

3.3.2 Number of research papers per teachers in the Journals notified on UGC website during the last five years.

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to the recognition in UGC		
						Link to website of the Journal	Link to article/paper/abstract of the article	listed in UGC Care list/Scopus/Web of Science /other,
2018-19								
Internet of Things: Introduction, Issues and Challenges	Pradnya A. Vikhar	Computer	International Journal on Future Revolution in Computer Science & Communication Engineering	2018	2454-4248 (Online) Volume 4, Issue 10, PP: 113-116	http://www.ijfrcsce.org/index.php/ijfrcsce	http://www.ijfrcsce.org/index.php/ijfrcsce/article/view/1773/1768	UGC
Mitigation of Voltage and current Under Distorted Conditions using UPQC in three phase three wire system	Prof. Prasad D. Kulkarni	Electrical	International Journal of Advanced Innovative Technology in Engineering	2018	2455-6491	http://garph.org/	http://garph.org/downloads/IJAITE%20Vol.%203,%20Issue%204/1.pdf	NO
Review on Improvement in Stability of Hybrid Series Active Power Filter by Using Sliding Mode Controller	Prof. Kalpesh Mahajan	Electrical	International Journal of Advanced Research In Electrical, Electronics And Instrumentation Engineering	2018	(online)-2278-8875 (Print)-2320-3765	www.ijareeie.com	http://www.ijareeie.com/upload/2018/june/22_Review.pdf	NO

Analysis of Power Quality Improvement by using D-STATCOM	Prof.Kalpesh Mahajan	Electrical	International Journal of Advanced Research And Innovative Ideas in Education	2018	2395-4396	http://ijariie.com/	http://ijariie.com/AdminUploadPdf/ANALYSIS_OF_POWER_QUALITY_IMPROVEMENT_BY_USING_D_STATCOM_ijariie7835.pdf	NO
Review of Fuzzy Control based APF For Power Quality Improvement	Prof.Prasad D. Kulkarni	Electrical	International Journal of Advanced Research In Electrical, Electronics And Instrumentation Engineering	2018	(online)-2278-8875 (Print)-2320-3765	www.ijareeie.com	https://www.ijareeie.com/upload/2018/may/7_Review.pdf	NO
“Enhancement of Active Power Flow Capability of Standard IEEE 14 Bus System Using Unified Power Flow Controller”	Ms. Suvarna Vitthal Patil; Prof.Kalpesh Mahajan	Electrical	International Journal for Scientific Research & Development	2018	(IJSRD)-2321-0613	http://ijsrd.com/index.php?page=Archive&v=5&i=11&start=100	IJSRD - International Journal for Scientific Research & Development Vol. 5, Issue 11, 2018 ISSN (online): 2321-0613	NO
Wireless Physiological Monitoring System	S V Varade	E&TC	IJAREIE	2018-19	ISSN (Print) : 2320 – 3765 ISSN (Online): 2278 – 8875	www.ijareeie.com	http://www.ijareeie.com/upload/2018/august/12_WIRELESS.pdf	No
The Study Of Online Eduhub Web Portal	Dr. K. P. Rane	E&TC	‘RESEARCH JOURNEY’ International Multidisciplinary E-Research Journal	2019	2348-7143	www.researchjourney.net	https://www.researchjourney.net/issues	No
A Review on Design and Development of Hybrid Aluminium Composite Shaft	Dr. K. P. Rane	E&TC	‘RESEARCH JOURNEY’ International Multidisciplinary E-Research Journal	2019	2348-7143	www.researchjourney.net	https://www.researchjourney.net/issues	No

A Review on Safety Impact Guard with Prv Based Damper	Dr. K. P. Rane	E&TC	'RESEARCH JOURNEY' International Multidisciplinary E-Research Journal	2019	2348-7143	www.researchjourney.net	https://www.researchjourney.net/issues	No
Review on spalling 20HI cold rolling mill roll	Prof.M.D.Salunk	Mechanical	International multidisciplinary E journal	2019	ISSN2348-7143	https://www.researchjourney.net	https://www.researchjourney.net/issues	NO
Most popular and modern methods of atmospheric air purification	Prof.D.K.Thakur	Mechanical	International multidisciplinary E journal	2019	ISSN2348-7143	https://www.researchjourney.net	https://www.researchjourney.net/issues	NO
Ergonomics design and development of flywheel in excercise equipments	Prof.R.B.Patil	Mechanical	International multidisciplinary E journal	2019	ISSN2348-7143	https://www.researchjourney.net	https://www.researchjourney.net/issues	NO
Review on stress analysis of bolt to connect two plates in circular array pattern by using finite element methodology	Prof.R.B.Patil	Mechanical	International multidisciplinary E journal	2019	ISSN2348-7143	https://www.researchjourney.net	https://www.researchjourney.net/issues	NO
Areview paper on experimental and cfd analysis of forced convection heat transfer over ribbed surface	Prof.M.B.Pawar	Mechanical	International multidisciplinary E journal	2019	ISSN2348-7143	https://www.researchjourney.net	https://www.researchjourney.net/issues	NO
Review on spalling 20HI cold rolling mill roll	Prof.D.S.Patil	Mechanical	International multidisciplinary E journal	2019	ISSN2348-7143	https://www.researchjourney.net	https://www.researchjourney.net/issues	NO
Most popular and modern methods of atmospheric air purification	Prof.S.M.Khaire	Mechanical	International multidisciplinary E journal	2019	ISSN2348-7143	https://www.researchjourney.net	https://www.researchjourney.net/issues	NO

Internet of Things: Introduction, Issues and Challenges

Pradnya A. Vikhar

Department of Computer Engineering
KCES's College of engineering & Information Technology
Jalgaon (MH), India
pradnyav123@gmail.com

Abstract—In recent years, internet of Things (IoT) and its relevant technologies have been gaining more interest of researchers from academic world, industry, and government. As the concept of IoT are quite different from what the Internet today can offer, several pioneering techniques have been gradually urbanized and incorporated into IoT. This term is referred to as the Future Internet of Things (FIoT). The most crucial issue of it is how to extract “data” and transfer them into “knowledge” from sensing layer to application layer. This paper includes an overview of IoT and FIoT. Further there is a discussion on key issues in the area of IoT and the technical challenges of this field.

Keywords—Internet of Things (IoT), Future Internet of Things (FIoT), Wireless communications

I. BACKGROUND

Very soon the things around us, the things that we are seeing around, are going to work on the internet. They all are going to be interconnected. So the ‘I’ in IoT is a global network which connects various computers and computing devices[1][2].

Thus with IoT the scope of internet is expanded beyond computing and computer devices. It is going to interconnect the physical objects around us form lights, fans, air-conditioners to toothbrush, refrigerators, microwave. It not only connects the objects at our home but also use to connect the object at remote places which are internet connected.

II. INTRODUCTION

The Internet of Things (IoT) refers to the use of brightly connected devices and systems to influence data assemble by embedded sensors and actuators in equipment and other physical stuff. IoT is expected to broaden rapidly over the upcoming years and this meeting will allow running free a new breadth of soldiers that improve the quality of life of consumers and productivity of enterprises, unlocking an aperture that the GSMA refers to as the ‘Connected Life’[1][2]. For consumers, the IoT has budding to get across solutions that dramatically improve energy efficiency, sanctuary, health, education and many other aspects of daily life. For enterprises, IoT can strengthen solutions that pick up decision-making and productivity in industrialized, retail, agriculture and other sectors.

Machine-to-Machine (M2M) solutions is a division of the IoT which is already use wireless networks to attach devices to each other and the Internet, with minimal direct human attachment, to transport services that meet the needs of a wide series of industries. In 2013, M2M relations accounted for 2.8% of universal mobile connections (195 million), demonstrating that the sector is still at a relatively early stage in its development. An improvement of M2M, the IoT represents the organization of numerous vendors’ machines, devices and appliances connected to the Internet from side to side multiple networks. While the prospective shock of the IoT is substantial, a concerted effort is required to budge beyond this

early stage. In order to optimize the expansion of the market, an ordinary understanding of the distinct natural history of the opportunity is necessary.

Till date, mobile operators have identified the following key distinctive features:

1. The Internet of Things can facilitate the next wave of life attractive armed forces across several essential sectors of the economy.
2. Meeting the requirements of customers may have need of global distribution models and dependable global services.
3. The Internet of Things presents a chance for new profitable models to sustain mass global consumption.
4. The greater part of revenue will come up from the condition of value-added services and mobile operators are structure new capabilities to facilitate these new service areas.
5. Device and request behavior will leave new and varying demands on mobile.

A. Connectivity in IoT

In terms of the connectivity, ‘I’ means the internet of computer analogously i.e. LAN, WAN, Node, Gateway and Proxy.

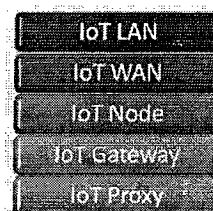


Fig.1 : Connectivity terminology

IoT LAN is very similar to IoT, the internet LAN. It is for short range communication may be building wide or campus wide. IoT WAN is basically internetworking of two different LANs. Intconnecting of two different LANs, connecting different various segments organizationally or geographically wide. These can be connected to the internet IoT node which may consists of different nodes inside a LAN or may be WAN. Gateway is something like a router, typically beyond the LAN and connecting to WAN. Thus there are several



LANs connected to each other through individual Gateways and Proxys, in a WAN.

B. IoT Network Configurations

Following figure shows various network configuration of IoT. In the first figure, IoT LAN has its own IoT devices and these devices has its own local address. It might happen that a particular address might be unique to this LAN, but may be reused in another LAN.

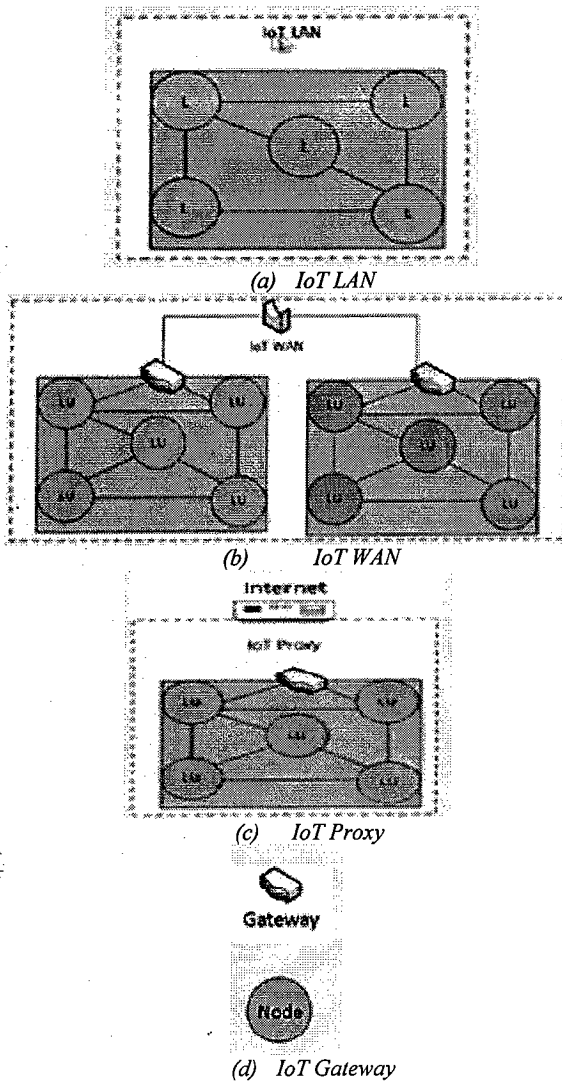


Figure2: Network Configurations in IoT

III. KEY ISSUES IN AREA OF IOT

Most urgent challenges and questions in the area of IoT are divided into five key areas. They are security; privacy; interoperability and standards; legal, regulatory, and rights; and emerging economies and increase [2][3][4].

➤ **Security:** Users can only trust, when IoT devices and related data services becomes more secure from vulnerabilities, particularly as this knowledge become more pervasive and integrated into our daily lives. Though safety considerations are not novel in the context of in order technology, the attributes of many IoT

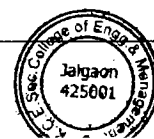
implementations present new and exclusive security challenges. The fundamental main concern in IoT products and services are addressing these challenges and ensuring safekeeping. The result of poorly secured IoT devices and services may leads to an entry points for cyber attack and it can expose user data to theft by leaving data streams inadequately restricted.

The interconnected nature of IoT devices means that if every device is poorly secured then it is connected online potentially that affects the security and hardness of the Internet globally. This challenge can be enlarged by other considerations like the mass-scale deployment of homogenous IoT devices, the ability of some devices to automatically connect to other devices, and the likelihood of fielding these devices in unsecure environments. As a matter of principle, developers and users of IoT devices and systems have a collective responsibility to ensure they do not expose users and the Internet itself to potential harm. Thus, a collaborative approach to achieve security requires developing effective and appropriate solutions to IoT security challenges which will well suited to the scale and complexity of the issues.

➤ **Privacy:** The full latent of the Internet of Things is based on strategies that respect personal privacy choices across a broad spectrum of expectations. The data streams and user specificity afforded by IoT devices can unchain unbelievable and single value to IoT users, but anxiety about privacy and potential troubles might hold back full adoption of the Internet of Things. The meaning of it is, privacy rights and respect for user privacy expectations are essential to ensuring user trust and confidence in the Internet, connected devices, and related services. Indeed, the IoT is redefining the debate about privacy issues, as many implementations can dramatically change the ways private data is collected, analyzed, used, and sheltered. For example, IoT amplifies concerns about the potential for increased surveillance and tracking, difficulty in being able to pick out of certain data collection, and the strength of aggregating IoT data streams to paint detailed digital portraits of users. While these are important challenges, they are not intractable. In order to realize the opportunities, strategies will need to be developed to respect individual privacy choices crossways a broad spectrum of expectations, while still fostering innovation in new technology and services.

➤ **Interoperability / Standards:** An uneven environment of proprietary IoT technical implementations will slow down value for users and industry. While full interoperability across products and services is not always possible or essential, the purchasers may be uncertain to buy IoT products and services, if they find integration inflexibility, high ownership complication, and concern over vendor lock-in.

Further, poor designed and configured IoT devices connected to and having the broader Internet, may shows negative results for the networking resources. Properly use of appropriate standards, reference models, and best practices will help to control the proliferation of devices that may act in disrupted ways to the Internet. The use of generic, open, and widely available standards as basic building blocks for IoT devices and services (such as the Internet Protocol) will support greater user profits, novelty, and financial chances.



- **Legal, Regulatory and Rights:** The use of IoT devices generates not only many new regulatory and legal questions but also enlarged existing legal issues around the Internet. The questions are broad in span, and the rapid rate of change in IoT technology often improves the capability of the associated policy, legal, and regulatory structures to adapt. When IoT devices collect data about people in one jurisdiction and transmit it to another jurisdiction with different data protection laws for processing it will generate set of issues surrounds cross border data flows. Further, data collected by IoT devices is sometimes vulnerable to misuse, potentially causing biased outcomes for some users. Other legal issues with IoT devices include the conflict between law enforcement supervision and civil rights; data preservation and demolition policies; and legal responsibility for accidental uses, security breaches or privacy lapses. While the legal and regulatory challenges are broad and complex in scope, acquiring the guiding Internet Society principles of promoting a user's ability to connect, speak, innovate, share, choose, and trust are core considerations for evolving IoT laws and regulations that enable user rights.
- **Emerging Economy and Development Issues:** The Internet of Things holds important guarantee for delivering social and economic benefits to emerging and developing economies. This includes areas such as sustainable agriculture, water quality and use, healthcare, industrialization, and environmental management, among others. As such, IoT holds promise as a tool in achieving the United Nations Sustainable Development Goals. The broad scope of IoT challenges will not be exclusive to industrialized countries; developing regions also will need to respond to realize the possible profit of IoT. In addition, the exclusive needs and challenges of implementation in less-developed regions will need to be addressed, including infrastructure readiness, market and investment incentives, technical skill requirements, and policy resources.

IV. TECHNOLOGICAL CHALLENGES

While the possible applications and scenarios require to very interesting, the demands placed on the underlying technology are significant. Moving ahead from the Internet of computers to the remote and somewhat unclear goal of an IoT is something that must be done one step at a time. In addition to the expectation that the technology must be available at low cost if a numerous objects are actually need to be equipped [1][5][6]. The many other challenges are as follows:

- **Scalability:** An Internet of Things potentially has a larger overall scope than the conventional Internet of computers. But then again, things cooperate mainly within a local environment. Basic functionality such as communication and service discovery therefore need to function equally efficiently in both small scale and large-scale environments.
- **Arrive and operate:** Smart everyday objects should not be perceived as computers that require their users to configure and adapt them to particular situations. Mobile things, which are often only sporadically used, need to establish connections spontaneously, and organize and configure themselves to suit their particular environment.
- **Interoperability:** As the world of physical things is tremendously varied, in an Internet of Things each type of

smart object is likely to have different information, processing and communication capabilities. Various smart objects would depend on many different conditions such as the energy available and the required communications bandwidth. However, to avail communication and cooperation, general practices and standards are required. That is important with regard to thing addresses. These should conform to standardized schemes if at all possible, along the lines of the IP standard used in the conventional Internet domain.

- **Discovery:** In such vibrant environments, appropriate services describing their functionality for things must be automatically identified. Depending on it, users can receive information about product and can use search engines which helps to find things or provide information about an object's state.
- **Software complexity:** while the software systems in elegant objects will have to function with minimal resources, as in predictable embedded systems, a more general software infrastructure will be needed on the network. On background servers in order to manage the smart objects and provide services to support them.
- **Data volumes:** While some application includes short, uncommon communication, like sensor networks, logistics and large-scale "real-world awareness" scenarios, will require huge volumes of data on central network nodes or servers.
- **Data interpretation:** To support the users of smart things, it will require interpreting the local context determined by sensors more accurately. For service providers to profit from the unrelated data that will be generated, it would need to be able to draw some general outcomes from the interpreted sensor data. However, producing useful information from raw sensor data that can activate further action is by no means a trivial undertaking.
- **Security and personal privacy:** For the security and protection aspects of the Internet with which all familiar communications confidentiality, the authenticity and trustworthiness of communication partners, and message integrity, are important in an Internet of Things. It might want to provide things only selective access to certain services, or prevent them from communicating with other things at certain times or in an uncontrolled manner. The business transactions involving smart objects would need to be protected from competitors' prying eyes.
- **Fault tolerance:** The world of IoT is much more energetic and mobile than the world of computers, with concern to change quickly and in surprising ways. But it would still want to rely on things functioning properly. Structuring an Internet of Things in a robust and trustworthy manner would require redundancy on several levels and an ability to automatically adapt to changed conditions.
- **Power supply:** Things needs to move around and are not connected to a power supply, so their smartness requires be powered from a self-sufficient energy source. Although passive RFID transponders do not require their own resource of energy, functionality and communications range are very few. In many situations, batteries and power packs are problematic due to their size and weight, and especially because of their maintenance requirements. Energy saving is a factor not only in hardware and system architecture, but also in software like the implementation of protocol stacks.

There are already some battery-free wireless sensors that can transmit their readings a short distance.

- **Interaction and short-range communications:** Wireless communication over very short distances will be sufficient, for example, if an object is in contact with another object or users hold their mobile against it. For such a short distances very little power is required, and the addressing is also simplified. Further there is no risk of being overheard by others. NFC is one example of this type of communication which uses inductive coupling as RFID. For the communication one partner is requires to be in active mode and the other will be in passive mode. Active units of NFC are small enough therefore it can be used in mobile phones; whereas passive units are significantly smaller, cheaper and do not need their own power source.
- **Wireless communications:** From an energy point of view, GSM, UMTS, Wi-Fi and Bluetooth established wireless technologies which are far less suitable. Recently WPAN standards such as ZigBee and others are still under development and may have a narrower bandwidth, but they do use significantly less power.

CONCLUSION

IoT ensures innovative, fully consistent “smart” world, with associations between matter and their environment. The vision of the Internet of Things as a ever-present array of devices bound to the Internet power primarily change how people imagine about what it means to be “online”. While the potential ramifications are noteworthy, a number of potential challenges may stand in the way of this hallucination mostly in the areas of security; privacy; interoperability and principles; legal,

authoritarian, and rights issues; and the inclusion of budding economies. The Internet Society cares about IoT because it represents an increasing characteristic of how people and institutions are likely to interact with and integrate the Internet and network connectivity into their personal, social, and economic lives. Solutions to maximizing the reimbursement of IoT while minimizing the risks will not be set up by engaging in a polarized debate those depths the promises of IoT against its possible perils. Rather, it will take knowledgeable engagement, dialogue, and collaboration across a series of stakeholders to plot the most effective ways forward.

REFERENCES

- [1] Sudip Mishra, “https://onlinecourses.nptel.ac.in/noc18_cs46/unit?unit=5&lesson=8”.
- [2] Somayya Madakam, “Internet of Things: Smart Things,” International Journal of Future Computer and Communication, Vol. 4, No. 4, August 2015
- [3] <https://www.internetsociety.org/iot>
- [4] Friedemann Mattern and Christian Floerkemeier, “From the Internet of Computers to the Internet of Things,”
- [5] John A. Stankovic, “Research Directions for the Internet of Things,” IEEE Internet of Things Journal, vol. 1, no. 1, pp. 3-9, Feb. 2014
- [6] Ashvini Balte, Asmita Kashid, Balaji Patil, “Security Issues in Internet of Things (IoT): A Survey,” International Journal of Advanced Research in Computer Science and Software Engineering, Volume 5, Issue 4, 2015



ML
PRINCIPAL
K.C.E. SOCIETY'S
COLLEGE OF ENGG. &
MANAGEMENT, JALGAON



International Journal of Advanced Innovative Technology in Engineering

This certificate is issued to

Prof. P. D. Kulkarni

*for publication of his manuscript entitled
"Mitigation of Voltage and Current Under Distorted
Conditions using UPQC in three Phase
Three Wire System"*

in IJAITE Journal, Vol. 3, Issue 4, July-2018.



(Signature)

Editor in chief
IJAITE

ISSN:2455-6491

Impact Factor 4.02



PRINCIPAL
K.C.E. SOCIETY'S

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN ELECTRICAL, ELECTRONICS AND INSTRUMENTATION ENGINEERING

(A High Impact Factor, Monthly, Peer Reviewed Journal)

ISSN (Online): 2278 – 8875

ISSN (Print): 2320 - 376



PUBLICATION CERTIFICATE

This is to certify that

KALPESH M. MAHAJAN

Assistant Professor, Dept. of EE, KCES'S College Engineering and IT, Jalgaon, Maharashtra, India

Published a research paper titled

“Review on Improvement in Stability of Hybrid Series Active Power Filter by Using Sliding Mode Controller”

in IJAREEIE, Volume 7, Issue 6, June 2018

PRINCIPAL
K.C.E.SOCIETY'S
COLLEGE OF ENGG. &
MANAGEMENT, JALGAON



Certificate No: V7I6C030

Date: 20th June 2018

IJAREEIE

Impact Factor: 6.392

www.ijareeie.com

A handwritten signature in black ink, appearing to be 'R. B.', written over a horizontal line.

Editor-in-Chief

IJAREEIE

ijareeie@gmail.com

**INTERNATIONAL JOURNAL OF ADVANCE
RESEARCH AND INNOVATIVE IDEAS IN EDUCATION

CERTIFICATE**

PUBLICATION

*The Board of International Journal of Advance Research and Innovative Ideas in Education
is hereby Awarding this Certificate to
PROF. KALPESH M. MAHAJAN*

*In Recognition of the Publication of the Paper Entitled
ANALYSIS OF POWER QUALITY IMPROVEMENT BY USING D-STATCOM
Published in E-Journal
Volume-4 Issue-2 2018*

Paper Id : 7835
ISSN(O) : 2395-4396



www.ijarjie.com



Editor In Chief



PRINCIPAL
K.C.E.SOCIETY'S
COLLEGE OF ENGG. &
MANAGEMENT, JALGAON

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN ELECTRICAL,
ELECTRONICS AND INSTRUMENTATION ENGINEERING

(A High Impact Factor, Monthly, Peer Reviewed Journal)

ISSN (Online): 2278 – 8875

ISSN (Print): 2320 - 3765



PUBLICATION CERTIFICATE

This is to certify that

PRASAD D. KULKARNI

Assistant Professor, Dept. of EE, KCE'S College of Engineering, Jalgaon, Maharashtra, India

Published a research paper titled

"Review of Fuzzy Control Based APF for Power Quality Improvement"

in IJAREEIE, Volume 7, Issue 5, May 2018

Certificate No: V715C005

Date: 20th May 2018

IJAREEIE

Impact Factor: 6.392

www.ijareeie.com

Editor-in-Chief

IJAREEIE

ijareeie@gmail.com



PRINCIPAL
K.C.E. SOCIETY'S
COLLEGE OF ENGG. &
MANAGEMENT, JALGAON

Enhancement of Active Power Flow Capability of Standard IEEE 14 Bus System using Unified Power Flow Controller

Miss. Suvarna V. Patil¹ Prof. Kalpesh Mahajan²

¹M.E Student ²H.O.D

^{1,2}Department of Electrical Engineering

^{1,2}KCE's COEIT, Jalgaon, Maharashtra, India

Abstract— The Unified Power Flow Controller (UPFC) is a Flexible AC transmission system (FACTS) uses the thyristor controlled devices that can control all the three system. UPFC is capable of controlling real and reactive powers in a transmission system. This paper presents control and performance of Unified Power Flow Controller (UPFC) is investigated in controlling the real and reactive power flow control using IEEE 14 bus standards system. UPFC is studied to improve the power flow over a transmission line in a standard IEEE 14 bus system by using MATLAB / SIMULINK software in a power system. For the selected standard system, real and reactive power flows are compared with and without UPFC to improve the performance and also improve the voltage profile. In this paper implementation and digital simulation using UPFC to improve the power flow is presented. The MATLAB/SIMULINK model results are presented to verify the results. It can be shows that compare the waveforms results of active, reactive power and voltage when with and without UPFC in connected to IEEE 14-bus standards system.

Key words: Unified Power Flow Controller, Thyristor, Real and Reactive Power Flow, IEEE 14 Bus System, MATLAB/SIMULINK

I. INTRODUCTION

The Flexible ac transmission a system (FACTS) is the combination of the power “electronics” devices to controls the power flow and the quantities in power system. Its first concept was introduced by N.G Hingorani, in 1988 (FACTS) is very popular and essential device in power systems [1].The flexible AC transmission systems (FACTS) concept based on applying leading edge Power Electronics Technology to existing AC transmission systems, improves stability to increase usable power transmission capacity to its thermal limit. FACTS controllers are used for the dynamic control of voltage, impedance and phase angle of high voltage AC transmission lines. These FACTS controllers are based on voltage source converters. Thus, FACTS can facilitate the power flow control, enhance the power transfer capability, decrease the generation cost, and improve the security and stability of the power system. FACTS controllers can be divided into four categories,

- Series Controllers (SSSC,TSSC),
- Shunt Controllers (SVC,STATCOM),
- Combined Series-Series Controllers (IPFC),
- Combined Series-Shunt Controllers (UPFC)

UPFC is the most flexible multi-functional FACTS device which is a new generation of FACTS devices proposed by Gyugyi in1991. UPFC is a Combined Series-Shunt Controllers. The UPFC is one of the most versatile devices. In interconnected power systems, it is important to

have control over power transfer [1].This can improve stability and allow transmission lines to be loaded closer to their thermal limits A UPFC can simultaneously provide control of the transmission line impedance, phase angle and voltage. The UPFC is constructed from two power electronic inverters which are connected together by a common DC link. Two transformers are used to isolate the UPFC and to match the voltage levels between the power system and the power electronic inverters. One of the inverter is connected to the transmission line. The series connected inverter can generate a voltage which can have adjustable magnitude and phase angle. This inverter therefore can provide both real and reactive power to the transmission line. The second inverter primarily provides the real power required by the series inverter but it can also operate as an independent VAR compensator. Therefore the UPFC can control the flow of real and reactive power in the transmission line. In UPFC, the transmitted power can be controlled by changing three parameters of power transmission line namely transmission magnitude voltage, impedance and phase angle.

The UPFC can be used to improve the power quality due to the separate controlling capability of real and reactive power. In this proposed work two bus-systems is simulated with UPFC. The 14 bus system is simulated with and without UPFC and The real and reactive power is investigated and observed from simulation model. The 14 bus system is simulated with and without UPFC show the real power is increases and reactive power is compensated and increases voltage profile.

II. UNIFIED POWER FLOW CONTROLLER

The Unified Power Flow Controller consists of two switching converters, which in the implementations considered are voltage sources inverters, as illustrated in Figure 1. These inverters, labeled “Converter 1” and “Converter 2” in the figure, are operated from a common dc link provided by a dc storage capacitor. This arrangement functions as an ideal ac to ac power converter in which the real power can freely flow in either direction between the ac terminals of the two inverters and each inverter can independently generate or absorb reactive power at its own ac output terminal.

Converter 2 provides the main function of the UPFC by injecting an ac voltage V_{pq} with controllable magnitude V_{pq} ($0 \leq V_{pq} \leq V_{pqmax}$) and angle ρ ($0 \leq \rho < 2\pi$) at the power frequency, inserted with line via an insertion transformer. This injected voltage can be considered essentially as a synchronous ac voltage source. The transmission line current flows through this voltage source resulting in real and reactive power exchange between it and the ac system. The real power exchanged at the ac terminal (





International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Website: www.ijareeie.com

Vol. 7, Issue 8, August 2018

Wireless Physiological Monitoring System

Jayant Vasudeo Varade¹, Harish K Bhangale², Sneha V Varade³

PG Student [DE], Dept of EXTC, G.H. Rasoni Institute of Engineering & Management, Jalgaon, Maharashtra, India¹

Associate Professor, Dept of EXTC, G.H. Rasoni Institute of Engineering & MANAGEMENT, Jalgaon,

Maharashtra, India²

Assistant Professor, Dept of EXTC, KCE COE, Jalgaon, Maharashtra, India³

ABSTRACT: Care of the critically ill patient requires very prompt and accurate decisions so that life-protecting and lifesaving therapy can be appropriately applied. Because of these requirements, ICUs have become widely established in hospitals. The difficulty found in most hospitals is that physician / Expert has to frequently visit the patient and assess his/her condition by measuring the different parameters. In case of emergencies, the nurse informs the doctor through some means of communication like mobile phone.

A rising selection of innovative electronic monitoring devices is available, but significant communication and decision supports are also needed for both patients and clinicians. We know that ICU patients requires a very attentive and continuous care also requires a timely decision to be taken in order to increase the lifesaving ratio of that patient. There are number of wired monitoring systems developed for the monitoring of the patients. The development of different wireless systems for monitoring of patient activity is one of the most important fields in telemedicine and telecare. This project is mainly used for continuous monitoring aspect of ICU patients. The motivation is to develop a reliable, energy efficient and easily deployable patient monitoring system which is able to send all the parameters of ICU patient. This system enables expert doctors to monitor patient's different parameters from or in remote areas of hospital. So that measured parameters data can be processed, stored and transferred measured parameters to clinicians for further analysis or diagnosis.

The timely manner of conveying the real time monitored parameter to the doctor is given highest priority which is very much needed. Hence On line Real time Health monitoring is becoming popular for the ICU patients. In this project we have designed and developed an energy efficient, easily deployable and interference free health monitoring system for ICU patient in order to increase their life saving ratio.

KEYWORDS: *Sensors*, ARM 7 - TDMI Processor , Zigbee Module, RS-232

I. INTRODUCTION

Wireless health monitoring systems integrated into a telemedicine system are novel information technology that will be able to support early detection of abnormal conditions and prevention of its serious consequences. Many patients can benefit from continuous ambulatory monitoring as a part of a diagnostic procedure, optimal maintenance of a chronic condition or during supervised recovery from an acute event or surgical procedure. Important limitations for wider acceptance of the existing systems for continuous monitoring are:

- unwieldy wires between sensors and a processing unit,
- lack of system integration of individual sensors,
- interference on a wireless communication channel shared by multiple devices, and
- nonexistent support for massive data collection and knowledge discovery.

Traditionally, personal medical monitoring systems, such as Holter monitors, have been used only to collect data for off-line processing. Systems with multiple sensors for physical rehabilitation feature unwieldy wires between electrodes and the monitoring system. These wires may limit the patient's activity and level of comfort and thus negatively influence the measured results. A wearable health-monitoring device using a Personal Area Network (PAN) or Body Area Network (BAN) can be integrated into a user's clothing.



The Study of Online EduHub Web Portal

Yuvraj Chaudhari, Shraddha Patil, Harsha Talele
 K.C.E's COEIT, Jalgaon, India
 Dr. K. P. Rane
 Principal, K.C.E's COEIT, Jalgaon, India

ABSTRACT : In this paper we present an approach to survey on different portal in which used different frameworks, technology, database, etc for developing our EduHub portal. EduHub portal is a web-based application which helps end person to locate any particular kind of institute such as school, colleges, any personal training with looking criteria like desired location, concern and news. The growing looking out of institutes and altering scenario of the environment nowadays has made greater people to search for better profession and potential. We describe literature reviews of different authors, their aim of title and its drawbacks and EduHub architecture. Also describe their used technologies about design, coding, testing, etc.

KEYWORDS: Web Portal, Database, MySQL, EduHub

INTRODUCTION

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.

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].

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. Organization in this portal are search by Star Rating System.

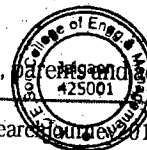
Also, in this portal, institute who are register and verify that institute can create job vacancy advertise into their user display with their display. It means user can access all details of require institute and also its job vacancies. This Project will be developed using OPEN SOURCE technologies such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

LITERATURE SURVEY

Sr. No.	Title of Paper Studied	Description	Drawbacks
1	Development of a Job web-portal to improve education quality [2]	Development of knowledge sharing system that acts as a job portal to improve the education environment	All the problems of jobless graduates can never fulfill by job web portal
2	Job Portal - A Web application for geographically distributed multiple clients [3]	Provide solution for how to select appropriate job offer graduation which job skills are needed	Graphics Environment, Content insufficient, Technical issues
3	A Research of Job Recommendation system based on Collaborative Filtering [4]	In this Job Recommendation system two algorithmic strategies are used as follows 1. user based and 2. item-based collaborative filtering	To optimize the recommendation system and improve the sparsity of user profile
4	TS-LocalRank: A topic Similarity Local Ranking Algorithm for Re-ranking Web Search Results [5]	Refines the relevance of web pages to user query by re-calculating the rank based on the inter-connectivity of web pages in search results	This method is evaluated by constructed a meta-search engine named TS-Meta Search.
5	Web Portal for Adaptive E-learning [6]	Describe architecture of the portal for adaptive e-learning technologies, design and techniques applied in implementation of portal's key components.	In this, Web portal for adaptive e-learning will not used in real e-education system at any organization.
6	A Framework for Web Based Student Record Management System using PHP [7]	Student Record Management System (SRMS) gives a straightforward interface to support of student data.	SRMS not provide any securities to database and also to user.

PURPOSE OF THE SYSTEM

In particular, the Educational Hub Portal is aimed to bridge the gap among students, educators,



PRINCIPAL

K.C.E. SOCIETY'S
 COLLEGE OF ENGG. &
 MANAGEMENT, JALGAON

A Review On Design And Development Of Hybrid Aluminium Composite Shaft

Hemant R. Nehete, Manoj M. Nehete

Assistant Professor, Department of Mechanical Engineering, KCESS college of engineering & Information technology, Jalgaon

Dr. K. P. Rane

Principal, KCESS college of engineering & Information technology, Jalgaon

ABSTRACT - Throughout this study a bending fatigue analysis was carried out for hybrid aluminum composite drive shafts. The hybrid shafts used are fabricated using filament winding technique. Glass fiber with a matrix of epoxy resin and hardener are used to construct the external composite layers needed. Some cases were studied using aluminum tube wounded by different layers of composite materials and different stacking sequence or fiber orientation angles. The failure mode for all the hybrid shafts was identified in research. The macroscopic level tests indicate that the cracks initiated at the outer skin of resin and increase with increasing number of cycle until there is a failure of specimen. It has also been noticed that there is no fiber breakage from the rotating bending fatigue test.

KEYWORDS: Hybrid, Composite drive shaft, Fatigue strength, Failure

1. INTRODUCTION

A driveshaft is a rotating element that transmits power from the engine to the differential gear of a rear wheel drive vehicles. Driveshaft must operate through constantly changing angles between the transmission and axle. To increase the natural frequency the drive shaft is manufactured in two pieces. The steel drive shaft with two pieces has three universal joints and one bearing at the centre. We can improve the power transmission by reducing the weight and also by refusing mass inertia. So we replace conventional steel with composite materials. The composite materials have high strength. Also it has high stiffness. We can use different combinations of composite materials. So for getting higher strength we use two or three materials at once to get higher strength [1].

Composite drive shafts, have proven that they can solve many automotive and industrial problems that accompany the usage of the conventional metal ones. Numerous solutions, such as flywheels, harmonic dampers, vibration shock absorbers, multiple shafts with bearings and couplings, and heavy associated hardware, have shown limited success in overcoming the problems [2].

Composite drive shafts have used in military and aerospace communities from many years. This shaft has a composite center section, the graphite/glass hybrid shaft section reduced weight by 20% and increase service life by three times over the aluminum component it replaced [3].

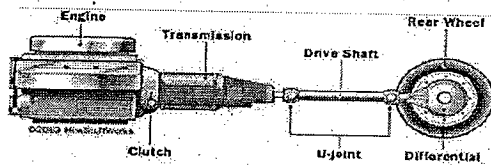


Figure 1: Composite drive shaft

In 1985, the first experiment was done on composite material shaft by Spicer u-joint divisions of Dana corp. in the ford economize van models. Drive shaft is used in many applications like aerospace, automobile, pumping sets etc for power transmission. Drive shaft is manufacturing in 2 pieces in large rear wheel drive automobile. This two pieces drive shaft assembled and results in heavy assembly. The main aim for two piece assembly is to increase its natural frequency. Nowadays, energy conservation is most important objective in the design of automobile. This is all possible because of weight reduction[4].

Rotating bending fatigue testing has accounted for a very large volume of comparative fatigue test work on metals. Some studies are done on bending fatigue behavior of hybrid aluminum/composite drive shaft and its joint, for example, manufacturing roller shafts by CFRP enables us to operate the roller at a higher rotating rate due to the reduce weight of the roller [5].

In this work, bending fatigue tests for hybrid aluminum/composite drive shafts were carried out to observe the effect of the number of composite external layers and the fiber orientation angle on the shafts fatigue performance. A glass fiber type E was used to cover the aluminum tube. Throughout this investigation, the effect of stacking sequence and number of layers on the fatigue properties of hybrid shafts and the mode and mechanism of failure for these drive shafts were all studied.

2. PROBLEM STATEMENT

All automobile with rear wheel drive have transmission shaft. Because of two or three piece assembly of transmission shaft, there is increase in weight of overall assembly and it was noticed that using of composite material in automobile application especially as shaft leads to weight reduction and also using single piece composite shaft, the first natural frequency of shaft is increase.

2.1 Composite material

A material composed of two or more constituents is called composite material. Composites consist of two or more materials or material phases that are combined to produce a material that has superior properties to those of its individual constituents. The constituents are combined at a macroscopic level and or not soluble in each other. The main difference

A Review On Safety Impact Guard With Prv Based Damper

Hemant R. Nehete, Manoj M. Nehete

Assistant Professor, Department of Mechanical Engineering, KCES'S college of engineering & Information technology, Jalgaon

Dr. K. P. Rane

Principal, KCES'S college of engineering & Information technology, Jalgaon

ABSTRACT : *Street car accidents and their belongings are very confused and costly. Such a large number of travelers bite the dust or harm each year on account of roadway mishaps. The majority of the vehicle producing organizations are unfit to control this issue effectively. A few investigations have been led to improve street security and lessen the quantity of mishaps on the streets. As we can't stay away from mishaps totally however effect of mishap can be lessen by applying security measures and wellbeing instrument. On account of the absence of viable back under ride monitors joined to trucks, trailers and semi-trailers, back Under ride crashes are in charge of thousands of passings consistently all through the world. Wellbeing sway monitor is one of the security instruments which can diminish crash sway at backside impact when mishap happens. Likewise give security against under ride crashes which is cause because of traveler vehicle crashes into the truck or trailer. Proposed structure of security sway monitor incorporates weight help valve as power engrossing component. Whenever back end crash is happens the power or vitality or effect is retained because of activity of PRV.*

1. INTRODUCTION

From the start of human life so as to move from one spot to another we are utilizing diverse Transportation frameworks, at the beginning period individuals utilized ponies, Trucks however subsequent to creating the motors individuals are prepared to utilize vehicles like bicycles, vehicles and transports. Yet, today there is no certification that we will achieve the goal securely. It is imperative to know the hazard factors related with vehicular transportation. Street wellbeing is surely one theme of incredible intrigue that concerns the entire network at national and worldwide dimension [1]. A few examinations have been directed to improve street security Further more, diminish the quantity of mishaps on the streets. The aggregate number of mishaps can be diminished through the security frameworks introduced in vehicles. Nonetheless, it was discovered that numerous conventional well being measures, for example, safety belts, airbags, and so on are lessening their viability. It is in this way far-fetched that they will get further upgrades security at sensible expense. Street mishaps are the main source of death by damage and tenth-driving reason for all passings all around. The event of a mishap must consider the key factors that comprise the entire street framework: the street, the driver, the vehicle and the earth [2].

1.1 Backside Crash

Backside crash is contemplated for this venture. A backside mishap brought about by a business truck is increasingly normal, crash of a traveler vehicle into a truck is more liable to result in fatalities. Business trucks are extensive what's more, are frequently in excess of multiple times the span of different vehicles on the country's roadways. In view of this weight error, hello are less flexibility, slower to begin and take more time to stop than traveler vehicles. This blend can prompt disastrous harm if a crash happens. Business trucks for the most part are more restricted than traveler vehicles when it comes to controlling quickening, braking and perceivability - an essential factor that adds to business truck mishaps. There are two sorts of backside crashes including these enormous trucks. The first, and progressively normal, happens at the point when a business truck strikes a traveler vehicle. The second, and regularly increasingly destructive, happen when a traveler vehicle strikes a business truck. Backside crashes brought about by business trucks are regularly the immediate or backhanded consequence of flawed brakes. Weakness or an absence of consideration was is likewise regularly a contributing element to mishaps in these circumstances. This peril happens frequently on interstates, at the point when drivers navigate significant lots of street without numerous turns, stops or convergences. Subsequently, the drivers are more prone to loosen up their cautiousness, hence diminishing the drivers ability [3][4].

The second kind of backside crash, a traveler vehicle striking a business truck brought about by poor lighting conditions and is twice as liable to happen around evening time. Business trucks struck by traveler vehicles are frequently disregarding lighting guidelines. This may make trucks progressively hard to see and react to securely. This sort of mishap has a higher casualty rate in light of the fact that of a wonder known as truck under ride. A truck under ride crash happens when a traveler vehicles goes somewhat or entirely under the truck or trailer. Since the traveler vehicle's purpose of effect isn't at the vehicle's guard, those inside the vehicle are more averse to get the assurances offered by both the guard and the vehicle's casing. This defenselessness incredibly improves the probability of death or genuine damage to tenants of the vehicle [3]. Most semitrailers are required to have under ride watches. These are steel banishes that dangle from the backs of trailers to keep the front of a traveler vehicle from moving underneath amid an accident. Prior research demonstrated that the least quality and measurements required for under ride watches are inadequate so these can't keep the traveler vehicles and its tenants viably [5]. Notwithstanding, not all trucks have under ride monitors, not all under ride monitors execute as they ought to in shielding traveler vehicles from sliding under the back end of a truck and getting squashed. Back effect monitors most most likely avert traveler autos from sliding under the backside of the truck to the point where the traveler compartment is struck. The present solid back under ride watch norms are a security bargain that does not ensure all sizes and loads of current vehicles. They at last are unreasonably firm for little vehicles or are unreasonably frail for vast vehicles. Just energy absorbing monitors give insurance to most sizes and loads of current vehicles and present day structures are shoddy and easy to actualize [6][7].

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/335444070>

Review on Spalling of 20 HI Rolling Mill Rolls

Article · May 2019

CITATIONS

0

READS

3

1 author:



Dhiraj Patil
Raisoni Group of Institutions

8 PUBLICATIONS 7 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:



Effect of cerium oxide nano-particle fuel additive on cotton-seed bio diesel. View project



Heat Treatment of Tool Steel View project



hL
PRINCIPAL
K.C.E.SOCIETY'S
COLLEGE OF ENGG. &
MANAGEMENT, JALGAON

Review on Spalling of 20 HI Cold Rolling Mill Rolls

Mr. Dhiraj S. Patil

Assistant prof. KCE'S COEIT, Jalgaon, Maharashtra, India

Mr. Manoj D. Salunke

Assistant prof. KCE'S COEIT, Jalgaon, Maharashtra, India

ABSTRACT: *Miss happening of moves of moving plant is a noteworthy issue for any industry and it influences the properties and nature of material just as creation limit of a factory. In this examination paper, the materials which are utilized for making 20 Hi plant rolls and its warmth treatment system amid assembling is incorporated. Here, different kinds of non-damaging systems are additionally referenced, which is utilized for testing of 20 Hi plant rolls. The principle objective is to feature those reasons which are in charge of the spalling of Roll and how to dodge it.*

Keywords: Rolls for 20 HI mill, Steel grades for rolls, Heat treatment, Sub-zero treatment, NDT techniques, Spalling

I. INTRODUCTION

Rolling is the most vital shaping procedure. Over 95% of ferrous and non-ferrous metals and composites are prepared to their usable shapes by moving like the plate, sheet, strip, foil and distinctive areas like rail, shaft, channel, edge, bar, pole and consistent pipe and so forth. Here, perpetual disfigurement is accomplished by exposing the material to high compressive worry by enabling the material to go through the hole between two pivoting barrel-shaped rolls. The rolls might be level or scored and are kept at a fixed separation separated from one another. The rolls are pivoted inverse way by methods for electrical drive framework. When moving of material is done at room temperature or underneath the recrystallization temperature of the material, it is called cold rolling. The moving plant comprises of moves as the fundamental instrument and relies on the number of rolls utilized in moving a plant; it tends to be structured as 2 Hi, 4 Hi, 6 Hi, 8 Hi, 12 Hi and 20 Hi moving factories. In ongoing patterns in India, for the most part, 4 Hi and 20 Hi moving factories are introduced in steel generation plant. The life of the moves for viewpoint plant relies on principally the choice of material, the generation technique, heat treatment, and machining process. Here, the depiction about assembling and distortion of moves of 20 HI moving plant is talked about.

II. ROLLS FOR 20 HI MILL

20 Hi, plants are extraordinary in the component as they have chock less gliding work rolls and a bunch setup for the back-up direction. It comprises of 2 work moves, 4 moderate moves, 2 icon moves, 4 drive rolls, and 8 back-up courses.

Outline of construction:

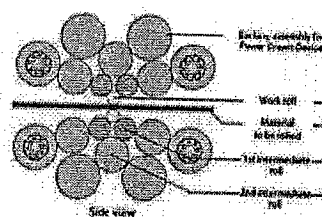


Fig.1 Set of 20 HI Rolling Mill Rolls

In 20 Hi factory, diverse materials and hardness are utilized relies on the different use of factories. General steel evaluations and hardness of 20 Hi factory rolls are,

Rolls	Steel Grades	Hardness Range
Work Rolls	AISI D-2	60/64 Rc
	AISI M-2	61/65 Rc
	AISI M-1	61/63 Rc
	AISI M-35	62/68 Rc
	ASP-2023	61/67 Rc
	ASP-2030	61/67 Rc
Intermediate Rolls	SPZ (H-11 M)	55/60 Rc
	AISI H-13	53/56 Rc
	AISI H-12	54/57 Rc
	AISI D-2	55/60 Rc
Driver rolls	SPZ (H-11 M)	55/60 Rc
	AISI H-13	53/56 Rc
	AISI H-12	54/57 Rc
	AISI D-2	55/60 Rc
Idler Rolls	SPZ (H-11 M)	55/60 Rc
	AISI H-13	53/56 Rc
	AISI H-12	54/57 Rc
	AISI D-2	55/60 Rc

Table 1: various steel grades and hardness of 20 hi mill rolls

III. HEAT TREATMENT

Warmth treatment of rolls is painstakingly done in gas terminated impartial salt shower heaters. The benefits of a salt shower are predominant temperature consistency, lesser surface oxidation, and scale development. The consistency of microstructure through the whole length and segment originates from exact temperature and exact living arrangement time in



the salt shower. Right off the bat, they are Austenitized to reasonable temperature; home time in the shower relies upon the segment and creation of the material. Rolls are then extinguished appropriately to achieve the ideal mechanical properties. Rolls are numerously tempered to required bridle. Hardness is checked at outrageous closures and at the center by Indentation type analyzers just as Equotip analyzer.

IV. SUB-ZERO/CRYOGENIC TREATMENT

While heat treating work moves, some measure of austenite is held after warmth treatment which gives delicateness in the microstructure of rolls. To diminish held austenite and to change over the equivalent into martensite, below zero treatment is suggested.

In below zero treatment, work rolls are solidified according to the typical HT cycle. After beginning treating they are cooled to below zero temperature for example between 70°C-80°C. At this temperature held austenite is changed to martensite. Rolls are held at this temperature for 6 to 8 hours. At last rolls experience treating cycle to accomplish reasonable hardness. Because of the adjustment of metal, stresses and strains are expelled and a better life is gotten. Below zero treatment is much helpful to D2/D3 steels and furthermore for fast steels.

Cryogenic treatment is finished by the vanishing of fluid nitrogen, where temperature goes down to - 185°C. After this treatment rolls are permitted to come to room temperature and after that various tempered for required hardness.

Hardness by Sub-zero/Cryogenic treatment increment by 1-2 HRC.

Advantages of below zero treatment:

- 1) Life of move increments.
- 2) Soft spot is decreased.
- 3) Wear obstruction improves.
- 4) Dimensional dependability is accomplished.
- 5) Higher hardness is accomplished.
- 6) Less helpless to surface breaks.
- 7) Stable and minimized structure is acquired.
- 8) Longer runs and better clean capacity of rolls.

V. NON-DESTRUCTIVE TESTING

When a roll is finished, whatever deformity is inside the roll can't be seen with bare eyes. From outside, the move has all the earmarks of being typical. There is each probability that there are minute surface and sub-surface deformities, might be because of Raw material or Heat treatment. These imperfections are to be dictated by Non-dangerous testing. Here, four NDT strategies are portrayed beneath,

A. Ultrasonic Test : An ultrasonic test is utilized to recognize inner breaks by heartbeat reverberation contact strategy or back reflection method. Piezoelectric waves are produced by a test. While contracting object by test, these waves spread in the item and get reflected if any stage change happen. In the event that there is no stage change, at that point wave gets reflected from the opposite end of an item which comes back from the full profundity of material. In an instance of irregularity waves are reflected from break. Portrayal on a screen will tell whether there is blemish or irregularity in the material.

A test is led according to ASTM A388/A388M dismissal criteria is,

- 1) The loss in back divider reverberation surpassing 20% of starting reverberation.
- 2) Traveling brokenness over 5% of introductory reverberation.
- 3) Any brokenness defect equivalent to or more noteworthy than 10% of the retrogressive reverberation.

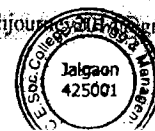
With the utilization of appropriate test inside imperfections can be identified. Some of the time there is a flag showing a defect at the surface, yet it isn't noticeable with stripped eyes. In such cases, corrosive carving is done to find out surface imperfection. An ultrasonic test can illuminate following deformities;

- a) Internal splits/blemishes: These, for the most part, happen where there is an uncommon change in a cross segment and break spreads along the hub or longitudinal heading.
- b) Piping absconds: These are fashioning surrenders and can be alongside the pivot in the center zone.
- c) Slag consideration: These happen amid throwing the ingots for fashioning.
- d) Shrinkages: These are common because of less material while throwing the ingots.
- e) Internal fashioning lap/folds: These are manufacturing surrenders and are caused because of a covering of ingots.
- f) Porosity: These are because of caught gases or exhaust amid throwing the ingots.

B. Acid Etching Test: Surface to be analyzed is cleaned by liquor. At that point, it is scratched with 1:3 or 1:4 arrangement of nitric corrosive in methanol. Overheated zones, pounding splits, wound stamps and surface breaks become unmistakable after corrosive scratching. The way toward drawing demonstrates unmistakably the damaged regions. Ultrasonic test related to corrosive scratching is entirely solid.

C. Magnetic molecule test : This test is led to recognize breaks on the surface and sub-surface layers in ferrous material as it were. Ordinarily, Iron particles are suspended in soul or petroleum and the arrangement is spread over the outside of moves in the wake of charging the surface. Gathering of iron particles over the surface of rolls demonstrates breaks. Attractive particles test is led according to ASTM SA 275 and SE 709. Any attractive particles develop having a width more than 1.0 mm and proportion of length to width multiple occasions will mean imperfection/break. Following imperfections can be followed by an attractive molecule test,

- 1) Forging blasts: These imperfections are because of the temperature of the metal, lesser than required.
- 2) Flakes: These splits may happen at the outside of sub-layer the material and are because of quick cooling of the



- moves amid warmth treatment.
- 3) Grinding splits: These surface breaks are created because of inappropriate crushing.
 - 4) Local warming breaks: These splits are created when the rolls are in an administration where high weight powers are in application coming about high work solidifying.
 - 5) Stress splits: These are created while the material is being used/in an administration where a material is exposed to substantial exchanging or fluctuating pressure.

D. Dye Penetrant Test : This test is directed for identifying surface breaks in ferrous and non-ferrous material by use of engineer and penetrant. Any dim hairline will be treated as a deformity. This test is performed subsequent to granulating.

Following fine surface imperfections can be followed by Dye Penetrant Test,

- 1) Surface solidifying splits: This sort of break, for the most part, happens when the hardness of the surface layer is more than the sub-layer hardness.
- 2) Pitting: These are stick/punch type stamps and happen at the surface.
- 3) Grinding splits: These are because of granulating heat and are called heat checks.
- 4) Local warming breaks: These splits are created at the surface when the rolls are in an administration where high squeezing powers are in application bringing about high work solidifying.

VI. SPALLING OF COLD MILL ROLLS

Chipping off, flaking off, dismembering of a portion of the roll from the roll barrel is known as spalling. Spalling can occur both in work rolls as well as in back up rolls are usually the end effect of crack generation and propagation. Normally, factors responsible for crack generation are;

- A. **Residual Stresses** - Develop in the roll manufacturing process such as heat treatment and roll grinding. Crack propagation could be rapid rolling under stress and rapid premature failure takes place in case of extremely high residual stresses left in the roll.
- B. **Thermal Gradients** - Crack develops in regions between a top hardened surface and sub-surface below, during grinding stage. Gradually crack develops and propagates
- C. **Contact Fatigue** - Crack initiates due to compressive stresses experienced during contact between roll and strip while rolling. Mostly cracks grow under fatigue conditions.
- D. **Hydrogen Embrittlement** - Under inadequate supply of coolant, hydrogen is released due to decomposition of coolant/lubricant, when temperature between roll surface and strip becomes high. This hydrogen is picked up by roll surface where the structure is martensite.
- E. **Local overstressing of roll surface** - Local overstressing of roll surface can be caused due to several reasons such as,
 - 1) Stopping the move under screw down/water driven weight.
 - 2) By over the top move face weight amid beginning the plant.
 - 3) Excessive body weight brought about by inadequate or uneven camber.
 - 4) Skidding amid rolling.
 - 5) Laps and overlays lead to neighborhood overheating of the rolls.
 - 6) Shifting and collapsing of strip amid rolling.
 - 7) Strip crack/Pinching/Power disappointments.
 - 8) Local over-warming.
 - 9) Rolling tight width strip on one moving shower.
 - 10) Uneven cooling of the roll.
 - 11) Excessive work solidifying.
 - 12) Annealing buildup/outside bodies in move hole.

Spalling is normally found in the territory of most astounding contact weight between the work and back up roll. It is attractive, in this manner, to give a uniform contact weight dispersion over the essences of the rolls. Be that as it may, because of such factors as plant configuration, move wear, chamfers, mechanical crowns, warm crowns, move bowing powers and so forth the weight is commonly not uniform.



Fig.2 Spalling in roll

In the event that the breaks proliferate towards one another, they result in a major spelling or on the off chance that the splits spread inverse way to one another, they result in two little zones, chipping off. It should dependably be recollected that the spalling starts in little early splits or breaks on or just beneath the move body surfaces. These discontinuities extend under moving weight a circumferential way. Exhaustion cracks happen and at some point or another spall shows up on the moving surface.

"Spalling" is the inevitable significant disappointment of a moving surface prompting the roll being rendered much of the time as pointless, despite the fact that its birthplace might be in a clear little and immaterial surface imperfection. Spalling



is certifiably not an unconstrained procedure, by avoiding potential risk it could be limited.

F. How To Avoid Spalling

- 1) Coolant ought to be adequate and ought to be of good quality.
- 2) HNO₃ arrangement at whatever point strip breaks or slides, roll ought to be checked for harm with the assistance of amplifying glass with a utilization of 3-5%.
- 3) Stress mitigating ought to be accomplished for 4 hours at 160°C/180°C, after 3 or 4 regrinding.
- 4) Sufficient stock evacuation is prescribed to expel work solidified layer. Hardness ought to be taken back to a unique dimension.
- 5) Strict physical examination of each roll ought to be done in the wake of taking them out.
- 6) Die infiltration testing/ultrasonic testing/vortex current testing to be performed to guarantee that going into the next battles is free from deformities.
- 7) Check hardness of each move when use, work solidifying ought not to be more than 2 HRC and work solidified layer ought to be expelled totally in regrinding.
- 8) For regrinding of skin pass factory moves, tar or shellac fortified wheel is prescribed to abstain from babbling and miniaturized scale splits.

VII. CONCLUSION

It very well may be broke down that determination of material, appropriate warmth treatment and cryogenic treatment are have imperative significance on the life of roll. Likewise, in the working state of factory intermittently testing of move with NDT procedures is vital to distinguish the imperfections. The reasons in charge of spalling of coming in virus moving factory and techniques to keep away from it were featured. It is distinguished that the essential driver of move absconds is move spalling and it is initiated in the moves through different plant operational angles. With the utilization of different NDT methods, the early discovery of surface and sub-surface deformities is conceivable. These can be dispensed with by the procedure of move granulating and diminishes the opportunity of spalling.

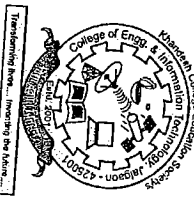
Reference

- [1] Limei Jing (2003). Rolling Mill Roll Design, Durham E Theses. School of Engineering, University of Durham
- [2] Dr. Karl Heinrich Schröder, "A Basic Understanding of the Mechanics of Rolling Mill Rolls", ESW & PRC, 2003
- [3] E. Haberling and H. H. Weigand, "Correlation between mechanical properties, microstructure and performance of high speed tool steels", P1 70, Proceedings of the international conference held at the National Physical Laboratory, Teddington, Middlesex, on 28 and 29 April 1981. Published by Metal Society London
- [4] Robert Wilson, "Metallurgy and Heat treatment of tool steels", London: McGraw Hill, 1975
- [5] R. Wilson: 'Metallurgy and Heat treatment of Tool Steels', 1975, Maidenhead, UK, McGraw-hill
- [6] Joseph V. A, Bensely A, Mohan L. D and Srinivasan K. Deep cryogenic treatment improves wear resistance of EN31 steel. Materials and Manufacturing Processes, Volume 23, 2008, pp.369-376
- [7] "NDT Resource", Internet URL http://www.ndt-ed.org/index_flash.htm
- [8] K.K. Singh et. al, (2011) Detection of defects on Cold-Rolling Mill (CRM) rolls with Ultrasonic & Eddy current law detectors, NDESAI Jamshedpur, India
- [9] Davis Joseph R., "ASM Handbook : Volume-17, Nondestructive Evaluation and Quality Control", ASM International Materials Park, OH
- [10] Udo Schlengermann, "Determination of Crack Depth using Ultrasonics - An Overview", URL <http://www.ndt.net/article/wsho0597/schleng2.html>
- [11] John Hansen, "The Eddy Current Inspection Methods - Applications, Practical Testing & Advanced Concepts", Insight, 46(8) (2004) 1-4
- [12] "PDCA12-70 data sheet," Opto Speed SA, MezzoShiang-Cheng Jeng and Horng-Shing Chiou (2011) Analysis of surface spalling on a First Intermediate Roll in Sendzimir Mills, World Academy of Science, Engineering and Technology 57 vico, Switzerland.
- [13] Soszyński, A. Studnicka, BIPROMET S.A. ul. Graniczna (2012) A review of contemporary solutions for cold rolling that allow quality improvement. W. 29, 40-956 Katowice, Poland, International OCSCO world press

hL



PRINCIPAL,
K.C.E.SOCIETY'S
COLLEGE OF ENGG. &
MANAGEMENT, JALGAON



Khandesh College Education Society's
COLLEGE OF ENGINEERING AND INFORMATION TECHNOLOGY

SECOND SHIFT POLYTECHNIC, JALGAON
&
NAAC ACCREDITED | Affiliated to DBATU, Lonere | KBC NMU, Jalgaon & MSBTE

A Multidisciplinary National Conference on Management, Engineering & Science
10th April 2019

Certificate

This is to certify that

Prof. D. K. Thakur

has Presented / Attended the paper titled

Most popular and Modern Methods of atmospheric purification
A Multidisciplinary National Conference On Management, Engineering & Science

[Signature]
Dr. (Mrs) P. Sandya A. Vikhar
Conveners

[Signature]
Prof. Sanjay R. Sugandhi
Conveners

[Signature]
Dr. K. P. Rane
Principal

Off. N. H. No. 6, Behind DIC, Jalgaon 425001 (Maharashtra) INDIA Visit Us at : www.coeit.kces.in Contact : (257) 2242025, 26, 27, 52



PRINCIPAL
KHANDESH COLLEGE EDUCATION SOCIETY'S
COLLEGE OF ENGG. & INFORMATION TECHNOLOGY,
JALGAON

Ergonomic Design and Development of Flywheel in Exercise Equipment

Mr. Ramkant Patil

ME (Machine-Design), Assistant Professor in Mechanical Engineering KCES's COEIT-Jalgaon

Mr. Sushil D Patil

ME (Machine-Design), Assistant Professor in Mechanical Engineering KCES's COEIT-Jalgaon

Abstract - In this project importance of human muscle energy as an alternative energy source is investigated, since beginning to present state and its future scope. Natural fuel Use is increased due to industrial development and these sources oil, coal and Natural gas reservoirs are limited. Human power credit is more because of health benefit as a source of energy. Human power is an endless source of energy, which has been wasted.

Power Generation Using human effort is a force for the future. With increasing demand for fuel and a new source of energy, development of human powered generators become a necessity.

Thus, it is of extreme importance that the ergonomic design is interdependent on the design factors. Therefore, we followed all the design Factors of Ergonomic Design. Ergonomic design means irrespective of the type of product and its function, evaluating it in terms of maximizing the interaction between product and user to make it more appropriate for use. People have to move in order to stay healthy, so we might as well use that energy to operate machinery. The trouble is that the present approach to pedal power results in highly inefficient machines.

We are looking to expand upon these designs and build a device that is safer and more power efficient. If our product design were to be built and shipped to people across the globe, it would be imperative that it meets all the safety specifications that any national commercial product entails.

Key Words: human power, economic trend, eco friendly, Alternator, flywheel etc.

1. Introduction

In the last century, the population growth and the economic development process through all the world has directly affected in total energy consumption, not only electricity. That is because the consumption of energy is usually related to the population's living standards, which is tied to economic and social welfare. The developing countries and emerging economies, with their late industrialization and modernization processes, have a considerable share in this growth and it is estimated that by 2030 those countries will reach the same level of energy consumption than developed countries, as shown in Figure below.

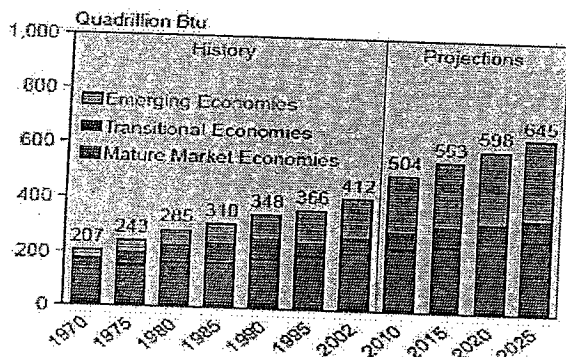


Figure 1: World marketed energy consumption by region, 1970 - 2025

1.1 Requirements



Figure 3.1: Block Diagram of Overall Project Design

A simple block diagram of the overall project design is shown in Figure 3.1.

The project's main Moto is simply to charge a battery array with a produced 24V DC from the stationery frame with all attachments design; however, for this project design to be considered successful, a list of primary and secondary objectives has been determined.

Primary objectives include:

- Low Production Cost
- High Safety

Secondary objectives include:

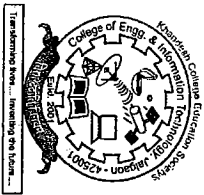
- High Energy Efficiency
- Low Upkeep
- High Product Durability
- Use For Exercise purpose in gym

The first two major objectives were identified for their obvious necessities. With the majority of people without energy

ML



PRINCIPAL
 K.C.E. SOCIETY'S
 COLLEGE OF ENGG.
 MANAGEMENT, JALGAON



Khandesh College Education Society's
COLLEGE OF ENGINEERING AND INFORMATION TECHNOLOGY
&

SECOND SHIFT POLYTECHNIC, JALGAON

NAAC ACCREDITED | Affiliated to DBATU, Lonere | KBC NMU, Jalgaon & MSBTE

A Multidisciplinary National Conference on Management, Engineering & Science

10th April 2019

Certificate

This is to certify that

Prof. R. B. Patil

has Presented / Attended the paper titled

Ergonomics design and development of flywheel in exercise equipment
A Multidisciplinary National Conference On Management, Engineering & Science

[Signature]
Dr. (Mrs) Prandya A. Vikhar
Conveners

[Signature]
Prof. Sanjay R. Sugandhi
Conveners

[Signature]
Dr. K. P. Rane
Principal



PRINCIPAL
Khandesh College of Engineering & Information Technology

Review On Stress Analysis Of Bolt To Connect Two Plates In Circular Array Patteren By Using Finite Element Methodology

Mr. Sushil D Patil

ME (Machine-Design), Assistant Professor in Mechanical Engineering KCES's COEIT-Jalgaon

Mr. Ramkant Patil

ME (Machine-Design), Assistant Professor in Mechanical Engineering KCES's COEIT-Jalgaon

ABSTRACT : This paper focus on stress analysis by using fasteners. Today every machine no of mechanism is assembled at that time fastener is used. Due to this paper M8 & M10 Bolt is used, this bolt are fixed in square plat but pattern is used first bench mark in circular pattern check stress a nalysis by using UTM machine in Tensile test & second bench mark rectangular pattern both bolt is used to check stress analysis with the help of UTM machine also FEA software is used Finite element analysis is a computer based numerical technique that is used to solvestress analysis, and other types of engineering problems. It was first used to solve stress analysis problem but is now used in solving many types of engineering problems FEA reading & experimental reading finally compare & find out which patteren is safty during application Hence, the cause of failure is understood & eliminated

KEY WORDS : Universal Testing machine, FEA

1. INTRODUCTION

Many methods exist for bringing together similar or dissimilar structural materials, in terms of the joining technique utilized. Conventional mechanical joints, such as bolted, pinned or riveted are preferred due to their simplicity and the disassembly ability that they offer for joining metal or composite materials. However, when a mechanical joint is loaded, local damage is induced at the fastener holes due to stress concentrations. This fact leads to the structural degradation of a joint and jeopardizes the structural integrity of the assembly structure. The demands for designing lightweight structures without any loss of stiffness and strength have turned many researchers and design engineers to seek for alternate joining methods. Thus, the field of structural adhesive bonding has matured with the development of a wide range of adhesives from the chemical industry. Adhesive bonding is a material joining process in which an adhesive, placed between the adhered surfaces, solidifies to produce an adhesive bond. The reasons why adhesive bonding is so desirable compared to other conventional joining methods (e.g. fastening).

1.1 Definitions

Fasteners are defined as hardware that can be easily installed and removed with hand or power tools. Common fasteners include screws, bolts, nuts and rivets. The terms bolts and screws do not refer to specific types of fasteners, but rather how they are used (i.e. the application). Thus the same fastener may be termed a bolt or a screw. Bolts are defined as headed fasteners having external threads that meet an exacting, uniform thread specification such that they can accept a non-tapered nut. Screws are defined as headed, externally-threaded fasteners that do not mate with a non-tapered nut and are instead threaded into the material they will hold. As shown in figure 1, a bolt joint can be defined as that which uses a bolt and nut assembly (inherently requiring two tools to tighten or loosen) whereas a screw joint can be defined as one in which a screw is mated into a matching female thread in a work piece (therefore only requiring one tool to tighten or loosen). As seen in figure 1, studs are a hybrid between a bolt and a screw, since one end of the stud functions as a screw while the other functions as a bolt.

1.2 Common Fastener Types

The Figure 1. 2 illustrates the variety of male fasteners used in industry; the most common types are hex head, slotted head, flat (or countersunk) head, round head, socket head, button head and socket set screw. In the most general sense, there are two classes of fastener threads: English and metric. For each class, regardless of country of origin, there are two types of threads: fine thread and coarse thread. The drill and tap chart summarizes this information in one convenient location and will be referenced later in these notes.

1.3 Types of Nuts

1.3.1 Round base nuts :- These nuts have a long threaded cylinder with a large circular base to make welding easy. They also sometimes have projections (known as weld nibs or bosses) to keep the nut from warping while welding with a high current.



Figure 1.3.1 Round base nuts

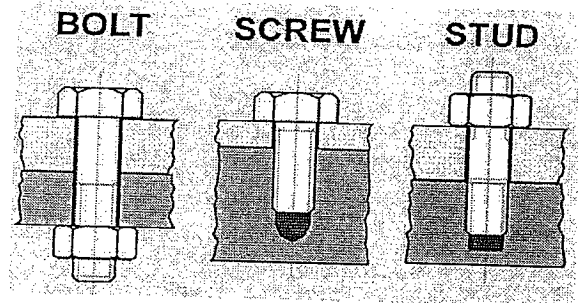
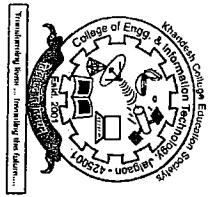


Figure 1.1. Bolt, screw and stud applications.



Khandesh College Education Society's
COLLEGE OF ENGINEERING AND INFORMATION TECHNOLOGY
&

SECOND SHIFT POLYTECHNIC, JALGAON

NAAC ACCREDITED | Affiliated to DBATU, Lonere | KBC NMU, Jalgaon & MSBTE

A Multidisciplinary National Conference on Management, Engineering & Science

10th April 2019

Certificate

This is to certify that

Prof. R.B. Patil

has Presented / Attended the paper titled

Review on Stress Analysis of bolt to Connect two plates in Circular array
A Multidisciplinary National Conference On Management, Engineering & Science

Prandya A. Vikhar
Dr. (Mrs) Prandya A. Vikhar

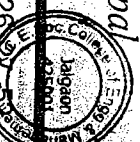
Conveners

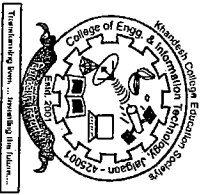
Sanjay R. Sugandhi
Prof. Sanjay R. Sugandhi

Conveners

K. P. Rane
Dr. K. P. Rane

Principal





Khandesh College Education Society's
COLLEGE OF ENGINEERING AND INFORMATION TECHNOLOGY
&

SECOND SHIFT POLYTECHNIC, JALGAON

NAAC ACCREDITED | Affiliated to DBATU, Lonere | KBC NIMU, Jalgaon & MSBTE

A Multidisciplinary National Conference on Management, Engineering & Science

10th April 2019

Certificate

This is to certify that

Prof. M.B. Pawar.

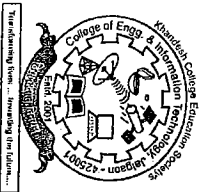
has Presented / Attended the paper titled

A Review Paper on Experimental & CFD Analysis of forced Convection heat transfer over Rubbed Surface.
A Multidisciplinary National Conference On Management, Engineering & Science

Prandya A. Vikhar
Dr. (Mrs) Prandya A. Vikhar
Conveners

Sanjay R. Sugandhi
Prof. Sanjay R. Sugandhi
Conveners

Dr. K. P. Rane
Dr. K. P. Rane



Khandesh College Education Society's
COLLEGE OF ENGINEERING AND INFORMATION TECHNOLOGY
&

SECOND SHIFT POLYTECHNIC, JALGAON

NAAC ACCREDITED | Affiliated to DBATU, Lonere | KBC NMU, Jalgaon & MSBTE

A Multidisciplinary National Conference on Management, Engineering & Science

10th April 2019

Certificate

This is to certify that

Prof. D. S. Patil


has Presented / Attended the paper titled

Review on Spalling 20HT Cold Rolling mill roll.

A Multidisciplinary National Conference On Management, Engineering & Science


Dr. (Mrs) Prandya A. Vikhar
Conveners


Prof. Sanjay R. Sugandhi
Conveners


Dr. K. P. Rane
Principal





Khandesh College Education Society's
COLLEGE OF ENGINEERING AND INFORMATION TECHNOLOGY
&

SECOND SHIFT POLYTECHNIC, JALGAON

NAAC ACCREDITED | Affiliated to DBATU, Lonere | KBC NMU, Jalgaon & MSBTE

A Multidisciplinary National Conference on Management, Engineering & Science

10th April 2019

Certificate

This is to certify that


Prof. S.M. Khaire

has Presented / Attended the paper titled

Most Popular and Modern Methods of atmospheric air purification
A Multidisciplinary National Conference On Management, Engineering & Science


Dr. (Mrs) Prandya A. Vikhar
Conveners


Prof. Sanjay R. Sugandhi
Conveners


Dr. K. P. Rane
Principal

