

# Newsletter

## Department of Mechanical Engineering



July-Sep 2022  
Volume 6 Issue 3

Madhav Institute of Technology &  
Science, Gwalior-474005

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### Vision

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*"To develop innovative and creative Mechanical Engineers catering the global industrial requirements and social needs".*

### Mission

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1. To prepare effective and responsible graduate engineers for global requirements by providing quality education.
2. To enhance knowledge through project and internship in the field of Mechanical and allied engineering.
3. To guide students in acquiring career-oriented jobs in the field of Mechanical engineering.
4. To provide academic environment of excellence, leadership, ethical values and lifelong learning to cater the need of society by sustainable solutions.

#### Editorial Team

- Dr. Amit Aherwar
- Dr. Ravi Kant Ranjan

#### Students

- Bhumika Mishra
- Arun Singh Rajawat

## PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

1. Graduates of the program will be able to have successful professional career.
2. Graduates of the program will be able to develop attitude of learning and become adaptable to dynamic industrial and social environment.
3. Graduates of the program will be able to design and develop mechanical system by using skills and knowledge of core competency along with allied engineering skill.
4. Graduates of the program will be able to undertake interdisciplinary research needed to build a sustainable society.

## PROGRAM OUTCOMES (POs)

### **Mechanical and Automobile Engineering Graduates will be able to:**

- PO 1** Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- PO 2** Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- PO 3** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- PO 4** Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- PO 5** Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools

including prediction and modeling to complex engineering activities with an understanding of the limitations.

- PO 6** *The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.*
- PO 7** *Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.*
- PO 8** *Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.*
- PO 9** *Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.*
- PO 10** *Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.*
- PO 11** *Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.*
- PO 12** *Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.*

## Faculty Outreach

1. The 'GOONG' 90.8 FM has aired a special talk show with Dr. C.S. Malvi on the eve of the Engineers Day on 15<sup>th</sup> September, 2022.
2. Dr. C.S. Malvi has presented a research lecture on 15<sup>th</sup> September, 2022 in a weekly training program organized with the cooperation of Department of Science and Technology (under STUTI program) and Banasthali Vidyapeeth in the Bundelkhand University, Jhansi.

### सोलर इनोवेशन टेक्नॉलॉजी का प्रशिक्षण दिया

झाँसी : बुन्देलखण्ड विश्वविद्यालय में भारत सरकार के विज्ञान एवं प्रौद्योगिकी मन्त्रालय द्वारा अनुदानित एवं वनस्थली विद्यापीठ

(राजस्थान) के सहयोग से सामाहिक प्रशिक्षण कार्यक्रम के दूसरे दिन माधव इंस्टिट्यूट ऑफ टेक्नॉलॉजी ग्वालियर के प्रो. चंद्रशेखर मालवीय ने सोलर इनोवेशन टेक्नॉलॉजी पर शोध व्याख्यान दिया। वर्तमान में सोलर एनर्जी को लेकर जो भी नए प्रवर्तन कार्य किए जा रहे हैं, उन सभी से प्रतिभागियों को परिचित कराया। सह संयोजक डॉ. लवकुश द्विवेदी ने प्रतिभागियों को नवप्रवर्तन



सोलर इनोवेशन टेक्नॉलॉजी पर शोध व्याख्यान देते विशेषज्ञ।

प्रयोगशाला से परिचित कराया। दोपहर में प्रशिक्षण सत्र के दौरान डॉ. रोहित पियरडन, डॉ. शिव शंकर यादव एवं दीक्षा पाण्डेय ने प्रतिभागियों को परिष्कृत उपकरणों के माध्यम से प्रशिक्षण दिया। संयोजक डॉ. संजीव कुमार श्रीवास्तव ने संवादन एवं सह संयोजक डॉ. अनुपम ब्यास ने आभार जताया। इस अवसर पर वित्त अधिकारी वसी मोहम्मद व डॉ. वृजेश दीक्षित सहित प्रतिभागी उपस्थित रहे।

### सोलर एनर्जी के बारे में दी जानकारी

झाँसी। बुंदेलखंड विश्वविद्यालय में साप्ताहिक प्रशिक्षण के दूसरे दिन माधव इंस्टीट्यूट ऑफ टेक्नोलॉजी ग्वालियर के प्रो. चंद्रशेखर मालवी ने सोलर इनोवेशन टेक्नोलॉजी पर शोध व्याख्यान दिया। वर्तमान में सोलर एनर्जी को लेकर जो भी नए प्रवर्तन कार्य किए जा रहे हैं, उन सभी से प्रतिभागियों को परिचित कराया। सोलर पैनल को दिखाया और बताया कि किस तरह से ऊर्जा का रूपांतरण होती है। डॉ. रोहित पियरडन, डॉ. लवकुश द्विवेदी, डॉ. संजीव, दीक्षा मौजूद रहीं। ब्यूरो



बुंदेलखंड विधि में छात्र-छात्राओं को सोलर तकनीक की जानकारी देते प्रो चंद्रशेखर मालवी। -अमर उजाला

## Departmental Activities

1. Department of Mechanical Engineering has organized an in-house workshop on "Deciding modes of teaching according to the Multiple Mode Teaching Learning Pattern (MMTLP)" on 12.07.2022. Dr. M K Gaur, Dr. C S Malvi, Dr. Manish Kumar Sagar, Dr. Jyoti Vimal and Prof. V. Chaturvedi are the main resource person for the workshop.



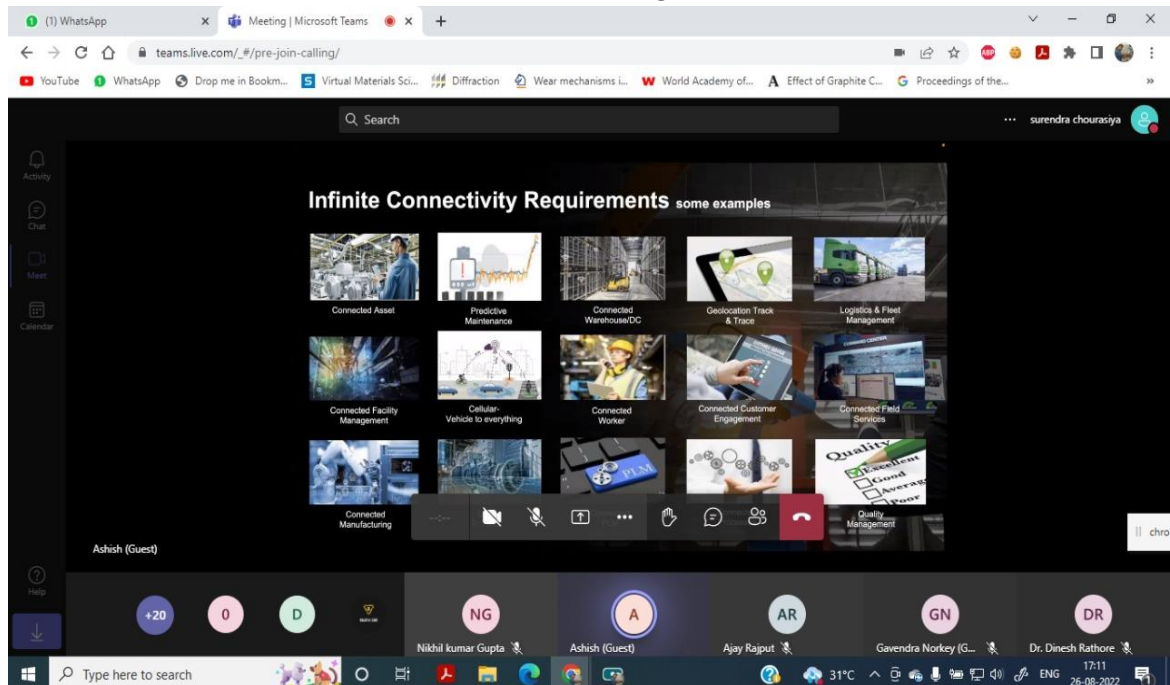
2. A special session was organized by the Mechanical Engineering Department on the topic "**Confusion is Good: Vishad Yoga**" (a part of NEC-Bhagwad Gita-An Introduction) on 24<sup>th</sup> Aug, 2022. Ms. Nikita Narayani Garg (Trainer, Speaker, Storyteller) was the main speaker of this program. Dr. C.S. Malvi was the coordinator of this program.







- An online expert talk has been organized by the Department of Mechanical Engineering on “IoT and 5G” on 26<sup>th</sup> Aug, 2022. Mr. Ashish Khare, General Manager and Global Head – IoT & 5G, Wipro Limited, a proud Alumni of the MITS Gwalior was the speaker of this program. Dr. Gavendra was the coordinator of this program.



- A two-hours seminar (offline mode) was conducted in the Department of Mechanical Engineering (offline mode) on the topic titled “Introduction to Securities Market” for students and faculties of Madhav Institute of Technology & Science on 29.08.2022 in Seminar Hall 2. The seminar is organized by NSDL IPF Trust. Mr. Amit Nigam (AGM SEBI), Mr.

Puneet Rajpal (Manager, NSE) and Dr. Ishu Tayal (SM, NSDL) are the main speakers for the seminar. Dr. Gavendra Norkey and Dr. Nifin Upadhayay were the coordinators of this seminar.



5. Department of Mechanical Engineering has organized a Farewell ceremony for Shri Jeevan Lal, a fourth-grade employee on the eve of his retirement on 30<sup>th</sup> Aug, 2022. All of the faculty and staff were feeling emotional after a long service of Shree Jeevan Dada. Prof. C.S. Malvi has shared a heart touching and emotional note on his grand farewell:



### जीवन, जीवन लाल से जीवन दादा

और आज जीवन दादा की भी कार्यालय से विदाई हो गई। जीवन लाल जी ने अपना जीवन चतुर्थ श्रेणी कर्मचारी से शुरू किया था व अंत भी चतुर्थ श्रेणी में ही रहा और गणेश चतुर्थी के ठीक एक दिन पहले निकल लिए। अब गणेश जी जैसे घर में विराजेंगे जीवन भर जीवन लाल जी लड्डू खाएंगे।

आज उनका विदाई समारोह हो सामान्य से कुछ अधिक ही भावुक रहा क्योंकि वो विभाग में सबसे वरिष्ठ थे। तो सभी उन्हें जीवन दादा ही कहते थे। आज से 20 साल पहले जब हमने अपनी नौकरी की शुरुआत की थी तब उनके चेहरे और मुँहों को देखकर पुरानी फिल्मों के "जीवन" की याद आ जाए करती थी।

प्रोफेसर आर.पी. कोरी ने अपनी तरफ और से निजी उपहार दिया एक विदाई संदेश पढ़ा। आदरणीय विभागाध्यक्ष ने सभी लोगों के हाथों फूलमाला, शाल, श्रीफल और एक बड़ा सा सूटकेस देकर तीर्थयात्रा का सुझाव दिया व स्वास्थ्य का ध्यान रखने को कहा। अक्सर विदाई के वक्त लोग अपनी भूल-चूक, लेनी-देनी को ध्यान रखते हुए गलतियों को माफ़ी मांगते हैं और भविष्य की शुभकामनाएं देते हैं। सो सब हुआ।

लेकिन मुझे सबसे ज्यादा आनंद तब आया जब अपनी बारी आने पर जीवन दादा ने एक लाकगीत सुनाया। 'क्या लेकर आया बंदे/ क्या लेकर जाएगा।'

मुझे पहली बार मुझे अपनी सोच पर शर्म आई कि मैं उन्हें एक औसत बौद्धिक स्तर का व्यक्ति समझता था पर उनकी चेतना इतनी ऊपर थी जो कि अक्सर किताबों में नहीं लिखी होती थी। मेरी चेतना किताबी कीड़े सी ही है।

जीवन दादा सभी को ही जय सीताराम करके पढ़े लिखे होने का भरपूर सम्मान देते थे। 38 वर्षों से संस्थान में सेवारत थे तो शरीर तो इस उम्र में कमजोर हो ही जाता है सो जितना बनता उतना करते।

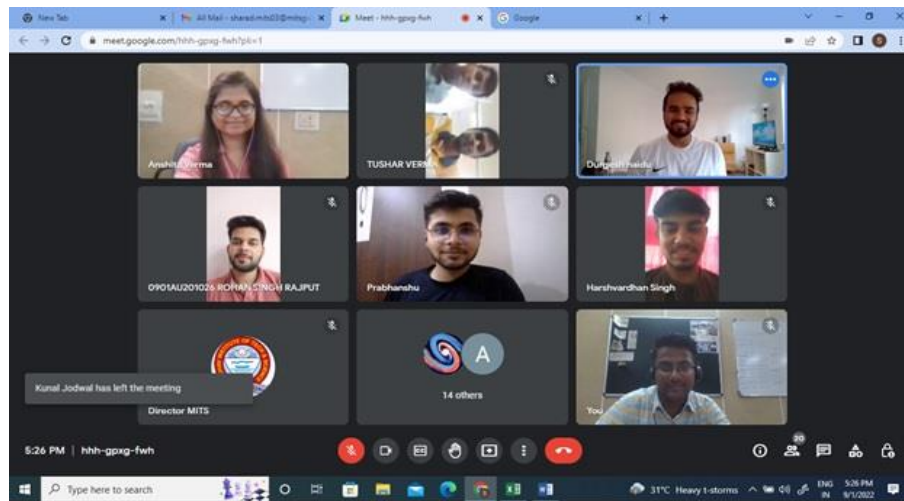
अंत में उन्होंने कहा परिवार का, समाज का जो जो काम करना था मैंने सब कर दिया। अब तो बस जहाँ पाटिया मिलता है, जहाँ मंदिर मिलता है बैठ जाता हूँ और बस यही गाता हूँ, क्या लेकर आया बंदे क्या लेकर जाएगा।

@प्रो. चन्द्र शेखर मालवी, MITS, Gwalior



- An interactive session (online mode) on "A complete guide on Career scope (Higher studies) in abroad" was delivered by Mr. Durgesh Naidu (Continental, Germany) and has been organized by Mechanical department Alumni Cell, MITS Gwalior on 1<sup>st</sup> Sep, 2022.





7. Department of Mechanical Engineering has organized a seminar on 'Self Awareness and Career Guidance' on 9<sup>th</sup> of September, 2022. Dr. Sapna Kumari, Student Counsellor was the main speaker of this seminar. Dr. S.K. Chaurasiya and Dr. D.K. Rathore were the event coordinator.



8. Department of Mechanical Engineering has organized a Special Sessions on 'NEC-Bhagwad Gita-An introduction' on 22<sup>th</sup> September, 2022. Ms. Nikita Narayani Garg, (Trainer, Speaker, Storyteller) has delivered a topic on 'The Eternal Secret' as the main speaker and Dr. C.S. Malvi, coordinator of this program has delivered a topic on 'Science of Knowledge'.



9. Department of Mechanical Engineering has organized a seminar on 'How to Write Research Paper' with the cooperation of SAEINDIA on 23<sup>rd</sup> September, 2022. Dr. C.S. Malvi and Dr. D.K. Rathore were the main speakers of this seminar.
10. Department of Mechanical Engineering has organized a five days training program on CFD and ANSYS from 26.09.2022-01.09.2022.



## **Faculty Achievement and Activities**

1. Dr. R.K. Ranjan has received a certificate of appreciation regarding in recognition of his role as mentor for the NPTEL Online Certification



course 'Waste to Energy Conversion' by the NPTEL team for Jan-April, 2022 session.

2. Dr. Neeraj Mishra has received a certificate of appreciation regarding in recognition of his role as mentor for the NPTEL Online Certification course 'Automatic Control' by the NPTEL team for Jan-April, 2022 session.

## Student Achievement and Activities

1. Team SCAVENGERS (Mechanical Engineering Department, MITS Gwalior) participated in a 5-day National Event I.K.R. Season 7.0 by ISIE INDIA, held at Buddh International Circuit, Greater Noida from 26-30th Aug, 2022. Team qualified all six rounds also completed final endurance race successfully and achieved "The Future Innovation award".





2. Students of Mechanical Engineering Branch have celebrated the Teacher's Day in a joyful way on 5<sup>th</sup> Sep, 2022 in the department.



## Research Publications

1. Bhavya Surana, Akash Kumar, M.K. Gaur and Pushpendra Singh have published a paper titled "Heat Transfer Analysis of Solar Concentrator Developed for Cooking Purpose" in the Journal of Thermal Energy System. e-ISSN: 2582-5747

2. Kasi Raja Rao, Sourabh Rungta, Rakesh Himte, Anand Kumbhare, Sanjay Sakharwade, Agnivesh Kumar Sinha and Nitin Upadhyay have published a paper titled "Assessment of Thermal Conductivity of Phase Change Materials by Incorporating Metal and Metal Oxides Nanoparticles" in the Journal of Advances and Applications in Mathematical Sciences. Volume 21, Issue 9, July 2022, Pages 5223-5230.
3. Tej Singh, Punyasloka Pattnaik, Amit Aherwar, Lalit Ranakoti, Gábor Dogossy and László Lendvai (2022). Optimal Design of Wood/Rice Husk-Waste-Filled PLA Biocomposites Using Integrated CRITIC–MABAC-Based Decision-Making Algorithm, *Polymers* 14, no. 13: 2603. <https://doi.org/10.3390/polym14132603>.
4. Akanksha Prajapati, Gavendra Norkey and Girish Gautam Dutt have published a paper titled "Optimization of heat affected zone in laser cutting of Kevlar-29 fiber composite using hybrid response surface based grey wolf optimization (RSGWO) algorithm" in *Proc IMechE Part C: J Mechanical Engineering Science* 2022, Vol. 236 (17) 9622– 9638 DOI: 10.1177/09544062221096557.
5. Kaushal Pratap Singh, Dr. Ankur Bahl, Dr. Girish Dutt Gautam and Dr. Gavendra Norkey have published a paper titled "Particle Swarm based Optimization of Hole Characteristics during Laser Drilling of BFRP" in the *Journal of NeuroQuantology* 2022;20(10):3264-3276. DOI Number: 10.14704/nq.2022.20.10. NQ55325
6. Kaushal Pratap Singh, Dr. Ankur Bahl, Dr. Girish Dutt Gautam and Dr. Gavendra Norkey have published a paper titled "Experimental investigation and parametric optimization of the hole circularity and taper angle during laser drilling kevlar-29 fiber composite" in the *Journal of Materials today proceedings (Elsevier)*, Vol. 56, part 6, pp. 3325-3329. <https://doi.org/10.1016/j.matpr.2021.10.155>
7. Pushpendra Singh, M. K. Gaur, G. N. Tiwari and Anil Kumar have published a paper titled "Thermal Modeling of Water-in-Tube Type Evacuated Tube Solar Collectors to Predict Outlet Water Temperature: An Experimental Validation" in the *Journal of Solar Energy Engineering*. <https://doi.org/10.1115/1.4055075>

8. Dr. M.K. Gaur, Prof. B. Norton and Prof. G.N. Tiwari have edited a book titled "Solar Thermal Systems: Thermal Analysis and its Application" Published by Bentham Science Publishers Pte. Ltd. Singapore. ISBN (Online): 978-981-5050-95-0.
9. Chandra Shekhar Koli, M.K. Gaur and Pushpendra Singh have published a paper titled "Energy and exergy assessment of a novel parabolic hybrid active greenhouse solar dryer" in the Journal of Solar Energy. <https://doi.org/10.1016/j.solener.2022.09.021>