

Newsletter

Department of Mechanical Engineering



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Madhav Institute of Technology &
Science, Gwalior-474005

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Vision

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

Mission

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

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 **Dr. M.K. Gaur's** latest consultancy venture at AF Station Maharajpura, Gwalior, ensures optimized air refrigeration systems.
- 2 **Dr. Amit Aherwar** has earned recognition as an Academic Editor on the Editorial Board of Advances in Tribology. His expertise and contributions to the field continue to enrich this prestigious publication, showcasing his dedication to advancing the science of tribology.
- 3 **Dr. Gavendra Norkey** has earned recognition as NPTEL Discipline star certificate for the session Jan-Apr 2023.
- 4 **Dr. Gavendra Norkey** has earned recognition as NPTEL Motivated learner certificate for the session Jan-Apr 2023.

Faculty Achievement and Activities

1. **Dr. Jyoti Vimal**, completed NPTEL online course on "Introduction to Internet of Things" during Jan.-April 2023 organized by IIT, Kharagpur with **Elite Certificate**.
2. **Dr. Jyoti Vimal**, contributed as Session Chair in the 3rd International Conference on Advances in Materials, Mechanics, Mechatronics and Manufacturing held during April 15-16, 2023.
3. **Dr. Jyoti Vimal**, Received appreciation letters for getting average feedback 4.10 for Cyber Security for session Jan-June2023.
4. **Dr. Jyoti Vimal**, Received appreciation letters for getting avg. feedback 4.38 for Theory of Machine-I for session Jan-June2023.
5. **Vedansh Chaturvedi**, completed NPTEL online course on "Introduction to Internet of Things" during Jan.-April 2023 organized by IIT, Kharagpur with **Elite Certificate**.

6. **Vedansh Chaturvedi**, received letter of appreciation for securing faculty feedback index (FFI) 4.27 in the subject "Metal cutting & Machine Tools for the session Jan.-June 2023.
7. **Dr. Gavendra Norkey**, completed NPTEL online course on "Product Design and Manufacturing" during Jan.-April 2023 organized by IIT, Kanpur.
8. **Dr. Gavendra Norkey**, completed NPTEL online course on "Manufacturing Guidelines for Product Design" during Jan.-April 2023 organized by IIT, Roorkee.

Research Publications

1. Santosh Kumar Rajak, **Amit Aherwar**, Roshani Choudhary, Vimal Kumar Pathak, Ashish Goyal, Kuldeep Kr. Saxena & Basil Kuriachen, Sliding Wear Resistance Behaviour of Al-Zn-Mg-Cu/SiC/B4C/Porcelain Composites Using Fuzzy Model and Salp Swarm Algorithm. Transactions of the Indian Institute of Metals (2023). <https://doi.org/10.1007/s12666-023-02970-w>.
2. Tej Singh, **Amit Aherwar**, Lalit Ranakoti, Prabhakar Bhandari, Vedant Singh and László Lendvai (2023). Performance Optimization of Lignocellulosic Fiber-Reinforced Brake Friction Composite Materials Using an Integrated CRITIC-CODAS-Based Decision-Making Approach, Sustainability 15, 8880. <https://doi.org/10.3390/su15118880>. Impact factor: 3.259.
3. Manish Belwanshi, **Pratesh Jayaswal, & Amit Aherwar**, Fixation of Pauwel's type-II femoral neck fracture with triangular, rectangular, and pentangular configuration cannulated screws using finite element analysis, Journal of the Brazilian Society of Mechanical Sciences and Engineering. 45, 355 (2023). <https://doi.org/10.1007/s40430-023-04290-y>. Impact factor: 2.361
4. **Vedansh Chaturvedi, Jyoti Vimal**, Sagnik Biswas, Somil Kumar Chaurasia, "Optimization of TIG Welding Process Parameters: A

Review" International Journal of Innovative Research in Technology" April 2023, Volume 9 Issue 11 | ISSN: 2349-6002, pp-942-948.

5. Akshat Tiwari , **Vedansh Chaturvedi** , **Dr. Jyoti Vimal**, "Smart Blind Stick For Assisting Visually Impaired" International Journal of Innovative Research in Technology" May 2023, Volume 9 Issue 12 | ISSN: 23496002, pp-1373-1376.
6. Aerk Verma, **Mr. Bhupendra Kumar Pandey**, **Dr. Jyoti Vimal**, and **Mr. Vedansh Chaturvedi**, " Modeling Of Electromagnetic Braking System And Its Braking Time Computation"International Research Journal of Modernization in Engineering, Technology and Science Volume:05/Issue:05/May-2023. eISSN: 2582-5208 pp 4407-4412.
7. Sharma, A., Saraswat, M., **Vimal, J.**, Chaturvedi, R. , "Quenching's effect on a single-V butt welded joint made of mild steel's impact resistance" Materials Today: Proceedings, 2023.
8. Kushwah A., Kumar A., **Gaur M.K.** and Shrivastava, A. (2023), Environmental Sustainability and Exergetic Based Sustainability Indicators for Heat Exchanger-Evacuated Tube Assisted Drying System (HE-ETADS), Sustainable Energy Technologies and Assessments, Vol (57),.: DOI:10.1016/j.seta.2023.103277.
9. Kushwah A., Kumar A., **Gaur M.K.**, Pal A. (2023) Heat and Mass Transfer, Quality, Performance Analysis, and Modeling of Thin Layer Drying Kinetics of Banana Slices, Journal of Solar Energy Engineering 145(5) DOI:10.1115/1.4062447.
10. Singh P. and **Gaur M.K.**, (2023), Novel hybrid active greenhouse solar dryer with evacuated tube solar collector: energy and exergy analysis, International Journal of Exergy (IJEX), Vol. 40, No. 3, 2023 doi: 10.1504/IJEX.2023.10055053.

वीरता

26 फरवरी 2019 के बालाकोट हवाई हमले के एक दिन बाद, जब भारतीय और पाकिस्तानी लड़ाकू जेट जम्मू और कश्मीर में नौशेरा सेक्टर पर युद्ध में लगे हुए थे, बडगाम में एक एमआई-17 हेलीकॉप्टर के दुर्घटनाग्रस्त होने की खबर आई। एक दोस्ताना गोलीबारी में विमान में सवार छह भारतीय वायुसेना के जवान और एक नागरिक की मौत हो गई।

यह घटना जहां विवादों में घिरी हुई थी, वहीं एक 17 साल का लड़का इस घटना का नायक बनकर उभरा। मुदासिर अशरफ कई ग्रामीणों में से एक थे जो दुर्घटनास्थल पर पहुंचे। दुर्घटनाग्रस्त हेलीकॉप्टर ने किफायत हुसैन नाम के एक ग्रामीण को टक्कर मारने के बाद उसमें आग लग गई। लम्बे और दुबले-पतले मुदासिर अशरफ कई ग्रामीणों में से एक थे जो आगे बढ़े और दुर्घटनाग्रस्त हेलीकॉप्टर के करीब गए जो अभी भी जल रहा था और किफायत हुसैन को बचाने की कोशिश की। जब मुदासिर अशरफ अंदर पहुंचे, तो उन्हें लगा कि उन्हें पायलट की मदद करनी क्योंकि वो हेलीकॉप्टर के मलबे के नीचे एक आदमी को फंसा हुआ देख सकते थे।" थोड़ी ही देर बाद, "विस्फोट की दो तेज आवाजें आती हैं और मुदासिर वहां से दौड़ना शुरू कर दिया।" अपनी जान की परवाह न करते हुए मुदासिर अशरफ ने अपनी जान जोखिम में डालकर आग की लपटों में घिरे व्यक्ति को बचाने की बहुत कोशिश की। लेकिन दुख की बात है कि किफायत हुसैन ने दम तोड़ दिया। लेकिन तब भी मुदासिर ने विभिन्न सुरक्षा बलों और एनडीआरएफ के

बचाव दल की मदद करना जारी रखा उन्होंने कई लोगों की जान बचाई जिनके घर ढह गए थे उनको वहां से निकाला जहां पर आग लगी थी वहां से आग की लपटों में जाकर उनको वहां से बाहर निकाला। मुदासिर अशरफ ने बाद में हेलीकॉप्टर के मलबे से चालक दल के सदस्यों के नश्वर अवशेषों को निकालने में उनकी मदद की। उन्होंने कुछ स्थानीय लोगों के प्रतिरोध के बावजूद अन्य ग्रामीणों को बचाव दल को सहायता प्रदान करने के लिए प्रेरित किया, जो सशस्त्र बलों की मदद करने के खिलाफ थे, अपने स्वयं के जीवन के लिए खतरे का सामना करने के लिए अत्यधिक साहस का प्रदर्शन किया।

सारांश

अपने मन, वीरता और दिमाग की उपस्थिति तथा साहस और सूझबूझ से कठिनाई का सामना करना चाहिए, कठिनाई देखकर न घबराना, इस तरह की सोच मिली होगी वरना अचानक आई किसी भी बिपत्ति में हम वैसे ही प्रतिक्रिया करते हैं जैसा हमने अभ्यास किया होता है। इसलिए हर समय अच्छा सोचे हमारी सोच ही हमारा जीवन बनाती है। इस कहानी से हमें यह सीख मिलती है कि हमेशा दबे रहने से हमारी सुरक्षा नहीं होती पर सुरक्षा करने से हमारी सुरक्षा होती साथ में दूसरों की भी मदद होती है जिन्हें मदद की जरूरत होती है।

Ratndeeep dehariya
4th year, Mechanical Engineering

Navigating the Road to Safety: A Student's Perspective

Introduction

Road safety is a matter of paramount importance in our modern society. The roads that connect us also pose risks, and understanding the significance of safe driving practices is crucial for everyone, especially young drivers. In this article, we will delve into the various aspects of road safety and the role that students can play in promoting a safer driving culture.

Understanding the Road Safety Challenge

Road safety is a multifaceted issue encompassing several factors that contribute to accidents, injuries, and fatalities on the road. These factors include distracted driving, speeding, impaired driving, lack of seatbelt use, and poor road infrastructure. Young drivers, in particular, often face the challenge of inexperience and peer pressure, which can influence their driving behaviors.

The Role of Education

Education is a potent tool in fostering road safety awareness among students. Schools and colleges play a crucial role in educating students about responsible driving. Driver's education programs, workshops,

and awareness campaigns can help in still a culture of safe driving from an early age.

Conclusion

Road safety is a collective responsibility, and students have a crucial role to play in shaping a safer driving culture. By educating themselves about safe driving practices, advocating for responsible behavior among their peers, and actively participating in road safety initiatives, students can contribute to reducing accidents and saving lives on our roads. Road safety is not just a subject to study; it's a commitment to protecting oneself and others while on the journey of life.

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4th Year, Mechanical Engineering