

IEI Epitome

Volume 8 | Issue 10 | October 2023

A Century of Service to the Nation

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Editor

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Secretary & Director General

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Mr D Nath, Mr A Deb, Mr A Das,
Mr S Bagchi, Mr P Barik, Ms P Nath,
Ms N Sikdar, Mr S K Mishra

Design & Outlay

Ms H Roy

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Notification for IEI R&D Grant-in-Aid

Volume 8 | Issue 10 | October 2023

To promote appropriate technology, assist in building up design & research talents and, most importantly, to help in nurturing potential R&D venture amongst engineering students pursuing Diploma/UG/PG/PhD courses. The Institution of Engineers (India) had instituted the R&D Grant-in-Aid program way back in 2001.

Every year, the Institution invites applications for funding industry-oriented R&D projects and research initiatives aimed at improving the life-style of common people from engineering students pursuing full time Diploma/UG/PG/PhD engineering program in AICTE/UGC/NAAC approved Institutions / Colleges / Universities. The application form and guidelines are available in our website <https://www.ieindia.org>. The projects should be carried out under the guidance of faculty members who are Corporate Members of IEI. Membership criteria for student(s), guide(s) and institution(s) are as follows:

| Project Category | Student/Applicant Membership | Guide(s) Membership | Institutional Membership |
|------------------------------|---|---------------------|---|
| 1. Diploma | Exempted [Membership of Student Chapter is desirable] | AMIE/MIE/FIE | Not Mandatory |
| 2. UG (BE/BTech/ Equivalent) | 'Student Member' (SMIE) | AMIE/MIE/FIE | Applicant's Institute should preferably be an Institutional Member with NBA/NAAC Accreditation or valid NIRF Rank |
| 3. PG (ME/MTech/ Equivalent) | AMIE/MIE/FIE | MIE/FIE | Applicant's Institute should preferably be an Institutional Member with NBA/NAAC Accreditation or valid NIRF Rank |
| 4. PhD | AMIE/MIE/FIE | MIE/FIE | Applicant's Institute should preferably be an Institutional Member with NBA/NAAC Accreditation or valid NIRF Rank |

The soft copy of the duly filled-up applications (in editable format), as per the proforma available on our website www.ieindia.org, should be sent through email to research@ieindia.org and one printed copy of the same should reach the following address:

The Director (Technical)
The Institution of Engineers (India)
8 Gokhale Road, Kolkata 700 020

Kindly go through the guidelines (visit link: <https://www.ieindia.org/webui/IEI-Activities.aspx#RnD-Initiative>) before filling up the application.

BOOK



Prof Dr Arjun Kumar A Rathi, FIE

Former Professor

CEPT University, Ahmedabad, Gujarat

✉ drakarathi@gmail.com

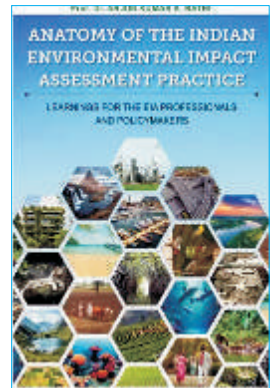
ANATOMY OF THE INDIAN ENVIRONMENTAL IMPACT ASSESSMENT PRACTICE: LEARNINGS FOR THE EIA PROFESSIONALS AND POLICYMAKERS

About the Book

Environmental Impact Assessment is practiced in almost all countries. This book endeavors to critically examine the different components of the Indian EIA practice, viz. EIA report preparation; executive summary, consideration of alternatives, risk assessment, and environmental management program in EIA reports; EIA review mechanism, EIA decision making- environmental approval terms and conditions; and EIA regulation and suggest distilled good practices for effective EIA studies.

The Indian case analyses offer learnings to different EIA stakeholders such as policy-makers, decision-makers, regulators, EIA professionals engaged in conducting EIA studies and preparing EIA reports, EIA reviewers, and NGOs working in the field of environment and sustainability across geographies. The book gives a different perspective to environmentalists and learners of the EIA and should provoke researchers to conduct empirical studies on the implementation of EIAs and evolve innovative methodologies to evaluate different aspects of the EIA practice to improve the efficacy of EIA.

Many books describe the theory and concepts of EIA but not the comprehensive evaluation of EIA practice. This book is the outcome of the author's experience and research papers related to empirical studies for the different components of the EIA practice in India as case analyses. The observations on the Indian policy as well as the implementation of the EIA process cannot be unique to India. Thus, the learnings from the limitations of EIA practice should be useful to the different stakeholders such as policy-making authorities, decision-making authorities, regulators, environmental consultants, EIA professionals, development bankers, and corporates across geographies. The book will serve as a pointer to the limitations of the EIA process and EIA practice to caution the stakeholders and help them fill the gaps.



ISBN-10 : 1636409636
ISBN-13 : 978-1636409634
Publication date : 27 July 2023
Publisher : White Falcon Publishing, Chandigarh

IEI Industry Excellence Award 2023

Request for Participation

The IEI Industry Excellence Award has been instituted to recognize industry leaders for their innovation, excellence in engineering operations and thereby, to lead their industry in competitive manner. The benchmarks created by the industries in India have included productivity, quality, safety and performance assurance thereby giving India the rightful place in the global markets. Realizing that such industries can provide the leadership to a large number of other industries in the country, it has been considered appropriate by the IEI Council to institute the IEI Industry Excellence Awards in the year 2008.

Applications in specified format (visit link: <https://www.ieindia.org/webui/IEI-Activities.aspx#industry-excellence-award>) are invited from prospective applicants for **IEI Industry Excellence Award 2023**. The last date of receipt of application for the Award 2023 is **31 October 2023**.

Interested applicants are requested to send their applications (Two hard copies & One soft copy in Pendrive/CD) to the below mentioned address.

The Director (Technical)
The Institution of Engineers (India),
8 Gokhale Road, Kolkata 700 020

PAPERS PUBLISHED IN THE JOURNALS / PROCEEDINGS



Er Aliasker K T, MIE

Research Scholar

Karpagam Academy of Higher Education (Deemed University), Eachanari, Coimbatore, Tamil Nadu

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Title of Paper: Utilization of Silicon Enriched Natural Halloysite NanoTube: Mechanical, Tribological, and Corrosion Behaviour in Magnesium Matrix Composites

Silicon, Springer, 15 July 2023, pp 4823-4834, ISSN: 1876-9918

DOI: <https://doi.org/10.1007/s12633-023-02394-7>

Co-authors: Gopal Pudhupalayam Muthukutti, Suresh Vellingiri, S Naveen & S Madhu

Abstract: Natural tubular clay nanoparticles called halloysite nano tube (HNTs) are constructed of aluminosilicate kaolin sheets that have been repeatedly rolled. Chemically, the outer surface of the halloysite nano clay had properties of SiO₂ while the inner cylinder core shows properties related to Al₂O₃. Halloysite has a 1:1 Al: Si ratio and stoichiometry Al₂Si₂O₅(OH)₄•2H₂O. So, an effort is made in this study to fabricate AZ31/HNT surface composites through Friction stir processing (FSP). A slot was produced on AZ31 magnesium plates of 8 mm thickness as an initial step in FSP and packed with particles of silica-rich HNT. The breadth of the grooves differed so as to contain three different volume fractions of HNT (2, 4, and 6 vol.%) and FSP was executed in a single pass. An optical microscope is used to examine the microstructure of the fabricated MMCs which confirms the formation of fine grains. The manifestation of the SEM outcomes confirms that particles of HNT were disbursed evenly in the AZ31 matrix with no cluster formations. Hardness and wear resistance of the developed composite surface increased with respect to HNT addition in which 38 and 48% improvement was observed respectively. The tensile strength of the developed composites was found less than the base matrix however it increases with HNT content. A great improvement in corrosion resistance of the AZ31 alloy is also observed with HNT addition. Optical and scanning electron microscope images show the silica-enriched natural halloysite nanotube in magnesium which influences the mechanical and wear properties significantly.

Keywords: Silica ; Natural Tubular Halloysite; Magnesium; Friction Stir; Microstructure; Wear

IEI Industry Excellence Award for Start Up Initiatives

Request for Participation

The engineering sector is experiencing remarkable growth with Government and private funding, presenting immense commercial potential on a global scale. Technology and innovation are the driving forces behind a vibrant MSME ecosystem, with start-ups acting as a perennial source of inspiration.

We cordially invite **start-up organizations** in Engineering, Consultancy Services, Construction, Healthcare, Utility Services, IT & Telecommunication, and related domains to apply for the prestigious IEI Industry Excellence Award 2023. To be eligible, applicant organizations must be duly registered with DPIIT, IN-SPACe, ISRO, Ministry of MSMEs, Government of India, and relevant State Industrial Development Corporations.

The IEI Industry Excellence Award 2023 aims to recognize and celebrate innovative start-ups that demonstrate exceptional promise and positive impact on society. By participating in this prestigious award, you not only stand a chance to gain industry recognition but also open doors to new opportunities, partnerships, and potential investors.

To participate, submit your applications using the specified format available at <https://www.ieindia.org/webui/IEI-Activities.aspx#industryexcellence-award>. The application deadline is **31 October 2023**.

Send two hard copies and one soft copy (Pen drive/CD) to:

The Director (Technical)

The Institution of Engineers (India), 8 Gokhale Road, Kolkata 700 020

We eagerly await your participation in this celebration of ingenuity and entrepreneurship.

Publication by Members

Volume 8 | Issue 10 | October 2023



Dr Gudimetla Chiranjeevi Reddy, MIE

Professor

National Institute of Fashion Technology, Hyderabad, Telangana

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Title of Paper: Inculcating Creativity: A Study on the Creative Abilities of Educators in the Field of Design

The Paris Conference on Education 2023: Official Conference Proceedings, Stream: Professional Training, ISSN: 2758-0962

DOI: <https://doi.org/10.22492/issn.2758-0962.2023.24>

Abstract: The study aims to evaluate the range of creative abilities of design educators in Indian colleges and universities. A total of 149 participants, including 49 males and 100 females, were surveyed using a questionnaire from the Leadership Assessment Tools. The study finds that only 2% of educators are classified as 'very creative,' and none are 'exceptionally creative,' with around 60% of educators being 'above average' in their creative ability scores. The study also suggests that educators with more experience or higher designation have higher creative ability scores. The findings of this study can be used to improve the curriculum, pedagogy, assignments, and evaluation criteria in educational institutions to promote creativity among educators and students.

Keywords: Creative Ability; Creative Thinking; Design Education; Higher Education; Inculcation of Creativity

IEI Industry Excellence Award for Overseas Organizations

Request for Participation

Discover IEI:

Welcome to The Institution of Engineers (India) or IEI – your gateway to engineering excellence and worldwide collaborations. With strong ties to esteemed international bodies, IEI stands as a beacon of innovation on the global stage. For more details, visit www.ieindia.org.

Introducing the IEI Industry Excellence Award:

To recognize industries' crucial role in shaping society and the economy, IEI instituted these awards in 2008. They honour remarkable innovation, excellence in engineering operations, and unwavering commitment to high standards.

Join Us in Celebrating Excellence:

We take immense pride in the global industrial achievements – productivity, quality, safety, and performance assurance that have earned industries a significant place worldwide. At IEI, we firmly believe that industry leaders like you hold the key to shaping a brighter future on a global scale.

Why Participate?

- ✦ Elevate Your Status: Gain national and international acclaim for your exceptional achievements.
- ✦ Lead the Charge: Set new excellence standards and inspire industries worldwide.
- ✦ Unlock Opportunities: Forge invaluable connections with like-minded global leaders.
- ✦ Champion the Profession: Participate and uphold engineering's prestige and integrity.

How to Participate: Visit <https://www.ieindia.org/webui/IEI-Activities.aspx#industry-excellence-award> and apply easily. Be part of a global celebration of engineering brilliance!

Join the Prestigious Ranks: Don't miss the chance to shine on the world stage. Unleash your organization's potential and celebrate engineering excellence with us.



Er Chiranjib Sarkar, MIE

Principle Engineer

Geoconsult India Pvt Ltd, Gurgaon, Haryana, Punjab

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Title of Paper: Realistic Estimation of Water Table Depth for Design Optimization of Bored Tunnel and Cut & Cover Tunnel Structures for Underground Metro

Deep Foundations for Infrastructure Development in India, Proceedings of DFI-India 2021 Annual Conference, Lecture Notes in Civil Engineering, Springer, Singapore, 315, April 2023, Print ISBN 978-981-19-8597-3, Online ISBN: 978-981-19-8598-0, Hardcover ISBN: 978-981-19-8597-3, Softcover ISBN: 978-981-19-8600-0, eBook ISBN: 978-981-19-8598-0, Series ISSN: 2366-2557, Series E-ISSN: 2366-2565

DOI: https://doi.org/10.1007/978-981-19-8598-0_14

Co-authors: Sibapriya Mukherjee & N Kumar Pitchumani

Abstract: *With the rapid expansion of urban transportation systems, tunnels and cut & cover structures are considered as the only solution in improving the urban space congestion problem in mass rapid transit system. Therefore, it is necessary to accurately design underground structures with realistic assumptions and considerations of design parameters like site geotechnical data, water table, surcharge load etc. Over conservative approach provides not only uneconomical design but sometimes it also causes overdesign of the concerned structures. Water table depth has a significant role in some design aspects of underground structures like floatation check, lateral and uplift pressure on the buried structure, etc. In current practice of tunnel and cut & cover structure design, water table is assumed to coincide with the ground level. Most of the Design Basis Reports & Outline Design Specifications directly mention consideration of water table at ground level for floatation check and load calculations, etc. However, the actual scenario is different in most of the cities specially in northern, central, western and eastern regions of India except the coastal cities.*

In the present study an attempt has been made to carry out a parametric study on the effect of water table depth in the design of a typical 6.3m outer diameter circular tunnel with 6m backfill. In this study, it is also attempted to establish an analytical method of calculating the most realistic consideration of water table depth instead of the present hypothetical assumption of considering water table to coincide with the ground level. The findings of the current study may be helpful to the researchers and practising engineers in design of tunnel and cut & cover structure for subways and metros

Keywords: *Underground Structure; Water Table; Floatation*

IEI Engineering Education Excellence Award 2023

Request for Participation

The IEI Engineering Education Excellence Award has been instituted to recognize leading Engineering Educational Institutions and encourage for better and more effective engineering education across the country. The engineering education sector has witnessed significant development, setting benchmarks for others to follow. Universities and institutions have expanded their scope beyond pedagogy and now engage in R&D activities, consultancy, patents, publications, skill development programs, industry interface, and the implementation of the New Education Policy (NEP), contributing to India's global prominence. Recognizing that such institutions can lead and inspire numerous others in the country, the IEI Council has decided to establish the IEI Engineering Education Excellence Awards.

Prospective applicants are invited to submit their applications in the specified format (visit link: <https://www.ieindia.org/webui/IEI-Activities.aspx#engineering-education-excellence-award>) for the **IEI Engineering Education Excellence Award 2023**. The deadline for submitting of applications for the Award 2023 is **31 October 2023**. Interested applicants are requested to submit their applications (**Four hard copies & One soft copy in Pendrive/CD**) to the below mentioned address.

The Director (Technical)
The Institution of Engineers (India)
8 Gokhale Road, Kolkata 700 020



Er Kamal Kumar, MIE

Technical Officer-C / PhD Scholar

Defence Materials & Stores and Research & Development Establishment, Kanpur, Uttar Pradesh

✉ lotusdrdo@gmail.com

Title of Paper: Moisture Management Properties and Drying Behaviour of Knitted Fabrics for Inner Layer Applications

Indian Journal of Fibre & Textile Research, 48(1), March 2023, pp 91-98

DOI: <https://doi.org/10.56042/ijftr.v48i1.59978>

Co-authors: Apurba Das, Prashant Vishnoi & Jitendra Pratap Singh

Abstract: The present research work is focused on moisture management properties and drying behaviour of various knitted fabrics for inner layer application. Nineteen knitted samples have been prepared by changing the blend percentage of wool/acrylic, number of filaments in polypropylene yarn and structure of knitted fabric. Yarns of different blend ratio of wool/acrylic fibre are used to knit fabrics of different structure. Polypropylene yarns having different number of filaments are also used to knit samples of different structure. These fabrics are tested for moisture management properties and drying behaviour. Wetting time, absorption rate, spreading speed, wetting radius, accumulative one-way transport index (AOWTI), overall moisture management capacity (OMMC), drying time and drying rate of the fabrics have been studied. It is observed that the overall performance of polypropylene knitted fabric and cotton knitted fabric are better as compared to the wool/acrylic having same structural parameters. The OMMC index of polypropylene plain knit, pile knit and cotton knit fabric is found as 0.70, 0.60 and 0.75 respectively. The polypropylene and cotton knitted fabrics shows better results than others in terms of the parameters, like maximum wetting radius, AOWTI, etc. Polypropylene knitted pile structure fabric shows minimum drying time (0.228 h) and zero residual moisture after wash at 90 min under standard conditions. So, it is found that the higher wool content in fabrics gives better moisture management and drying behaviour. Polypropylene fabrics having high number of filaments in the constituent yarn show better moisture management and drying behaviour than the wool/acrylic fabrics. Moisture management and drying behaviour of pile fabrics are better than the plain and rib fabrics.

Keywords: Drying Rate, Knitted Structure, Moisture Management Property, Polypropylene Filament, Sweat

Elevate your status as a Certified

Professional Engineers (PE) and International Professional Engineers (IntPE)

Professional Engineers (PE) Certification by IEI

Eligibility Requirement

To attain the Professional Engineers (PE) certification through the Institution of Engineers (IEI), you must meet the following eligibility criteria:

1. Hold a BE/BTech or equivalent degree recognized by a Statutory Authority or the Government of India.
2. Have accumulated five years or more of professional experience.
3. Be a member of a recognized professional engineering institution or association.
4. Maintain a satisfactory level of Continued Professional Development (CPD).

Please visit the following link :

https://www.ieindia.org/webui/IEI_PE_Certification.aspx

International Professional Engineers (IntPE) Certification by IEI

Eligibility Requirement

To be eligible for IntPE Certification by IEI, candidates must meet the following criteria:

1. Hold a BE/BTech or equivalent degree recognized by the Statutory Authority or the Government of India.
2. Possess seven years or more of professional experience.
3. Have a minimum of two years of professional experience in a significant engineering activity.
4. Be a member of a recognized professional engineering institution or association.
5. Maintain a satisfactory level of Continued Professional Development (CPD).

Please visit the following link:

https://www.ieindia.org/webui/IEI_IntPE_Certification.aspx

The eligible candidate can submit application in the prescribed format to: The PE Cell, The Institution of Engineers (India), 8 Gokhale Road, Kolkata 700020
For any query and assistance, please send email to: pe@ieindia.org



Journal of The Institution of Engineers (India): Series C

[Aerospace, Marine, Mechanical & Production Engineering]

(Electronic ISSN: 2250-0553; Print ISSN: 2250-0545)

[CiteScore: 2.2; h5 Index: 22]

[SCOPUS Indexed & UGC-CARE (India) listed]

For download, use Membership ID through: www.ieindia.org

Volume 104, Issue 5, October 2023

Title: **A Study on Degradation of N95 Respirator After Disinfecting it by Various Techniques**

Authors: Nilkamal Mahanta & Uday Shanker Dixit

Department of Mechanical Engineering, Indian Institute of Technology Guwahati, India

DOI: <https://doi.org/10.1007/s40032-023-00978-1>

Publication date: 24 July 2023

Pages: 887 - 895

Title: **A Trace-Based Design Approach to Fused Deposition Modeling Laminated Structure for Weight Optimization and Stress Concentration Factor**

Authors: Ritesh M Patel & Chaitanya K Desai

Gujarat Technological University, Ahmedabad, India

Department of Mechanical Engineering, C K Pithawala College of Engineering and Technology, Surat, Gujarat, India

DOI: <https://doi.org/10.1007/s40032-023-00969-2>

Publication date: 18 June 2023

Pages: 897 - 907

Title: **A User-Centered Ergonomic Design of Cashew Nut Sheller to Mitigate Musculoskeletal Disorders Among Cashew Nut Shelling Workers**

Authors: Krishna Chaitanya Mallampalli, Debayan Dhar & Swati Pal

School of Design, Vellore Institute of Technology, Vellore, India

Department of Design, Indian Institute of Technology Guwahati, India

Industrial Design Centre, Indian Institute of Technology Bombay, Mumbai, India

Know-Your-Member (KYM)

The Institution of Engineers (India) is updating the database of all its Corporate Members along with their achievements for which a **Know-Your-Member (KYM)** form has been introduced.

Every Corporate Member is requested to kindly fill up the form and forward it along with the self-attested copy of photo ID proof to the address given below:-

The Director (Membership)
The Institution of Engineers (India),
8 Gokhale Road, Kolkata 700020
Email: datamemb@ieindia.org

The form can be accessed & downloaded at :

https://www.ieindia.org/WebUI/ajax/Downloads/WebUI_PDF/HIGHLIGHTS_DOCUMENT-3332.pdf

Published Articles in IEI Journals

Volume 8 | Issue 10 | October 2023

DOI: <https://doi.org/10.1007/s40032-023-00966-5>

Publication date: 17 June 2023

Pages: 909 - 923

Title: **Anthropometric Measurement of Haryana Male Farmers and its Implications in Design of Agricultural Tools and Equipment**

Authors: Sandeep Singh Kharb, Parveen Kumar & Anup Malik
Ch. Ranbir Singh State Institute of Engineering and Technology, Jhajjar, Haryana, India
Malaviya National Institute of Technology, Jaipur, India

DOI: <https://doi.org/10.1007/s40032-023-00974-5>

Publication date: 25 July 2023

Pages: 925 - 939

Title: **Application Engineering of Automotive Flexible Bellow for Exhaust System Using Six Sigma Tools: A Case Study Approach**

Authors: S N Teli, Lokpriya Gaikwad & Kalyankumar Hatti
Bharati Vidyapeeth College of Engineering, Navi Mumbai, India
SIES Graduate School of Technology, Navi Mumbai, India
Ashok Leyland Ltd, Chennai, India

DOI: <https://doi.org/10.1007/s40032-023-00983-4>

Publication date: 02 August 2023

Pages: 941 - 957

Title: **Comparison of Risk Factors of Pain Among Laptop and Desktop Users**

Authors: Mona Sahu, Darius Gnanaraj Solomon & S J Vijay
Department of Mechanical Engineering, Karunya Institute of Technology and Sciences, Coimbatore, India
Vellore Institute of Technology, Vellore, India

DOI: <https://doi.org/10.1007/s40032-023-00973-6>

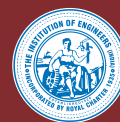
Publication date: 16 August 2023

Pages: 959 - 965



38th Indian Engineering Congress

Jabalpur, December 27-29, 2023



Theme :

Reimagining Tomorrow: Shaping the Future through Disruptive and Interdisciplinary Technologies

Organized by: **The Institution of Engineers (India)**

Hosted by: **Jabalpur Local Centre**

Venue: **Hotel Royal Orbit, Jabalpur**

For More Details Contact

CONGRESS SECRETARIAT

38th Indian Engineering Congress

The Institution of Engineers (India), Jabalpur Local Centre

Visvesvaraya Marg, Civil Lines, Jabalpur 482 001

Tel: 0761-2678929 | Fax: 0761-2678929 | email: 38iecjabalpur@gmail.com | website: www.38iec.org

- Title:** **Design and Analysis of Generic UAV Composite Winglet Structures**
Authors: Mit Piyush Bakhai & Ahsan Habib Rifat
School of Mechanical Engineering, Faculty of Engineering, Universiti Teknologi Malaysia (UTM), Johor Bahru, 81310, Johor, Malaysia
DOI: <https://doi.org/10.1007/s40032-023-00977-2>
Publication date: 26 July 2023
Pages: 967 - 977
- Title:** **Effect of Pistachio Nano-particles on Wear Properties of Wood Apple and Coconut Shell Powder Reinforced Hybrid Composites**
Authors: G B Girish, Hullatti Veeresh & B T Ramesh
Government Polytechnic, Hangal, Haveri, Karnataka, India
Symbiosis Institute of Technology, Symbiosis International (Deemed) University, Pune, India
DOI: <https://doi.org/10.1007/s40032-023-00985-2>
Publication date: 08 August 2023
Pages: 979 - 988
- Title:** **Energy-Absorbing Characteristics of an ABS-M30i-based 3D-Printed Periodic Surface and Strut-Based Lattice Structure**
Authors: Ali Imran Ansari, Nazir Ahmad Sheikh & Navin Kumar
Mechanical Engineering Department, National Institute of Technology, Srinagar, India
Mechanical Engineering Department, Indian Institute of Technology, Ropar, India
DOI: <https://doi.org/10.1007/s40032-023-00984-3>
Publication date: 07 August 2023
Pages: 989 - 1004
- Title:** **Ergonomic Evaluation and Modelling of Sawmill operations: Theoretical Framework and Research Directions**
Authors: Himanshu M. Shukla & Mahendra M Gupta
Shri Ramdeobaba College of Engineering and Management, Nagpur, India
DOI: <https://doi.org/10.1007/s40032-023-00975-4>
Publication date: 30 July 2023
Pages: 1005 - 1009
- Title:** **Estimating Tool Strength of Single Point Cutting Tool with Engrooved Micro-Channel on Rake Face: An Experimental Assisted Simulative Analysis**
Authors: Arindam Santra, Manish Mukhopadhyay & Arunabha Chanda
Mechanical Engineering Department, Jadaupur University, Kolkata, India
Mechanical Engineering Department, Meghnad Saha Institute of Technology, Kolkata, India
DOI: <https://doi.org/10.1007/s40032-023-00976-3>
Publication date: 27 July 2023
Pages: 1011 - 1021
- Title:** **Experimental Analysis of Droplet Characterisation of Centrifugal-Assisted Sprayer**
Authors: Pankaj Gavali & Shashidhar Kalashetty
Industrial and Production Engineering Department, PDA College of Engineering, Kalaburgi, Karnataka, India
Mechanical Engineering Department, Sanjay Ghodawat University, Atigre, Maharashtra, India
DOI: <https://doi.org/10.1007/s40032-023-00967-4>
Publication date: 18 June 2023
Pages: 1023 - 1030

- Title:** Experimental and Theoretical Assessment of a Diesel Engine Using Different Palm Oil Methyl Ester (POME) Blends at Different Compression Ratios
- Authors:** Abhishek Samanta & Prokash C Roy
Department of Automobile Engineering, Ranaghat Gout. Polytechnic, Nadia, West Bengal, India
Department of Mechanical Engineering, Jadaupur University, Kolkata, India
- DOI:** <https://doi.org/10.1007/s40032-023-00971-8>
- Publication date:** 20 July 2023
- Pages:** 1031 - 1046
- Title:** Fuzzy Logic-Based Rapid Upper Limb Assessment: A Novel Approach to Evaluate the Postural Risk of Dumper Operators
- Authors:** Mohith Bekal Kar, Mangalpadya Aruna & Bijay Mihir Kumar
Department of Mining Engineering, National Institute of Technology, Karnataka, India
- DOI:** <https://doi.org/10.1007/s40032-023-00986-1>
- Publication date:** 07 August 2023
- Pages:** 1047 - 1055
- Title:** Integration of Phase Change Materials (PCMs) in Freezer of a Domestic Refrigerator: A Comparative Study
- Authors:** Mandar S Padhye & Neeraj Agrawal
Finolex Academy of Management and Technology, Ratnagiri, Maharashtra, India
Department of Mechanical Engineering, Dr Babasaheb Ambedkar Technological University, Lonere, Maharashtra, India
- DOI:** <https://doi.org/10.1007/s40032-023-00972-7>
- Publication date:** 03 August 2023
- Pages:** 1057 - 1064
- Title:** Laser Polishing of Polymer Parts Produced with Material Jetting Technology: Effect of Laser Scan Speed, Overlapping and Loop Cycles
- Authors:** L Giorleo & M Ravelli
Advanced Prototype Laboratory, Department of Mechanical and Industrial Engineering, University of Brescia, Brescia, Italy
- DOI:** <https://doi.org/10.1007/s40032-023-00979-0>
- Publication date:** 27 July 2023
- Pages:** 1065 - 1077
- Title:** Structural Optimization of Receiver Support of Parabolic Trough Collector Using Finite Element Analysis and Multicriteria Decision Making Method
- Authors:** Punit Vilas Gharat, Vishwanath Haily Dalvi, Suresh Pandurang Deshmukh, Sudhir V Panse & Jyeshtharaj Bhalchandra Joshi
Institute of Chemical Technology, Mumbai, India
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