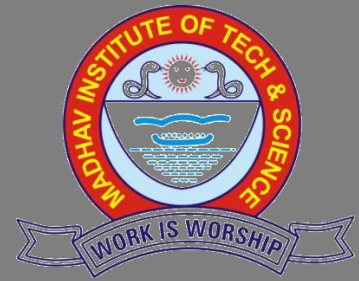


Newsletter

Department of Mechanical Engineering



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Madhav Institute of Technology &
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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 Board:

Faculty Incharge

— Dr. Amit Aherwar

Student members

- 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.*

Departmental Activities

- Orientation Programme for the students of IInd, IIIrd Year and IVth year (Mechanical and Automobile Engineering) was held on 24/07/2023 and 01/08/2023. Dr. M.K. Gaur Head of Department welcomes the students and instructs the importance of program, aware of the academic aspects of the course, attendance, discipline, the rules and regulations of the institute and ensuring the performance and progress of students.
Mr. Vikram S Rajput (Training and Placement Officer) addressed the students regarding, Internship benefits, Campus placement, employment opportunities, required skills, etc. The students were suggested to improve for communication skill, aptitude and soft skill. Department will be thankful for valuable suggestion and time



Prof Vedansh Chaturvedi delivered the detail about DE/OC offered by the department and instructed to students to take OCs from different department. Honor and Minor subjects offered by department and link to join the courses is delivered by SWYAM coordinator. During the session use of Moodle, remedial class, Exam, quiz, assignment, skill based project, etc were discussed. The students were explained in detail about the Scheme and syllabus, novel engaging courses, SWAYAM NPTEL courses and the registration process, self-learning/presentation course, different clubs, Importance of Internships, Importance of Feedback (CO-PO, Curriculum, Faculty) for quality improvement. Students really enjoyed the session and found it was very useful for them. Overall the programme was very successful.



- Dr. Amit Aherwar from Department of Mechanical Engineering and Dr. Monica Chauhan bhadoriya from Department of Management organized a seminar and health camp on 6th Sept 2023 in

collaboration with Mankind Pharma Ltd. Dr. Rituraj Sharma imparted crucial knowledge about blood pressure to the students and staff members. To raise awareness among the attendees, he shed light on

hypertension, emergency care, and techniques for monitoring blood pressure.



In this seminar, various suggestions were provided to maintain healthy blood pressure levels, including consuming a balanced diet, regular exercise, and regular blood pressure check-ups.

In collaboration with Mankind Pharma, a free blood pressure camp was also organized at the institution during the event, where the blood pressure of 120 individuals was checked. Apart from students, faculty and staff members of the institution also benefited from this camp.

On 8th Sept 2023, in a collaborative effort between the Madhav Institute of Technology and Science (MITS) and Mankind Pharma Ltd, an eye examination camp was organized with meticulous attention. Dr. Pawan Soni provided valuable information to both students and teachers regarding digital eye strain and computer syndrome. Furthermore, he offered various recommendations, such as maintaining a healthy diet, following the 20-20-20 rule, engaging in regular exercise, and scheduling routine eye check-ups.

During the camp, Dr. Pawan Soni also raised awareness about eye donation, and a total of 60 individuals had their eyes examined. In addition to students, faculty and staff members of the institution also benefited from this event.



एमआईटीएस में लगाया डायग्नोस्टिक शिविर

ग्वालियर। माधव प्रौद्योगिकी एवं विज्ञान संस्थान और



मैनकाइंड संस्थान के संयुक्त तत्वावधान से बुधवार को डायग्नोस्टिक शिविर एवं डॉक्टर सेशन का आयोजन किया गया। जिसमें डॉ. ऋतुराज शर्मा ने ओजस्वी वक्तव्य से छात्रों को रक्तचाप यानी की ब्लड प्रेशर के बारे में अहम जानकारी दी। उन्होंने हाइपरटेंशन, इमरजेंसी केयर, सीपी आर कि तकनीक पर

प्रकाश डाला। साथ ही इस सेमिनार में हाई ब्लड प्रेशर व लो ब्लड प्रेशर को सामान्य रखने के लिए कई तरह के सुझाव दिए। इस अवसर पर मैनकाइंड के सहयोग से संस्थान में मुफ्त ब्लड प्रेशर शिविर का भी आयोजन किया गया जिसमें काफी लोगों के ब्लड प्रेशर जांचे गए। कार्यक्रम का संचालन मैनेजमेंट विभाग की डॉ. मोनिका भदोरिया, मैकेनिकल विभाग के डॉ. अमित अहिरवार, स्टूडेंट कोऑर्डिनेटर अंकित जाटव और उनकी टीम देवांशी, अंकित, इशिता, अक्षय, अभिराज के द्वारा कराया गया। यह जानकारी संस्थान के मीडिया प्रभारी मुकेश मौर्य ने दी।

एमआईटीएस में मैनकाइंड संस्थान का सेमिनार व शिविर आयोजित



ग्वालियर। माधव प्रौद्योगिकी एवं विज्ञान संस्थान और मैनकाइंड संस्थान के संयुक्त तत्वावधान से बुधवार को डायग्नोस्टिक शिविर एवं डॉक्टर सेशन का आयोजन किया गया। जिसमें डॉ. ऋतुराज शर्मा ने ओजस्वी वक्तव्य से छात्रों को रक्तचाप यानी की ब्लड प्रेशर के बारे में अहम जानकारी दी। लोगों को जागरूक करने के लिए उन्होंने हाइपरटेंशन, इमरजेंसी केयर, सीपीआर की तकनीक पर प्रकाश डाला। साथ ही इस सेमिनार में हाई ब्लड प्रेशर व लो ब्लड प्रेशर को सामान्य रखने के लिए कई तरह के सुझाव दिए जैसे कि सेहतमंद खाना खाना, नियमित एक्सरसाइज करना और समय-समय पर ब्लड प्रेशर चेक करवाना। इस अवसर पर मैनकाइंड के सहयोग से संस्थान में मुफ्त ब्लड प्रेशर शिविर का भी आयोजन किया गया। जिसमें काफी लोगों के ब्लड प्रेशर जांचे गए। इस शिविर में छात्र के अलावा संस्थान के फैकल्टी और स्टाफ ने भी लाभ लिया। कार्यक्रम का संचालन मैनेजमेंट विभाग की डॉ. मोनिका भदोरिया, मैकेनिकल विभाग के डॉ. अमित अहिरवार, स्टूडेंट कोऑर्डिनेटर अंकित जाटव और उनकी टीम देवांशी, अंकित, इशिता, अक्षय, अभिराज के द्वारा कराया गया। यह जानकारी संस्थान के जनसंपर्क अधिकारी मुकेश मौर्य ने दी।

एमआईटीएम में हुआ 60 लोगों की आंखों का परीक्षण

सत्ता सुधार • ग्वालियर

माधव प्रौद्योगिकी एवं विज्ञान संस्थान और मैनकाइंड संस्थान के संयुक्त तत्वावधान से शुक्रवार को नेत्र परीक्षण शिविर का आयोजन किया गया। जिसमें डॉ. पवन सोनी ने छात्रों एवं शिक्षकों को डिजिटल ऑय स्ट्रेन एवं कंप्यूटर सिंड्रोम के बारे में जानकारी दी। साथ ही कई तरह के सुझाव दिए जैसे कि सेहतमंद खाना, 20-20-20 नियम का पालन, नियमित



अंकित जाटव और उनकी टीम देवांशी, अंकित, इशिता, अक्षय, अभिराज मौजूद रहे।

- A space talks on **Chandrayan 3: Journey to Success** delivered by the distinguished Professor N K Gupta, renowned as the Father of Cryogenic Engine in India. This enlightening event was organized in collaboration with the Aerospace Club and the Department Alumni Cell on the 4th of September 2023.



- One-day Induction Program for newly admitted 1st year students from Department of Mechanical Engineering was scheduled on 20/09/2023. The newly admitted students received a warm welcome from Dr. C.S. Malvi, setting a positive tone for the day. Dr. Surendra Kumar Chourasiya then took the stage for a comprehensive departmental presentation, shedding light on the department's most significant aspects.

Following this, Dr. D. K. Rathore introduced the individual faculty members, staff, and research scholars to the incoming students. Mr. Vedansh Chaturvedi then presented an overview of the department's credit scheme and course offerings, ensuring that students had a clear understanding of their academic journey ahead.

A well-crafted curriculum serves as a roadmap to guide students through their educational endeavors, and Mr. Chaturvedi elaborated on its importance, emphasizing how it lays the foundation for knowledge from basic concepts to more advanced topics and skills.



The students were introduced to the field of Mechanical Engineering, with a detailed explanation of the four-year curriculum. The significance of each subject was highlighted, along with an in-depth look at every semester



and its associated subjects, schemes, and syllabi, including DE (Department Electives), DC (Departmental Core), OC (Open Core), and more. Students were encouraged to choose subjects and labs aligned with their interests to excel in their chosen areas.

The session was met with eager and enthusiastic participation from the students. Dr. Amit Aherwar showcased the teaching methods, including clips from previously conducted classes, giving students a glimpse of the learning experience they could expect.

Dr. Surendra Kumar Chourasiya motivated students to participate in sports, meditation, and extracurricular activities, emphasizing holistic development. An alumni interaction session was conducted via Google Meet, featuring Shree Ashok Singh Bais, a retired Colonel from the Indian Army with 33 years of experience. He shared his journey and advised students to bridge the gap between college life and their professional careers, preparing them to face challenges proactively.

Mr. Bhupendra Pandey and Dr. Jyoti Vimal, the Departmental Swayam Coordinators, acquainted

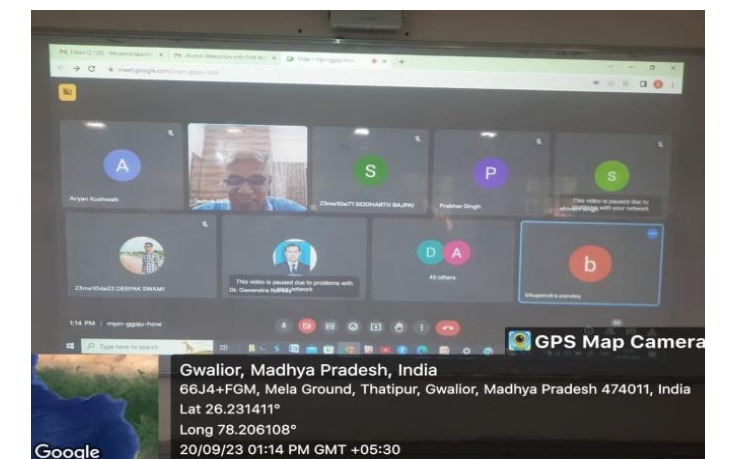
students with the Swayam portal and various online courses available in different engineering streams. They highlighted the significance of Honor and Minor courses and discussed the examination procedures. Additionally, they showcased the achievements of high-ranking students in NPTEL (National Programme on Technology Enhanced Learning).

A session on Universal Human Values (UHV) was conducted by Prof. R.P. Kori and Dr. G. Norkey, emphasizing the importance of living harmoniously with fellow human beings and in harmony with nature while developing technical and managerial competence.

Dr. Surendra Kumar Chourasiya, the class coordinator, discussed various responsibilities and selected class representatives while advising students to uphold discipline and avoid acts of indiscipline, detailing the potential disciplinary actions that could be taken.

Dr. D.K. Rathore and Mr. Vaibhav Shivhare introduced the newly admitted students to various departmental extension activities and clubs, encouraging active participation.

Professor A. S. Rajput elaborated on Moodle Training, discussing its features and applications. The students had the opportunity to explore the department's labs during a visit organized by Prof. Vaibhav Shivhare and Dr. Neeraj Mishra. Lastly, a quiz conducted by Dr. D.K. Rathore brought an enjoyable and informative session to a close, leaving students with a positive impression of their educational journey ahead.



Faculty Achievement and Activities

Research Publications

1. Vishista Kaushik, **Amit Aherwar**, Abhishek Sharma, Sunil Kumar, Sikandar Aftab, Rohit Khargotra, Tej Singh, Influence of cow dung ash and TiB2 on the physicomechanical and tribological performance of Al6061-based hybrid composites, Results in Engineering, 19, 2023, 101311, ISSN 2590-1230. doi.org/10.1016/j.rineng.2023.101311.
2. 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 Assessment Vol (57),: DOI:10.1016/j.seta.2023.103277

#spaceTalk एमआइटीएस में इसरो के वैज्ञानिक ने अंतरिक्ष पर स्टूडेंट्स की जिज्ञासाओं का किया समाधान

माइनस 253 डिग्री में हाइड्रोजन और माइनस 180 डिग्री तापमान में ऑक्सीजन रखना चुनौती भरा

सवाल- क्रियोजेनिक इंजन क्या होता है?
 माइनस 253 डिग्री में हाइड्रोजन और माइनस 180 डिग्री में ऑक्सीजन को रखना बड़ा चुनौतीपूर्ण कार्य है। इस निम्न तापमान को ही क्रियोजेनिक स्थिति कहते हैं। यह सैकड़ों टन वजन की ईंधन को लेकर जाता है। बड़े-बड़े अंतरिक्ष अभियानों के लिए इस प्रकार के भारी इंजनों की आवश्यकता होती है। पेलोड के अनुसार ही इंजन का चुनाव होता है।

सवाल- क्या चंद्रमा पर पानी है?
 वर्तमान स्थितियों को देखते हुए पानी की संभावना चंद्रमा में पाई जा रही है। इसलिए हमने चंद्रयान दक्षिणी ध्रुव में उतारा है, जहां अभी तक कोई देश नहीं पहुंच पाया।

सवाल- पेलोड का वर्क क्या है?
 कई प्रकार के इंस्ट्रुमेंट से भरा पेलोड होता है, जिसमें पृथ्वी की पक्की दूरी लेजर से नापना, रसायनों की खोज, खनिजों की खोज, पानी की स्थिति, तापमान का परीक्षण आदि होता है।

सवाल- चंद्रमा से वापस आने पर क्या करना होता है?
 चंद्रमा का पलायन वेग पर करना होगा। उसके लिए ईंधन साथ ले जाना पड़ता है।

सवाल- इंजीनियरिंग की कौन सी ब्रांच ज्यादा उपयोगी है?
 वर्तमान समय में सभी ब्रांच उपयोगी हैं। मैकेनिकल ब्रांच की बात करें तो इसकी जरूरत हर फील्ड में है, लेकिन किताबी ज्ञान से काम नहीं चलेगा, हर विषय की नॉलेज होना जरूरी है।

न्यूली डवलपड इंजन टेस्टिंग पीरियड के बारे में बताया
 साइंटिस्ट एनके गुप्ता ने अपने जीवन के सबसे जरूरी और सबसे लंबे उन 60 सेकंड्स के बारे में भी बताया, जब न्यूली डवलपड इंजन टेस्टिंग पीरियड में था। स्पेस टॉक क्वेश्चनर में एयरोस्पेस क्लब के समन्वयक डॉ सीएस मालवी द्वारा स्टूडेंट्स के पूछे गए सवालों को डॉ एनके गुप्ता के सामने प्रस्तुत किया। स्पेस टूरिज्म जैसे रोमांचक विषयों पर भी चर्चा की गई।

NCC C Certificate: Shaping Tomorrow's Leaders Today

Introduction:

The National Cadet Corps (NCC) in India is a dynamic organization that has played a pivotal role in molding the character and leadership abilities of young individuals for decades. Among the various certificates offered by the NCC, the C Certificate holds a special place. In this article, we will explore the significance of the NCC C Certificate and its impact on the youth of our nation.

The NCC C Certificate: The NCC C Certificate is the highest level of certification attainable within the NCC. It is a testament to a cadet's unwavering dedication, discipline, and leadership skills. To earn this prestigious certificate, a cadet must undergo a rigorous and multifaceted training program that covers a wide range of activities, including drill, shooting, map reading, and more.

Key Highlights of the NCC C Certificate:

Leadership Development: The NCC C Certificate program places a strong emphasis on leadership development. Cadets are trained to take charge, make decisions, and lead their peers effectively. These skills are not only valuable within the NCC but also in various aspects of life.

National Service: NCC cadets with a C Certificate have often been at the forefront of national service activities. They participate in social and community service projects, disaster relief efforts, and other initiatives that contribute to the welfare of society.

Enhanced Skill set: The comprehensive training provided as part of the C Certificate program equips cadets with a wide range of skills, from marksmanship

and first aid to disaster management and communication. These skills make them better prepared for the challenges they may encounter in their future careers.

Personal Growth: Beyond the development of hard skills, the NCC C Certificate fosters personal growth. Cadets learn the values of teamwork, discipline, time management, and responsibility, which are instrumental in shaping their character.

Impact on Cadets: Earning the NCC C Certificate is not just a badge of honor but a life-changing experience. Cadets who successfully complete this program emerge as well-rounded individuals with a strong sense of duty, an unwavering commitment to the nation, and the confidence to face any challenge that comes their way. The NCC C Certificate is also a significant asset when pursuing higher education or employment opportunities. Many colleges and organizations recognize the value of NCC training and actively seek out cadets with C Certificates.

Conclusion:

The NCC C Certificate is a testament to the dedication and hard work of NCC cadets. It not only equips them with essential skills and leadership abilities but also instills in them a sense of duty and responsibility towards our nation. As we look to the future, the impact of the NCC C Certificate will continue to shine through the actions and contributions of the young leaders it produces. These cadets are not just the future of our nation; they are actively shaping it today.

Bhumika Mishra
4th Yr, Mechanical Engineering.