IEI Epitome

January 2020, Volume 5, Number 1

Contents

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Announcement

The Institution of Engineers (India)

Founder and National Member

World Federation of Engineering Organizations
(Fédération Mondiale des Organisations d'Ingénieurs)

WFEO

celebrates

WORLD ENGINEERING DAY FOR SUSTAINABLE DEVELOPMENT

4 March 2020

as a pride for engineers
for continual advancement
of science, technology and engineering

Members in the News

Dr C Sengottuvelu, FIE

Professor, Department of Management Studies, Acharya Bangalore B-School, Bengaluru

Received Award from Indian Institute of Materials Management for Best Article Support for Materials Management Review (MMR)-2019 during the National Convention (NATCOM) 2019.

Dr G Baskar, FIE

Professor, Department of Biotechnology, St. Joseph's College of Engineering, Chennai

Honoured with prestigious "Prof S B Chincholkar Memorial Award"of the Biotech Research Society, India (BRSI) for the year 2018 for his outstanding contributions in the area of Bioenergy and Food Biotechnology during the XVI BRSI Convention of the Society being organized as the International Conference on New Horizons in Biotechnology (NHBT 2019) at Thiruvananthapuram on 20 November, 2019.

Dr Deepak Khare, FIE

Professor, Department of Water Resources Development & Management, Indian Institute of Technology Roorkee

Received Aqua Foundation's Excellence Award 2019, under the category of Academic Excellence (Individual) from Hon'ble Minister Jal Shakti (Water Resources) Shri Gajendra Singh Shekawat during the International Conference – XIII World Aqua Congress 2019 on 30 October, 2019 at New Delhi.

Dr (Mrs) Mangal Dhend, AMIE

Assistant Professor, All India Shri Shivaji Memorial Society's College of Engineering, Savitribai Phule Pune University, Department of Electrical Engineering

Successfully completed four months professional education "Asia Pacific Leadership Fellowship" programme awarded by renowned East West Center, (EWC) USA from 5th August 2019 to 6th December 2019 with the maximum number of certifications possible from this award. She has advanced as a rank of professional associate of EWC and will continue to cater to its mission and outreach programme across the globe.

Mr Dayananda Shetty K, MIE

Assistant Engineer(Civil), Civil Engineering Department, New Mangalore Port Trust, Panambur, Mangaluru, Karnataka

Awarded with Doctor of Philosophy (Ph.D.) degree from the National Institute of Technology Karnataka, Surathkal in the area of Port Operations and Management under the guidance of Prof G S Dwarakish, Professor, Department of Applied Mechanics and Hydraulics, NITK Surathkal, on 2nd November 2019 during the Diamond Jubilee Year Convocation(17th convocation) of NITK. The title of the thesis is "Optimization of Vessel Turnaround Time in a Seaport with a special reference to New Mangalore Port Trust".

Members in the News

Dr T Phani Madhavi, AMIE

Associate Professor & Head of the Department, Department of Civil Engineering, Narasaraopeta Engineering College(Autonomous), Narasaraopet, Guntur, Andhra Pradesh

Participated as an Invited Speaker on "Innovative Water Treatment Technologies", at 10th International Congress of Environmental Research organized during 19-21 December 2019 at Adi Shankara Institute of Engineering and Technology Kalady, Kerala, in collaboration with Journal of Environmental Research and Development, Bhopal.

Mr Nilesh S Wakchaure, AMIE

Assistant Professor, K K Wagh Institute of Engineering Education and Research, Nashik

Successfully completed the course of Engineering Metrology with a consolidated score of 89% under the aegis of NPTEL-AICTE Faculty Development Programme.

Mr Venugopal S, MIE

Deputy General Manager, HLL Lifecare Ltd., Peroorkara Factory, Trivandrum

Received National Award (1st in the category of 'Best Trainer') in Rubber skill development for the year 2018-19 from Rubber Skill Development Council, New Delhi on 21 November, 2019.

Mr Omkar Suresh Vaidya MIE

Assistant Professor, Department of Electronics & Telecommunication Engineering, Sandip Institute of Technology & Research Centre, Nashik, Maharashtra

Texas Instruments, DST, AICTE and IIM-Bangalore are honoured to nominate Prof. Omkar Suresh Vaidya as member of the prestigious "Confederation of Elite Academicians of IICDC" for outstanding contributions and stellar commitment to inspiring engineering students to innovate and create ground breaking solutions.

ANNOUNCEMENT

International Conference on
Advances in Materials and Structures AMAS-2020
4-5 May, 2020
Department of Civil Engineering
Pondicherry Engineering College, Puducherry

For details:
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Organising Secretaries
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E-mail: pecamas2020@gmail.com
Conference Web: iconamas2020.ac.in

Publication by Members

Dr A G Matani, MIE
Professor, Department of Mechanical Engineering, Government College of Engineering, Amravati

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Title of Paper: "Blending Methanol as a Renewable Fuel in Automotive Industries towards Minimizing Vehicular Air Pollution", *International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, 8 (3), September 2019.*

https://www.ijrte.org/wp-content/uploads/papers/v8i3/C5198098319.pdf

Co-author: A Mali

Abstract: Methanol (CH3OH) and ethanol (C2H5OH) have came to limelight now-a-days because of their property of less polluting emittants and thought of as extremely economical due to its swish operative capacity. Low particulate level and soot free emission can also be obtained due to presence of oxygen in these fuels. We can obtain a considerable fuel efficiency and sound mileage if we double the carbon in ethanol which contains more energy. The structure is more similar to iso-butanol. Iso-butanol is unique in alcoholic fuels due to its equatorial affinity for water. The worldwide energy policy also aims to reduce greenhouse gas emissions occurred due to traditional fuels and thus developing renewable energy became an important part of this policy. Now-a-days transport sector has decreased its reliance on oil which generally contributes to hazardous environmental impact and to achieve this some alternative transport fuels such as biofuels, hydrogen and natural gas emerged up as a helping hand. Blending methanol into diesel and gasoline permits the mixture to possess an entire combustion with the presence of oxygen which increases its combustion efficiency and reduces greenhouse gas emission. Gasohol- a blend of gasoline and 10%methanol is available at plenty of petrol service stations as a regular automobile fuel within the United States. Brazil has successfully implemented and used methanol in terms of spark ignition engine operations as a fuel. Methanol has emerged up as a sustainable fuel for IC engines in past few decades because of its characteristics of soot free burning and higher efficiencies at less cost. The European Union decided to set 10% requirement of renewable energy in transport sector which is to be compiled with by 2020. In 2010, the transport sector utilized 4.70% of renewable energy out of which 91% was covered by biofuels. This paper discusses significance of methanol as a fuel for IC engines and its applicability in various sectors.

Keywords: Alcohol fuel; Anhydrous ethanol blends; Better fuel vaporization; High energy content; Higher blending octane; ISO-butanol

Dr N Venkateshwaran, MIE
Professor, Mechanical Engineering, Rajalakshmi Engineering College, Chennai

E-mail: venkateshwaran.n@rajalakshmi.edu.in

Title of Paper: "Ageing and Its Influence on Vibration Characteristics of Jute/Polyester Composites", *J Polym Environ 2019, 27, pp 2144-2155.*

https://scholar.google.co.in/citations?user=kVv3z4EAAAAJ&hl=en

https://doi.org/10.1007/s10924-019-01493-0

Co-author : S Senthilrajan

Abstract: In this work, the influence of ageing on vibration characteristics of jute/polyester composite was investigated by varying the fiber length and weight percent. The ageing of composite was carried out under normal and seawater in room temperature. From the result, it is observed that the composite with the fiber length of 5 mm and 25-weight percentage has least moisture absorption and permeability than other types in both normal and seawater due to better fiber-matrix adhesion and closed pack arrangement of fibers. In addition, the above said combination shows better stability and vibration properties are least effected. Further, due to aging, the bonding between fiber and matrix is significantly affect to a larger degree with increase in the fiber content and length, which in turn decreases the natural frequency and damping properties of the composites.

Keywords : Ageing; Seawater; Short fiber; Vibration and natural frequency

Publication by Members

Dr Anal Ranjan Sengupta, AMIE

Assistant Professor, Department of Mechanical Engineering, JIS College of Engineering, Kalyani, West Bengal

E-mail: analsengupta88@gmail.com

Title of Paper: "Computational Fluid Dynamics Analysis of Stove Systems for Cooking and Drying of Muga Silk", *Emerging Science Journal, 3(5), 2019, pp. 285-292.*

DOI: 10.28991/esj-2019-01191

Co-authors: R Gupta and A Biswas

Abstract: In India, Silk industry plays an important part in textile industry. Muga silk, the golden yellow silk is quite unique to Assam, North-east India where its production is regarded as an important tool for economic development. But, outdated manufacturing technology is followed during the silk production in Assam. The existing cooking process of silk cocoons consists of boiling of silk cocoons in a stainless steel vessel along with water and soda in an open fireplace which is highly energy inefficient. Therefore, two modified systems have been designed; one having cylindrical boiling chamber (vessel) and the other having spherical boiling chamber (vessel). Both the chambers are having a cocoon heating chamber associated with them for cooking and drying of silk cocoons simultaneously. These designs are further classified into two types of designs based on channel and nozzle type combustion chambers. Therefore, the main objective of this paper is to improve the existing designs to maximize the utilization of heat carried by the combustion gases. These modified systems are analysed by using Computational Fluid Dynamics (CFD) selecting standard k−ϵ model. From the analysis, it is seen that these new systems having nozzle type combustion chambers are more efficient than the systems having cylindrical combustion chambers and if these systems are used in silk production, it will be very beneficial for the silk industry as well as for our society.

Keywords: Muga Silk; Boiling Chamber; Cocoon Heating Chamber; CFD Analysis.

Dr Sardar Ali, FIE

Professor & Head of EEE Department, Deccan College of Engineering & Technology, Hyderabad

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Title of Paper: "Mobile, Radio and Satellite Communications in 5G Context". *International Journal of Engg. Research and Indu. Appls. (IJERIA) ISSN 0974-1518, 12(I), June 2019, pp. 17 -29.*

http://www.ascent-journals.com/IJERIA/Vol12No1/Paper-3.pdf

Co-author : Reshma Sultana Husna

Abstract: Due to the growing demand of "GBPS" data rate, lodging of more users and immature radio network, a new radio propagation technique namely Millimeter Wave Communication has been discussed seriously for implementing future 5G cellular networks. The global bandwidth limitation and increasing data rates are two essential factors that focusing researcher's eye from 4G patterns to 5G pattern. It is necessary to talk about current 4G and earlier communication system then exciting to 5G millimeter wave communication. The new 5G air boundary can be additionally combined with current LTE and Wi-Fi for providing high data rate and worldwide coverage and better client experience. The millimeter wave outdoor propagation is still a problem to solve. The designing aim of 4G was to improve capability, user data-rates, band usage and delayed with respect to 3G. 5G is just more than an evolution of mobile wideband communication. It will be an essential key facilitator of the future digital world. The vision of 5G mobile is driven from the predictions of up to 1000 times data requirement by 2020 and the fact that the traffic could be two thirds video embedded. 5 G in one sentence may be called as "Forever Plenty Velocity" to give consumers the ability of endless power". This paper makes clear that, the 5G mobile radio communication. The paper deals with the key drivers and troublesome capabilities for 5G as well as the design rules, key technological components, range considerations etc.

Keywords: 4G, 5G, internet of things, system tasks effectiveness, software variety, networking, especially impenetrable Networks (SIN)

Publication by Members

Ms Chaitanya Mayee M., MIE

Department of Mechanical Engineering Sanketika Vidya Parishad Engineering College, Visakhapatnam

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Title of Paper: "An Application of Interpretive Structural Modelling In Sustainable Supply Chain Management". *International Journal of Engineering and Advanced Technology (IJEAT), Blue Eyes Intelligence Engineering & Sciences Publication ISSN: 2249 – 8958, 9 (1), October 2019.*

https://www.ijeat.org/wp-content/uploads/papers/v9i1/A9429109119.pdf

Co-Authors: P.N.E.Naveen and Kevin Abraham

Abstract : The advent of globalization in the market has led to huge competition among the companies in various fields to achieve best supply chain practices. Increasing focus on environmental concerns has driven critical changes in industries' strategy by incorporating sustainability in their supply chain. A supply chain which does not threaten the opportunities for future generations by considering environmental and social impact in addition to the economic impact leads to the concept of Sustainable Supply Chain Management (SSCM). Firms adopt sustainability by implementing specific practices - named as SSCM practices, in supply chain. However they struggle to identify the influential practices. This Paper intends to analyse the SSCM practices in plywood Industries in Visakhapatnam using Interpretive Structural Modelling (ISM). ISM method is used to develop a structural model to identify the influential practices. The SSCM practices are identified through literature review and from domain experts and managers of industries. Then practices are grouped under the dimensions of sustainability namely economic, environmental and social. And ISM model is built through which the most dominant practice among them in each dimension is identified.

Keywords: Sustainability; Supply chain; Interpretive structural modelling; Plywood industries

Dr H N Suresh, FIE

Professor, Department of Electrical &Electronics Engineering, Malnad College of Engineering, Hassan, Karnataka

E-mail: mce.suresh@gmail.com

Title of Paper: "Performance enhancement of Hybrid interconnected Solar Photovoltaic Array using Shade Dispersion Magic Square Puzzle Pattern Technique under Partial Shading Conditions", *Solar Energy (Elsevier Publication), Vol. 194, 2019, pp. 602 – 617.*

DOI: https://doi.org/10.1016/j.solener.2019.10.068

Co-Authors: Mr. Manjunath and Dr. S. Rajanna

Abstract : During Partial Shading (PS) condition, Solar Photovoltaic (SPV) array exhibits multiple peaks in both Power-voltage and Current-voltage characteristics, leading to Mismatch Power Losses (MPL). Overcoming the losses, enhancing power and performance improvement of SPV array during PS conditions is a challenging task. MPL due to PS condition, not only depend on the shaded area, but also on SPV array Interconnections and Shading Patterns. The present investigation aims to enhance the output power of SPV array subjected to PS conditions. Studies are initially performed on eight combinations of SPV array test panel interconnections. Results obtained imply improved performance of the 'Proposed New Reconfigured Hybrid interconnected array' under four defined different typical partial shading conditions. Also, performance of 'Proposed New Hybrid interconnected array' with 'Shade Dispersion Magic Square Puzzle Pattern' technique applied is shown to be superior, compared with either SUDUKO or ODD-EVEN shade dispersion technique.

Keywords: Solar photovoltaic (SPV); Partial shading (PS); Hybrid interconnections; Shade dispersion magic square puzzle pattern(SDMSPP); Power enhancement

Publication
by Members

Dr Markandeya Tiwari, AMIE
Department of Civil Engineering, IIT BHU Varanasi

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Title of Paper: "Remediation of COD and Color from Textile Wastewater using Dual Stage Electrocoagulation Process", SN Applied Sciences (Springer Nature), ISSN No. 2523-3971.

DoI : 10.1007/s42452-019-1046-7

Co-authors : Singh G K, Singh N B, Shukla S P

Abstract : The study has been done to investigate the effects of the current density on COD removal, color removal and electrode consumption on simulated textile wastewater using malachite green dye in the dual stage electrocoagulation process with settler. The results indicated that double stage electrocoagulation with settler is efficient at current density 165 A/m2 and able to attain 92.60% COD removal and over 93.11% color removal. The most suitable current density for process is 135 A/m2 in term of COD and color removal efficiency giving removal of 90.93% and 92.18%, respectively. ANOVA (Analysis of variance) reveals that COD removal consistently changes for different COD concentrations among first and second stage electrocoagulation as well as settler. However, Tukey's test shows significant ($P<0.001$) removal of COD. In case of color, ANOVA reveals significantly different color concentration among first and second stage electrocoagulation as well as settler. Moreover, Tukey's test also shows significant ($P<0.001$) removal of color. In case of electrode consumption, t-test revealed significant electrode consumption. Correlating the removal of COD concentration (mg/L) and electrode weight loss (mg) by Pearson correlation analysis for 1st reactor and 2nd reactor, it revealed a significant and positive correlation between COD removal and electrode weight loss ($r=0.98$, $P<0.001$) indicating that as removal in COD concentration increases, electrode weight loss increases.

Keywords : Electrocoagulation; COD; Current Density; Wastewater

Prof D B Ghane, MIE
Department of Mechanical Engineering, Government Polytechnic Awasari (Khurd)

E-mail: dattu.ghane@gmail.com

Title of Paper: "Optimization of Design Parameters and Nozzle Wear on CNC Plasma Machine by Experimentation", *International Research Journal of Engineering and Technology (IEJET), 6(12), December 2019, S.No:56, pp 497-504.*

https://www.irjet.net/archives/V6/i12/IRJET-V6I1256.pdf

Abstract : Recently there is consistent research in machining and advancement in innovation. With increment in rivalry in advertise and to accomplish high exactness now a day the non-traditional machining is moved toward becoming help of any industry. A standout amongst the most imperative non-customary machining strategies is CNC plasma Machining. Its high precision, completing, capacity of machining any hard materials and to create mind boggling shape builds its request in showcase. In proposal work writing has been examined in setting to parametric improvement of CNC plasma Machining. With a specific end goal to achieve target and ideal outcomes, after find the optimization parameter the moved towered the optimization in size (design parameters) and minimum wear of nozzle. The fitting orthogonal cluster has been chosen according to number of components and their levels to perform least experimentation. The work bits of mile Steel materials were utilized for explore reason. While optimizing a plasma arc cutting nozzle design parameters to minimize the wear, several but selective machine process parameters and nozzle design parameters given by the various stack holders. This experimentation includes the process parameters as specifications given by manufacturer, dimensional accuracy report, roughness parameters analysis, material removal rate analysis and n addition to this, nozzle design parameters after burning the nozzle as, nozzle shell diameter, nozzle length, nozzle inner shell center pin diameter etc. Experimentation and parameters analysis comes about are given to affirm the viability of this approach.

Keywords: CNC Plasma; Material removal rate; Nozzle were; Operating parameter; Surface roughness

Publication by Members

Dr Biswajit Halder, AMIE
Associate Professor, Department of CSE , Narula Institute of Technology, West Bengal

E-mail: biswajithalder88@gmail.com

Title of Paper: "Even Big Data is not Enough: Need for a Novel Reference Modelling for Forensic Document Authentication", *International Journal on Document Analysis and Recognition (IJDAR), SCI@THOMSON REUTERS, 22(4), pp.1-11.*

DOI https://doi.org/10.1007/s10032-019-00345-w

Co-author: Utpal Garain

Abstract: With the emergence of big data, deep learning (DL) approaches are becoming quite popular in many branches of science. Forensic science is no longer an exception. However, there are certain problems in forensic science where the solutions would hardly benefit from the recent advances in DL algorithms. Document authentication is one such problem where we can have many reference samples, and with the big data scenario probably we would have even more number of reference samples but number of defective or forged samples will remain an issue. Experts often encounter situations where there is no or hardly a scanty number of forged samples available. In such situation, employment of data-hungry algorithms would be inefficient as they will not be able to learn the forged samples properly. This paper addresses this problem and proposes a novel reference modelling framework for forensic document authentication. The approach is based on Mahalanobis space. Two questioned document examination problems have been studied to show the effectiveness of our reference modelling algorithm which has also been compared to a commonly used learning approach, namely neural network-based classification.

Keywords: Document authentication; Questioned Document Examination (QDE); Mahalanobis Distance (MD); Mahalanobis Taguchi System (MTS); Deep Learning (DL)

Mr Anish Goswami, AMIE
Mechanical and Automation Engineering, Amity School of Engineering Amity University, Noida, Uttar Pradesh

E-mail: anishgoswami34@gmail.com

Title of Paper: "Analysis of Liquid Vapour Heat Exchanger using R22-DMF Vapour Absorption Refrigeration System", *International Journal of Engineering Technology Science and Research (IJETSR) ISSN 2394-3386, 3(5), May 2016.*

http://ijetsr.com/images/short_pdf/1462950677_giit338_ijetsr.pdf

Abstract: LiBr-H_2O vapor absorption refrigeration systems work without utilizing electrical energy and rather, they are controlled utilizing poor quality warmth vitality. The enhanced execution of these systems has dependably moderately relied upon the proceeded use and change of routine subordinate arrangement of heat exchangers. The consideration of Secondary Heat Exchangers in Vapor Absorption Refrigeration systems build the danger of crystallization as well as the weight drop in the arrangement lines and in this manner requiring high energy pumps for circulating the liquids. Along these lines, advancement of a novel Vapor Absorption Refrigeration system fusing an innovative high proficiency regenerative warmth exchanger with low upkeep expenses and decreased dangers of crystallization is the subject of this review. In particular, the purpose of this review is to depict the demonstrating, outline, simulating and testing of a liquid vapor heat exchanger (LVHX) using R22-DMF for enhanced adequacy of a novel Vapor Absorption Refrigeration system. R-22 or HCFC-22 (Chlorodifluoromethane) and DMF (Dimethylformamide) vapor absorption refrigeration system can be used for sub-zero temperature applications and in industries where ammonia is forbidden. But it needs rectification of vapor from generator and draining of residual R22-DMF liquid from evaporator. As such, owing to the comparatively low ratio of latent heat of vaporization to vapor specific heat of R134a, liquid vapor heat exchanger (LVHX) is required and the residual liquid further enhances its prominence in sub-cooling the incoming condensate to improve COP. LVHX is analyzed in detail by varying operating parameters like rectifier efficiency and evaporation and generator temperatures.

Keywords: R22 DMF – Dimethylformamide; R22-DMF Vapor Absorption Refrigeration System; LVHX – Liquid Vapor Heat Exchanger; Pinch point

Publication by Members

Mr Kumbhar Siddharaj Vijaykumar, AMIE

Assistant Professor, Mechanical Engineering Department, Shree Siddheshwar Women's College of Engineering, Solapur

E-mail: siddharajvk@rediffmail.com

Title of Paper: "Experimental Investigations of Developed Solar Still for Increment in Efficiency and Rate of Distillate", *International Journal of Heat & Technology (IJHT) International Information and Engineering Technology Association (IIETA) 37(2), pp 471-480, June 2019.*

DOI: https://doi.org/10.18280/ijht.370213

Co-author : Basgonda K Sonage

Abstract : The purity of water has become a very important aspect now-a-days by virtue of diminishing and polluted fresh water sources and increased ground water contamination levels due to arsenics and fluorides. Whilst many technological solutions of purification being invented; the most effective and cheapest method worldwide is only been – distillation, which yields about 99-99.7 % pure water. Solar distillation is the best way in terms of availability of energy, as solar energy is freely available throughout the year. But the other distillation processes require high energy to be produced by either burning fuel or at the expense of electricity. Thus solar distills are better than any other means. Over the years, the efficiency of solar stills has been reached to 32-35% and rate of distillate to 2-2.5 litres. An effort has been made for the improvement in design of stills by incorporating the reflectors and phase change material (PCM) for energy storage. The experimental investigations proved that the efficiency of the solar still raised up to 42 % and rate of distillate to 4 litres.

Keywords: Distillate; Efficiency; PCM; Reflectors; Solar still

Title of Paper: "Failure Investigation of Evacuated Tube Solar Collector of Water Heater", *Journal of Failure Analysis and Prevention (JFAP), 19(5),Sept. 2019, pp.1202–1206.*

DOI - https://doi.org/10.1007/s11668-019-00730-x

Abstract : The instances of failure of solar tube collectors of water heating systems are seldom reported. The investigation of these failures and deep insights of prevention is required to avoid incurring huge costs at breakdown. The solar water heating systems are designed for longevity and requiring less maintenance. In lights of maintaining systems, only collectors are kept dust free for better performance and up-keeping of efficiency. But often the problems like leakages and high TDS levels of water are neglected. These facts at a later stage affect the longevity and working of systems and cause the breakdown of system. Salts accumulation creates blockages in solar tube collectors and entrap water causing pressure rise due to superheating. This leads to cracking failure of tubes. High temperature failure of sealing gasket leads to leakage and corresponding failure of manifold. Salts accumulation may further lead to bursting of collectors, and manifold leakages may cause damage to it by corrosion. Failure of these collectors is not affordable cost wise, and it is as good as replacing parts with the new ones involving high expenses. This report gives a guide on maintenance and precautions by investigating failures of evacuated tube solar collectors.

Keywords: Evacuated tube solar collector; Manifold; Salts accumulation; Pressure rise; Gasket seal leakage failure; Preventive and breakdown maintenance

Announcement

Contribution for Centenary Celebrations of
The Institution of Engineers (India)

The Institution of Engineers (India) has entered its next Century in September 2019 and we intend to celebrate this significant landmark in a befitting manner. Various International Seminars are being organized in India and Overseas on contemporary and innovative themes culminating in Global Engineering Congress next year. Also, IEI has launched a special outreach programme to induct new members into its' fold along with an image enhancement programme to project the Institution both nationally and globally.

For this purpose, an IEI Centenary Fund has been established and the finances accrued by way of donation/sponsorship would be utilized to organize various events in the Centenary Year.

The contribution made under this section is exempted as per Section 80G of the Income Tax Act 1961, if made by cheque/draft/NEFT.

Details of IEI Centenary Fund are as follows.

Name of the Fund	IEI Centenary Fund
Bank	HDFC Bank
A/c No	50100301303426
IFSC Code	HDFC0000469

Technical Activities by Institutional Members

National Seminar on "Application of Laser in Manufacturing"

to be organised by

GIET University

Gunupur, Rayagada, Odisha

March 14-15, 2020

Mobile No.: 9861876251; Email: prabinapatnaik@giet.edu

Annual Technical Volumes of IEI are available online

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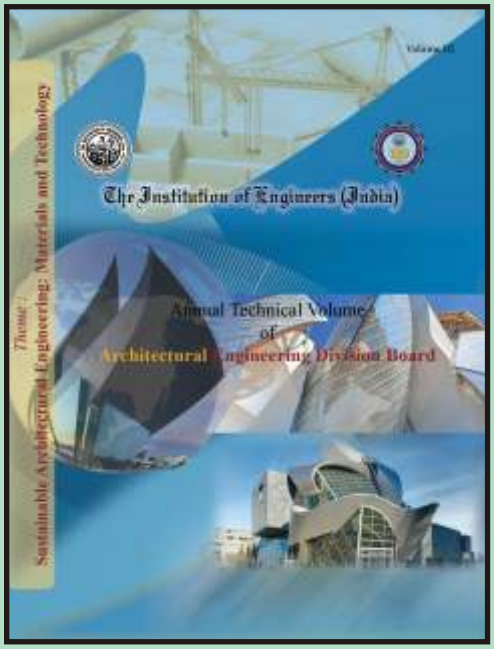

Theme
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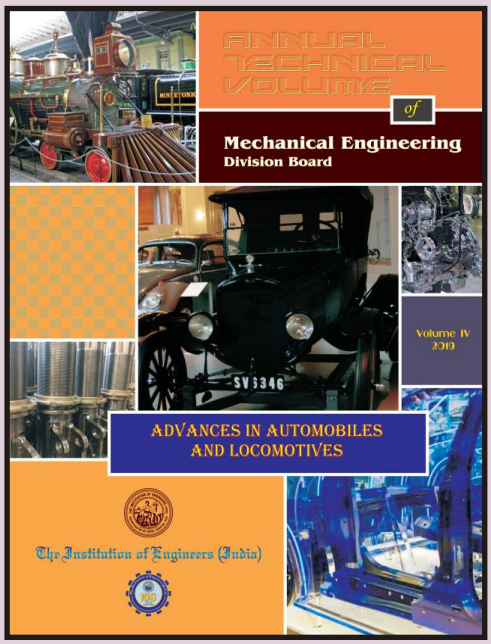

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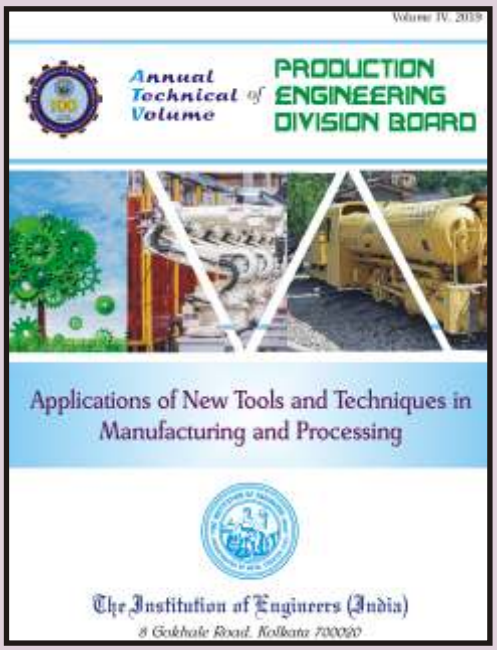

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IEI epitome

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