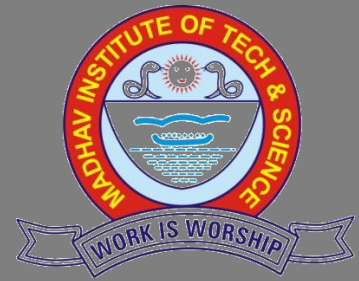


Newsletter

Department of Mechanical Engineering



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Madhav Institute of Technology &
Science, Gwalior-474005

INSIDE THIS ISSUE

1. Faculty Awards & Honours
2. Departmental activities
3. Faculty outreached
4. NSS Activities
5. Industrial visit
6. Publications

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

- Mr. Bhupendra Pandey
- Mr. Sayed Faiz Ahmad

Students

- Ravi Kushwah
- Aniket Gupta
- Kabir Saraswat

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 Awards & Honours

1. Prof. Vedansh Chaturvedi successfully completed NPTEL FDP course - '*Fundamentals of manufacturing processes*'.
2. Prof. Jyoti Vimal successfully completed NPTEL FDP course - '*Robotics*'.
3. Prof. Pratesh Jayaswal successfully completed NPTEL courses - '*Design Practice*', '*Accreditation and Outcome Based Learning*' and '*Educational leadership*'.
4. Prof. Amit Soni successfully completed NPTEL FDP course - '*Fundamentals of Manufacturing Processes*'.

Faculty Outreached

1. Dr M K Gaur received a certificate of appreciation for contributing as Co-Convener in the 3rd international Conference on "Renewable Energy Innovation Research and Applications" IC-REIRA-2019 organized by School of Energy & Environment Management, UTD, RGPV, Bhopal. December, 27-28, 2019.

Industrial Visit

Students of Automobile Vth Sem visited Hero MotoCorp Limited, Neemrana Rajasthan. Total 13 students participated in this visit.

The students were accompanied by two faculty members, Prof. Sharad Agrawal and Prof. K K Yadav.



Departmental Activities

Expert Talks Organised

3-D PRINTING TECHNOLOGY

An expert lecture on "3 D Printing Technology" was organised by the department on Oct 1, 2019.

The speaker, Mr. Raghav Pachauri who is working as a manager in CoreEL Technologies introduced students with the highlights of the technology.

Mr. Raghav Pachauri
(CoreEL Technologies)



He also showed some models printed using 3 D printing technology.

3 D printing or additive manufacturing is a process of making three dimensional solid objects from a digital file.

The creation of a 3D printed object is achieved using additive processes. In an additive process an object is created by laying down successive layers of material until the object is created. Each of these layers can be seen as a thinly sliced horizontal cross-section of the eventual object.

3D printing is the opposite of subtractive manufacturing which is cutting out / hollowing out a piece of metal or plastic with for instance a milling machine. 3D printing enables you to produce complex shapes using less material than traditional manufacturing methods.

Total 58 students and 3 faculty members attended the lecture. The presentation was followed by a question and answer session.

Gaganyaan (ISRO)

An expert lecture titled “Gaganyaan Project” was organised on Oct 31, 2019 by the department. The speaker, Mr. Chandan Chauhan, an alumnus of MITS Gwalior, working in ISRO as a scientist, spoke about the project in detail and also shared his knowledge. In addition, he also guided students for competitive examinations like GATE and ESE etc.

Mr. Chandan Chauhan ISRO



The Gaganyaan programme, an indigenous mission that would take Indian astronauts to space, was announced by the prime minister during his Independence Day speech this year.

Gaganyaan is an Indian crewed orbital spacecraft that is intended to send 3 astronauts to space for a minimum of seven days by 2022, as part of the Indian Human Spaceflight Programme.

Mr. Pushendra Singh



Vigilance Awareness

An expert lecture and oath swearing ceremony was organised by the department on the occasion of “Vigilance Awareness Week”. The speaker, Mr. Pushendra Singh discussed about the importance of Vigilance Awareness week. He also discussed about significance of ethical conduct in the building of an honest, non-discriminatory and corruption free society. At the end all the students and faculty members took the oath.

“Integrity- A way of life” has been chosen as the theme for the Vigilance Awareness Week this year by the Commission. Integrity and Ethics form the foundational pillars of a nation and national development takes place when individuals and organizations are committed to integrity as a core value. Combating corruption is not just a matter of making laws and creating institutions, but is deeply rooted in human values and morals of individuals. Cultivating ethical values is essential for building a New India.

ISRO Space Exhibition

ISRO Exhibition began on Sunday, Oct 13, 2019 at MITS Gwalior. Visitors were provided with the information about Chandrayaan and Mangalyaan and their queries were solved.

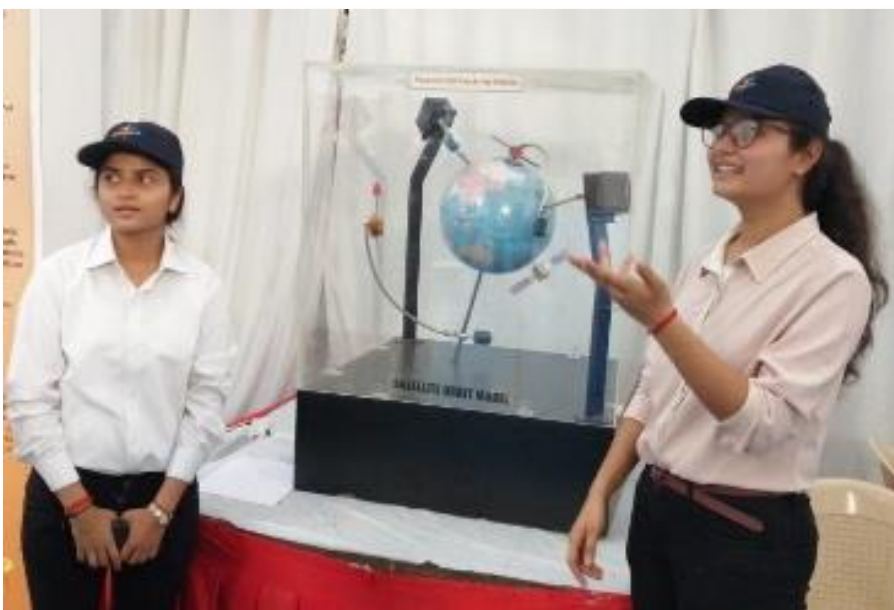
On this occasion scientists, mechanical expert R M Shah, electronic expert Satish Rao, satellite expert Dr Pathak and engine expert N K Gupta were present there. In the exhibition there were projects which the students were completely unaware of. Students of MITS also told about Geostationary satellite and Polar satellites.



Satellite Orbit Model

Satellite working model was demonstrated which is an automatic working model. A Geostationary satellite orbits at an altitude of approximately 36000 km above earth. It is used for communication.

Polar satellite passes through above both poles of earth. It is used for earth mapping and weather forecasting. It orbits at an altitude of approximately 700 km.



Working model of APPLE

This is a model of **Ariane Passenger Payload Experiment**, APPLE which was an experimental communication satellite successfully launched by Ariane-1 marking an important milestone in India's space programme.



The three-day space exhibition concluded on Tuesday. During the exhibition approximately five thousand students from 16 schools participated and learned about various ISRO projects. At the closing ceremony, Ramesh Agrawal, Secretary of Scindia Educational Society and Prashant Mehta, member of board of governors, honoured the scientists of ISRO by presenting memento to them.



NSS Activities

National Service Scheme, MITS unit and Department of Mechanical Engineering organised "Swachchhata Abhiyan" to spread awareness against the use of polythene and to clean the campus on Oct 2, 2019. 87 students/ volunteers of NSS unit MITS with programme officer participated in this event.



Publications

1. Kumar and J. Vimal, "Free Vibration Analysis of Moderate Thickness in Orthotropic Laminated Composite Plate Using FE Method." Journal of Material & Metallurgical Engineering, vol. 9, no. 3, pp. 1-8, Dec. 2019.
2. S. Sharma, V. Chaturvedi and J. Vimal, "Optimization of TIG Welding Process Parameters of Ss 304 By Taguchi Method and Grey Relation Analysis." Journal of Production Research & Management, vol. 9, no. 3, Nov. 2019.

3. M. K. Gaur, S. Yadav, S. Agrawal, "Optimization of MRR and TWR on Electro Discharge Machining using Taguchi based GRA." *Journal of Industrial Safety Engineering*, vol. 3, no. 3, pp. 26-32, Nov. 2019.
4. A. K. Sharma, R. Bhandari, A. Aherwar, R. Rimašauskienė, "Matrix materials used in composites: A comprehensive study." *Materials Today: Proceedings (Elsevier)*, Nov. 2019.
5. S. K. Rajak, A. Aherwar, C. Pruncu, "Mechanical and tribological properties of composite made of marble dust-reinforced C93200 copper alloy" *Materials Research Express*, Dec. 2019.
6. A. Aherwar, T. Singh, A. Singh, A. Patnaik, G. Fekete, "Optimum selection of novel developed implant material using hybrid entropy-PROMETHEE approach" *Materialwissenschaft und Werkstofftechnik*, vol. 50, no.10, pp. 1232-1241, Oct. 2019.
7. V. K. Anand, A. Aherwar, "Evaluation of Physico-Mechanical Properties of Aluminium-based Matrix Reinforced with SiC and Porcelain for Automotive Components" *Journal of Automobile Engineering and Applications*, vol. 6, no. 3, pp. 37-43, Dec. 2019.
8. N. Mishra, A. Vaz, "Development of trajectory and force controllers for 3-joint string-tube actuated finger prosthesis based on Bond Graph modeling." *Mechanism and Machine Theory (Elsevier)*, vol. 146, pp. 94-114, Nov. 2019.