	P	P		

Subject Teacher
Shri S.M. Nath.

Kolyani
H.O.D.
Electrical Engg.Dept.

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ERT – A.S.Koli

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : BE (ELECT) **SEM- I** **ACADEMIC YEAR 2018-19**
Subject – ERT **Date**

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	7/9	8/9	14/9	15/9	21/9	22/9	28/9	29/9				
407	BORNARE SAURABH R.	P	.	P	P	P	P	P	P				
420	KUWAR AKASH ASHOK	P	P	P	.	P	P	P	P				
450	THAKARE PAVAN S.	P	P	P	P	P	P	.	P				
461	SURWADE AMOL VIKAS	P	P	P	P	P	P	P	P				
463	ROKADE HARSHAD A.	P	P	P	P	P	P	P	P				

Koli
Subject Teacher
A.S.Koli

H.O.D.
Electrical Engg.Dept.

HVE . R.M. Patil

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : BE (ELECT)
Subject HVE
SEM- I
ACADEMIC YEAR 2018-19
Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	3\9	4\9	8\9	8\9	10/9	11/9	15/9	15/9	17/9	18/9	22/9	22/9
407	BORNARE SAURABH R.	P	P	P	P	P	P	P	P	P	P	P	P
420	KUWAR AKASH ASHOK		P	P	P	P		P	P	P	P	P	P
450	THAKARE PAVAN S.	P	P	P	P	P	P		P	P		P	P
461	SURWADE AMOL VIKAS	P	P	P		P	P	P		P	P	P	P
463	ROKADE HARSHAD A.	P	P	P	P	P	P	P	P	P	P	P	P
		P											

Rmpatil
Subject Teacher
Ms R. M. Patil

H.O.D.
Electrical Engg.Dept.

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : BE (ELECT)
SEM- I
ACADEMIC YEAR 2018-19
Subject IPC
Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	03/09	06/09	07/09	08/09	10/09	11/09	14/09	15/09	17/09	18/09	21/09	22/09
407	BORNARE SAURABH R.	P	P	P	.	P	P	.	P	P	P	P	P
420	KUWAR AKASH ASHOK	P	.	P	P	.	P	P	P	.	P	P	P
450	THAKARE PAVAN S.	P	P	.	P	P	P	P	.	P	P	P	P
461	SURWADE AMOL VIKAS	.	P	P	P	P	.	P	P	P	.	P	P
463	ROKADE HARSHAD A.	P	P	P	P	P	P	P	P	P	P	.	P

Subject Teacher
Prof. V.R. Kothoke

H.O.D.
Electrical Engg.Dept.

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IEE - B.R. Aloni

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : BE (ELECT) SEM- I ACADEMIC YEAR 2018-19
Subject IEE Date

Attendance Slow learner

ROLL NO	NAME	Rem.lect.1	Rem.lect.2	Rem.lect.3	Rem.lect.4	Rem.lect.5	Rem.lect.6	Rem.lect.7	Rem.lect.8	Rem.lect.9	Rem.lect.10	Rem.lect.11	Rem.lect.12
	DATES OF REM. LECTURE	5/9	6/9	8/9	12/9	15/9	19/9	22/9	3/10	4/10	6/10	10/10	
407	BORNARE SAURABH R.	P	P	P	P	P	P	P	P	P	.	P	
420	KUWAR AKASH ASHOK	P	P	P	P	P	P	P	P	P	P	P	
450	THAKARE PAVAN S.	P	P	P	P	P	.	P	P	P	P	P	
461	SURWADE AMOL VIKAS	P	P	P	P	P	P	P	P	P	.	P	
463	ROKADE HARSHAD A.	P	P	.	P	P	P	P	P	P	P	P	

aloni
Subject Teacher
Mr. B. R. Aloni

H.O.D.
Electrical Engg.Dept.

ASSIGNMENT NO-1

SUB- PSOC

1. Define real, reactive and apparent power
2. What is load duration curve? Explain types of load duration curve.
3. Explain load frequency mechanism
4. Why is the tap changing transformer required explain the operation of no load tap tap changing transformer. What are the disadvantages of tap changing transformer?
5. What normally limits the capacity of transmission lines?

ASSIGNMENT NO-2

SUB- PSOC

1. Explain working principle of Synchronous motor with Schematic diagram.
2. Explain MMF waveforms of Synchronous motor.
3. Explain Basic stator circuit equations of a synchronous machine.
4. Explain flux linkage and voltage equations for stator and rotor in dq0 coordinates.
5. Explain power and torque equestion of synchronous machine.

KCES's COLLEGE OF ENGINEERING & IT , JALGAON
DEPARTMENT OF ELECTRICAL ENGINEERING

Assignment for slow learner

COURSE: B. Tech (ELECTRICAL) SUBJECT: ED

ASSIGNEMENT-I

Q.1. State the essential parts of electrical drives?

Q.2. State and explain the functions of various converters?

Q.3.What are the advantages of electrical drives and what are the function of a power modulator?

Q.4. Explain in detail fundamental torque equations?

ASSIGNEMENT-II

Q.1. State and explain different methods of speed sensing?

Q.2.Why current sensing is required in electrical drives? What are the common methods of current sensing?

Q.3. Explain the operation of a closed loop position control schemes?

Q.4. What do you understand by constant torque drive and constant power drive?

ASSIGNEMENT-III

Q.1. Explain what do you understand by the steady state stability? what is the main assumption?

Q.2. Explain that the steady state stability of a drive depend on a relative characteristics of the motor and load and not on just motor characteristics.

Q.3. Explain in detail the load equalization?

HVE

Assignment no 1

1] Define Electric field stress and write down the equation for it.

2] Write short note on estimation and control of dielectric stress.

3] Explain Surge voltage and its distribution and control.

Assignment no.2

1] Explain Ionization process in details.

2] Derive Townsends current growth equation.

3] Explain in details breakdown in electronegative gases.

4] Write short note on Paschen's law.

5] Explain different types of time lags for breakdown.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

ELECTRICAL ENGINEERING DEPARTMENT

CLASS : SE (ELECT)　　SEM- I　　ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

Title of activity		Aptitude Test	NPTEL Video	Classroom Prese-
Date of activity		18/09/2018	03/10/2018	19/10/2018.
ROLL NO	NAME	Activity 1	Activity 2	Activity 3
201	SONAWANE SARIKA KAILAS	P	P	P
205	PATIL MOHIT LILADHAR	P	P	P
208	PATIL NEHA GAJANAN	P	P	P
211	PATIL CHETAN KISHOR	P	P	P
224	PATIL TEJASWINI UMAKANT	P	P	P
253	YEOLE SHREYA KAILAS	P	P	P
254	DEWANG PRIYANKA DINESH	P	P	P

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

CLASS : TE (ELECT)
SEM- I
ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

Title of activity		Aptitude Test	NPTEL Videos	Classroom Prese.
Date of activity		18/09/2018	03/10/2018	19/10/2018
ROLL NO	NAME	Activity 1	Activity 2	Activity 3
301	BACHHAV SHUBHANGI R.	P	P	P
308	BHOI YOGITA PRAKASH	P	P	P
312	CHAUDHARI TEJASVINI ANANDA	P	P	P
313	CHAVAN CHETAN SUPADU	P	P	P
318	JALANKAR PANKAJ B.	P	P	P
322	MAHAJAN PRATIKSHA P.	P	P	P
330	PAKHARE NIKITA GAJANAN	P	P	P
334	PATIL RUSHABH SOPAN	P	P	P
353	SONGIRE JIGNESH MOHAN	P	P	P

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

ELECTRICAL ENGINEERING DEPARTMENT

CLASS : BE (ELECT)
SEM- I
ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

Title of activity		Aptitude Test	NPTEL Videos	Classroom Pres.
Date of activity		18/09/2018	03/10/2018	19/10/2018.
ROLL NO	NAME	Activity 1	Activity 2	Activity 3
401	AKOLKAR SHITAL S.	P	P	P
448	SHIMPI CHANDRAKANT RAJENDRA	P	P	P
449	SHINDE MANISH R.	P	P	P
451	TOKE BHAIRAVI KIRAN	P	P	P

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KCES's College of Engineering and Information Technology, Jalgaon

Electrical Engineering Department

Aptitude Questions for Fast Learner

Date-19/09/2018

1. A Bluetooth "piconet" has ________
a) 1 node
b) 2 nodes
c) 2 to 8 nodes
d) 2 to 16 nodes

2. POCSAG stands for ________
a) Post Office Code Standardization Advisory Group
b) Post Office Common Standardization Advisory Group
c) Pager Office Code Standardization Advisory Group
d) Pager Office Common Standardization Advisory Group

3. Who invented the technology CDMA?
a) Qualcomm
b) Bell Labs
c) SAP Labs
d) AT&T

4. AMPS was designed for POTS only.
a) True
b) False

5. What is the full form of MTSO?
a) Minimum Transmitted Signal Output
b) Maximum Transmitted Signal Output
c) Mobile Telephone Switching Office
d) Mobile Telephone Signal Office

6. AMPS stands for ________
a) American Mobile Phone System
b) Advanced Mobile Phone Service
c) American Mobile Phone Service
d) Advanced Mobile Phone System

7. "Station-keeping" refers to ___________
a) antenna maintenance
b) power level adjustments
c) orbital adjustments
d) range of frequencies

8. The area on the earth that is covered by a satellite is called __________
a) plate
b) footprint
c) downlink
d) earth station

9. Which band is used by Bluetooth in mobiles?
a) VHF band
b) UHF band
c) ISM band
d) HF band

10. BSS stands for ________
a) Basic service Set
b) Basic service System
c) Bluetooth service Set
d) Bluetooth service System

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT
CLASS : SE (ELECT) SEM- I ACADEMIC YEAR 2018-19
Aptitude Test Marks

Date-05/10/2018

ROLL NO	NAME	Marks
201	SONAWANE SARIKA KAILAS	18
205	PATIL MOHIT LILADHAR	18
208	PATIL NEHA GAJANAN	16
211	PATIL CHETAN KISHOR	20
224	PATIL TEJASWINI UMAKANT	18
253	YEOLE SHREYA KAILAS	20
254	DEWANG PRIYANKA DINESH	18

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ELECTRICAL ENGINEERING DEPARTMENT
CLASS : TE (ELECT) SEM- I ACADEMIC YEAR 2018-19

Aptitude Test Marks

Date-05/10/2018

ROLL NO	NAME	Marks
301	BACHHAV SHUBHANGI R.	20
308	BHOI YOGITA PRAKASH	18
312	CHAUDHARI TEJASVINI ANANDA	18
313	CHAVAN CHETAN SUPADU	16
318	JALANKAR PANKAJ B.	18
322	MAHAJAN PRATIKSHA P.	18
330	PAKHARE NIKITA GAJANAN	20
334	PATIL RUSHABH SOPAN	16
353	SONGIRE JIGNESH MOHAN	16

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRICAL ENGINEERING DEPARTMENT

LASS : BE (ELECT) SEM- I ACADEMIC YEAR 2018-19

Aptitude Test Marks

Date-05/10/2018

ROLL NO	NAME	Marks
401	AKOLKAR SHITAL S.	20
448	SHIMPI CHANDRAKANT RAJENDRA	18
449	SHINDE MANISH R.	16
451	TOKE BHAIRAVI KIRAN	18

H.O.D.
Elect Engg.Dept

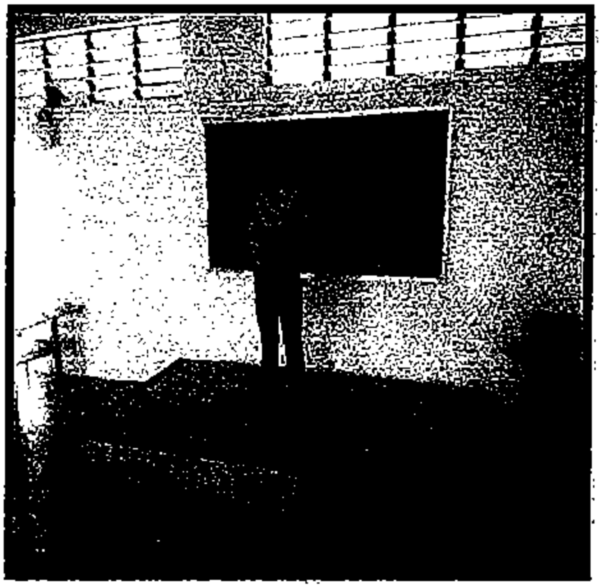
609

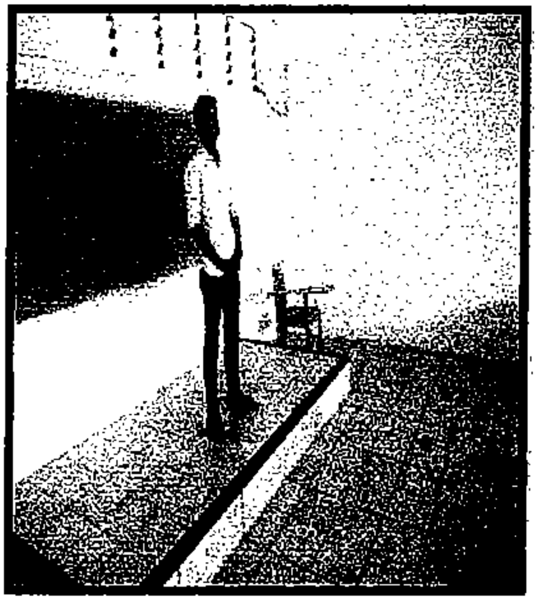
KCES's College of Engineering & IT Jalgaon

Activity Report

Name of The Activity : Classroom presentation for Fast learner students.			
Category of activity	**Curricular**	**Co-curricular**	**Extra-curricular**
Date:	**28.09.2018**	**Participants profile:**	**SE,TE,BE Fast learner students**
Name of Co-ordinator (S)	➢ **Prof. R.V.Patil** ➢ **Prof. U.R.Kothoke**		
Guest/ Experts (If any)			
Objective for conducting activity	➢ **To Improve Learning methodologies of students** ➢ **To improve communication skill of students** ➢ **To improve stage daring of students**		
Methodology	➢ **Offline presentation**		
Out Come	➢ **Students are able to improve their communication skills.** ➢ **Students are able to understand teaching learning methods.**		

Photos:





IQAC coordinator

Principal

610

K.C.E. SOCIETY'S

COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JALGAON

Electronics and telecom Engineering Department

Academic Year 2018-19 SEM – I

DATE:29/9/2018

Important Notice

All SE,TE and BE E & TC Engineering students are hereby inform that Different activity for fast learner is arranged on following schedule.*list of students display on notice board. Attendance is compulsory for given student.

HOD

Mr.S.S.PATIL

*list is prepared from ISE OR MSE in which student score mark.(<17).

*Oher students(name is not in list) can attend with there interest.

Activity 1 - 6/10/2018	**Time 3.00PM to 5 PM**
Activity 2 - 13/10/2018	**Time 3.00PM to 5 PM**
Activity 3 - 20/10/2018	**Time 3.00PM to 5 PM**

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

2018-19 SEM-I

LIST OF FAST LEARNER

SE

1	PATIL ASHWINI KISHOR
2	SHARMA ARTI ANIL
3	MORE DHANSHRI PRADIP

TE

1	RANA BHAVANA SANJAY
2	SHARMA JYOTI ANIL
3	CHAUDHARI YUGMA R.
4	LADHE PRIYANKA PRAMOD
5	PATIL BHAGYASHRI SUNIL

BE

1	DHAMNE AKSHAY
2	MULEY HARISH

HOD
Mr.Swapnil S Patil

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : TE (E&TC) SEM- I ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

Title of activity				
Date of activity		06/10/2018	13/10/2018	20/10/2018
ROLL NO	NAME	Activity 1	Activity 2	Activity 3
9	DHAMNE AKSHAY	P	P	P
12	MULEY HARISH	P	P	P

Co-Ordinator

H.O.D.
E&TC

6/3

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : TE (E&TC) SEM- I ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

Title of activity				
Date of activity		06/10/2018	13/10/2018	20/10/2018
ROLL NO	NAME	Activity 1	Activity 2	Activity 3
10	CHAUDHARI YUGMA R.	P	P	A
21	LADHE PRIYANKA PRAMOD	P	P	P
27	PATIL BHAGYASHRI SUNIL	P	P	P

Coordinator

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : SE (E&TC) SEM- I ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

	Title of activity			
	Date of activity	06/10/2018	13/10/2018	20/10/2018
ROLL NO	NAME	Activity 1	Activity 2	Activity 3
9	PATIL ASHWINI KISHOR	P	A	P
12	SHARMA ARTI ANIL	P	P	P
12	MORE DHANSHRI PRADIP	P	P	P
28	RANA BHAVANA SANJAY	P	P	P
29	SHARMA JYOTI ANIL	P	A	P

Coordinator

H.O.D.
E&TC

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KCES's College of Engineering & IT JalgaonActivity Report

Activity Report

Name of The Activity : Fast Learner			
Date	20/10/2018.	**Department/ Committee**	E & TC
Faculty	**Engineering**	**Coordinator Name:**	Mr.S.S.Patil/Mr.R.R.Patel
Time:	3 to 5 pm	**Activity for Class/group student Number**	
Venue	DSP LAB	**Nature: Academic/ Co curricular/Extracurricular/ Environmental/ Social/other**	**Co-curricular**

Topic/ Subject of the Activity	Introduction to scilab cloud.
Objective for conducting activity	Understanding student to freeware software How scilab cloud is helpful to student for earn and learn activity
Methodology	Practical on Freeonline scilabcloud software.
Out Come	Compare result of unsolved example in textbook/reference book with scilab cloud output.

Photos:

Photos:

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KCES's College of Engineering & IT JalgaonActivity Report

Activity Report

Name of The Activity : Fast Learner			
Date	6/10/2018	**Department/ Committee**	E & TC
Faculty	**Engineering**	**Coordinator Name:**	Mr.R.R.Patel
Time:	3 to 5PM	**Activity for Class/group student Number**	8
Venue	VLSI LAB	**Nature: Academic/ Co curricular/Extracurricular/ Environmental/ Social/other**	**Co-curricular**

Topic/ Subject of the Activity	Reading and Discussion on Research Paper publish in reputed General(ex.IEEE,Springer,Dellnet).
Objective for conducting activity	1)Identify parts that comprise a scientific research paper 2)Understand some different ways scientists develop ideas for their research 3)Understand the advantages of conducting a literature search 4)Understand the process of writing a research paper
Methodology	Distributed the actual completed research paper to individual student(fast learner).
Out Come	Student are understand what to include/exclude in the various sections of a research paper (introduction, method, results, discussion, references),what is current research are going on,How to do research,latest technology .

61g

Photos:

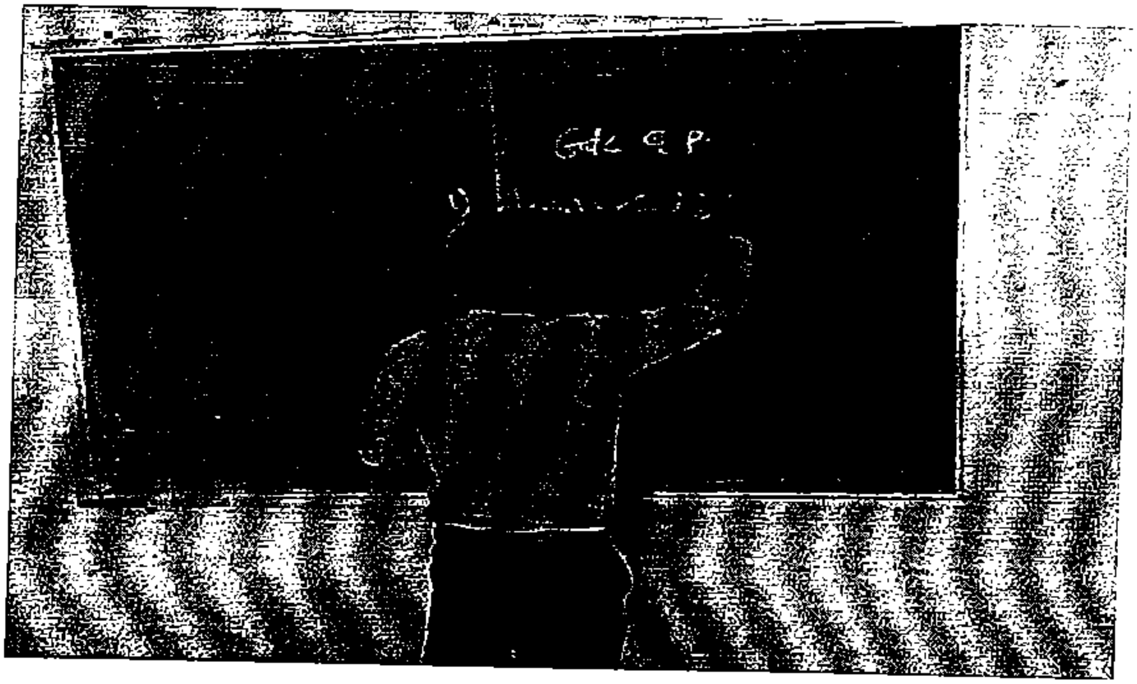
KCES's College of Engineering & IT JalgaonActivity Report

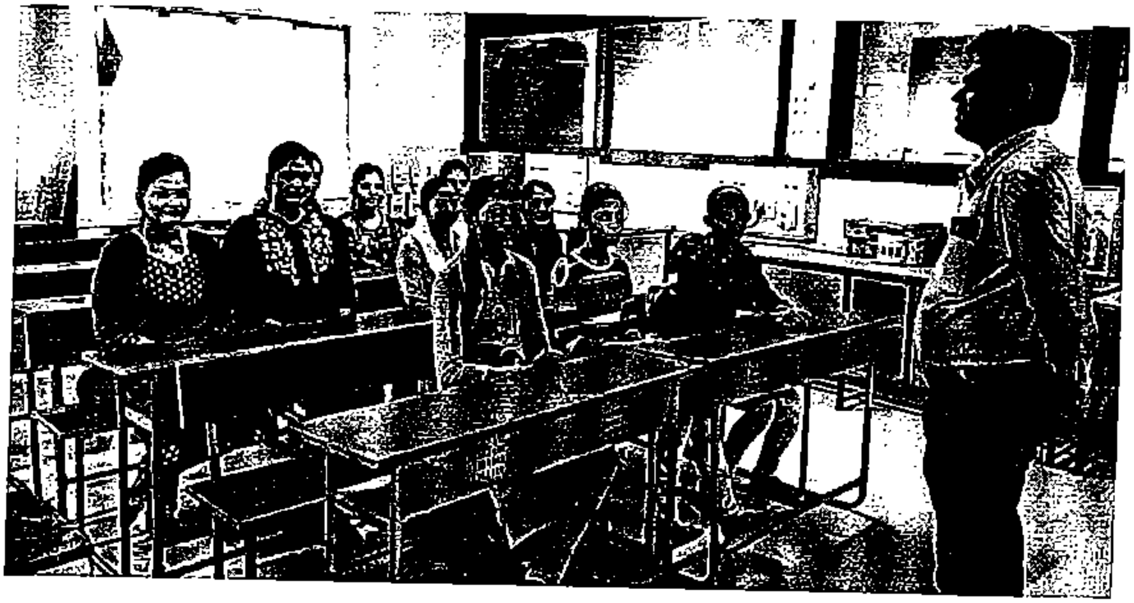
Activity Report

Name of The Activity : Fast Learner			
Date	13/10/2018	**Department/ Committee**	E & TC(Department)
Faculty	**Engineering**	**Coordinator Name:**	~~Mr.R.R.Patel~~ Mr. H. A. Wani
Time:	3 to 5PM.	**Activity for Class/group student Number**	10
Venue	Class Room(110)	**Nature: Academic/ Co-curricular/Extracurricular/ Environmental/ Social/other**	**Co-curricular**

Topic/ Subject of the Activity	Lecture and practice test on old Gate Paper.
Objective for conducting activity	Detail depth knowledge on gate level paper. Know the pattern of paper. Enhanced the design capability
Methodology	Distributed old gate exam paper and lecture by senior faculty member.

Photos:





K.C.E. SOCIETY'S
COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JALGAON
Electronics and telecom Engineering Department
Academic Year 2018-19 SEM – II

DATE:20/3/2019

Important Notice

All SE,TE and BE E & TC Engineering students are hereby inform that Different activity for fast learner is arranged on following schedule.*list of students display on notice board. Attendance is compulsory for given student.

HOD
Mr.S.S.PATIL

*list is prepared from ISE OR MSE in which student score mark.(<17)
*Oher students(name is not in list) can attend with there interest.

Activity 1 - 23/3/2019	**Time 3.00PM to 5 PM**
Activity 2 - 30/3/2019	**Time 3.00PM to 5 PM**
Activity 3 - 20/4/2019	**Time 3.00PM to 5 PM**

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

LIST OF FAST LEARNER

SEM-II

SE		TE		BE	
9	RANA BHAVANA SANJAY	10	CHAUDHARI YUGMA R.	4	BHALERAO GAYATRI G.
12	MORE DHANSHRI PRADIP	27	PATIL BHAGYASHRI SUNIL	27	PIMPARKAR SHRUTI
28	SHARMA ARTI ANIL				
29	SHARMA JYOTI ANIL				

Patil

HOD

Mr.Swapnil S Patil

KCES's College of Engineering & IT JalgaonActivity Report

Activity Report

Name of The Activity : Fast Learner			
Date	25/03/2019.	**Department/ Committee**	E & TC
Faculty	**Engineering**	**Coordinator Name:**	Mr.M.K.Tiwari
Time:	3 to 5PM	**Activity for Class/group student Number**	08
Venue	E & TC lab	**Nature: Academic/ Co curricular/Extracurricular/ Environmental/ Social/other**	**Co-curricular**

Topic/ Subject of the Activity	Group discussion
Objective for conducting activity	1)Produce a range of options or solutions, addressing a particular problem or an issue. 2)Generate a pile of ideas by examining issues in greater depth, looking at different dimensions of these issues. 3)Broaden the outlook of the participants through cross fertilization and exposure to new and different experiences and ideas and enrich their understanding of the issues under discussion. 4)Develop their skills in interpersonal communication and in expressing their views in a clear and succinct manner. Effective means of changing attitudes through the influence of peers in the group 5)Valuable means of obtaining feedback for the training team on verbal skills, motivation level and personal traits of the participants and characteristics of the group.
Methodology	Group discussion

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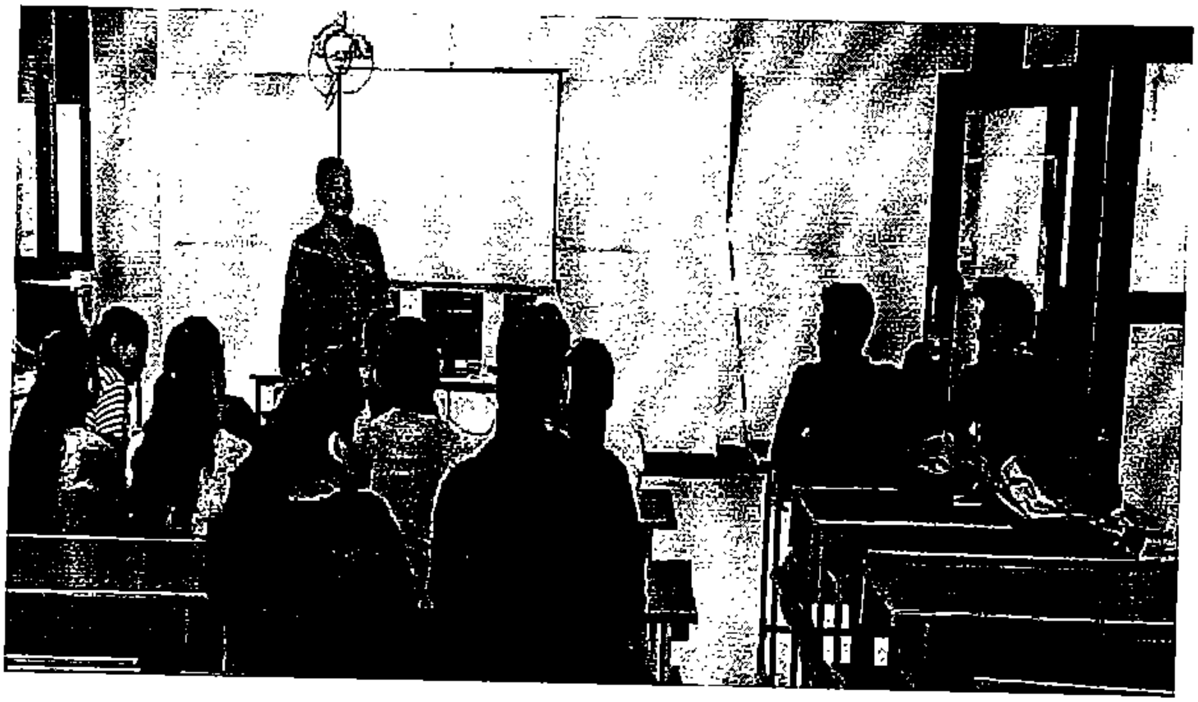
Activity Report

Out Come	student are update there knowledge about topic and improved self confidant and communication.

Photos:



KCES's College of Engineering & IT JalgaonActivity Report

Activity Report

Name of The Activity : Fast Learner			
Date	30|3|2019	**Department/ Committee**	E & TC
Faculty	**Engineering**	**Coordinator Name:**	Mr.R.R.Patel
Time:	3 to 5 PM	**Activity for Class/group student Number**	6
Venue	VLSI LAB	**Nature: Academic/ Co curricular/Extracurricular/ Environmental/ Social/other**	**Co-curricular**

Topic/ Subject of the Activity	Introduction to R-language.
Objective for conducting activity	Introduce student to statical language. Master the use of the R and RStudio interactive environment Expand R by installing R packages Explore and understand how to use the R documentation Read Structured Data into R from various sources Understand the different data types in R Understand the different data structures in R
Methodology	Performing practical on R studio
Out Come	Student get knowledgr of stoical language and they cunderstood and compare the result of Excel with R language.

Photos:

KCES's College of Engineering & IT JalgaonActivity Report

Activity Report

Name of The Activity : Fast Learner			
Date	20/4/2019	**Department/ Committee**	E & TC(Department)
Faculty	**Engineering**	**Coordinator Name:**	Mr.G.U.Pakhare
Time:	3 to 5pm	**Activity for Class/group student Number**	10
Venue	Class Room(110)	**Nature: Academic/ Co curricular/Extracurricular/ Environmental/ Social/other**	**Co-curricular**

Topic/ Subject of the Activity	Lecture and objective test on quantitative aptitude.
Objective for conducting activity	To enhance the problem solving skills, to improve the basic mathematical skills and to help students who are preparing for any type of competitive examinations.
Methodology	Class teaching(chalk and talk) and Distributed Test Paper.
Outcome	Student will benefited in competitive exam conducted by government and private sector

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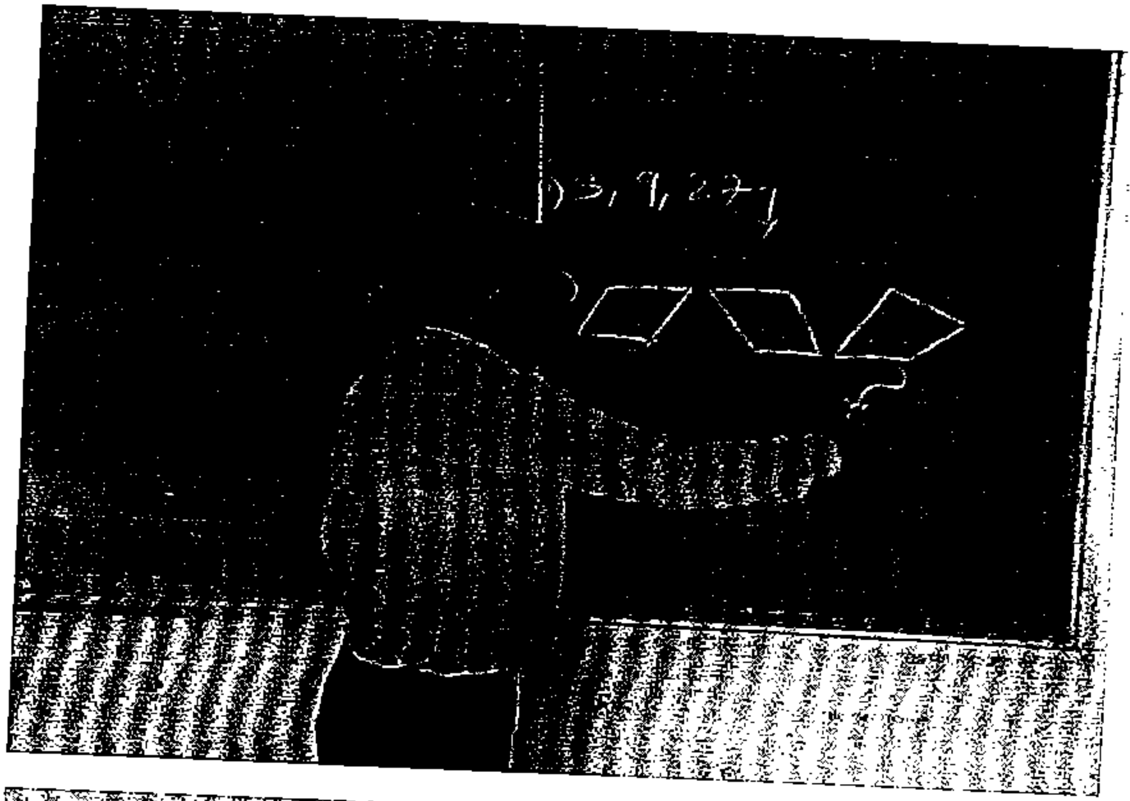
Photos:



KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : TE (E&TC) SEM- II ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

Title of activity				
Date of activity		23/03/2019	30/3/2019	20/4/2019
ROLL NO	NAME	Activity 1	Activity 2	Activity 3
10	CHAUDHARI YUGMA R.	P	P	P
27	PATIL BHAGYASHRI SUNIL	P	P	P

Coordinator

H.O.D.
E&TC

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : BE (E&TC) SEM- II ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

Title of activity				
Date of activity		23/03/2019	30/3/2019	20/4/2019
ROLL NO	NAME	Activity 1	Activity 2	Activity 3
4	BHALERAO GAYATRI G.	P	P	P
27	PIMPARKAR SHRUTI	P	A	P

Coordinator

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT
CLASS : SE (E&TC) SEM- II ACADEMIC YEAR 2018-19

Date

Attendance Fast learner

Title of activity				
Date of activity		23/03/2019	30/03/2019	20/04/2019
ROLL NO	NAME	Activity 1	Activity 2	Activity 3
9	RANA BHAVANA SANJAY	P	P	P
12	MORE DHANSHRI PRADIP	P	A	P
28	SHARMA ARTI ANIL	P	P	P
29	SHARMA JYOTI ANIL	P	P	P

Coordinator

H.O.D.
E&TC

K. C. E. SOCIETY'S

COLLEGE OF ENGINEERING & I.T., JALGAON

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

Time table for Slow learner

SEM : II YEAR : 2018 - 19 W.E.F. : 6|3|2019

CLASS : BE (EXTC) **CLASS ROOM NO. 207,208**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
09.00 TO 10.00						
10.00 TO 11.00						
11.00 TO 11.45	RECESS 1					
11.45 TO 12.45						
12.45 TO 01.45						
01.45 TO 02.00	RECESS 2					
02.00 TO 03.00						
03.00 TO 04.00						
4.00 TO 5.00	RMT	DIP	TNM	S&MC	DIP	RMT

CLASS TEACHER	TIME TABLE INCHARGE	HOD-EXTC
PROF. S. P. BHIRUD	PROF. S .P. BHIRUD	PROF. S. S. PATIL

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT
CLASS : BE (E&TC) SEM- II ACADEMIC YEAR 2018-19
Subject RMT
Date 11/3/19

Attendance Slow learner

ROLL NO	NAME										
	DATES OF REM. LECTURE	11/3	16/3	18/3	23/3	25/3	30/3	8/4	15/4	22/4	
1	BADGUJAR PRIYANKA SANJAY	P	P	P	A	P	A	A	P	P	
5	CHAUDHARI PRAJAKTA	P	P	P	P	A	P	P	P	P	
6	CHAVHAN TUSHAR SANJAY	P	P	P	P	P	P	P	A	P	
7	DHAGE RUSHIKESH	P	P	A	P	P	A	P	P	P	
8	GHANOKAR PURVA	A	P	A	P	P	P	P	P	P	
10	GOUR NIKITA SANTOSH	P	P	P	P	P	P	P	P	A	
11	KASAR SWPNIL SANJAY	A	A	P	P	A	P	P	P	P	
12	KOLI VICKY RAMESH	P	P	P	P	P	P	P	P	P	
13	KOLI VIDYA DAYARAM	P	P	P	A	P	A	P	P	P	
15	NIKUMBH KOMAL BHAGWAN	A	P	P	P	P	P	A	P	P	
16	NIKUMBH RAKESH	A	P	P	P	A	P	P	P	A	
17	PAKHLE HARSHAD	P	A	P	P	P	P	P	P	P	
18	PATHAK CHETANA	P	P	P	P	P	P	A	P	P	
19	PATIL DIPALI GANGADHAR	P	P	P	A	P	P	P	P	P	
20	PATIL GANESH PURSHOTTAM	P	A	A	P	P	A	P	P	P	
25	PATIL UJWAL PANDIT	P	P	A	P	P	P	P	A	A	
28	PINGALE YOGENDRA DILIP	P	A	P	P	P	P	P	P	P	
30	SHINDE KAVITA SHASHIKANT	A	P	P	P	P	P	P	P	P	
32	SONAR DHANANJAY	P	P	P	P	P	P	P	A	P	
33	SONAR RITU MAHENDRA	P	P	P	A	P	P	P	P	P	
34	SURYAWANSHI ASWINI	A	P	P	P	P	A	P	P	P	
35	WAGH SWITI DYANESHWAR	P	A	P	P	A	P	P	P	P	
37	SHINDE BHUSHAN	P	P	P	P	P	P	A	A	A	
38	DHAMNE AKSHAY PUNDLIK	A	P	P	A	P	P	P	A	P	
39	MULAY HARISH	A	P	P	P	P	P	P	P	P	

Subject teacher

S.P. Bhirud

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT
CLASS : BE (E&TC) SEM- II ACADEMIC YEAR 2018-19
Subject TNM
Date 6/3/19

Attendance Slow learner

ROLL NO	NAME	6/3	13/3	20/3	25/3	3/4	10/4	17/4			
	DATES OF REM. LECTURE										
1	BADGUJAR PRIYANKA SANJAY	P	P	P	P	P	P	P			
5	CHAUDHARI PRAJAKTA	.	P	P	P	P	P	P			
6	CHAVHAN TUSHAR SANJAY	P	P	.	P	P	P	P			
7	DHAGE RUSHIKESH	P	P	P	P	.	P	P			
8	GHANOKAR PURVA	P	P	P	P	.	P	P			
10	GOUR NIKITA SANTOSH	P	P	P	P	P	P	P			
11	KASAR SWPNIL SANJAY	P	P	P	P	P	P	P			
12	KOLI VICKY RAMESH	P	P	P	.	P	P	P			
13	KOLI VIDYA DAYARAM	P	P	P	P	.	P	P			
15	NIKUMBH KOMAL BHAGWAN	P	P	P	P	.	P	P			
16	NIKUMBH RAKESH	P	P	P	P	P	P	P			
17	PAKHLE HARSHAD	P	P	P	P	P	P	P			
18	PATHAK CHETANA	P	P	P	P	P	P	P			
19	PATIL DIPALI GANGADHAR	P	P	P	P	P	P	P			
20	PATIL GANESH PURSHOTTAM	P	P	P	P	P	P	P			
25	PATIL UJWAL PANDIT	P	P	P	P	P	P	P			
28	PINGALE YOGENDRA DILIP	P	P	P	P	P	P	P			
30	SHINDE KAVITA SHASHIKANT	P	P	P	P	P	P	P			
32	SONAR DHANANJAY	P	P	P	P	P	P	P			
33	SONAR RITU MAHENDRA	P	P	P	P	P	P	P			
34	SURYAWANSHI ASWINI	P	P	P	P	P	P	P			
35	WAGH SWITI DYANESHWAR	P	P	P	P	P	P	P			
37	SHINDE BHUSHAN	P	P	P	P	P	P	P			
38	DHAMNE AKSHAY PUNDLIK	P	P	P	P	P	P	P			
39	MULAY HARISH	P	P	P	P	P	P	P			

Subject teacher

H. AWari

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : BE (E&TC) SEM- II ACADEMIC YEAR 2018-19

Subject DIP

Date 8/3/19

Attendance Slow learner

ROLL NO	NAME	8/3	14/3	15/3	19/3	22/3	26/3	29/3	4/4	5/4	9/4
	DATES OF REM. LECTURE	P	A	A	P	A	P	P	P	P	P
1	BADGUJAR PRIYANKA SANJAY	P	P	P	A	P	P	P	P	P	P
5	CHAUDHARI PRAJAKTA	P	P	P	P	P	P	P	P	P	P
6	CHAVHAN TUSHAR SANJAY	A	P	P	P	P	P	P	P	A	P
7	DHAGE RUSHIKESH	P	P	P	P	P	P	P	A	A	P
8	GHANOKAR PURVA	A	P	P	A	P	P	A	P	P	P
10	GOUR NIKITA SANTOSH	P	P	P	P	P	P	A	P	P	P
11	KASAR SWPNIL SANJAY	P	P	P	P	P	P	P	P	P	P
12	KOLI VICKY RAMESH	P	P	P	P	P	P	P	P	P	P
13	KOLI VIDYA DAYARAM	P	P	P	P	P	P	P	P	P	A
15	NIKUMBH KOMAL BHAGWAN	P	P	P	A	P	P	P	A	P	P
16	NIKUMBH RAKESH	P	P	P	P	A	A	P	P	P	P
17	PAKHLE HARSHAD	A	P	P	P	A	P	P	P	P	A
18	PATHAK CHETANA	P	P	P	P	P	P	P	P	P	P
19	PATIL DIPALI GANGADHAR	P	P	P	P	P	P	P	A	P	P
20	PATIL GANESH PURSHOTTAM	P	A	A	P	A	P	P	P	P	P
25	PATIL UJWAL PANDIT	P	P	P	P	P	P	P	P	P	P
28	PINGALE YOGENDRA DILIP	A	P	P	P	P	P	A	P	P	P
30	SHINDE KAVITA SHASHIKANT	P	A	P	P	P	P	P	P	P	P
32	SONAR DHANANJAY	P	P	P	P	P	P	P	A	P	P
33	SONAR RITU MAHENDRA	P	P	P	A	P	A	A	A	P	P
34	SURYAWANSHI ASWINI	P	A	P	P	P	P	P	A	P	A
35	WAGH SWITI DYANESHWAR	P	A	A	P	P	P	P	P	P	P
37	SHINDE BHUSHAN	P	P	P	P	P	P	P	P	P	P
38	DHAMNE AKSHAY PUNDLIK	A	P	P	P	A	P	A	P	P	A
39	MULAY HARISH	P	P	P	P	P	A	P	P	A	P

S.V. Varade
Subject teacher

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : BE (E&TC) SEM- II ACADEMIC YEAR 2018-19

Subject SM4C Date 14/3

Attendance Slow learner

ROLL NO	NAME	14/3	22/3	28/3	4/4	11/4	15/4				
	DATES OF REM. LECTURE	P	A	P	A	P	P				
1	BADGUJAR PRIYANKA SANJAY	P	P	A	P	P	P				
5	CHAUDHARI PRAJAKTA	P	A	P	P	A	P				
6	CHAVHAN TUSHAR SANJAY	P	A	P	P	P	P				
7	DHAGE RUSHIKESH	P	P	P	A	P	P				
8	GHANOKAR PURVA	P	P	A	P	P	P				
10	GOUR NIKITA SANTOSH	P	P	P	A	P	P				
11	KASAR SWPNIL SANJAY	P	P	P	P	P	P				
12	KOLI VICKY RAMESH	A	P	P	P	P	P				
13	KOLI VIDYA DAYARAM	P	P	P	P	P	P				
15	NIKUMBH KOMAL BHAGWAN	P	A	P	P	P	P				
16	NIKUMBH RAKESH	P	P	P	P	P	A				
17	PAKHLE HARSHAD	P	P	P	A	P	P				
18	PATHAK CHETANA	P	P	P	A	P	P				
19	PATIL DIPALI GANGADHAR	P	A	P	P	P	P				
20	PATIL GANESH PURSHOTTAM	P	A	P	P	P	A				
25	PATIL UJWAL PANDIT	A	P	P	P	P	P				
28	PINGALE YOGENDRA DILIP	A	P	P	P	A	P				
30	SHINDE KAVITA SHASHIKANT	P	P	P	P	P	P				
32	SONAR DHANANJAY	P	P	A	P	P	A				
33	SONAR RITU MAHENDRA	P	P	P	A	P	P				
34	SURYAWANSHI ASWINI	P	P	P	P	A	P				
35	WAGH SWITI DYANESHWAR	P	P	P	P	P	A				
37	SHINDE BHUSHAN	P	A	P	P	P	P				
38	DHAMNE AKSHAY PUNDLIK	P	P	P	P	P	A				
39	MULAY HARISH	P	P	P	P	A	P				

Subject teacher
M.R. Sonawane

H.O.D.
E&TC

K.C.E. SOCIETY'S

COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JALGAON

Electronics and telecom Engineering Department

Academic Year 2018-19 SEM – I

DATE: 10/9/18.

Important Notice

All SE [redacted],TE and BE E & TC Engineering students are hereby inform that remedial classes time table and *list of students display on notice board. Attendance is compulsory for given student.

HOD

Mr.S.S.PATIL

*list is prepared from ISE OR MSE in which student score less mark. (less then 8).

*Oher students(name is not in list) can attend with there interest.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

	SE
1	CHAUDHARI RUPESH PRAKASH
32	PATIL RAHUL SUDHIR
33	PATIL SACHIN UTTAM
35	PAWAR SHUBHAM SHANKARRAO
40	KUMBHAR PREMAL SHIVRAM
46	TADE SHUBHAM ASHOK
50	SHINGOTE RADHESHYAM S.
51	KOLI YOGESH MANGOLAL

	TE
I	ATTARDE UTKARSH DNYANDEO
5	BODADE SHIWANI MADHUKAR
7	CHAUDHARI AKSHAY R
9	CHAUDHARI DIPTESH ARVIND
17	KOLHE JITENDRA NITIN
18	KOLTE GITESH GAJANAN
19	KOSHTI CHETAAN GANESH
20	KURKURE YUVRAJ M
22	MAHAJAN LALIT SANTOSH
23	MAHAJAN PRATIK PRASHANT
25	MALI NIKITA JITENDRA
26	PATEL SANA SHAFI
30	PATIL SAGAR PANDIT
34	SHIMPI DINESH MANOJ
35	SHIMPI TEJASWINI BHAGAWAN
36	WANI PARESH PRAMOD
37	PAWAR KALYANI
38	SHAH AFJAL YUSUF

	BE
1	BADGUJAR PRIYANKA SANJAY
2	BAVASKAR PALLAVI KAILAS
3	BAVISKAR BHAGYASHREE R
4	BHALERAO GAYATRI GANESH
5	CHAUDHARI PRAJAKTA
6	CHAVHAN TUSHAR SANJAY
7	DHAGE RUSHIKESH
8	GHANOKAR PURVA
9	GHODKE APURVA SANJAY
10	GOUR NIKITA SANTOSH
11	KASAR SWPNIL SANJAY
12	KOLI VICKY RAMESH
13	KOLI VIDYA DAYARAM
14	KOSHTI EKATA BHASKAR

Patil

HOD
Mr.Swapnil S Patil

K. C. E. SOCIETY'S

COLLEGE OF ENGINEERING & I.T., JALGAON

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

Time table for Slow learner

SEM : I YEAR : 2018 - 19 W.E.F. : 10/9/2018

CLASS : TE (EXTC) **CLASS ROOM NO. 208**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
09.00 TO 10.00						
10.00 TO 11.00						
11.00 TO 11.10	RECESS 1					
11.10 TO 12.10						
12.10 TO 01.10						
01.10 TO 01.45	RECESS 2					
01.45 TO 02.45						EME
04.00 TO 5.00	EME	MC&PIC	FCS	CS-II	ECD	FCS

CLASS TEACHER	TIME TABLE INCHARGE	HOD-EXTC
PROF. M. R. SONAWANE	PROF. S P BHIRUD	PROF. S. S. PATIL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : TE (E&TC) **SEM- I** **ACADEMIC YEAR 2018-19**

Subject CS-II **Date** 20/9/18

Attendance Slow learner

ROLL NO	NAME										
	DATES OF REM. LECTURE	20/9	27/9	4/10	6/10	9/10	11/10	16/10	16/10	25/10	
1	ATTARDE UTKARSH DNYANDEO	P	P	P	.	P	P	P	P	.	
5	BODADE SHIWANI MADHUKAR	.	P	P	P	P	P	P	P	P	
7	CHAUDHARI AKSHAY R	P	P	.	P	P	P	P	P	P	
9	CHAUDHARI DIPTESH ARVIND	P	P	.	P	P	P	P	P	.	
17	KOLHE JITENDRA NITIN	P	P	P	.	P	P	P	P	P	
18	KOLTE GITESH GAJANAN	P	P	.	P	P	P	P	P	P	
19	KOSHTI CHETAAN GANESH	P	P	P	P	.	P	P	P	P	
20	KURKURE YUVRAJ M	P	P	P	P	P	P	.	P	P	
22	MAHAJAN LALIT SANTOSH	P	P	P	.	P	P	P	P	P	
23	MAHAJAN PRATIK PRASHANT	P	P	.	P	P	P	P	P	P	
25	MALI NIKITA JITENDRA	P	P	P	P	.	P	P	P	P	
26	PATEL SANA SHAFI	.	P	P	P	P	P	.	P	P	
30	PATIL SAGAR PANDIT	P	P	P	P	P	P	P	.	P	
34	SHIMPI DINESH MANOJ	P	P	P	P	P	P	.	P	P	
35	SHIMPI TEJASWINI BHAGAWAN	P	.	P	P	P	P	P	P	P	
36	WANI PARESH PRAMOD	P	P	P	P	P	P	P	.	P	
37	PAWAR KALYANI	P	P	P	P	P	P	P	P	.	.
38	SHAH AFJAL YUSUF	P	P	P	P	P	P	.	P	P	

Subject teacher

H.A. Wani

H.O.D.
E&TC

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT
CLASS : TE (E&TC) MC & PIC SEM- I ACADEMIC YEAR 2018-19
Subject
Date 11/9/18

Attendance Slow learner

ROLL NO	NAME	11/9	18/9	25/9	9/10	16/10	23/10				
	DATES OF REM. LECTURE										
1	ATTARDE UTKARSH DNYANDEO	P	P	P	P	.	P				
5	BODADE SHIWANI MADHUKAR	P	P	P	P	P	P				
7	CHAUDHARI AKSHAY R	P	P	P	P	P	P				
9	CHAUDHARI DIPTESH ARVIND	P	.	P	P	P	P				
17	KOLHE JITENDRA NITIN	P	P	P	.	P	P				
18	KOLTE GITESH GAJANAN	P	P	P	P	.	P				
19	KOSHTI CHETAAN GANESH	P	P	P	P	P	.				
20	KURKURE YUVRAJ M	P	P	P	P	P	P				
22	MAHAJAN LALIT SANTOSH	P	P	P	.	P	P				
23	MAHAJAN PRATIK PRASHANT	P	P	P	P	P	P				
25	MALI NIKITA JITENDRA	P	.	P	P	P	P				
26	PATEL SANA SHAFI	P	P	.	P	P	.				
30	PATIL SAGAR PANDIT	P	P	P	P	P	P				
34	SHIMPI DINESH MANOJ	P	P	P	.	P	P				
35	SHIMPI TEJASWINI BHAGAWAN	P	P	P	P	P	P				
36	WANI PARESH PRAMOD	P	P	P	P	P	P				
37	PAWAR KALYANI	P	P	P	P	.	P				
38	SHAH AFJAL YUSUF	P	P	P	P	P	P				

Subject teacher
Patil Swapnil Suresh

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : TE (E&TC)
Subject ECD
SEM- I
ACADEMIC YEAR 2018-19
Date 21/9/18

Attendance Slow learner

ROLL NO	NAME										
	DATES OF REM. LECTURE	21/9	28/9	5/10	12/10	19/10	28/10				
1	ATTARDE UTKARSH DNYANDEO	P	P	P	P	P	P				
5	BODADE SHIWANI MADHUKAR	P	P	P		P	P				
7	CHAUDHARI AKSHAY R	P	P	P	P	P	.				
9	CHAUDHARI DIPTESH ARVIND	P	P	P	P	P	.				
17	KOLHE JITENDRA NITIN	P	P	P	P	P	P				
18	KOLTE GITESH GAJANAN			P	P	P	.				
19	KOSHTI CHETAAN GANESH	P	P	P		P	P				
20	KURKURE YUVRAJ M		P	P	P	P	P				
22	MAHAJAN LALIT SANTOSH			P		P	P				
23	MAHAJAN PRATIK PRASHANT	P	P		P	P	P				
25	MALI NIKITA JITENDRA	P	P	P		P	P				
26	PATEL SANA SHAFI		P	P	P	P	.				
30	PATIL SAGAR PANDIT	P	P	P	P	P	.				
34	SHIMPI DINESH MANOJ	P	P	P	P	P	P				
35	SHIMPI TEJASWINI BHAGAWAN	P		P		.	.				
36	WANI PARESH PRAMOD	P	P	P	P	P	.				
37	PAWAR KALYANI	P	P	P		.	P				
38	SHAH AFJAL YUSUF	P	P	P	P	P	P				

Subject teacher
M.K. Tiwari

Patil
H.O.D.
E&TC

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KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : TE (E&TC) SEM- I ACADEMIC YEAR 2018-19

Subject Feedback control System Date 15/9/18

Attendance Slow learner

ROLL NO	NAME										
	DATES OF REM. LECTURE	15/9	22/9	29/9	6/10	13/10	20/10	27/10			
1	ATTARDE UTKARSH DNYANDEO	P	A	P	P	A	P	P			
5	BODADE SHIWANI MADHUKAR	P	P	A	A	P	A	A			
7	CHAUDHARI AKSHAY R	P	P	P	P	P	P	P			
9	CHAUDHARI DIPTESH ARVIND	P	P	A	A	P	P	P			
17	KOLHE JITENDRA NITIN	A	P	P	P	P	P	P			
18	KOLTE GITESH GAJANAN	P	P	P	P	P	P	P			
19	KOSHTI CHETAAN GANESH	P	P	P	P	P	P	P			
20	KURKURE YUVRAJ M	A	P	A	P	P	P	P			
22	MAHAJAN LALIT SANTOSH	P	P	P	P	A	P	P			
23	MAHAJAN PRATIK PRASHANT	P	A	P	P	P	P	P			
25	MALI NIKITA JITENDRA	P	P	P	P	P	P	P			
26	PATEL SANA SHAFI	P	P	P	P	P	P	P			
30	PATIL SAGAR PANDIT	P	A	P	P	P	P	P			
34	SHIMPI DINESH MANOJ	P	P	P	P	A	P	P			
35	SHIMPI TEJASWINI BHAGAWAN	P	P	P	A	P	A	P			
36	WANI PARESH PRAMOD	P	P	P	P	P	P	P			
37	PAWAR KALYANI	P	P	P	P	P	A	P			
38	SHAH AFJAL YUSUF	P	A	A	P	P	A	P			

Subject teacher

S.P. Bhirud.

Patil

H.O.D.
E&TC

K. C. E. SOCIETY'S

COLLEGE OF ENGINEERING & I.T., JALGAON

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

Time table for Slow learner

SEM : I YEAR : 2018 - 19 W.E.F. : 10/9/18.

CLASS : SE (EXTC) **CLASS ROOM NO. 207**

Time / Day	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
09.00 TO 10.00						
10.00 TO 11.00						
11.00 TO 11.10	**RECESS 1**					
11.10 TO 12.10						
12.10 TO 01.10						
01.10 TO 01.45	**RECESS 2**					
01.45 TO 02.45						EM-III
02.45 TO 03.45						EM-III
04.00 TO 5.00	DLD	NA	EDC	NA	AC	

GSSomani Patil

CLASS TEACHER	TIME TABLE INCHARGE	HOD-EXTC
PROF. G. S. SOMANI	PROF. S .P. BHIRUD	PROF. S. S. PATIL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAO
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : SE (E&TC) SEM- I ACADEMIC YEAR 2018-19

Subject NA

Date 11/9/18

Attendance Slow learner

ROLL NO	NAME	11/9	13/9	18/9	20/9	2/10	4/10	9/10	11/10		
	DATES OF REM. LECTURE										
1	CHAUDHARI RUPESH PRAKASH	P	P	P	A	P	P	A	A		
32	PATIL RAHUL SUDHIR	P	A	P	P	P	P	P	P		
33	PATIL SACHIN UTTAM	P	P	P	P	A	P	P	P		
35	PAWAR SHUBHAM SHANKARRAO	P	P	P	P	P	A	P	P		
40	KUMBHAR PREMAL SHIVRAM	A	P	A	P	P	P	A	P		
46	TADE SHUBHAM ASHOK	P	P	P	A	P	P	P	P		
50	SHINGOTE RADHESHYAM S.	A	P	P	P	P	P	P	P		
51	KOLI YOGESH MANGOLAL	P	A	P	P	P	P	P	P		

SPB

Subject teacher

S. P. Bhirud.

H.O.D.

E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAO

ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : SE (E&TC) SEM- I ACADEMIC YEAR 2018-19

Subject M3 Date 15/9/18

Attendance Slow learner

ROLL NO	NAME										
	DATES OF REM. LECTURE	15/09	15/09	20/09	22/09	29/09	29/09	06/10	06/10	20/10	
1	CHAUDHARI RUPESH PRAKASH	P	P	A	P	A	P	P	P	A	
32	PATIL RAHUL SUDHIR	P	A	P	P	A	P	A	P	A	
33	PATIL SACHIN UTTAM	P	P	P	A	A	P	P	A	A	
35	PAWAR SHUBHAM SHANKARRAO	P	P	P	P	P	P	A	A	P	
40	KUMBHAR PREMAL SHIVRAM	P	A	P	P	A	A	P	P	P	
46	TADE SHUBHAM ASHOK	P	P	P	A	P	P	A	P	P	
50	SHINGOTE RADHESHYAM S.	P	P	P	P	A	A	P	P	A	
51	KOLI YOGESH MANGOLAL	P	P	A	A	P	P	P	A	P	

kajal Sharma
Subject teacher

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAO

ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : SE (E&TC) SEM- I ACADEMIC YEAR 2018-19

Subject AC

Date 14/9/18.

Attendance Slow learner

ROLL NO	NAME										
DATES OF REM. LECTURE		14/9	21/9	28/9	8/10	12/10	17/10				
1	CHAUDHARI RUPESH PRAKASH	P	P	P	P	P	P				
32	PATIL RAHUL SUDHIR	P	A	P	P	A	P				
33	PATIL SACHIN UTTAM	P	A	P	P	P	P				
35	PAWAR SHUBHAM SHANKARRAO	A	P	P	P	P	P				
40	KUMBHAR PREMAL SHIVRAM	P	P	P	·P	A	P				
46	TADE SHUBHAM ASHOK	P	P	P	P	P	A				
50	SHINGOTE RADHESHYAM S.	A	P	P	A	P	P				
51	KOLI YOGESH MANGOLAL	P	P	P	·P	P	A				

GSSomani

G.S.Somani

Subject teacher

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAO
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : SE (E&TC) SEM- I ACADEMIC YEAR 2018-19

Subject PLD.

Date 10/9/18.

Attendance Slow learner

ROLL NO	NAME										
DATES OF REM. LECTURE		10/9	17/9	1/10	8/10	15/10	22/10				
1	CHAUDHARI RUPESH PRAKASH	P	P	P	P	P	P				
32	PATIL RAHUL SUDHIR	.	P	P	P	P	.				
33	PATIL SACHIN UTTAM	P	P	P	P	P	P				
35	PAWAR SHUBHAM SHANKARRAO	P	.	P	P	P	P				
40	KUMBHAR PREMAL SHIVRAM	P	P	P	P	P	P				
46	TADE SHUBHAM ASHOK	P	P	P	.	.	P				
50	SHINGOTE RADHESHYAM S.	P	P	P	P	P	P				
51	KOLI YOGESH MANGOLAL	P	P	P	.	P	P				

Subject teacher

Rahul K Patel

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAO
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : SE (E&TC) SEM- I ACADEMIC YEAR 2018-19

Subject – Electronics Devices and circuits (EDC) Date 12/9/18

Attendance Slow learner

ROLL NO	NAME										
DATES OF REM. LECTURE		12/9	19/9	3/10	10/10	17/10	24/10				
1	CHAUDHARI RUPESH PRAKASH	P	P	A	P	P	P				
32	PATIL RAHUL SUDHIR	P	P	A	P	P	P				
33	PATIL SACHIN UTTAM	A	P	P	P	P	A				
35	PAWAR SHUBHAM SHANKARRAO	P	P	P	A	P	P				
40	KUMBHAR PREMAL SHIVRAM	P	P	P	P	A	P				
46	TADE SHUBHAM ASHOK	A	P	P	P	P	P				
50	SHINGOTE RADHESHYAM S.	P	P	P	A	P	P				
51	KOLI YOGESH MANGOLAL	P	A	P	P	P	P				

Subject teacher
M.K. Tiwari

H.O.D.
E&TC

K. C. E. SOCIETY'S

COLLEGE OF ENGINEERING & I.T., JALGAON

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

Time table for Slow learner

SEM : I YEAR : 2018 - 19 W.E.F. : 10/9/2018

CLASS : BE (EXTC) **CLASS ROOM NO. 207,208**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
09.00 TO 10.00						
10.00 TO 11.00						
11.00 TO 11.10	RECESS 1					
11.10 TO 12.10						
12.10 TO 01.10				FOC 208		
01.10 TO 01.45	RECESS 2					
01.45 TO 02.45				CCN 208	~~SEMINAR~~	DSP 208
02.45 TO 03.45						VLSI 207
4.00 TO 5.00	DSP 208	VLSI 207				

CLASS TEACHER	TIME TABLE INCHARGE	HOD-EXTC
PROF. J. P. FEGADE	PROF. S .P. BHIRUD	PROF. S. S. PATIL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT
CLASS : BE (E&TC) SEM- I ACADEMIC YEAR 2018-19
Subject FOC Date 20/9/18

Attendance Slow learner

ROLL NO	NAME	20/9									
	DATES OF REM. LECTURE		20/9	27/9	4/10	4/10	11/10	16/10	18/10	25/10	
1	BADGUJAR PRIYANKA SANJAY	P	P	.	P	P	P	P	P	.	
2	BAVASKAR PALLAVI KAILAS	.	P	P	P	P	.	P	P	P	
3	BAVISKAR BHAGYASHREE R	P	.	P	P	.	P	P	P	P	
4	BHALERAO GAYATRI GANESH	P	P	.	P	P	P	P	P	P	
5	CHAUDHARI PRAJAKTA	P	P	P	.	P	P	P	P	P	
6	CHAVHAN TUSHAR SANJAY	P	P	P	P	.	P	P	P	P	
7	DHAGE RUSHIKESH	.	P	P	.	P	P	P	P	P	
8	GHANOKAR PURVA	P	.	P	P	P	P	P	P	P	
9	GHODKE APURVA SANJAY	P	P	P	.	P	P	P	P	P	
10	GOUR NIKITA SANTOSH	P	P	P	P	P	.	P	P	P	
11	KASAR SWPNIL SANJAY	P	P	P	P	.	P	P	P	P	
12	KOLI VICKY RAMESH	P	P	P	.	P	P	P	P	P	
13	KOLI VIDYA DAYARAM	P	P	P	.	P	P	.	P	P	
14	KOSHTI EKATA BHASKAR	P	P	P	P	P	.	P	P	P	

Subject teacher
H.A. Wani

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT
CLASS : BE (E&TC) SEM- I ACADEMIC YEAR 2018-19
Subject - DSP
Date 10/9/18

Attendance Slow learner

ROLL NO	NAME										
	DATES OF REM. LECTURE	10/9	15/9	17/9	24/9	1/10	6/10	8/10	13/10	15/10	17/1
1	BADGUJAR PRIYANKA SANJAY	P	A	P	P	P	P	A	P	P	P
2	BAVASKAR PALLAVI KAILAS	P	P	P	A	P	P	P	P	A	P
3	BAVISKAR BHAGYASHREE R	P	P	P	P	A	P	P	P	P	A
4	BHALERAO GAYATRI GANESH	P	A	P	P	P	P	A	P	P	P
5	CHAUDHARI PRAJAKTA	P	P	P	A	P	P	P	P	A	P
6	CHAVHAN TUSHAR SANJAY	P	P	A	P	P	P	P	A	P	P
7	DHAGE RUSHIKESH	P	P	P	P	A	P	P	P	A	P
8	GHANOKAR PURVA	P	P	P	A	P	P	P	P	P	A
9	GHODKE APURVA SANJAY	P	P	P	A	P	A	P	P	P	P
10	GOUR NIKITA SANTOSH	P	P	P	P	P	A	P	P	P	P
11	KASAR SWPNIL SANJAY	P	P	P	A	P	P	P	A	P	P
12	KOLI VICKY RAMESH	P	P	P	P	P	A	P	P	P	A
13	KOLI VIDYA DAYARAM	P	P	P	A	P	A	P	P	P	P
14	KOSHTI EKATA BHASKAR	P	P	P	A	A	P	P	P	A	P

S.V. Varade
Subject teacher

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT
CLASS : BE (E&TC) **SEM- I** **ACADEMIC YEAR 2018-19**
Subject VLSI **Date** 11/9/18.

Attendance Slow learner

ROLL NO	NAME										
	DATES OF REM. LECTURE	11/9	13/9	14/9	22/9	25/9	29/9	6/10	9/10	13/10	16/10
1	BADGUJAR PRIYANKA SANJAY	P	P	P	P	P	P	P	A	P	P
2	BAVASKAR PALLAVI KAILAS	A	P	P	P	P	A	P	P	P	P
3	BAVISKAR BHAGYASHREE R	P	A	P	P	A	P	P	P	P	P
4	BHALERAO GAYATRI GANESH	P	P	A	A	P	P	P	P	A	P
5	CHAUDHARI PRAJAKTA	A	P	P	P	P	A	P	A	A	P
6	CHAVHAN TUSHAR SANJAY	P	P	P	P	P	A	P	P	P	A
7	DHAGE RUSHIKESH	P	P	A	P	P	P	P	A	P	P
8	GHANOKAR PURVA	P	A	P	P	P	A	P	A	P	P
9	GHODKE APURVA SANJAY	A	P	P	P	P	A	P	A	P	P
10	GOUR NIKITA SANTOSH	A	P	P	A	P	P	P	P	P	P
11	KASAR SWPNIL SANJAY	P	A	P	P	P	P	P	A	P	P
12	KOLI VICKY RAMESH	P	P	P	A	P	P	P	A	P	P
13	KOLI VIDYA DAYARAM	P	P	P	A	P	P	P	P	P	A
14	KOSHTI EKATA BHASKAR	P	A	P	P	P	A	A	P	P	P

Vaishali Sarode
Subject teacher

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT
CLASS : BE (E&TC) SEM- I ACADEMIC YEAR 2018-19
Subject - CCN
Date 20/9/18.

Attendance Slow learner

ROLL NO	NAME											
	DATES OF REM. LECTURE	20/9	27/9	4/10	11/10	16/10	25/10					
1	BADGUJAR PRIYANKA SANJAY	P	P	P	P	P	P					
2	BAVASKAR PALLAVI KAILAS	P	P	P	A	P	P					
3	BAVISKAR BHAGYASHREE R	A	P	P	P	P	P					
4	BHALERAO GAYATRI GANESH	P	P	P	P	P	P					
5	CHAUDHARI PRAJAKTA	A	P	P	P	P	A					
6	CHAVHAN TUSHAR SANJAY	P	P	P	P	A	P					
7	DHAGE RUSHIKESH	P	P	P	P	P	P					
8	GHANOKAR PURVA	P	P	P	P	P	P					
9	GHODKE APURVA SANJAY	P	P	P	P	P	P					
10	GOUR NIKITA SANTOSH	A	P	P	P	P	A					
11	KASAR SWPNIL SANJAY	P	P	A	P	P	P					
12	KOLI VICKY RAMESH	P	A	P	P	P	A					
13	KOLI VIDYA DAYARAM	P	P	A	P	P	P					
14	KOSHTI EKATA BHASKAR	P	P	P	P	P	P					

Fegade
J.P. Fegade
Subject teacher

H.O.D.
E&TC

K.C.E. SOCIETY'S
COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY, JALGAON
Electronics and telecom Engineering Department
Academic Year 2018-19 SEM – II

DATE: 11/3/2019

Important Notice

All SE,TE and BE E & TC Engineering students are hereby inform that remedial classes time table and *list of students display on notice board. Attendance is compulsory for given student.

HOD
Mr.S.S.PATIL

*list is prepared from ISE OR MSE in which student score less then 8 mark.
*Oher students(name is not in list) can attend with there interest.

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

SE

ROLL NO	NAME
1	CHAUDHARI RUPESH PRAKASH
2	PATIL KHUSHABU SUNIL
5	CHAVHAN SHUBHAM B.
6	SONAWANE NIKITA DINKAR
15	HIRAWANE TANUSHREE NITIN
18	PARESH SANJAY BHOLE
26	WAKIKAR MAYUR DEEPAKRAO
32	PATIL RAHUL SUDHIR
33	PATIL SACHIN UTTAM
34	PATIL TEJAS VASUDEV
35	PAWAR SHUBHAM SHANKARRAO
36	VERMA PANKAJ GHUMAN
38	SONAWANE RAMESH ISHWAR
39	BHAT SHRIRANG SHARADCHANDRA
40	KUMBHAR PREMAL SHIVRAM
41	KHAIRNAR AJAY JITENDRA
42	LADHE SOMNATH VASANTLAL
43	ZAMBARE YATIN SUNIL
46	TADE SHUBHAM ASHOK
49	SHAIKH AZHARUDDIN MOHAMMAD
50	SHINGOTE RADHESHYAM SUBHASH
51	KOLI YOGESH MANGOLAL

TE

ROLL NO	NAME
1	ATTARDE UTKARSH DNYANDEO
7	CHAUDHARI AKSHAY R
9	CHAUDHARI DIPTESH ARVIND
11	CHAVHAN GAJANAN RAMESH
16	KHAIRNAR VAIBHAV SUNIL
17	KOLHE JITENDRA NITIN
18	KOLTE GITESH GAJANAN
19	KOSHTI CHETAAN GANESH
20	KURKURE YUVRAJ M
22	MAHAJAN LALIT SANTOSH
23	MAHAJAN PRATIK PRASHANT
26	PATEL SANA SHAFI
30	PATIL SAGAR PANDIT
32	PATIL VAIBHAVI DILIP
34	SHIMPI DINESH MANOJ
35	SHIMPI TEJASWINI BHAGAWAN
36	WANI PARESH PRAMOD
38	SHAH AFJAL YUSUF

BE

ROLL NO	NAME
1	BADGUJAR PRIYANKA SANJAY
5	CHAUDHARI PRAJAKTA
6	CHAVHAN TUSHAR SANJAY
7	DHAGE RUSHIKESH
8	GHANOKAR PURVA
10	GOUR NIKITA SANTOSH
11	KASAR SWPNIL SANJAY
12	KOLI VICKY RAMESH
13	KOLI VIDYA DAYARAM
15	NIKUMBH KOMAL BHAGWAN
16	NIKUMBH RAKESH
17	PAKHLE HARSHAD
18	PATHAK CHETANA
19	PATIL DIPALI GANGADHAR
20	PATIL GANESH PURSHOTTAM
25	PATIL UJWAL PANDIT
28	PINGALE YOGENDRA DILIP
30	SHINDE KAVITA SHASHIKANT
32	SONAR DHANANJAY
33	SONAR RITU MAHENDRA
34	SURYAWANSHI ASWINI
35	WAGH SWITI DYANESHWAR
37	SHINDE BHUSHAN
38	DHAMNE AKSHAY PUNDLIK
39	MULAY HARISH

Patil
HOD

K. C. E. SOCIETY'S

COLLEGE OF ENGINEERING & I.T., JALGAON

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

Time table for Slow learner

SEM : II YEAR : 2018 - 19 W.E.F. : 14/3/2019

CLASS : SE (EXTC) **CLASS ROOM NO. 207**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
09.00 TO 10.00						
10.00 TO 11.00						
11.00 TO 11.45	RECESS 1					
11.45 TO 12.45						
12.45 TO 01.45						
01.45 TO 02.00	RECESS 2					
02.00 TO 03.00						
03.00 TO 04.00						
4.00 TO 05.00	SS	MP	SS	EMI	NM&CP	NM&CP

CLASS TEACHER	TIME TABLE INCHARGE	HOD-EXTC
PROF. G. S. SOMANI	PROF. S .P. BHIRUD	PROF. S. S. PATIL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT
CLASS : SE (E&TC) SEM- II ACADEMIC YEAR 2018-19
Subject EMT
Date 14/3/19.

Attendance Slow learner

ROLL NO	NAME										
	DATES OF REM. LECTURE	14/3	21/3	28/3	4/4	11/4	18/4				
1	CHAUDHARI RUPESH PRAKASH	P	P	P	P	P	P				
2	PATIL KHUSHABU SUNIL	P	P	P	P	A	P				
5	CHAVHAN SHUBHAM B.	P	P	P	P	P	P				
6	SONAWANE NIKITA DINKAR	A	P	P	A	P	P				
15	HIRAWANE TANUSHREE NITIN	P	P	P	P	P	A				
18	PARESH SANJAY BHOLE	P	P	A	P	P	P				
26	WAKIKAR MAYUR DEEPAKRAO	P	P	P	P	P	P				
32	PATIL RAHUL SUDHIR	P	P	P	P	P	P				
33	PATIL SACHIN UTTAM	P	P	A	P	P	A				
34	PATIL TEJAS VASUDEV	P	A	A	P	P	P				
35	PAWAR SHUBHAM SHANKARRAO	P	P	P	P	P	P				
36	VERMA PANKAJ GHUMAN	A	P	P	A	A	A				
38	SONAWANE RAMESH ISHWAR	P	P	P	P	P	P				
39	BHAT SHRIRANG SHARADCHANDRA	P	P	P	P	P	P				
40	KUMBHAR PREMAL SHIVRAM	P	P	P	A	P	A				
41	KHAIRNAR AJAY JITENDRA	P	P	P	P	P	P				
42	LADHE SOMNATH VASANTLAL	P	A	P	P	P	A				
43	ZAMBARE YATIN SUNIL	P	P	A	P	P	P				
46	TADE SHUBHAM ASHOK	A	P	P	P	A	P				
49	SHAIKH AZHARUDDIN MOHAMMAD	P	P	P	P	P	P				
50	SHINGOTE RADHESHYAM SUBHASH	P	P	P	A	P	A				
51	KOLI YOGESH MANGOLAL	P	P	P	P	P	A				

GSSomani

G. S. Somani.

Subject teacher

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT
CLASS : SE (E&TC) SEM- II ACADEMIC YEAR 2018-19
Subject Microprocessor
Date 12/3/19

Attendance Slow learner

ROLL NO	NAME										
	DATES OF REM. LECTURE	12/3	19/3	26/3	28/3	2/4	9/4	16/4			
1	CHAUDHARI RUPESH PRAKASH	P	P	P	P	P	P	P			
2	PATIL KHUSHABU SUNIL	P	P	P	P	P	P	P			
5	CHAVHAN SHUBHAM B.	P	P	P	P	P	P	P			
6	SONAWANE NIKITA DINKAR	P	P	P	P	P	P	P			
15	HIRAWANE TANUSHREE NITIN	P	P	P	P	P	P	P			
18	PARESH SANJAY BHOLE	P	P	P	P	P	P	P			
26	WAKIKAR MAYUR DEEPAKRAO	P	P	P	P	P	P	P			
32	PATIL RAHUL SUDHIR	P	P	P	P	P	P	P			
33	PATIL SACHIN UTTAM	P	P	P	P	P	P	P			
34	PATIL TEJAS VASUDEV	P	P	P	P	P	P	P			
35	PAWAR SHUBHAM SHANKARRAO	A	.	.	.	.	.	.			
36	VERMA PANKAJ GHUMAN	A	.	.	.	..	.	.			
38	SONAWANE RAMESH ISHWAR	P	P	P	P	P	P	P			
39	BHAT SHRIRANG SHARADCHANDRA	P	P	P	P	P	P	P			
40	KUMBHAR PREMAL SHIVRAM	A	.	.	.	.	.	.			
41	KHAIRNAR AJAY JITENDRA	P	P	P	P	P	P	P			
42	LADHE SOMNATH VASANTLAL	A	.	.	.	.	.	.			
43	ZAMBARE YATIN SUNIL	A	.	.	.	.	.	.			
46	TADE SHUBHAM ASHOK	A	.	.	.	.	.	.			
49	SHAIKH AZHARUDDIN MOHAMMAD	P	P	P	P	P	P	P			
50	SHINGOTE RADHESHYAM SUBHASH	A	.	.	.	.	.	.			
51	KOLI YOGESH MANGOLAL	A	.	.	.	.	.	.			

Subject teacher
Patil Swapnil Suresh

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON

ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : SE (E&TC) SEM- II ACADEMIC YEAR 2018-19

Subject SS Date 6/3/19

Attendance Slow learner

ROLL NO	NAME	6/3	11/3	13/3	18/3	20/3	22/3	25/3	27/3	1/4	3/4
	DATES OF REM. LECTURE	P	A	P	P	A	P	P	P	P	P
1	CHAUDHARI RUPESH PRAKASH	P	P	P	P	P	P	A	P	P	P
2	PATIL KHUSHABU SUNIL	P	P	P	P	P	A	P	A	P	A
5	CHAVHAN SHUBHAM B.	P	P	P	P	P	P	P	P	A	P
6	SONAWANE NIKITA DINKAR	P	P	P	P	P	P	P	P	P	P
15	HIRAWANE TANUSHREE NITIN	P	P	P	A	P	P	P	P	P	P
18	PARESH SANJAY BHOLE	P	P	A	P	P	P	P	A	P	P
26	WAKIKAR MAYUR DEEPAKRAO	P	A	P	P	P	P	P	P	P	P
32	PATIL RAHUL SUDHIR	P	P	P	P	P	P	P	P	P	P
33	PATIL SACHIN UTTAM	P	P	P	P	P	P	P	P	A	P
34	PATIL TEJAS VASUDEV	P	P	P	P	A	P	P	P	P	P
35	PAWAR SHUBHAM SHANKARRAO	P	P	P	P	P	P	P	P	P	P
36	VERMA PANKAJ GHUMAN	P	P	P	P	A	P	P	P	P	P
38	SONAWANE RAMESH ISHWAR	P	P	P	P	P	P	P	P	P	P
39	BHAT SHRIRANG SHARADCHANDRA	P	A	P	P	P	P	P	P	P	P
40	KUMBHAR PREMAL SHIVRAM	P	P	A	P	P	P	P	P	P	P
41	KHAIRNAR AJAY JITENDRA	P	P	P	P	P	P	P	P	A	P
42	LADHE SOMNATH VASANTLAL	P	P	P	P	P	P	P	P	P	P
43	ZAMBARE YATIN SUNIL	P	P	P	P	P	P	P	A	P	P
46	TADE SHUBHAM ASHOK	P	P	P	P	P	P	P	P	P	P
49	SHAIKH AZHARUDDIN MOHAMMAD	P	A	P	P	P	P	P	P	P	P
50	SHINGOTE RADHESHYAM SUBHASH	P	P	P	P	A	P	P	P	A	P
51	KOLI YOGESH MANGOLAL	P	P	A	P	P	P	P	P	P	P

S.V. Vasade.

Subject teacher

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT
CLASS : SE (E&TC) SEM- II ACADEMIC YEAR 2018-19
Subject NM&CP
Date 8/3/19

Attendance Slow learner

ROLL NO	NAME	8/3	15/3	22/3	24/3	8/4	12/4				
	DATES OF REM. LECTURE										
1	CHAUDHARI RUPESH PRAKASH	P	P	A	P	P	P				
2	PATIL KHUSHABU SUNIL	P	A	P	P	P	P				
5	CHAVHAN SHUBHAM B.	P	P	P	P	P	P				
6	SONAWANE NIKITA DINKAR	P	P	P	P	P	A				
15	HIRAWANE TANUSHREE NITIN	P	P	A	P	P	P				
18	PARESH SANJAY BHOLE	P	P	P	A	P	P				
26	WAKIKAR MAYUR DEEPAKRAO	P	P	P	P	A	P				
32	PATIL RAHUL SUDHIR	P	P	A	P	P	P				
33	PATIL SACHIN UTTAM	P	P	P	P	P	P				
34	PATIL TEJAS VASUDEV	A	P	P	P	P	P				
35	PAWAR SHUBHAM SHANKARRAO	P	A	P	P	P	P				
36	VERMA PANKAJ GHUMAN	P	P	A	P	P	P				
38	SONAWANE RAMESH ISHWAR	P	P	P	A	P	P				
39	BHAT SHRIRANG SHARADCHANDRA	P	P	P	A	P	P				
40	KUMBHAR PREMAL SHIVRAM	P	P	A	P	P	P				
41	KHAIRNAR AJAY JITENDRA	A	P	P	P	P	P				
42	LADHE SOMNATH VASANTLAL	P	P	P	P	P	A				
43	ZAMBARE YATIN SUNIL	A	P	A	P	P	P				
46	TADE SHUBHAM ASHOK	P	P	P	A	P	P				
49	SHAIKH AZHARUDDIN MOHAMMAD	P	P	P	A	P	P				
50	SHINGOTE RADHESHYAM SUBHASH	A	P	P	P	P	A				
51	KOLI YOGESH MANGOLAL	P	P	A	P	P	P				

Subject teacher

H.O.D.
E&TC

K. C. E. SOCIETY'S

COLLEGE OF ENGINEERING & I.T., JALGAON

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

Time table for Slow learner

SEM : II YEAR : 2018 - 19 W.E.F. : 6/3/2019

CLASS : TE (EXTC) **CLASS ROOM NO. 208**

Time / Day	Mon	Tue	Wed	Thu	Fri	Sat
09.00 TO 10.00						
10.00 TO 11.00						
11.00 TO 11.45	RECESS 1					
11.45 TO 12.45						
12.45 TO 01.45						
01.45 TO 02.00	RECESS 2					
02.00 TO 03.00						
03.00 TO 04.00						
04.00 TO 05.00	PE	IETR	EM	[redacted]	AVE	PE

CLASS TEACHER	TIME TABLE INCHARGE	HOD-EXTC
PROF. H. A. WANI	PROF. S P BHIRUD	PROF. S. S. PATIL

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : TE (E&TC) SEM- II ACADEMIC YEAR 2018-19

Subject – Power Electronics Date 11/3/19

Attendance Slow learner

ROLL NO	NAME	11/3	16/3	18/3	23/3	25/3	27/3	30/3	8/4		
	DATES OF REM. LECTURE	P	P	A	P	P	A	P	P		
1	ATTARDE UTKARSH DNYANDEO	P	A	P	P	P	P	A	P		
7	CHAUDHARI AKSHAY R	P	P	P	P	A	P	P	A		
9	CHAUDHARI DIPTESH ARVIND	P	P	A	P	P	P	P	P		
11	CHAVHAN GAJANAN RAMESH	A	P	P	P	P	P	P	P		
16	KHAIRNAR VAIBHAV SUNIL	P	A	P	P	P	A	P	A		
17	KOLHE JITENDRA NITIN	P	P	A	P	P	P	P	P		
18	KOLTE GITESH GAJANAN	P	P	P	A	P	P	A	P		
19	KOSHTI CHETAAN GANESH	A	P	P	P	A	P	P	P		
20	KURKURE YUVRAJ M	P	P	P	P	P	P	P	A		
22	MAHAJAN LALIT SANTOSH	P	A	P	P	P	P	P	P		
23	MAHAJAN PRATIK PRASHANT	P	P	A	P	P	P	P	P		
26	PATEL SANA SHAFI	P	P	A	P	P	A	P	P		
30	PATIL SAGAR PANDIT	A	P	P	P	A	P	P	P		
32	PATIL VAIBHAVI DILIP	P	P	P	A	P	P	A	P		
34	SHIMPI DINESH MANOJ	P	A	P	P	P	P	P	P		
35	SHIMPI TEJASWINI BHAGAWAN	P	P	P	P	A	P	P	P		
36	WANI PARESH PRAMOD	A	P	P	P	P	A	P	A		
38	SHAH AFJAL YUSUF	P	P	A	P	P	P	A	P		

Subject teacher

M·K·Tiwari

H.O.D.
E&TC

684

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT
CLASS : TE (E&TC) SEM- II ACADEMIC YEAR 2018-19
Subject DETR Date 12/3/19

Attendance Slow learner

ROLL NO	NAME										
	DATES OF REM. LECTURE	12/3	19/3	26/3	2/4	9/4					
1	ATTARDE UTKARSH DNYANDEO	A	A	P	P	P					
7	CHAUDHARI AKSHAY R	P	P	P	P	A					
9	CHAUDHARI DIPTESH ARVIND	P	P	P	P	P					
11	CHAVHAN GAJANAN RAMESH	P	P	P	A	P					
16	KHAIRNAR VAIBHAV SUNIL	P	P	P	A	P					
17	KOLHE JITENDRA NITIN	P	P	P	P	P					
18	KOLTE GITESH GAJANAN	P	P	P	P	P					
19	KOSHTI CHETAAN GANESH	P	P	P	P	P					
20	KURKURE YUVRAJ M	P	P	P	P	P					
22	MAHAJAN LALIT SANTOSH	A	P	P	P	P					
23	MAHAJAN PRATIK PRASHANT	P	P	P	P	P					
26	PATEL SANA SHAFI	P	P	P	P	P					
30	PATIL SAGAR PANDIT	A	P	P	P	P					
32	PATIL VAIBHAVI DILIP	P	P	P	P	P					
34	SHIMPI DINESH MANOJ	P	P	A	P	P					
35	SHIMPI TEJASWINI BHAGAWAN	A	P	P	P	P					
36	WANI PARESH PRAMOD	P	P	P	P	P					
38	SHAH AFJAL YUSUF	P	P	P	P	P					

V. G. Sarode

Subject teacher

Patil

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT
CLASS : TE (E&TC) SEM- II ACADEMIC YEAR 2018-19
Subject Audio and Video Engg. Date 8/3/19.

Attendance Slow learner

ROLL NO	NAME	8/3	15/3	22/3	29/3	5/4	12/4				
	DATES OF REM. LECTURE										
1	ATTARDE UTKARSH DNYANDEO	P	P	P.	P	P	P				
7	CHAUDHARI AKSHAY R	P	A	P	A	P	P				
9	CHAUDHARI DIPTESH ARVIND	A	A	A	P	P	P				
11	CHAVHAN GAJANAN RAMESH	P	P	P	A	P	P				
16	KHAIRNAR VAIBHAV SUNIL	P	P	P	P	P	P				
17	KOLHE JITENDRA NITIN	A	A	P	P	P	P				
18	KOLTE GITESH GAJANAN	P	P	P	A	P	P				
19	KOSHTI CHETAAN GANESH	P	P	P	P	P	P				
20	KURKURE YUVRAJ M	A	P	A	P	P	P				
22	MAHAJAN LALIT SANTOSH	P	A	P	P	P	P				
23	MAHAJAN PRATIK PRASHANT	P	P	P	P	P	P				
26	PATEL SANA SHAFI	A	P	P	P	P	P				
30	PATIL SAGAR PANDIT	P	A	A	A	P	P				
32	PATIL VAIBHAVI DILIP	P	P	P	P	P	P				
34	SHIMPI DINESH MANOJ	A	P	P	A	P	P				
35	SHIMPI TEJASWINI BHAGAWAN	P	A	A	P	P	P				
36	WANI PARESH PRAMOD	P	P	P	P	P	P				
38	SHAH AFJAL YUSUF	A	P	P	P	P	P				

R R Patil
Subject teacher

H.O.D.
E&TC

KCE SOCIETY'S COLLEGE OF ENGG & I.T. JALGAON
ELECTRONICS & TELE-COMMUNICATION ENGINEERING DEPARTMENT

CLASS : TE (E&TC) **SEM- II** **ACADEMIC YEAR 2018-19**

Subject **Date** 8/3/19

Attendance Slow learner

ROLL NO	NAME	6/3	13/3	20/3	27/3	3/4	10/4				
	DATES OF REM. LECTURE	P	P	P	P	P	P				
1	ATTARDE UTKARSH DNYANDEO	P	P	P	P	P	P				
7	CHAUDHARI AKSHAY R	P	P	P	.	P	P				
9	CHAUDHARI DIPTESH ARVIND	P	.	P	P	P	P				
11	CHAVHAN GAJANAN RAMESH	P	P	P	P	P	.				
16	KHAIRNAR VAIBHAV SUNIL	P	P	P	.	P	P				
17	KOLHE JITENDRA NITIN	P	P	P	P	P	P				
18	KOLTE GITESH GAJANAN	P	P	P	P	P	P				
19	KOSHTI CHETAAN GANESH	P	P	P	P	P	P				
20	KURKURE YUVRAJ M	P	P	P	P	.	P				
22	MAHAJAN LALIT SANTOSH	P	P	P	P	P	P				
23	MAHAJAN PRATIK PRASHANT	P	P	P	.	P	P				
26	PATEL SANA SHAFI	P	P	P	P	P	.				
30	PATIL SAGAR PANDIT	P	P	P	P	P	P				
32	PATIL VAIBHAVI DILIP	P	P	P	P	P	P				
34	SHIMPI DINESH MANOJ	P	P	P	P	P	P				
35	SHIMPI TEJASWINI BHAGAWAN	P	P	P	P	P	.				
36	WANI PARESH PRAMOD	.	P	P	P	P	P				
38	SHAH AFJAL YUSUF	P	P	P	P	P	P				

Wani

Subject teacher

H.A. Wani

H.O.D.
E&TC

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K.C.E.SOCIETY'S COLLEGE OF ENGG.AND INFO. TECHNOLOGY JALGAON

Department of Management

Academic Year 2018-19

SEM-I

Date: 15 / 11 / 2018

NOTICE

All MBA students are here by inform that, student who secured 13 or less marks in internal sessional exams are considered as slow learner students and for improvement of their result remedial lectures will be conducted as per the remedial lecture timetable. So, kindly attend remedial lectures and complete the activities given by subject teacher.

The list of student is attached.

HOD

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K.C.E.SOCIETY'S COLLEGE OF ENGG.AND INFO. TECHNOLOGY JALGAON

Department of Management

Academic Year 2018-19

SEM-I

Date: 15/11/2018

NOTICE

All MBA students are here by inform that, student who secured 18 or more marks in internal sessional exams are considered as fast learner students and following activities will be conducted by management department. So, kindly attend all the activities conducted by department.

Schedule of activities

1) Classroom Presentation
2) Videos (NPTL)
3) Group Discussion

HOD

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KCES's College of Engineering & Information Technology, Jalgaon

Department of Management

MBA Sem I for Academic Year 2018-2019

Remedial Lectures Times Table After Internal Examination

Time/Day	Mon	Tue	Wed	Thu	Fri	Sat
8.00-9.00	103	104	103	104	103	104

Subject Code	**Subject Name**	**Faculty**
103	Managerial Economics	Prof. Madhuri Sonawane
104	Human Resource Management	Prof. Sanjay Sugandhi

HOD

Engineering & Information Technology, Jalgaon
Department Of Management (MBA)
Academic Year 2018-2019
SEM I

Subject Code	Name of Slow Learners	Name of Fast Learners
103	Badgujar Mayur Santosh	Bamb Sonal Anil
	Bhagat Amol Devidas	Bholane Gayatri Sanjay
	Chaudhari Pratiksha Nandalal	Chaudhari Shubham Ishwar
	Dhobi Yogini Rajendra	Chavan Pravin Sarichand
	Kabra Siddhi Sanjay	Erande Umesh Sanjay
	koli Gopal Lotan	Ghogare Dnyaneshwar Vinayak
	Maharaj Kajal Anil	JadhavMohini Karansing
	Makode Punam Rajesh	Khanchane Chetan Ravindra
	Palod Prajakta Dinesh	Lalwani Prachi
	Patil Pooja Prakash	Mahale Nikita Motilal
	Rane Leena Didambar	Mawale Lokesh Jagannath
	Tekwani Mohit Vinod	Nannaware Varsha Budha
	Yadhav Diksha Jagdish	Patil Gunjan Ajay
	Bholane Gayatri Sanjay	Patil Khushbu Magan
	Chaudhari Shubham Ishwar	Patil Priyanka Shantilal
	Chavan Vishal Baliram	Patil Rohini Kailas
	Dhole Chtan Sukdev	Shah Reena
	Jadhav Mohini Karansing	Singh Aaradhana
	Kabara Siddhi Sanjay	Thakare Neha Sunil
	Ladhe Swapnil Namdeo	Wani Shuruti Chandrashekhar
	Makode Priti Ramesh	Yadav Diksha Jagdish
	Varke Nikita Prakash	Badgugar Mayur
		Baheti Amruta
		Borse Prafulla
		Jawanjal Shubhangi Damodar
		More Vasantrao Balu
		Patil Dnyaneshwar
		Patil Narendra Gorakh
		Patil Vrushali Rajendra
		Shindikai Varun Vinay
		Singh Aaradhana
		Thakare Neha Sunil
		Uttamchandani Nitesh Naresh
		Yewale Harshal

	[illegible]	Baheti Amruta
	Bhagat Amol Devidas	Borse Preafulla Satish
	Chaudhari Pratiksha Nandalal	Chaudhari Amol Vishwanath
	Dhobi Yogini Rajendra	Chormale Manisha Sanjay
	Kabra Siddhi Sanjay	Jawanjal Shubhangi Damodar
	koli Gopal Lotan	Ladhe Swapnil Namdeo
	Maharaj Kajal Anil	Makhija Avish Hemandas
	Makode Punam Rajesh	Makode Priti Rajesh
	Palod Prajakta Dinesh	Pagariya Rashmi Praful
	Patil Pooja Prakash	Patil Narendra Gorakh
	Rane Leena Didambar	Patil Vidya Shyambhau
	Tekwani Mohit Vinod	Patil Vrushali Rajendra
	Yadhav Diksha Jagdish	Somani Ankita Anil
104	Bholane Gayatri Sanjay	Somani Deepali
	Chaudhari Shubham Ishwar	Thakare Neha Sunil
	Chavan Vishal Baliram	Uttamchandani Nitesh Naresh
	Dhole Chtan Sukdev	Bagat Amol
	Jadhav Mohini Karansing	Chaudhari Pratiksha
	Kabara Siddhi Sanjay	Dhobi Yogini
	Ladhe Swapnil Namdeo	Jangid Suman Khemraj
	Makode Priti Ramesh	Koli Girish
	Varke Nikita Prakash	Koli Gopal
		Nannaware Varsha Budha
		Patil Khushbu Magan
		Somani Ankita Anil
		Varake Nikita Prakash
		Wani Shuruti Chandrashekhar

KCES's College of Engineering & Information Technology, Jalgaon

Department Of Management (MBA)

Academic Year 2018-2019

Slow Learner Attendance Subject Code: 103 SEM-1

Sr No	Name of Slow Learner	19/11	21/11	23/11	28/11	26/11	28/11	30/11	30/11
1	Badgujar Mayur Santosh	P	A	A	P	A	P	A	P
2	Bhagat Amol Devidas	A	F	P	A	P	P	A	A
3	Chaudhari Pratiksha Nandalal	P	A	P	A	A	P	P	P
4	Dhobi Yogini Rajendra	A	A	A	P	P	P	A	P
5	Kabra Siddhi Sanjay	P	P	A	P	A	A	P	A
6	koli Gopal Lotan	A	P	P	P	P	P	P	P
7	Maharaj Kajal Anil	P	A	P	A	A	A	P	A
8	Makode Punam Rajesh	A	P	P	P	P	P	A	P
9	Palod Prajakta Dinesh	P	P	A	P	A	A	P	A
10	Patil Pooja Prakash	A	A	P	A	A	P	A	P
11	Rane Leena Didambar	P	P	P	P	P	P	P	A
12	Tekwani Mohit Vinod	A	A	A	A	A	P	A	P
13	Yadhav Diksha Jagdish	P	P	P	P	P	A	P	A
14	Bholane Gayatri Sanjay	P	P	A	A	A	P	P	P
15	Chaudhari Shubham Ishwar	A	A	P	P	P	A	P	A
16	Chavan Vishal Baliram	P	P	P	P	A	P	A	P
17	Dhole Chtan Sukdev	A	A	A	A	P	A	P	P
18	Jadhav Mohini Karansing	P	P	P	P	A	P	A	P
19	Kabara Siddhi Sanjay	A	P	A	A	P		P	A
20	Ladhe Swapnil Namdeo	P	P	P	P	A	P	P	P
21	Makode Priti Ramesh	A	P	A	A	P	P	A	P
22	Varke Nikita Prakash	A	A	P	P	P	P	P	P

KCES's College of Engineering & Information Technology, Jalgaon
Department Of Management (MBA)
Academic Year 2018-2019

Slow Learner Attendance **Subject Code: 104** **SEM-1**

Roll No	Name of Slow Learner	20·11·21	22·11·21	24·11·21	24·11·21	27·11·21	29·11·21	1·12·21	1·12·21
1	Badgujar Mayur Santosh	P	.	P	P	.	P	.	P
2	Bhagat Amol Devidas	P	.	P	.	P	P	P	.
3	Chaudhari Pratiksha Nandalal	.	P	P	.	P	P	.	P
4	Dhobi Yogini Rajendra	P	.	P	P	P	P		P
5	Kabra Siddhi Sanjay	P	P	.	P	.	P	P	.
6	koli Gopal Lotan	.	P	P	P	P	.	.	.
7	Maharaj Kajal Anil	P	.	P		P	P	P	.
8	Makode Punam Rajesh	P	P		P	P	.		P
9	Palod Prajakta Dinesh	P		P	.	.	P	P	
10	Patil Pooja Prakash	.	P		P	.	.	.	P
11	Rane Leena Didambar	P	.	P	.	P	.	P	
12	Tekwani Mohit Vinod	.	P	.	P	P	.	P	P
13	Yadhav Diksha Jagdish	P	P	.	P	.	P	.	P
14	Bholane Gayatri Sanjay		P	.	P	P	.	P	.
15	Chaudhari Shubham Ishwar	P	.	P	.	P	.	.	P
16	Chavan Vishal Baliram	.	.	P	P		P	P	.
17	Dhole Chtan Sukdev	P	P	.	.	P	.	.	P
18	Jadhav Mohini Karansing	.	P	P	P		P	.	.
19	Kabara Siddhi Sanjay	P	.	P	.	P	.	P	.
20	Ladhe Swapnil Namdeo	.	P	.	P	.	P	.	P
21	Makode Priti Ramesh	.	.	.	.	.	.	.	.
22	Varke Nikita Prakash	P	.	P	.	P	.	P	.

KBC NMU Jalgaon
KCES's College of Engineering and Management Jalgaon
Department of Management (MBA)
Mark list Internal Examination-1
(MBA- I, SEM-I)

05.10.18

R.N.	Student Name	101	102	103	104	105	106	107	108
1	Attarde Kalpesh Kiran	19	15	16	14	19	15	15	17
2	Badgujar Mayur Santosh	14	15	13	12	18	18	17	16
3	Baheti Amruta	19	18	17	19	16	18	17	18
4	Bamb Sonal Anil	18	19	19	17	16	17	18	16
5	Bhagat Amol Devidas	14	15	13	12	18	18	17	16
6	Bholane Gayatri Sanjay	16	17	18	16	18	19	17	18
7	Borse Prafulla Satish	15	16	17	18	15	18	19	18
8	Chaudhari Amol Vishwanath	19	18	17	19	16	18	17	18
9	Chaudhari Pratiksha Nandlal	14	15	13	12	18	18	17	16
10	Chaudhari Shubham Ishwar	16	17	18	16	18	19	17	18
11	Chavan Vishal Baliram	19	15	16	14	19	15	15	17
12	Chavhan Pravin Sarichand	18	19	19	17	16	17	18	16
13	Chormale Manisha Sanjay	15	16	17	18	15	18	19	18
14	Dhobi Yogini Rajendra	14	15	13	12	18	18	17	16
15	Dole Chetan Sukdev	19	15	16	14	19	15	15	17
16	Erande Umesh Sanjay	16	17	18	16	18	19	17	18
17	Ghogare Dnyaneshwer Vinayak	18	19	19	17	16	17	18	16
18	Jadhav Mohini Karansing	18	19	19	17	16	17	18	16
19	Jangid Suman Khemaraj	19	15	16	14	19	15	15	17
20	Jawanjal Shubhangi Damodar	19	18	17	19	16	18	17	18
21	Kabra Siddhi Sanjay	14	15	13	12	18	18	17	16
22	Khachane Chetan Rajendra	16	17	18	16	18	19	17	18
23	Koli Girish Meghraj	19	15	16	14	19	15	15	17
24	Koli Gopal Lotan	14	15	13	12	18	18	17	16
25	Ladhe Swapnil Namdeo	19	18	17	19	16	18	17	18
[illegible]	Lalwani Prachi	18	19	19	17	16	17	18	16
27	Mahajan Kajal Anil	14	15	13	12	18	18	17	16
28	Mahale Nikita Motilal	16	17	18	16	18	19	17	18
29	Makhija Avish Hemandas	15	16	17	18	15	18	19	18
30	Makode Priti Rajesh	19	18	17	19	16	18	17	18
31	Makode Punam Rajesh.	14	15	13	12	18	18	17	16
32	Mawale Lokesh Jagannath	16	17	18	16	18	19	17	18
33	More Vasantrao Balu	19	15	16	14	19	15	15	17
34	Nannaware Varsha Budha	18	19	19	17	16	17	18	16
35	Pagariya Rashmi Praful	15	16	17	18	15	18	19	18
36	Palod Prajakta Dinesh	14	15	13	12	18	18	17	16
37	Patil Dnyaneshwar Samadhan	19	15	16	14	19	15	15	17
38	Patil Gunjan Ajay	16	17	18	16	18	19	17	18
39	Patil Khushbu Magan	18	19	19	17	16	17	18	16
40	Patil Narendra Gorakh	15	16	17	18	15	18	19	18
41	Patil Pooja Prakash	14	15	13	12	18	18	17	16
42	Patil Priyanka Rajendra	19	15	16	14	19	15	15	17
43	Patil Priyanka Shantilal	18	19	19	17	16	17	18	16

44	Patil Rohini Kailas	16	17	18	16	18	19	17	18
45	Patil Vidya Shyambhau	19	18	17	19	16	18	17	18
46	Patil Vrushali Rajendra	19	18	17	19	16	18	17	18
47	Rane Leena Digambar	14	15	13	12	18	18	17	16
48	Shah Reena	18	19	19	17	16	17	18	16
49	Shindikar Varun Vinay	19	15	16	14	19	15	15	17
50	Singh Aaradhana	16	17	18	16	18	19	17	18
51	Somani Ankita Anil	15	16	17	18	15	18	19	18
52	Somani Deepali	19	18	17	19	16	18	17	18
53	Tekwani Mohit Vinod	14	15	13	12	18	18	17	16
54	Thakare Neha Sunil	18	19	19	17	16	17	18	16
55	Thakare Neha Vinod	15	16	17	18	15	18	19	18
56	Uttamchandani Nitesh Naresh	19	18	17	19	16	18	17	18
57	Varke Nikita Prakash	14	15	13	12	18	18	17	16
58	Wani Shruti Chandrashekhar	18	19	19	17	16	17	18	16
59	Yadhav Diksha Jagdish	16	17	18	16	18	19	17	18
60	Yevale Harshal Rajendra	19	15	16	14	19	15	15	17

HOD

Dr. Sanjay R. Sugandhi

KBC NMU Jalgaon
KCES's College of Engineering and Management Jalgaon
Department of Management (MBA)
Mark list Internal Examination-2
(MBA- I, SEM-I)

05.11.18

R.N.	Student Name	101	102	103	104	105	106	107	108
1	Attarde Kalpesh Kiran	19	15	16	14	19	15	15	17
2	Badgujar Mayur Santosh	16	17	18	16	18	19	17	18
3	Baheti Amruta	18	19	19	17	16	17	18	16
4	Bamb Sonal Anil	19	18	17	19	16	18	17	18
5	Bhagat Amol Devidas	15	16	17	18	15	18	19	18
6	Bholane Gayatri Sanjay	14	15	13	12	18	18	17	16
7	Borse Prafulla Satish	18	19	19	17	16	17	18	16
8	Chaudhari Amol Vishwanath	19	15	16	14	19	15	15	17
	dhari Pratiksha Nandlal	19	18	17	19	16	18	17	18
10	Chaudhari Shubham Ishwar	14	15	13	12	18	18	17	16
11	Chavan Vishal Baliram	14	15	13	12	18	18	17	16
12	Chavhan Pravin Sarichand	18	19	19	17	16	17	18	16
13	Chormale Manisha Sanjay	19	15	16	14	19	15	15	17
14	Dhobi Yogini Rajendra	19	18	17	19	16	18	17	18
15	Dole Chetan Sukdev	14	15	13	12	18	18	17	16
16	Erande Umesh Sanjay	16	17	18	16	18	19	17	18
17	Ghogare Dnyaneshwer Vinayak	19	15	16	14	19	15	15	17
18	Jadhav Mohini Karansing	14	15	13	12	18	18	17	16
19	Jangid Suman Khemaraj	19	18	17	19	16	18	17	18
20	Jawanjal Shubhangi Damodar	18	19	19	17	16	17	18	16
21	Kabra Siddhi Sanjay	14	15	13	12	18	18	17	16
22	Khachane Chetan Rajendra	16	17	18	16	18	19	17	18
23	Koli Girish Meghraj	15	16	17	18	15	18	19	18
24	Koli Gopal Lotan	19	18	17	19	16	18	17	18
25	Ladhe Swapnil Namdeo	14	15	13	12	18	18	17	16
26	Lalwani Prachi	16	17	18	16	18	19	17	18
27	Mahajan Kajal Anil	19	15	16	14	19	15	15	17
28	Mahale Nikita Motilal	18	19	19	17	16	17	18	16
29	Makhija Avish Hemandas	15	16	17	18	15	18	19	18
30	Makode Priti Rajesh	14	15	13	12	18	18	17	16
31	Makode Punam Rajesh	19	15	16	14	19	15	15	17
32	Mawale Lokesh Jagannath	16	17	18	16	18	19	17	18
33	More Vasantrao Balu	18	19	19	17	16	17	18	16
34	Nannaware Varsha Budha	15	16	17	18	15	18	19	18
35	Pagariya Rashmi Praful	14	15	13	12	18	18	17	16
36	Palod Prajakta Dinesh	19	15	16	14	19	15	15	17
37	Patil Dnyaneshwar Samadhan	18	19	19	17	16	17	18	16
38	Patil Gunjan Ajay	16	17	18	16	18	19	17	18
39	Patil Khushbu Magan	15	16	17	18	15	18	19	18
40	Patil Narendra Gorakh	18	19	19	17	16	17	18	16
41	Patil Pooja Prakash	14	15	13	12	18	18	17	16
42	Patil Priyanka Rajendra	19	15	16	14	19	15	15	17
43	Patil Priyanka Shantilal	18	19	19	17	16	17	18	16

44	Patil Rohini Kailas	16	17	18	16	18	19	17	18
45	Patil Vidya Shyambhau	15	16	17	18	15	18	19	18
46	Patil Vrushali Rajendra	18	19	19	17	16	17	18	16
47	Rane Leena Digambar	14	15	13	12	18	18	17	16
48	Shah Reena	19	15	16	14	19	15	15	17
49	Shindikar Varun Vinay	18	19	19	17	16	17	18	16
50	Singh Aaradhana	16	17	18	16	18	19	17	18
51	Somani Ankita Anil	19	18	17	19	16	18	17	18
52	Somani Deepali	19	18	17	19	16	18	17	18
53	Tekwani Mohit Vinod	14	15	13	12	18	18	17	16
54	Thakare Neha Sunil	18	19	19	17	16	17	18	16
55	Thakare Neha Vinod	19	15	16	14	19	15	15	17
56	Uttamchandani Nitesh Naresh	16	17	18	16	18	19	17	18
57	Varke Nikita Prakash	15	16	17	18	15	18	19	18
58	Wani Shruti Chandrashekhar	19	18	17	19	16	18	17	18
59	Yadhav Diksha Jagdish	14	15	13	12	18	18	17	16
60	Yevale Harshal Rajendra	18	19	19	17	16	17	18	16

HOD

Dr. Sanjay R. Sugandhi

K.C.E.SOCIETY'S COLLEGE OF ENGG.AND INFO. TECHNOLOGY JALGAON

Department of Management

Academic Year 2018-19

SEM-III

Date: 15 /11 /2018

NOTICE

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The list of student is attached.

HOD

K.C.E.SOCIETY'S COLLEGE OF ENGG.AND INFO. TECHNOLOGY JALGAON

Department of Management

Academic Year 2018-19

SEM-III

Date: 15/11/2018

NOTICE

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Schedule of activities

1) Classroom Presentation
2) Videos (NPTL)
3) Group Discussion

HOD

KCES's College of Engineering & Information Technology, Jalgaon

Department of Management

MBA Sem III for Academic Year 2018-2019

Remedial Lectures Times Table After Internal Examination

Time/Day	Mon	Tue	Wed	Thu	Fri	Sat
3.00-3.45	303	304	303	304	303	304

Code	Paper Name	Faculty
303	Law	Prof. Madhuri Sonawane
304 A	BIM	Prof. Madhuri Sonawane
304 C	IRLW	Prof. Mayur Borse

HOD

KCES's College of Engineering & Information Technology, Jalgaon
Department Of Management (MBA)
Academic Year 2018-2019
SEM III

Subject Code	Name of Slow Learners	Name of Fast Learners
303	Bari Jayashri Kadu	Bavskar Anant Samadhan
	Bundele Priyatama Suresh	Chandak Megha V.
	Gangurde Swati Prakash	Chaudhari Milind
	Mandale Kanchan Rameshwar	Chavhan Bhagyashri Suresh
	Pathak Sarvesh	Gujrati Saurabh Ravindra
	Patil Rohini Sadashiv	Kulkarni Harshada Govind
	Patil Sneha Ashok	Mokasare Vinod Suresh
	Purohit Priyanka Satish	Patil Dipali
	Sapkale Sagar Bhavsing	Patil Mohit Suresh
	Singh Rekha Rajlal	Sali Neha Satish
	Suryawanshi Nikhil Santosh	Sayyed Waqar Ali Mukhtar Ali
	Wadhnere Yogesh	Sonar Sneha
	Baheti Komal	Sonawane Harshal Shantaram
	Bhojwani Chandani Kundanlal	Tayade Kiran Eknath
	Kolhe Gayatri Bhagwat	Wani Pooja
	Patil Nikita	
	Patil Rohit Narendra	
	Pawankar Sagar Ravindra	
	Shinde Dnyaneshwar Dattu	
	Sonawane Chetan	
	Tekwani Mahesh Ramesh	
	Wani Bhagyashri Pralhad	
304	Bari Jayashri Kadu	Bajaj Nikita Bhishanlal
	Bundele Priyatama Suresh	Balani Nikita Jamanadas
	Gangurde Swati Prakash	Bhojwani Chandini Kundanlal
	Mandale Kanchan Rameshwar	Dalal Rushikesh Ashok
	Patil Rohini Sadashiv	Kulkarni Indryani Gajanan
	Purohit Priyanka Satish	Kurkure Roshni
	Singh Rekha Rajlal	Panchariya Urvashi Mahavir
	Suryawanshi Nikhil Santosh	Patil Prashant Bhagwat
	Baheti Komal	Patil Pratik Avinash
	Bhojwani Chandani Kundanlal	Patil Samadhan
	Kolhe Gayatri Bhagwat	Raisinghaani Bhagyashri
	Patil Nikita	Shinde Mayuri Mohan
	Patil Rohit Narendra	Sonawane Nishant Vijaykumar
	Shinde Dnyaneshwar Dattu	Udaykar Neha Sanjay
	Wani Bhagyashri Pralhad	
	Pathak Sarvesh	
	Patil Sneha Ashok	
	Sonawane Chetan	
	Tekwani Mahesh Ramesh	
	Pawankar Sagar Ravindra	
	Sapkale Sagar Bhavsing	
	Wadhnere Yogesh	

KCES's College of Engineering & Information Technology, Jalgaon

Department Of Management (MBA)

Academic Year 2018-2019

Slow Learner Attendance Subject Code: 303 SEM III

Sr. No	Name of Slow Learner	19/11/18	21/11/18	23/11/18	23/11/18	26/11/18	28/11/18	30/11/18	30/11/18
	Bari Jayashri Kadu	P	P	P	A	A	A	P	P
	Bundele Priyatama Suresh	A	A	A	A	A	A	A	A
	Gangurde Swati Prakash	P	P	P	P	P	P	P	P
	Mandale Kanchan Rameshwar	A	A	A	P	P	A	P	A
	Pathak Sarvesh	A	A	A	A	A	P	A	A
	Patil Rohini Sadashiv	P	P	P	P	P	P	P	P
	Patil Sneha Ashok	P	A	P	A	A	A	P	P
	Purohit Priyanka Satish	A	A	A	P	P	P	P	P
	Sapkale Sagar Bhavsing	P	P	A	A	A	A	A	A
	Singh Rekha Rajlal	P	P	P	P	P	P	P	P
	Suryawanshi Nikhil Santosh	P	P	P	P	A	P	P	P
	Wadhnere Yogesh	P	P	P	A	A	A	A	P
	Baheti Komal	P	P	P	P	P	P	P	P
	Bhojwani Chandani Kundanlal	P	P	A	A	P	P	A	P
	Kolhe Gayatri Bhagwat	P	P	A	A	P	P	P	A
	Patil Nikita	P	P	P	A	A	A	P	P
	Patil Rohit Narendra	A	A	A	A	A	A	A	A
	Pawankar Sagar Ravindra	P	P	P	P	A	P	P	P
	Shinde Dnyaneshwar Dattu	P	A	A	P	P	P	P	A
	Sonawane Chetan	P	P	P	A	A	A	A	A
	Tekwani Mahesh Ramesh	P	A	A	A	A	A	A	A
	Wani Bhagyashri Pralhad	A	A	A	P	P	A	P	A

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KCES's College of Engineering & Information Technology, Jalgaon

Department Of Management (MBA)

Academic Year 2018-2019

Slow Learner Attendance   Subject Code: 304 A   SEM III

Sr. No	Name of Slow Learner	20/11/18	22/11/18	23/11/18	24/11/18	27/11/18	29/11/18	1/12/18	1/12/18
1	Bari Jayashri Kadu	P	P	A	A	P	A	P	A
2	Bundele Priyatama Suresh	P	P	P	P	P	P	P	P
3	Gangurde Swati Prakash	P	P	P	P	P	P	P	P
4	Mandale Kanchan Rameshwar	P	P	P	P	P	P	P	P
5	Patil Rohini Sadashiv	P	P	P	P	P	P	P	P
6	Purohit Priyanka Satish	A	P	P	P	A	P	P	P
7	Singh Rekha Rajlal	P	P	P	P	P	P	P	P
8	Suryawanshi Nikhil Santosh	A	P	P	P	A	P	P	P
9	Baheti Komal	P	P	P	P	P	P	P	P
10	Bhojwani Chandani Kundanlal	A	P	P	P	P	P	P	P
11	Kolhe Gayatri Bhagwat	A	P	P	A	P	P	P	P
12	Patil Nikita	P	P	P	P	P	P	P	P
13	Patil Rohit Narendra	P	P	P	P	P	A	P	P
14	Shinde Dnyaneshwar Dattu	P	P	P	A	P	A	P	P
15	Wani Bhagyashri Pralhad	P	A	P	P	A	P	A	P

KCES's College of Engineering & Information Technology, Jalgaon
Department Of Management (MBA)
Academic Year 2018-2019

Slow Learner Attendance **Subject Code: 304 C** **SEM III**

Sr. No	Name of Slow Learner	20/11/19	22/11/19	24/11/18	24/11/19	27/11/18	29/11/11	1/12/18	1/12/18
1	Patil Sneha Ashok	P	P	A	P	P	P	P	A
2	Sonawane Chetan	P	A	P	P	P	P	P	P
3	Tekwani Mahesh Ramesh	P	P	P	P	P	P	P	P

KBC NMU Jalgaon

KCES's College of Engineering and Management Jalgaon

Department of Management (MBA)

Mark list Internal Examination-1

(MBA- II, SEM-III) 05.10.18

R.N.	Student Name	301	302	303	304	305	306	307	308
1	Baheti Komal	18	19	19	17	16	17	18	16
2	Bajaj Nikita Bhishanlal	19	18	17	19	16	18	17	18
3	Balani Nikita Jamanadas	15	16	17	18	15	18	19	18
4	Bari Jayashri Kadu	14	15	13	12	18	18	17	16
5	Bavskar Anant Samadhan	18	19	19	17	16	17	18	16
6	Bendale Nikhita Narendra	19	15	16	14	19	15	15	17
7	Bhojwani Chandini Kundanlal	19	18	17	19	16	18	17	18
8	Bundele Priyatama Suresh	14	15	13	12	18	18	17	16
9	Chandak Megha V.	18	19	19	17	16	17	18	16
10	Chaudhari Amol Dhanraj	19	15	16	14	19	15	15	17
11	Chaudhari Milind	18	19	19	17	16	17	18	16
12	Chaudhari Shweta Pramod	19	15	16	14	19	15	15	17
13	Chavhan Bhagyashri Suresh	16	17	18	16	18	19	17	18
14	Dalal Rushikesh Ashok	15	16	17	18	15	18	19	18
15	Gangurde Swati Prakash	14	15	13	12	18	18	17	16
16	Gujrati Saurabh Ravindra	18	19	19	17	16	17	18	16
17	Joshi Dhanashree Dinesh	19	15	16	14	19	15	15	17
18	Kolhe Gayatri Bhagwat	16	17	18	16	18	19	17	18
19	Kulkarni Harshada Govind	18	19	19	17	16	17	18	16
20	Kulkarni Indryani Gajanan	19	18	17	19	16	18	17	18
21	Kurkure Roshni	15	16	17	18	15	18	19	18
22	Mandale Kanchan Rameshwar	14	15	13	12	18	18	17	16
23	Mokasare Vinod Suresh	18	19	19	17	16	17	18	16
24	Mule Vaibhav Laxman	19	15	16	14	19	15	15	17
25	Panchariya Urvashi Mahavir	19	18	17	19	16	18	17	18
26	Pathak Sarvesh	14	15	13	12	18	18	17	16
27	Patil Dipali	18	19	19	17	16	17	18	16
28	Patil Kalphesh Sanjay	19	15	16	14	19	15	15	17
29	Patil Mohit Suresh	16	17	18	16	18	19	17	18
30	Patil Nikita	18	19	19	17	16	17	18	16
31	Patil Prashant Bhagwat	19	18	17	19	16	18	17	18
32	Patil Pratik Avinash	15	16	17	18	15	18	19	18
33	Patil Rohini Sadashiv	14	15	13	12	18	18	17	16
34	Patil Rohit Narendra	18	19	19	17	16	17	18	16
35	Patil Rohit Raju	19	15	16	14	19	15	15	17
36	Patil Samadhan	19	18	17	19	16	18	17	18
37	Patil Sneha Ashok	14	15	13	12	18	18	17	16
38	Pawankar Sagar Ravindra	16	17	18	16	18	19	17	18
39	Pawar Vivek Vijay	19	15	16	14	19	15	15	17
40	Purohit Priyanka Satish	14	15	13	12	18	18	17	16
41	Raisinghaani Bhagyashri	19	18	17	19	16	18	17	18
42	Sali Neha Satish	18	19	19	17	16	17	18	16
43	Sapkale Sagar Bhavsing	14	15	13	12	18	18	17	16

44	Sayyed Waqar Ali Mukhtar Ali	16	17	18	16	18	19	17	18
45	Shinde Dnyaneshwar Dattu	15	16	17	18	15	18	19	18
46	Shinde Mayuri Mohan	19	18	17	19	16	18	17	18
47	Singh Rekha Rajlal	14	15	13	12	18	18	17	16
48	Sonar Sneha	16	17	18	16	18	19	17	18
49	Sonawane Chetan	19	15	16	14	19	15	15	17
50	Sonawane Harshal Shantaram	18	19	19	17	16	17	18	16
51	Sonawane Nishant Vijaykumar	15	16	17	18	15	18	19	18
52	Suryawanshi Nikhil Santosh	14	15	13	12	18	18	17	16
53	Tapadiya Snehal Bhushan	19	15	16	14	19	15	15	17
54	Tayade Kiran Eknath	16	17	18	16	18	19	17	18
55	Tekwani Mahesh Ramesh	18	19	19	17	16	17	18	16
56	Udaykar Neha Sanjay	15	16	17	18	15	18	19	18
57	Wadhnere Yogesh	14	15	13	12	18	18	17	16
58	Wagh Manisha Gautam	19	15	16	14	19	15	15	17
59	Wani Bhagyashri Pralhad	18	19	19	17	16	17	18	16
60	Wani Pooja	16	17	18	16	18	19	17	18

HOD

Dr. Sanjay R. Sugandhi

KBC NMU Jalgaon
KCES's College of Engineering and Management Jalgaon
Department of Management (MBA)
Mark list Internal Examination-2
(MBA- II, SEM-III)

05.11.18

R.N.	Student Name	301	302	303	304	305	306	307	308
1	Baheti Komal	14	15	13	12	18	18	17	16
2	Bajaj Nikita Bhishanlal	19	15	16	14	19	15	15	17
3	Balani Nikita Jamanadas	18	19	19	17	16	17	18	16
4	Bari Jayashri Kadu	19	15	16	14	19	15	15	17
5	Bavskar Anant Samadhan	16	17	18	16	18	19	17	18
6	Bendale Nikhita Narendra	15	16	17	18	15	18	19	18
7	Bhojwani Chandini Kundanlal	14	15	13	12	18	18	17	16
8	Bundele Priyatama Suresh	18	19	19	17	16	17	18	16
9	Chandak Megha V.	19	15	16	14	19	15	15	17
10	Chaudhari Amol Dhanraj	16	17	18	16	18	19	17	18
11	Chaudhari Milind	18	19	19	17	16	17	18	16
12	Chaudhari Shweta Pramod	19	18	17	19	16	18	17	18
13	Chavhan Bhagyashri Suresh	19	15	16	14	19	15	15	17
14	Dalal Rushikesh Ashok	18	19	19	17	16	17	18	16
15	Gangurde Swati Prakash	19	15	16	14	19	15	15	17
16	Gujrati Saurabh Ravindra	16	17	18	16	18	19	17	18
17	Joshi Dhanashree Dinesh	15	16	17	18	15	18	19	18
18	Kolhe Gayatri Bhagwat	14	15	13	12	18	18	17	16
19	Kulkarni Harshada Govind	18	19	19	17	16	17	18	16
20	Kulkarni Indryani Gajanan	19	15	16	14	19	15	15	17
21	Kurkure Roshni	16	17	18	16	18	19	17	18
22	Mandale Kanchan Rameshwar	18	19	19	17	16	17	18	16
23	Mokasare Vinod Suresh	19	18	17	19	16	18	17	18
24	Mule Vaibhav Laxman	19	15	16	14	19	15	15	17
25	Panchariya Urvashi Mahavir	19	18	17	19	16	18	17	18
26	Pathak Sarvesh	16	17	18	16	18	19	17	18
27	Patil Dipali	18	19	19	17	16	17	18	16
28	Patil Kalphesh Sanjay	19	18	17	19	16	18	17	18
29	Patil Mohit Suresh	15	16	17	18	15	18	19	18
30	Patil Nikita	14	15	13	12	18	18	17	16
31	Patil Prashant Bhagwat	18	19	19	17	16	17	18	16
32	Patil Pratik Avinash	19	15	16	14	19	15	15	17
33	Patil Rohini Sadashiv	19	18	17	19	16	18	17	18
34	Patil Rohit Narendra	14	15	13	12	18	18	17	16
35	Patil Rohit Raju	16	17	18	16	18	19	17	18
36	Patil Samadhan	19	15	16	14	19	15	15	17
37	Patil Sneha Ashok	15	16	17	18	15	18	19	18
38	Pawankar Sagar Ravindra	14	15	13	12	18	18	17	16
39	Pawar Vivek Vijay	18	19	19	17	16	17	18	16
40	Purohit Priyanka Satish	19	15	16	14	19	15	15	17
41	Raisinghaani Bhagyashri	16	17	18	16	18	19	17	18
42	Sali Neha Satish	18	19	19	17	16	17	18	16
43	Sapkale Sagar Bhavsing	19	18	17	19	16	18	17	18

44	Sayyed Waqar Ali Mukhtar Ali	15	16	17	18	15	18	19	18
45	Shinde Dnyaneshwar Dattu	14	15	13	12	18	18	17	16
46	Shinde Mayuri Mohan	18	19	19	17	16	17	18	16
47	Singh Rekha Rajlal	19	15	16	14	19	15	15	17
48	Sonar Sneha	19	18	17	19	16	18	17	18
49	Sonawane Chetan	14	15	13	12	18	18	17	16
50	Sonawane Harshal Shantaram	16	17	18	16	18	19	17	18
51	Sonawane Nishant Vijaykumar	19	15	16	14	19	15	15	17
52	Suryawanshi Nikhil Santosh	14	15	13	12	18	18	17	16
53	Tapadiya Snehal Bhushan	19	18	17	19	16	18	17	18
54	Tayade Kiran Eknath	18	19	19	17	16	17	18	16
55	Tekwani Mahesh Ramesh	14	15	13	12	18	18	17	16
56	Udaykar Neha Sanjay	16	17	18	16	18	19	17	18
57	Wadhnere Yogesh	15	16	17	18	15	18	19	18
58	Wagh Manisha Gautam	19	18	17	19	16	18	17	18
59	Wani Bhagyashri Pralhad	14	15	13	12	18	18	17	16
60	Wani Pooja	16	17	18	16	18	19	17	18

HOD

Dr. Sanjay R. Sugandhi

KCES's College of Engineering & IT Jalgaon
Activity Report

Name of The Activity: - Classroom Presentation			
Duration	**19th November 2018 to 1st December 2018**	**Department/ Committee**	**Department of Management**

Objective for conducting activity	➢ To develop the managerial skills of fast learners
Methodology	➢ Power Point Presentations using projector
Out Come	➢ Improved communication skills ➢ Improved confidence ➢ Improved stage daring

HOD

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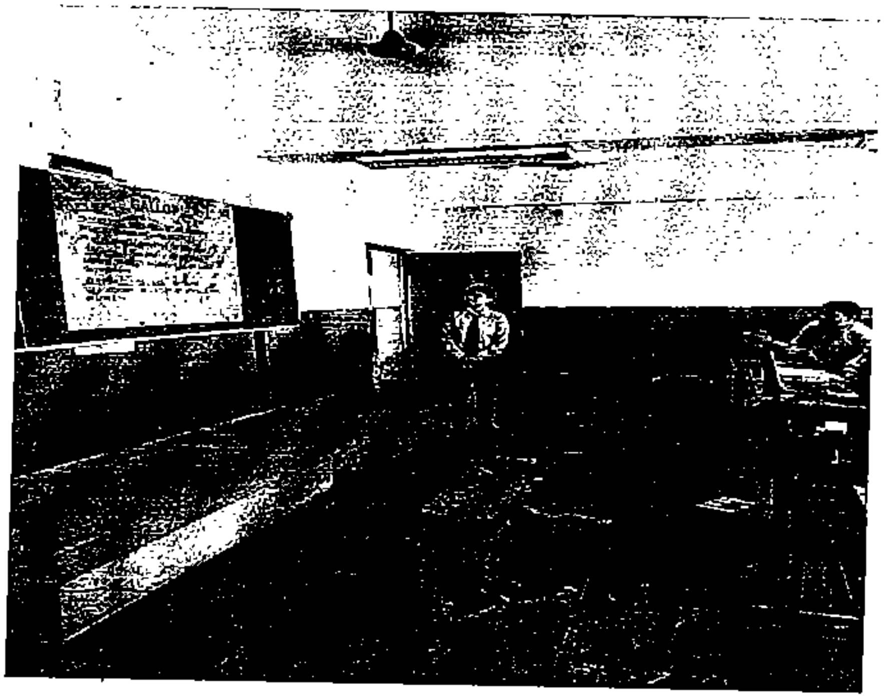

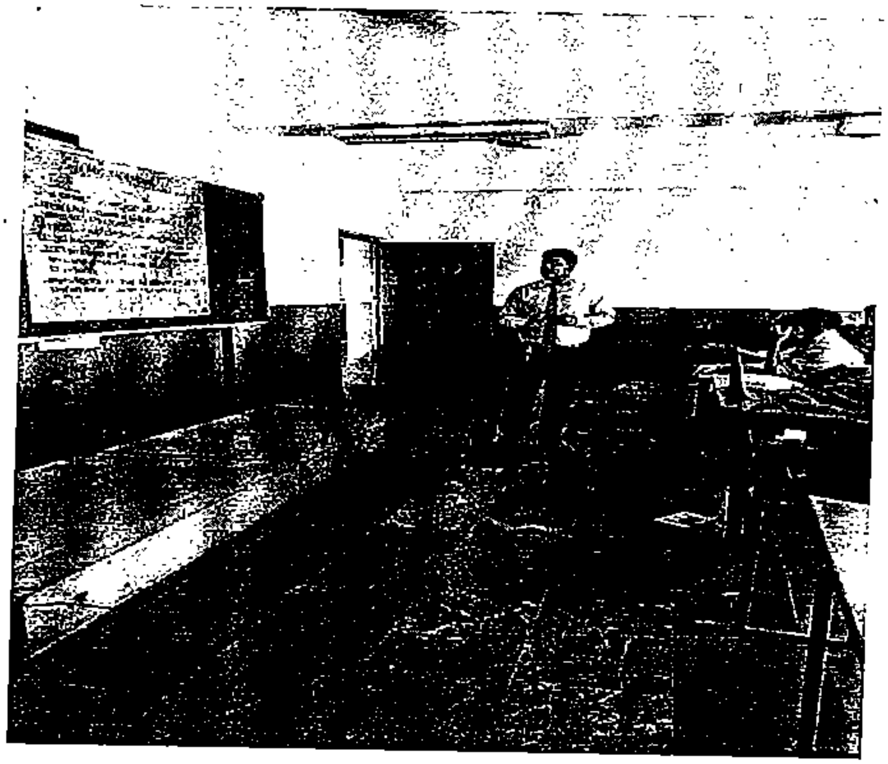

HOD

KCES's College of Engineering & Information Technology, Jalgaon
Department Of Management (MBA)
Academic Year 2018-2019

Fast Learner Attendance **Subject Code: 103** **SEM-1**

Sr No	Name of Fast Learner	19/11	23/11	28/11	30/11
1	Bamb Sonal Anil	P	A	P	P
2	Bholane Gayatri Sanjay	P	P	P	P
3	Chaudhari Shubham Ishwar	P	P	A	P
4	Chavan Pravin Sarichand	P	A	P	A
5	Erande Umesh Sanjay	P	P	P	P
6	Ghogare Dnyaneshwar Vinayak	A	A	P	A
7	JadhavMohini Karansing	P	P	P	P
8	Khanchane Chetan Ravindra	A	A	A	P
9	Lalwani Prachi	P	P	P	A
10	Mahale Nikita Motilal	A	A	P	P
11	Mawale Lokesh Jagannath	P	P	A	A
12	Nannaware Varsha Budha	A	P	P	P
13	Patil Gunjan Ajay	P	A	A	A
14	Patil Khushbu Magan	P	P	P	P
15	Patil Priyanka Shantilal	P	A	P	A
16	Patil Rohini Kailas	P	P	P	P
17	Shah Reena	P	A	P	A
18	Singh Aaradhana	A	P	P	P
19	Thakare Neha Sunil	P	A	A	A
20	Wani Shuruti Chandrashekhar	A	P	P	P
21	Yadav Diksha Jagdish	P	A	P	A
22	Badgugar Mayur	A	P	P	P
23	Baheti Amruta	P	P	P	A
24	Borse Prafulla	A	A	A	P
25	Jawanjal Shubhangi Damodar	P	P	P	P
26	More Vasantrao Balu	A	P	P	A
27	Patil Dnyaneshwar	P	A	P	P
28	Patil Narendra Gorakh	A	P	A	A
29	Patil Vrushali Rajendra	P	A	P	A
30	Shindikai Varun Vinay	P	P	A	P
31	Singh Aaradhana	A	A	P	A
32	Thakare Neha Sunil	P	P	P	P
33	Uttamchandani Nitesh Naresh	A	A	P	A
34	Yewale Harshal	P	P	A	P

Department Of Management (MBA)
Academic Year 2018-2019

Fast Learner Attendance **Subject Code: 104** **SEM-1**

Sr No	Name of Fast Learner	22.11.21	24.11.21	29.11.21	1.12.21
1	Baheti Amruta	P	P	P	.
2	Borse Preafulla Satish	P	P	.	.
3	Chaudhari Amol Vishwanath	P	.	P	.
4	Chormale Manisha Sanjay	.	P		P
5	Jawanjal Shubhangi Damodar	P	.	P	.
6	Ladhe Swapnil Namdeo	P	P	.	P
7	Makhija Avish Hemandas	.	P	P	.
8	Makode Priti Rajesh	P	.	P	P
9	Pagariya Rashmi Praful	P	P	.	P
10	Patil Narendra Gorakh	P	.	P	P
11	Patil Vidya Shyambhau	.	P	P	.
12	Patil Vrushali Rajendra	P	P	.	P
13	Somani Ankita Anil	P	P	.	P
14	Somani Deepali	.	P	P	P
15	Thakare Neha Sunil	P	P	P	.
16	Uttamchandani Nitesh Naresh	P	.	P	P
17	Bagat Amol	.	.	.	
18	Chaudhari Pratiksha	.	P	.	P
19	Dhobi Yogini	P	.	P	P
20	Jangid Suman Khemraj	P	P	P	.
21	Koli Girish	P	P	.	P
22	Koli Gopal	P	.	P	P
23	Nannaware Varsha Budha	P	P	P	.
24	Patil Khushbu Magan	P	.	P	P
25	Somani Ankita Anil	.	P	P	.
26	Varake Nikita Prakash	.	P	.	P
27	Wani Shuruti Chandrashekhar	.	P	P	P

KCES's College of Engineering & Information Technology, Jalgaon.
Department Of Management (MBA)
Academic Year 2018-2019

Fast Learner Attendance **Subject Code: 303** **SEM III**

Roll No	Name of Fast Learner	19/11/18	23/11/18	26/11/18	30/11/18
1	Bavskar Anant Samadhan	P	P	A	P
2	Chandak Megha V.	P	P	P	A
3	Chaudhari Milind	P	P	P	A
4	Chavhan Bhagyashri Suresh	P	P	P	P
5	Gujrati Saurabh Ravindra	A	A	A	A
6	Kulkarni Harshada Govind	P	A	A	A
7	Mokasare Vinod Suresh	P	P	A	P
8	Patil Dipali	A	A	P	P
9	Patil Mohit Suresh	A	A	P	P
10	Sali Neha Satish	P	A	A	A
11	Sayyed Waqar Ali Mukhtar Ali	P	P	P	P
12	Sonar Sneha	P	A	A	A
13	Sonawane Harshal Shantaram	P	P	P	P
14	Tayade Kiran Eknath	P	P	P	P
15	Wani Pooja	A	A	A	A

KCES's College of Engineering & Information Technology, Jalgaon
Department Of Management (MBA)
Academic Year 2018-2019
Fast Learner Attendance **Subject Code: 304 A** **SEM III**

Roll No	Name of Fast Learner	22/11/18	24/11/18	29/11/18	1/12/18
1	Bajaj Nikita Bhishanlal	P	P	P	A
2	Balani Nikita Jamanadas	P	A	A	P
3	Bhojwani Chandini Kundanlal	P	P	A	P
4	Kulkarni Indryani Gajanan	P	A	A	P
5	Kurkure Roshni	P	P	P	A
6	Panchariya Urvashi Mahavir	P	A	P	P
7	Patil Pratik Avinash	P	A	A	P
8	Raisinghaani Bhagyashri	A	P	P	P
9	Shinde Mayuri Mohan	P	A	A	A
10	Udaykar Neha Sanjay	P	P	P	A

K.C.E.SOCIETY'S COLLEGE OF ENGG.AND INFO. TECHNOLOGY JALGAON

Department of Management

Academic Year 2018-19

SEM-II

Date: 13/04/2019

NOTICE

All MBA students are here by inform that, student who secured 13 or less marks in internal sessional exams are considered as slow learner students and for improvement of their result remedial lectures will be conducted as per the remedial lecture timetable. So, kindly attend remedial lectures and complete the activities given by subject teacher.

The list of student is attached.

HOD

K.C.E.SOCIETY'S COLLEGE OF ENGG.AND INFO. TECHNOLOGY JALGAON

Department of Management

Academic Year 2018-19

SEM-II

Date: 13/04/2019

NOTICE

All MBA students are here by inform that, student who secured 18 or more marks in internal sessional exams are considered as fast learner students and following activities will be conducted by management department. So, kindly attend all the activities conducted by department.

Schedule of activities

1) Classroom Presentation
2) Videos (NPTL)
3) Group Discussion

HOD

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KCES's College of Engineering & Information Technology, Jalgaon

Department of Management

MBA Sem II for Academic Year 2018-2019

Remedial Lectures Times Table After Internal Examination

Time/Day	Mon	Tue	Wed	Thu	Fri	Sat
8.00-9 .00	203	204	203	204	203	204

Subject Code	Subject Name	Faculty
203	Global Economics Scenario	Prof. Digambar Sonawane
204	Marketing Management	Prof. Shefali Agrawal

HOD

gineering & Information Technology, Jalgaon

Department Of Management (MBA)

Academic Year 2018-2019

SEM II

Subject Code	Name of Slow Learners	Name of Fast Learners
203	Bamb Sonal Anil	Badgujar Mayur Santosh
	Chavan Pravin Sarichand	Baheti Amruta
	Jawanlal Subhangi Damodar	Borse Prafulla Satish
	Mahale Nikita Motilal	Chaudhari Shubham Ishwar
	More Vasantrao Balu	Chormale Manisha Sanjay
	Patil Pooja Prakash	Dhobi Yogini Rajendra
	Patil Vidya Shyambhau	Jadhav Mohini Karansingh
	Shah Reena	Khachane Chetan Rajendra
	Somani Ankita Anil	Koli Gopal Lotan
	Thakare Neha Vinod	Makode Priti Rajesh
	Yewale Harshal Rajendra	Nannaware Varsha Budha
	Bhagat Amol Devidas	Pagariya Rashmi Praful
	Chavan Vishal Baliram	Patil Khushbu Magan
	Ghogare Dnyaneshwar Vinayak	Patil Narendra Gorakh
	Koli Girish Meghraj	Patil Priyanka Rajendra
	Mahajan Kajal Anil	Patil Vrushali Rajendra
	Mawale Lokesh Jagannath	Singh Aradhana
	Patil Dnyaneshwar Samadhan	Somani Deepali
	Patil Priyanka Shantilal	Thakare Neha Sunil
	Shindikar Varun Vinay	Yadhav Diksha Jagdish
	Wani Shruti Chandrashekhar	
204	Bamb Sonal Anil	Chaudhari Pratiksha Nandlal
	Chavan Pravin Sarichand	Dole Chetan Sukdev
	Jawanlal Subhangi Damodar	Erande Umesh Sanjay
	Mahale Nikita Motilal	Kabra Siddhi Sanjay
	More Vasantrao Balu	Ladhe Swapnil Namdev
	Patil Pooja Prakash	Lalwani Prachi
	Patil Vidya Shyambhau	Makode Punam Rajesh
	Shah Reena	Palod Prajakta Dinesh
	Somani Ankita Anil	Rane Leena Digambar
	Thakare Neha Vinod	Tekwani Mohit
	Yewale Harshal Rajendra	Warke Nikita Prakash
	Bhagat Amol Devidas	Badgujar Mayur Santosh
	Chavan Vishal Baliram	Chaudhari Amol
	Ghogare Dnyaneshwar Vinayak	Chaudhari Shubham Ishwar
	Koli Girish Meghraj	Jangid Suman Khemraj
	Mahajan Kajal Anil	Patil Khushbu Magan
	Mawale Lokesh Jagannath	Patil Narendra Gorakh
	Patil Dnyaneshwar Samadhan	Patil Rohini Kailas
	Patil Priyanka Shantilal	Thakare Neha Sunil
	Shindikar Varun Vinay	
	Wani Shruti Chandrashekhar	

KCES's College of Engineering & Information Technology, Jalgaon
Department Of Management (MBA)
Academic Year 2018-2019
Slow Learner Attendance **Subject Code: 203** **SEM II**

Sr No	Name of Slow Learner	15/4/19	17/4/19	19/4/19	19/4/19	22/4/19	24/4/19	26/4/19	26/4/19
1	Bamb Sonal Anil	P	P	P	A	P	P	A	A
2	Chavan Pravin Sarichand	P	P	P	A	A	A	P	P
3	Jawanlal Subhangi Damodar	A	A	A	P	P	P	A	P
4	Mahale Nikita Motilal	P	P	P	A	A	A	A	A
5	More Vasantrao Balu	A	A	A	A	A	A	A	A
6	Patil Pooja Prakash	P	P	P	P	P	A	A	P
7	Patil Vidya Shyambhau	A	A	P	P	P	P	P	P
8	Shah Reena	P	P	P	P	A	A	P	P
9	Somani Ankita Anil	P	P	P	P	P	P	P	A
10	Thakare Neha Vinod	A	P	P	P	A	A	P	P
11	Yewale Harshal Rajendra	P	P	A	A	P	P	A	P
12	Bhagat Amol Devidas	A	A	A	P	P	P	P	P
13	Chavan Vishal Baliram	A	A	A	A	A	P	A	A
14	Ghogare Dnyaneshwar Vinayak	A	P	P	A	P	P	P	P
15	Koli Girish Meghraj	P	A	A	P	A	P	P	P
16	Mahajan Kajal Anil	P	P	P	A	P	P	A	P
17	Mawale Lokesh Jagannath	A	P	P	A	A	P	P	P
18	Patil Dnyaneshwar Samadhan	P	P	P	A	A	P	P	A
19	Patil Priyanka Shantilal	P	P	P	P	A	P	P	P
20	Shindikar Varun Vinay	A	A	A	A	P	P	P	P
21	Wani Shruti Chandrashekhar	A	P	P	P	P	P	P	P

KCES's College of Engineering & Information Technology, Jalgaon
Department Of Management (MBA)
Academic Year 2018-2019

Slow Learner Attendance **Subject Code: 204** **SEM II**

Sr No	Name of Slow Learner	16/4/19	18/4/19	20/4/19	20/4/19	28/4/19	25/4/19	27/4/19	27/4/19
1	Bamb Sonal Anil	P	A	P	P	P	A	A	P
2	Chavan Pravin Sarichand	A	A	A	P	A	P	P	A
3	Jawanlal Subhangi Damodar	P	P	P	A	A	A	A	A
4	Mahale Nikita Motilal	P	P	P	P	P	P	P	P
5	More Vasantrao Balu	A	A	A	A	A	A	A	A
6	Patil Pooja Prakash	P	P	P	P	P	A	A	P
7	Patil Vidya Shyambhau	P	P	P	P	P	P	P	P
8	Shah Reena	P	P	P	P	P	P	P	P
9	Somani Ankita Anil	P	P	P	A	P	A	P	P
10	Thakare Neha Vinod	A	A	P	A	P	P	A	P
11	Yewale Harshal Rajendra	P	P	P	A	A	P	P	A
12	Bhagat Amol Devidas	P	P	P	A	A	A	A	A
13	Chavan Vishal Baliram	A	A	A	A	A	A	A	A
14	Ghogare Dnyaneshwar Vinayak	P	P	P	P	A	A	A	A
15	Koli Girish Meghraj	P	P	P	P	P	P	P	P
16	Mahajan Kajal Anil	A	A	A	P	A	A	A	A
17	Mawale Lokesh Jagannath	P	P	P	P	P	P	A	A
18	Patil Dnyaneshwar Samadhan	P	P	P	P	P	P	P	P
19	Patil Priyanka Shantilal	P	A	A	A	A	P	P	A
20	Shindikar Varun Vinay	A	A	P	P	P	P	P	A
21	Wani Shruti Chandrashekhar	P	P	P	P	P	P	P	P

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KBC NMU Jalgaon
KCES's College of Engineering and Management Jalgaon
Department of Management (MBA)
Mark list Internal Examination-1
(MBA- I, SEM-II)

16th March 2019

R.N.	Student Name	201	202	203	204	205	206	207	208
1	Attarde Kalpesh Kiran	16	17	18	16	18	19	17	18
2	Badgujar Mayur Santosh	15	16	17	18	15	18	19	18
3	Baheti Amruta	19	18	17	19	16	18	17	18
4	Bamb Sonal Anil	14	15	13	12	18	18	17	16
5	Bhagat Amol Devidas	16	17	18	16	18	19	17	18
6	Bholane Gayatri Sanjay	19	15	16	14	19	15	15	17
7	Borse Prafulla Satish	18	19	19	17	16	17	18	16
8	Chaudhari Amol Vishwanath	15	16	17	18	15	18	19	18
9	Chaudhari Pratiksha Nandlal	16	17	18	16	18	19	17	18
10	Chaudhari Shubham Ishwar	15	16	17	18	15	18	19	18
11	Chavan Vishal Baliram	19	18	17	19	16	18	17	18
[illegible]	Chavhan Pravin Sarichand	14	15	13	12	18	18	17	16
13	Chormale Manisha Sanjay	16	17	18	16	18	19	17	18
14	Dhobi Yogini Rajendra	19	15	16	14	19	15	15	17
15	Dole Chetan Sukdev	18	19	19	17	16	17	18	16
16	Erande Umesh Sanjay	15	16	17	18	15	18	19	18
17	Ghogare Dnyaneshwer Vinayak	16	17	18	16	18	19	17	18
18	Jadhav Mohini Karansing	15	16	17	18	15	18	19	18
19	Jangid Suman Khemaraj	19	18	17	19	16	18	17	18
20	Jawanjal Shubhangi Damodar	14	15	13	12	18	18	17	16
21	Kabra Siddhi Sanjay	16	17	18	16	18	19	17	18
22	Khachane Chetan Rajendra	19	15	16	14	19	15	15	17
23	Koli Girish Meghraj	18	19	19	17	16	17	18	16
24	Koli Gopal Lotan	15	16	17	18	15	18	19	18
25	Ladhe Swapnil Namdeo	16	17	18	16	18	19	17	18
[illegible]	Lalwani Prachi	15	16	17	18	15	18	19	18
27	Mahajan Kajal Anil	19	18	17	19	16	18	17	18
28	Mahale Nikita Motilal	14	15	13	12	18	18	17	16
29	Makhija Avish Hemandas	16	17	18	16	18	19	17	18
30	Makode Priti Rajesh	16	17	18	16	18	19	17	18
31	Makode Punam Rajesh	15	16	17	18	15	18	19	18
32	Mawale Lokesh Jagannath	19	18	17	19	16	18	17	18
33	More Vasantrao Balu	14	15	13	12	18	18	17	16
34	Nannaware Varsha Budha	16	17	18	16	18	19	17	18
35	Pagariya Rashmi Praful	19	15	16	14	19	15	15	17
36	Palod Prajakta Dinesh	18	19	19	17	16	17	18	16
37	Patil Dnyaneshwar Samadhan	15	16	17	18	15	18	19	18
38	Patil Gunjan Ajay	18	19	19	17	16	17	18	16
39	Patil Khushbu Magan	19	18	17	19	16	18	17	18
40	Patil Narendra Gorakh	15	16	17	18	15	18	19	18
41	Patil Pooja Prakash	14	15	13	12	18	18	17	16
42	Patil Priyanka Rajendra	18	19	19	17	16	17	18	16
43	Patil Priyanka Shantilal	19	15	16	14	19	15	15	17

44	Patil Rohini Kailas	19	18	17	19	16	18	17	18
45	Patil Vidya Shyambhau	14	15	13	12	18	18	17	16
46	Patil Vrushali Rajendra	16	17	18	16	18	19	17	18
47	Rane Leena Digambar	19	15	16	14	19	15	15	17
48	Shah Reena	14	15	13	12	18	18	17	16
49	Shindikar Varun Vinay	19	18	17	19	16	18	17	18
50	Singh Aaradhana	18	19	19	17	16	17	18	16
51	Somani Ankita Anil	14	15	13	12	18	18	17	16
52	Somani Deepali	16	17	18	16	18	19	17	18
53	Tekwani Mohit Vinod	15	16	17	18	15	18	19	18
54	Thakare Neha Sunil	19	18	17	19	16	18	17	18
55	Thakare Neha Vinod	14	15	13	12	18	18	17	16
56	Uttamchandani Nitesh Naresh	16	17	18	16	18	19	17	18
57	Varke Nikita Prakash	19	15	16	14	19	15	15	17
58	Wani Shruti Chandrashekhar	18	19	19	17	16	17	18	16
59	Yadhav Diksha Jagdish	15	16	17	18	15	18	19	18
60	Yevale Harshal Rajendra	14	15	13	12	18	18	17	16

KBC NMU Jalgaon
KCES's College of Engineering and Management Jalgaon
Department of Management (MBA)
Mark list Internal Examination-2
(MBA- I, SEM-II)

10.04.2019

R.N.	Student Name	201	202	203	204	205	206	207	208
1	Attarde Kalpesh Kiran	19	15	16	14	19	15	15	17
2	Badgujar Mayur Santosh	16	17	18	16	18	19	17	18
3	Baheti Amruta	18	19	19	17	16	17	18	16
4	Bamb Sonal Anil	15	16	17	18	15	18	19	18
5	Bhagat Amol Devidas	14	15	13	12	18	18	17	16
6	Bholane Gayatri Sanjay	19	15	16	14	19	15	15	17
7	Borse Prafulla Satish	18	19	19	17	16	17	18	16
8	Chaudhari Amol Vishwanath	16	17	18	16	18	19	17	18
9	Chaudhari Pratiksha Nandlal	15	16	17	18	15	18	19	18
10	Chaudhari Shubham Ishwar	18	19	19	17	16	17	18	16
11	Chavan Vishal Baliram	14	15	13	12	18	18	17	16
12	Chavhan Pravin Sarichand	19	15	16	14	19	15	15	17
13	Chormale Manisha Sanjay	18	19	19	17	16	17	18	16
14	Dhobi Yogini Rajendra	16	17	18	16	18	19	17	18
15	Dole Chetan Sukdev	19	18	17	19	16	18	17	18
16	Erande Umesh Sanjay	19	18	17	19	16	18	17	18
17	Ghogare Dnyaneshwer Vinayak	14	15	13	12	18	18	17	16
18	Jadhav Mohini Karansing	18	19	19	17	16	17	18	16
19	Jangid Suman Khemaraj	19	15	16	14	19	15	15	17
20	Jawanjal Shubhangi Damodar	14	15	13	12	18	18	17	16
21	Kabra Siddhi Sanjay	19	18	17	19	16	18	17	18
22	Khachane Chetan Rajendra	18	19	19	17	16	17	18	16
23	Koli Girish Meghraj	14	15	13	12	18	18	17	16
24	Koli Gopal Lotan	16	17	18	16	18	19	17	18
25	Ladhe Swapnil Namdeo	15	16	17	18	15	18	19	18
26	Lalwani Prachi	19	18	17	19	16	18	17	18
27	Mahajan Kajal Anil	14	15	13	12	18	18	17	16
28	Mahale Nikita Motilal	16	17	18	16	18	19	17	18
29	Makhija Avish Hemandas	19	15	16	14	19	15	15	17
30	Makode Priti Rajesh	18	19	19	17	16	17	18	16
31	Makode Punam Rajesh	15	16	17	18	15	18	19	18
32	Mawale Lokesh Jagannath	14	15	13	12	18	18	17	16
33	More Vasantrao Balu	19	15	16	14	19	15	15	17
34	Nannaware Varsha Budha	16	17	18	16	18	19	17	18
35	Pagariya Rashmi Praful	18	19	19	17	16	17	18	16
36	Palod Prajakta Dinesh	15	16	17	18	15	18	19	18
37	Patil Dnyaneshwar Samadhan	14	15	13	12	18	18	17	16
38	Patil Gunjan Ajay	19	15	16	14	19	15	15	17
39	Patil Khushbu Magan	18	19	19	17	16	17	18	16
40	Patil Narendra Gorakh	16	17	18	16	18	19	17	18
41	Patil Pooja Prakash	15	16	17	18	15	18	19	18
42	Patil Priyanka Rajendra	18	19	19	17	16	17	18	16
43	Patil Priyanka Shantilal	14	15	13	12	18	18	17	16

44	Patil Rohini Kailas	19	15	16	14	19	15	15	17
45	Patil Vidya Shyambhau	18	19	19	17	16	17	18	16
46	Patil Vrushali Rajendra	16	17	18	16	18	19	17	18
47	Rane Leena Digambar	19	18	17	19	16	18	17	18
48	Shah Reena	19	18	17	19	16	18	17	18
49	Shindikar Varun Vinay	14	15	13	12	18	18	17	16
50	Singh Aaradhana	18	19	19	17	16	17	18	16
51	Somani Ankita Anil	19	15	16	14	19	15	15	17
52	Somani Deepali	16	17	18	16	18	19	17	18
53	Tekwani Mohit Vinod	15	16	17	18	15	18	19	18
54	Thakare Neha Sunil	19	18	17	19	16	18	17	18
55	Thakare Neha Vinod	18	19	19	17	16	17	18	16
56	Uttamchandani Nitesh Naresh	19	15	16	14	19	15	15	17
57	Varke Nikita Prakash	19	18	17	19	16	18	17	18
58	Wani Shruti Chandrashekhar	14	15	13	12	18	18	17	16
59	Yadhav Diksha Jagdish	16	17	18	16	18	19	17	18
60	Yevale Harshal Rajendra	19	15	16	14	19	15	15	17

HOD

Dr. Sanjay R. Sugandhi

K.C.E.SOCIETY'S COLLEGE OF ENGG.AND INFO.
TECHNOLOGY JALGAON
Department of Management
Academic Year 2018-19
SEM-IV

Date: 13/04/2019

NOTICE

All MBA students are here by inform that, student who secured 13 or less marks in internal sessional exams are considered as slow learner students and for improvement of their result remedial lectures will be conducted as per the remedial lecture timetable. So, kindly attend remedial lectures and complete the activities given by subject teacher.

The list of student is attached.

HOD

K.C.E.SOCIETY'S COLLEGE OF ENGG.AND INFO.
TECHNOLOGY JALGAON
Department of Management
Academic Year 2018-19
SEM-IV

Date: 13/04/2019

NOTICE

All MBA students are here by inform that, student who secured 18 or more marks in internal sessional exams are considered as fast learner students and following activities will be conducted by management department. So, kindly attend all the activities conducted by department.

Schedule of activities

1) Classroom Presentation
2) Videos (NPTL)
3) Group Discussion

HOD

KCES's College of Engineering & Information Technology, Jalgaon

Department of Management

MBA Sem IV for Academic Year 2018-2019

Remedial Lectures Times Table After Internal Examination

Time/Day	Mon	Tue	Wed	Thu	Fri	Sat
3.00-3.45	403	404	403	404	403	404

Code	Paper Name	Faculty
403	Indian Commercial Laws	Visiting Faculty
404	Entrepreneurship & Project Management	Prof. Madhuri Sonawane

HOD

KCES's College of Engineering & Information Technology, Jalgaon
Department Of Management (MBA)
Academic Year 2018-2019
SEM IV

Subject Code	Name of Slow Learners	Name of Fast Learners
403	Balani Nikita Jamanadas	Baheti Komal
	Chaudhari Amol Dhanraj	Bari Jayashri Kadu
	Chavhan Bhagyashri Suresh	Bendale Nikhita Narendra
	Kulkarni Harshada Govind	Bhojwani Chandini Kundanlal
	Pathak Sarvesh	Gangurde Swati Prakash
	Patil Samadhan	Joshi Dhanashree Dinesh
	Purohit Priyanka Satish	Kulkarni Indryani Gajanan
	Sonawane Chetan	Mandale Kanchan Rameshwar
	Tapadiya Snehal Bhushan	Mokasare Vinod Suresh
	Wani Pooja	Patil Dipali
	Dalal Rushikesh Ashok	Patil Pratik Avinash
	Kurkure Roshni	Patil Rohini Sadashiv
	Patil Kalphesh Sanjay	Patil Sneha Ashok
	Patil Prashant Bhagwat	Raisinghaani Bhagyashri
	Patil Rohit Raju	Shinde Mayuri Mohan
	Purohit Priyanka Satish	Sonawane Harshal Shantaram
	Shinde Dnyaneshwar Dattu	Tayade Kiran Eknath
	Sonawane Nishant Vijaykumar	Udaykar Neha Sanjay
	Wadhnere Yogesh	
404	Balani Nikita Jamanadas	Bajaj Nikita Bhishanlal
	Chaudhari Amol Dhanraj	Bundele Priyatama Suresh
	Chavhan Bhagyashri Suresh	Chandak Megha V.
	Pathak Sarvesh	Chaudhari Milind
	Patil Samadhan	Chaudhari Shweta Pramod
	Purohit Priyanka Satish	Kolhe Gayatri Bhagwat
	Sonawane Chetan	Mule Vaibhav Laxman
	Sonawane Chetan	Panchariya Urvashi Mahavir
	Wani Pooja	Patil Mohit Suresh
	Dalal Rushikesh Ashok	Patil Prashant Bhagwat
	Kurkure Roshni	Patil Rohit Narendra
	Patil Kalphesh Sanjay	Sayyed Waqar Ali Mukhtar Ali
	Patil Prashant Bhagwat	Singh Rekha Rajlal
	Purohit Priyanka Satish	Sonar Sneha
	Shinde Dnyaneshwar Dattu	Suryawanshi Nikhil Santosh
	Sonawane Nishant Vijaykumar	Wagh Manisha Gautam
	Wadhnere Yogesh	Wani Bhagyashri Pralhad

KCES's College of Engineering & Information Technology, Jalgaon
Department Of Management (MBA)
Academic Year 2018-2019
Slow Learner Attendance **Subject Code: 403** **SEM IV**

Sr. No	Name of Slow Learner	15/4/19	17/4/19	19/4/19	19/4/19	22/4/19	24/4/19	26/4/19	26/4/19
1	Balani Nikita Jamanadas	P	A	P	P	P	P	A	P
2	Chaudhari Amol Dhanraj	A	P	P	A	A	A	A	A
3	Chavhan Bhagyashri Suresh	P	A	A	P	P	P	P	
4	Kulkarni Harshada Govind	A	P	P	P	A	A	A	P
5	Pathak Sarvesh	P	P	A	A	A	P	P	P
6	Patil Samadhan	A	A	P	P	P	P	P	A
7	Purohit Priyanka Satish		P	P	P	A	A	A	P
8	Sonawane Chetan	P	P	P	A	A	P	A	A
9	Tapadiya Snehal Bhushan	A	P	P	P	A	A	A	P
10	Wani Pooja	P	P	A	A	P	A	P	P
11	Dalal Rushikesh Ashok	P	A	P	A		A	A	A
12	Kurkure Roshni	P	P	P	A	A	P	A	P
13	Patil Kalphesh Sanjay	P	P	P	P	P	A	P	A
14	Patil Prashant Bhagwat	P	P	A	A	P	A	A	P
15	Patil Rohit Raju	P	P	P	P	P	P	P	A
16	Purohit Priyanka Satish	A	A	A	A	A	A	P	A
17	Shinde Dnyaneshwar Dattu	P	A	P	P	P	A	A	P
18	Sonawane Nishant Vijaykumar	P	P	A	P	A	P	P	A
19	Wadhnere Yogesh	P	A	P	A	A	A	A	P

KCES's College of Engineering & Information Technology, Jalgaon

Department Of Management (MBA)

Academic Year 2018-2019

Slow Learner Attendance Subject Code: 404 SEM IV

Sr. No	Name of Slow Learner	16/4/19	18/4/19	20/4/19	20/4/19	23/4/19	25/4/19	27/4/19	27/4/19
1	Balani Nikita Jamanadas	P	P	P	P	P	P	P	P
2	Chavhan Bhagyashri Suresh	P	A	A	P	P	P	A	P
3	Sonawane Chetan	A	A	A	P	A	A	A	A
4	Wani Pooja	P	P	P	A	A	P	P	P
5	Kurkure Roshni	P	P	P	A	A	P	P	A
6	Patil Prashant Bhagwat	P	P	A	A	A	P	P	P
7	Purohit Priyanka Satish	P	P	P	P	P	A	A	A
8	Shinde Dnyaneshwar Dattu	P	P	A	A	P	A	P	P
9	Patil Kalphesh Sanjay	P	A	P	P	A	P	P	A.

KBC NMU Jalgaon

KCES's College of Engineering and Management Jalgaon

Department of Management (MBA)

Mark list Internal Examination-1

(MBA- II, SEM-IV)

16th March-2019

R.N.	Student Name	401	402	403	404	405	406	407	408
1	Baheti Komal	16	17	18	16	18	19	17	18
2	Bajaj Nikita Bhishanlal	15	16	17	18	15	18	19	18
3	Balani Nikita Jamanadas	14	15	13	12	18	18	17	16
4	Bari Jayashri Kadu	18	19	19	17	16	17	18	16
5	Bavskar Anant Samadhan	19	15	16	14	19	15	15	17
6	Bendale Nikhita Narendra	16	17	18	16	18	19	17	18
7	Bhojwani Chandini Kundanlal	18	19	19	17	16	17	18	16
8	Bundele Priyatama Suresh	19	18	17	19	16	18	17	18
9	Chandak Megha V.	15	16	17	18	15	18	19	18
10	Chaudhari Amol Dhanraj	14	15	13	12	18	18	17	16
11	Chaudhari Milind	19	18	17	19	16	18	17	18
12	Chaudhari Shweta Pramod	15	16	17	18	15	18	19	18
13	Chavhan Bhagyashri Suresh	14	15	13	12	18	18	17	16
14	Dalal Rushikesh Ashok	19	15	16	14	19	15	15	17
15	Gangurde Swati Prakash	18	19	19	17	16	17	18	16
16	Gujrati Saurabh Ravindra	19	15	16	14	19	15	15	17
17	Joshi Dhanashree Dinesh	16	17	18	16	18	19	17	18
18	Kolhe Gayatri Bhagwat	15	16	17	18	15	18	19	18
19	Kulkarni Harshada Govind	14	15	13	12	18	18	17	16
20	Kulkarni Indryani Gajanan	18	19	19	17	16	17	18	16
21	Kurkure Roshni	19	15	16	14	19	15	15	17
22	Mandale Kanchan Rameshwar	16	17	18	16	18	19	17	18
23	Mokasare Vinod Suresh	18	19	19	17	16	17	18	16
24	Mule Vaibhav Laxman	19	18	17	19	16	18	17	18
25	Panchariya Urvashi Mahavir	15	16	17	18	15	18	19	18
26	Pathak Sarvesh	14	15	13	12	18	18	17	16
27	Patil Dipali	18	19	19	17	16	17	18	16
28	Patil Kalphesh Sanjay	19	15	16	14	19	15	15	17
29	Patil Mohit Suresh	19	18	17	19	16	18	17	18
30	Patil Nikita	19	15	16	14	19	15	15	17
31	Patil Prashant Bhagwat	19	18	17	19	16	18	17	18
32	Patil Pratik Avinash	16	17	18	16	18	19	17	18
33	Patil Rohini Sadashiv	18	19	19	17	16	17	18	16
34	Patil Rohit Narendra	19	18	17	19	16	18	17	18
35	Patil Rohit Raju	15	16	17	18	15	18	19	18
36	Patil Samadhan	14	15	13	12	18	18	17	16
37	Patil Sneha Ashok	18	19	19	17	16	17	18	16
38	Pawankar Sagar Ravindra	19	15	16	14	19	15	15	17
39	Pawar Vivek Vijay	19	18	17	19	16	18	17	18
40	Purohit Priyanka Satish	14	15	13	12	18	18	17	16
41	Raisinghaani Bhagyashri	16	17	18	16	18	19	17	18
42	Sali Neha Satish	19	15	16	14	19	15	15	17
43	Sapkale Sagar Bhavsing	19	15	16	14	19	15	15	17

44	Sayyed Waqar Ali Mukhtar Ali	19	18	17	19	16	18	17	18
45	Shinde Dnyaneshwar Dattu	16	17	18	16	18	19	17	18
46	Shinde Mayuri Mohan	18	19	19	17	16	17	18	16
47	Singh Rekha Rajlal	19	18	17	19	16	18	17	18
48	Sonar Sneha	15	16	17	18	15	18	19	18
49	Sonawane Chetan	14	15	13	12	18	18	17	16
50	Sonawane Harshal Shantaram	18	19	19	17	16	17	18	16
51	Sonawane Nishant Vijaykumar	19	15	16	14	19	15	15	17
52	Suryawanshi Nikhil Santosh	19	18	17	19	16	18	17	18
53	Tapadiya Snehal Bhushan	14	15	13	12	18	18	17	16
54	Tayade Kiran Eknath	16	17	18	16	18	19	17	18
55	Tekwani Mahesh Ramesh	19	15	16	14	19	15	15	17
56	Udaykar Neha Sanjay	16	17	18	16	18	19	17	18
57	Wadhnere Yogesh	18	19	19	17	16	17	18	16
58	Wagh Manisha Gautam	19	18	17	19	16	18	17	18
59	Wani Bhagyashri Pralhad	15	16	17	18	15	18	19	18
60	Wani Pooja	14	15	13	12	18	18	17	16

HOD

Dr. Sanjay R. Sugandhi

KBC NMU Jalgaon
KCES's College of Engineering and Management Jalgaon
Department of Management (MBA)
Mark list Internal Examination-2
(MBA- II, SEM-IV)

10.04.2019

R.N.	Student Name	401	402	403	404	405	406	407	408
1	Baheti Komal	15	16	17	18	15	18	19	18
2	Bajaj Nikita Bhishanlal	14	15	13	12	18	18	17	16
3	Balani Nikita Jamanadas	18	19	19	17	16	17	18	16
4	Bari Jayashri Kadu	19	15	16	14	19	15	15	17
5	Bavskar Anant Samadhan	16	17	18	16	18	19	17	18
6	Bendale Nikhita Narendra	18	19	19	17	16	17	18	16
7	Bhojwani Chandini Kundanlal	15	16	17	18	15	18	19	18
8	Bundele Priyatama Suresh	14	15	13	12	18	18	17	16
9	Chandak Megha V.	19	15	16	14	19	15	15	17
10	Chaudhari Amol Dhanraj	18	19	19	17	16	17	18	16
11	Chaudhari Milind	19	15	16	14	19	15	15	17
12	Chaudhari Shweta Pramod	16	17	18	16	18	19	17	18
13	Chavhan Bhagyashri Suresh	15	16	17	18	15	18	19	18
14	Dalal Rushikesh Ashok	14	15	13	12	18	18	17	16
15	Gangurde Swati Prakash	18	19	19	17	16	17	18	16
16	Gujrati Saurabh Ravindra	19	15	16	14	19	15	15	17
17	Joshi Dhanashree Dinesh	16	17	18	16	18	19	17	18
18	Kolhe Gayatri Bhagwat	18	19	19	17	16	17	18	16
19	Kulkarni Harshada Govind	19	18	17	19	16	18	17	18
20	Kulkarni Indryani Gajanan	15	16	17	18	15	18	19	18
21	Kurkure Roshni	14	15	13	12	18	18	17	16
22	Mandale Kanchan Rameshwar	18	19	19	17	16	17	18	16
23	Mokasare Vinod Suresh	19	15	16	14	19	15	15	17
24	Mule Vaibhav Laxman	19	18	17	19	16	18	17	18
25	Panchariya Urvashi Mahavir	14	15	13	12	18	18	17	16
26	Pathak Sarvesh	16	17	18	16	18	19	17	18
27	Patil Dipali	19	15	16	14	19	15	15	17
28	Patil Kalphesh Sanjay	14	15	13	12	18	18	17	16
29	Patil Mohit Suresh	19	18	17	19	16	18	17	18
30	Patil Nikita	18	19	19	17	16	17	18	16
31	Patil Prashant Bhagwat	14	15	13	12	18	18	17	16
32	Patil Pratik Avinash	16	17	18	16	18	19	17	18
33	Patil Rohini Sadashiv	15	16	17	18	15	18	19	18
34	Patil Rohit Narendra	19	18	17	19	16	18	17	18
35	Patil Rohit Raju	14	15	13	12	18	18	17	16
36	Patil Samadhan	16	17	18	16	18	19	17	18
37	Patil Sneha Ashok	19	15	16	14	19	15	15	17
38	Pawankar Sagar Ravindra	18	19	19	17	16	17	18	16
39	Pawar Vivek Vijay	15	16	17	18	15	18	19	18
40	Purohit Priyanka Satish	14	15	13	12	18	18	17	16
41	Raisinghaani Bhagyashri	19	15	16	14	19	15	15	17
42	Sali Neha Satish	16	17	18	16	18	19	17	18
43	Sapkale Sagar Bhavsing	18	19	19	17	16	17	18	16

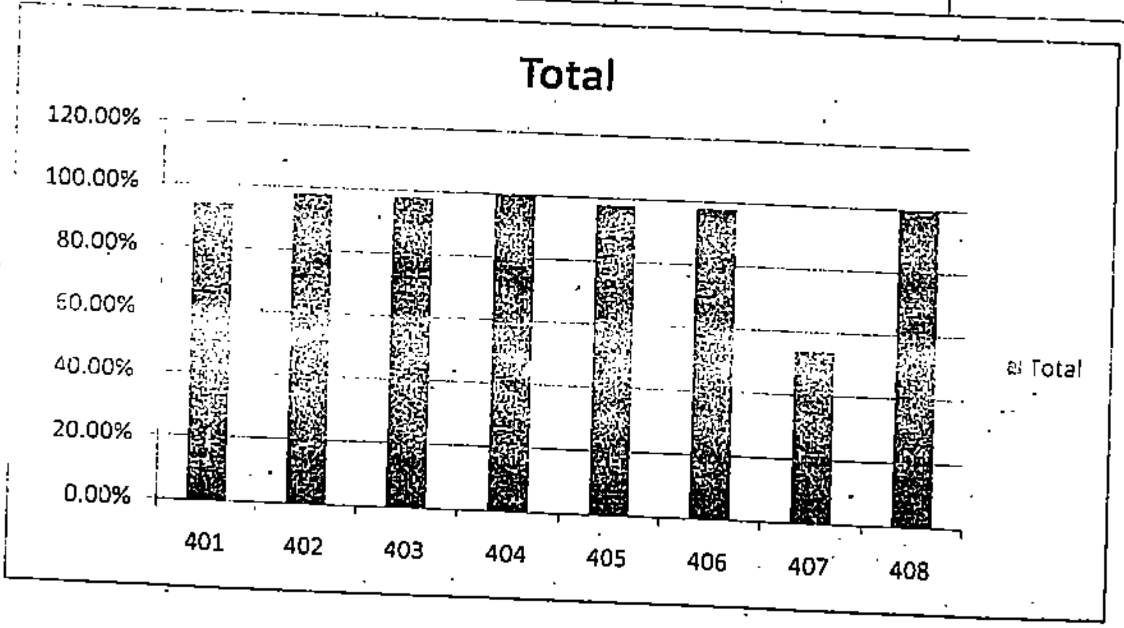
44	Sayyed Waqar Ali Mukhtar Ali	15	16	17	18	15	18	19	18
45	Shinde Dnyaneshwar Dattu	14	15	13	12	18	18	17	16
46	Shinde Mayuri Mohan	19	15	16	14	19	15	15	17
47	Singh Rekha Rajlal	18	19	19	17	16	17	18	16
48	Sonar Sneha	16	17	18	16	18	19	17	18
49	Sonawane Chetan	15	16	17	18	15	18	19	18
50	Sonawane Harshal Shantaram	18	19	19	17	16	17	18	16
51	Sonawane Nishant Vijaykumar	14	15	13	12	18	18	17	16
52	Suryawanshi Nikhil Santosh	19	15	16	14	19	15	15	17
53	Tapadiya Snehal Bhushan	18	19	19	17	16	17	18	16
54	Tayade Kiran Eknath	16	17	18	16	18	19	17	18
55	Tekwani Mahesh Ramesh	19	18	17	19	16	18	17	18
56	Udaykar Neha Sanjay	19	18	17	19	16	18	17	18
57	Wadhnere Yogesh	14	15	13	12	18	18	17	16
58	Wagh Manisha Gautam	18	19	19	17	16	17	18	16
59	Wani Bhagyashri Pralhad	19	15	16	14	19	15	15	17
60	Wani Pooja	16	17	18	16	18	19	17	18

HOD

SUBJECTWISE TOPPERS

1	401	Baheti Komal B.	80
2	402	Chandak Megha V.	76
3	403	Balani Nikita J	78
4	404	Panchariya Urvashi M.	80
5	405	Bajaj Nikita B. & Patil Dipali	78
6	406	Chandak Megha /Pancharia Urvashi/ Patil Dipali	78
7	407	Baheti Komal	74
8	408	Panchariya Urvashi M.	94

401	94.12%
402	98.04%
403	98.04%
404	100.00%
405	98.00%
406	98.00%
407	54.00%
408	100.00%



H.O.D.
Prof. Sanjay R. Sugandhi

KCES's College of Engineering & IT Jalgaon

Activity Report

Name of The Activity: - Group Discussion			
Duration	**17th April 2019 to 27th April 2019**	**Department/ Committee**	**Department of Management**

Objective for conducting activity	➢ To develop the managerial skills of fast learners
Methodology	➢ Group Discussion
Out Come	➢ Improved communication skills ➢ Improved thought processing ➢ Improved idea generation

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KCES's College of Engineering & Information Technology, Jalgaon
Department Of Management (MBA)
Academic Year 2018-2019

Fast Learner Attendance **Subject Code: 204** **SEM II**

Sr No	Name of Fast Learner	18/4/19	20/4/19	25/4/19	27/4/19
1	Chaudhari Pratiksha Nandlal	P	P	P	P
2	Dole Chetan Sukdev	P	A	A	A
3	Erande Umesh Sanjay	A	P	P	P
4	Kabra Siddhi Sanjay	A	A	A	A
5	Ladhe Swapnil Namdev	P	A	A	A
6	Lalwani Prachi	P	P	P	P
7	Makode Punam Rajesh	P	A	P	P
8	Palod Prajakta Dinesh	A	A	A	P
9	Rane Leena Digambar	P	P	P	A
10	Tekwani Mohit	P	P	P	P
11	Warke Nikita Prakash	P	P	P	P
12	Badgujar Mayur Santosh	A	A	A	A
13	Chaudhari Amol	P	A	A	A
14	Chaudhari Shubham Ishwar	A	A	A	A
15	Jangid Suman Khemraj	P	P	P	P
16	Patil Khushbu Magan	P	P	A	P
17	Patil Narendra Gorakh	A	A	P	A
18	Patil Rohini Kailas	P	P	P	A
19	Thakare Neha Sunil	A	A	A	P
20	Yadhav Diksha Jagdish	P	P	P	P

KCES's College of Engineering & Information Technology, Jalgaon
Department Of Management (MBA)
Academic Year 2018-2019

Fast Learner Attendance **Subject Code: 203** **SEM II**

Sr No	Name of Fast Learner	17/4/19	19/4/19	24/4/19	26/4/19
1	Badgujar Mayur Santosh	A	P	A	P
2	Baheti Amruta	P	A	P	P
3	Borse Prafulla Satish	P	P	A	A
4	Chaudhari Shubham Ishwar	A	P	P	P
5	Chormale Manisha Sanjay	A	P	A	P
6	Dhobi Yogini Rajendra	A	A	P	A
7	Jadhav Mohini Karansingh	P	P	A	P
8	Khachane Chetan Rajendra	P	A	P	A
9	Koli Gopal Lotan	A	P	P	P
10	Makode Priti Rajesh	P	A	P	A
11	Nannaware Varsha Budha	P	A	A	P
12	Pagariya Rashmi Praful	P	P	P	A
13	Patil Khushbu Magan	P	P	P	P
14	Patil Narendra Gorakh	P	A	P	P
15	Patil Priyanka Rajendra	P	P	A	P
16	Patil Vrushali Rajendra	A	A	P	A
17	Singh Aradhana	P	P	P	P
18	Somani Deepali	A	P	A	A
19	Thakare Neha Sunil	P	P	P	P
20	Yadhav Diksha Jagdish	A	P	A	P

KCES's College of Engineering & Information Technology, Jalgaon
Department Of Management (MBA)
Academic Year 2018-2019

Fast Learner Attendance **Subject Code: 403** **SEM IV**

Roll No	Name of Fast Learner	17/4/19	19/4/19	19/4/19	26/4/19
1	Bavskar Anant Samadhan	P	A	A	P
2	Chandak Megha V.	A	P	P	A
3	Chaudhari Milind	P	A	P	A
4	Chavhan Bhagyashri Suresh	A	P	A	P
5	Gujrati Saurabh Ravindra	P	A	P	P
6	Kulkarni Harshada Govind	P	P	A	A
7	Mokasare Vinod Suresh	P	A	P	P
8	Patil Dipali	P	P	A	A
9	Patil Mohit Suresh	A	A	P	P
10	Sali Neha Satish	P	A	A	A
11	Sayyed Waqar Ali Mukhtar Ali	A	P	A	P
12	Sonar Sneha	P		P	A
13	Sonawane Harshal Shantaram	A	P	A	P
14	Tayade Kiran Eknath	P	A	P	A
15	Wani Pooja	A	P	A	P

Department Of Management (MBA)
Academic Year 2018-2019
Fast Learner Attendance **Subject Code: 404 ▲** **SEM IV**

Roll No	Name of Fast Learner	18/4/19	20/4/19	25/4/19	27/4/19.
1	Bajaj Nikita Bhishanlal	P	P	P	A
2	Bundele Priyatama Suresh	P	A	P	A
3	Chandak Megha V.	P	P	P	P
4	Chaudhari Shweta Pramod	A	P	P	P
5	Kolhe Gayatri Bhagwat	P	P	A	P
6	Mule Vaibhav Laxman	P	P	P	P
7	Panchariya Urvashi Mahavir	P	A	P	P
8	Patil Rohit Narendra	A	P	P	P
9	Singh Rekha Rajlal	P	P	P	P
10	Suryawanshi Nikhil Santosh	P	A	A	P
11	Wagh Manisha Gautam	P	P	A	P
12	Wani Bhagyashri Pralhad	P	P	A	A

Department Of Management (MBA)
Academic Year 2018-2019
Fast Learner Attendance **Subject Code: 404 B** **SEM IV**

Roll No	Name of Fast Learner	18/4/19	20/4/19	25/4/19	27/4/19
1	Patil Mohit Suresh	P	P	A	P
2	Patil Prashant Bhagwat	A	P	P	P
3	Sayyed Waqar Ali Mukhtar Ali	P	A	P	P