

A Report on the
2nd International 5-Days Faculty Development Programme on
“Sustainability and Research in Mechanical Engineering”
Organised by
Department of Mechanical Engineering
from 23.09.2024 to 27.09.2024

Report Submitted by: Dr. R. Prithivirajan, Associate Professor, Department of Mechanical Engineering.

Report Received on 11.10.2024

Mode of Conduct: Online

The Department of Mechanical Engineering at Madanapalle Institute of Technology & Science (MITS) organized the second international 5-days Faculty Development Programme (FDP) on "Sustainability and Research in Mechanical Engineering" from September 23rd to 27th, 2024.

Inauguration Ceremony:

The Inauguration commenced at 10 AM with the participation of the Vice Principal (Academics), Head of the Department, the Chief Guest, and resource person Dr. Kadir Gök from İzmir Bakırçay University, Turkey. Faculty members, external participants from various institutions are attended.

Dr. Anantharaman, the FDP Convenor, delivered the opening remarks, welcoming the Vice Principal, the Chief Guest, resource persons, and participants. He highlighted the institute's achievements and infrastructure. A total of 401 participants registered from different universities and states. The Vice Principal, Dr. Ramanathan P., and Dr. Baskaran S. extended their welcome and keynote addresses, emphasizing the importance of the FDP and encouraging participants to gain new insights. Dr. Prithivirajan R. concluded the session with a vote of thanks to the management, faculty, committee members, and participants.

Sessions Overview

September 23, 2024 – Session I.

Resource Person: Prof. Dr. Kadir Gök, İzmir Bakırçay University, Turkey

Dr. Kadir Gök delivered a lecture on "Advanced Biomechanics and Numerical Solutions for Sustainable Implant and Prosthesis Design." His talk covered the development of biomaterials and machining processes for implants, offering participants valuable insights into sustainable implant design.

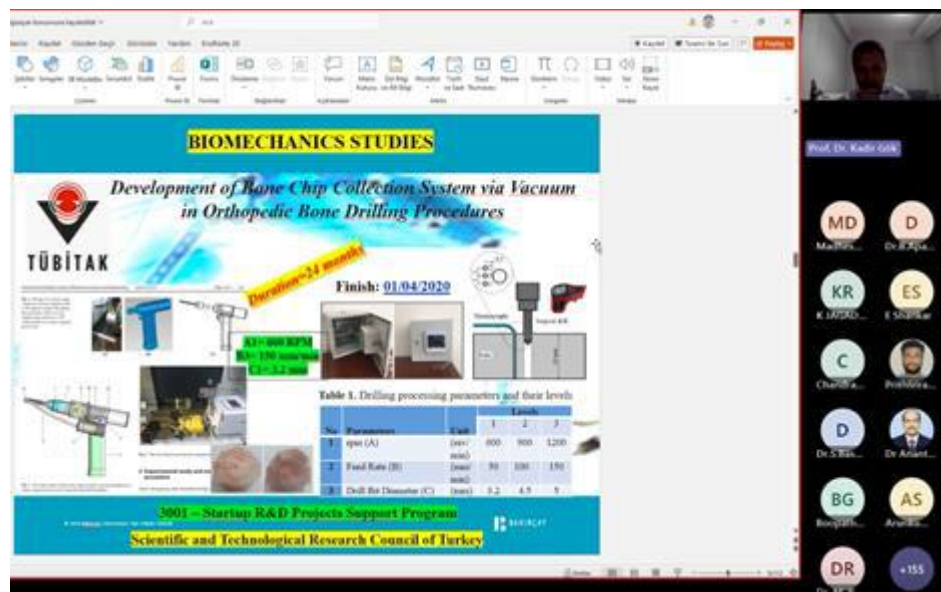


Figure 1 - Session: I by Prof. Dr. Kadir Gök, İzmir Bakırçay University, Turkey.

September 23, 2024 – Session II

Resource Person: Dr. Ashok G. Matani, Govt. College of Engineering, Jalgaon, India.

Dr. Matani spoke about the "IoT in Solar and Renewable Energy Optimization," explaining IoT technologies for solar applications, renewable energy sources, and their uses. He also touched on AI, 3D printing, and optimization techniques relevant to research.

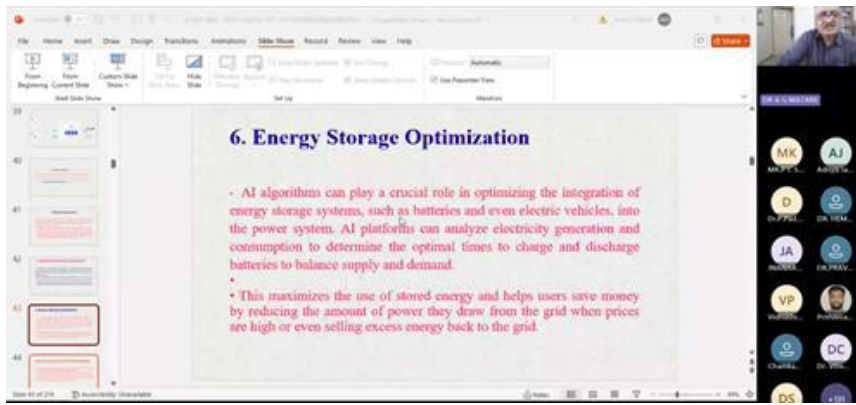


Figure 2 - Session: II by Dr. Ashok G. Matani, Govt. College of Engineering, Jalgaon, India.

September 24, 2024 – Session I

Resource Person: Dr. Manoj Kumar Singh, King Mongkut’s University of Technology, North Bangkok, Thailand.

Dr. Singh’s lecture focused on "Advanced Manufacturing of Polymer Composites using Microwave-Assisted Compression Molding," discussing the principles, processes, and research activities related to the development of fiber-reinforced composites.



Figure 3 - Session: I by Dr. Manoj Kumar Singh King Mongkut’s University of Technology, North Bangkok, Thailand.

September 24, 2024 – Session II

Resource Person: Dr. P. Narayanasamy, King Mongkut’s University of Technology, North Bangkok, Thailand.

Dr. Narayanasamy discussed "Coatings and Sealants for Metallic Materials," covering various technologies and techniques used in coating metallic materials.

September 25, 2024 – Session I

Resource Person: Dr. Shiva S., Indian Institute of Technology, Jammu, India

Dr. Shiva gave an insightful talk on "Additive Manufacturing for Functional Graded Materials," explaining additive manufacturing techniques for graded materials and their applications.

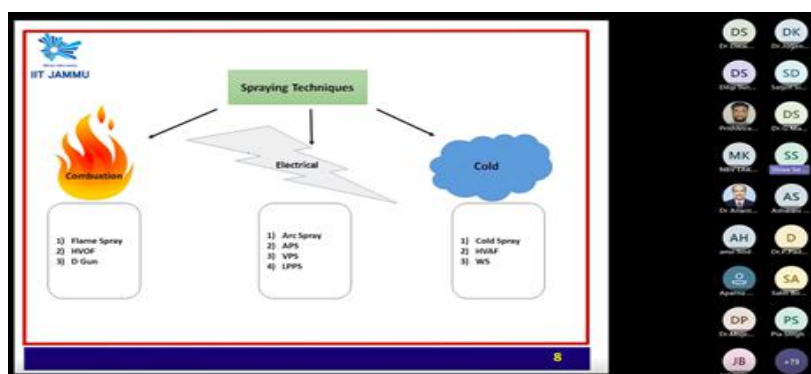


Figure 4 - Session: I by Resource Person: Dr. Shiva S. Indian Institute of Technology, Jammu, India.

September 25, 2024 – Session II

Resource Person: Dr. Vinothkumar Sivalingam, Shandong University, China.

Dr. Vinoth discussed "Investigations on Cutting Forces, Vibrations, and Slot Width Accuracy in Milling of Cortical Bone," sharing research on the sustainability of milling processes for bone applications.

September 26, 2024 – Session I

Resource Person: Dr. H. Jeevan Rao, Nazarbayev University, Kazakhstan

Dr. Rao delivered a lecture on "Nature-Inspired Materials and Biomass Utilization in Sustainable Development," discussing techniques for biomass utilization, plastic recycling, and the applications of nature-inspired materials.

Background of today's Speaker

- B. Tech- Aeronautical Engineering
- M. Tech. Aerospace Engineering
- Ph.D. In aerospace engineering
- PGD In Patent law

Work Experience:

- Worked as assistant Professor In Vardaman college of Engineering(2012-2017)
- Worked as assistant Professor In Amity University, Mumbai (2017-2022)
- Worked as assistant Professor In Jain University (2022-2023)
- Worked as assistant Professor-III In Amity University , Noida (2023-2024)
- Currently working as Post doc researcher at Nazarbayev University, Kazakhstan

Figure 5 - Session: II by Dr. H. Jeevan Rao, Nazarbayev University, Kazakhstan.

September 26, 2024 – Session II

Resource Person: Dr. Sivasakthivel Thangavel, Global College of Engineering and Technology, Oman

Dr. Sivasakthivel presented on "Energy Efficiency and Sustainability in Oman’s Oil Sector," elaborating on sustainability practices and energy efficiency initiatives within the oil industry.

Sustainable Development Goals

Follow on from Millennium Development Goals
 Adopted Sept 2015 by United Nations General Assembly
 17 Goals with a target date of 2030
 Applying to all countries
 Strong political commitment
 Developing investment models

Figure 6 - Session: II by Dr. Sivasakthivel Thangavel, Global College of Engineering and Technology, Oman.

September 27, 2024 – Session I

Resource Person: Dr. Parimal Sharad Bambare, National University, Oman.

Dr. Parimal delivered a session on "Artificial Intelligence (AI) and Machine Learning (ML) for a Sustainable Energy Future," discussing the role of AI and ML in advancing sustainability practices.

Artificial Intelligence (AI) and Machine Learning (ML)

- AI is a subset of ML, but ML is not a subset of AI.
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Figure 7 - Session: II by Dr. Parimal Sharad Bambare, National University, Oman.

September 27, 2024 – Session II

Resource Person: Dr. I Nyoman Suprpta Winaya, Udayana University, Indonesia

Dr. Nyoman’s session focused on "Waste to Energy: Current and Sustainable Future Prospects," covering practices for waste-to-energy production and future sustainable technologies.

Valedictory Ceremony:

The valedictory session was anchored by Dr. Anantharaman, Assistant Professor in the Department of Mechanical Engineering. Dr. S. Baskaran, the Head of the Department, addressed the participants, highlighting the key takeaways of the FDP. Several participants shared their experiences, and Dr. Anantharaman expressed gratitude to the management and all involved for their support in making the 5-day program successful.



Figure 8 - Valedictory Ceremony.