

**A Report on**  
**5-day virtual International FDP program on**  
**“Global Conversations in Mechanical Engineering: Bridging Innovation and Sustainability”**  
**Organised by Department of Mechanical Engineering**  
**From 19.02.2024 - 23.02.2024**



**Report Submitted by: Dr. R. Prithvirajan, Assistant Professor, Department of Mechanical Engineering**

**Resource person: Date: 19.02.24, Session: I - Dr. Mohammed Asmael, Queen's University Belfast, United Kingdom.**  
**Session: II - Dr. Yerzhan Belyayev, Satbayev University, Kazakhstan.**

**Date: 20.02.24, Session: I - Dr. Vinothkumar Sivalingam, Shandong university, China.**  
**Session: II - Dr Sivasakthivel Thangavel, Global College of Engineering and Technology, Oman.**

**Date: 21.02.24, Session: I - Dr. S. Renold Elsen VIT, Vellore.**  
**Session: II - Dr. Satyajit Pattanayak, Lulea University of Technology, Sweden.**

**Date: 22.02.24, Session: I - Dr. Avinash Ravi Raja, Shandong university, China.**  
**Session: II - Dr. P. Narayanasamy, King Mongkut's University of Technology North Bangkok, Thailand.**

**Date: 23.02.24, Session: I - Dr. Elammaran Jayamani, Swinburne University of Technology, Malaysia.**  
**Session: II - Dr. Sathish Kumar Palaniappan, King Mongkut's University of Technology North Bangkok, Thailand.**

**Mode of conduct: Online**

**Report Received on 04.03.2024.**

The Department of Mechanical Engineering, MITS organized a 5-Day virtual International FDP program titled "Global Conversations in Mechanical Engineering: Bridging Innovation and Sustainability" from 19.02.24 to 23.02.24 at Madanapalle Institute of Technology & Science, Madanapalle.

#### **Inauguration Ceremony**

The Inauguration started by 10.45 AM, The Principal, Chief guest and Resource person Dr. Mohammed Asmael, Queen's University Belfast, United Kingdom, HoD, Faculty members, External participants from various institutes were participated in inauguration ceremony.

*Figure 1 - Inauguration Ceremony by Dr. C. Yuvaraj, Principal, Dr. R. Prithvirajan and Dr. Anantharaman.*

Dr. R. Prithvirajan Convenor has given the opening remarks about the FDP program and Welcomed Principal, Chief guest and Resource person and all the external participants and highlighted the institute achievements and facilities. Totally we received 460 registrations from various institutions and among 7 participants from foreign universities.

Dr. C. Yuvaraj, Principal, MITS has delivered a welcome note to the resource persons and highlighted the FDP and wished all the participants to attend the FDP program and learn new things.

**Date: 19.02.24, Session: I, Resource Person: Dr. Mohammed Asmael, Queen's University Belfast, United Kingdom.**

Dr. Mohammed Asmael delivered talk in the title of Advances in Composite research, highlighted the recent friction welding composites activity, research in friction welded composites and future scope.

His lecture was very informative to the participants and given more insights on composites.

*Figure 2 - Session: I by Dr. Mohammed Asmael, Queen's University Belfast, United Kingdom.*

**Date: 19.02.24, Session: II, Resource Person: Dr. Yerzhan Belyayev, Satbayev University, Kazakhstan.**

Dr. Yerzhan Belyayev has delivered a talk on “Solar assisted ground source heat pump for heating application”. He explained what a ground source heat pump and its applications is. He discussed his research in heat pump, characteristics curve and discussed the solar applications.



Figure 3 - Session: II by Dr. Yerzhan Belyayev, Satbayev University, Kazakhstan.

**Date: 20.02.24, Session: I, Resource Person: Dr. Vinothkumar Sivalingam, Shandong university, China.**

**Dr. Vinothkumar** has delivered a talk on Understanding the machining characteristics of Al6082/Al7075 hybrid metal matrix composites milled under cryogenic cooling conditions. He explained hybrid metal matrix composites and Fabrication of Hybrid Metal Matrix Composites.

- Part I: Dry machining of Hybrid Metal Matrix Composites.
- Part II: MQL machining of Hybrid Metal Matrix Composites.
- Part III: Cryogenic cooling of Hybrid Metal Matrix Composites.

Figure 4 - Session: I by Dr. Vinothkumar Sivalingam, Shandong university, China.

**Date: 20.02.24, Session: II, Resource Person: Dr Sivasakthivel Thangavel, Global College of Engineering and Technology, Oman**  
 Dr Sivasakthivel gave talk on Advances in energy technologies. He discussed about ground source heat pump and research work on heat pump and shared his own experience in energy technologies and hydrogen fuel system research activity.

**Date: 21.02.24, Session: I, Resource Person: Dr. S. Renold Elsen VIT, Vellore**

Dr. Renold has delivered a talk on Development of Metal Additive Manufactured Ti-6al-4v Control. Dr. Renold discussed about fundamentals of additive manufacturing, process parameters involved and also discussed about generative design.



Figure 5 - Session: I by Resource Person: Dr. S. Renold Elsen VIT, Vellore.

**Date: 21.02.24, Session: II, Resource Person: Dr. Satyajit Pattanayak, Lulea University of Technology, Sweden.**

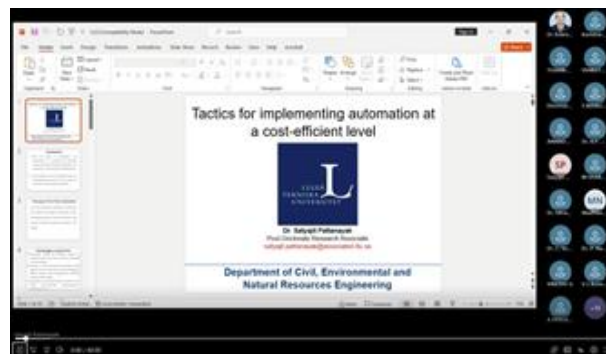


Figure 6 - Session: II by Dr. Satyajit Pattanayak, Lulea University of Technology, Sweden.

Dr. Satyajit Pattanayak presented his title on tactics for implementing automation at a cost efficient level. He discussed about automation necessity, industrial automation, how to implement and convert the conventional machines to automatic machines.

**Date: 22.02.24, Session: I, Resource Person: Dr. Avinash Ravi Raja, Shandong university, China.**

Dr. Avinash Ravi Raja has delivered a talk on Advance manufacturing process -Friction stir welding. Dr. Avinash discussed his detailed friction welding research work and performance. He cleared some many doubts and gave friction welding and highlighted the future scope.

**Date: 22.02.24, Session: II, Resource Person: Dr. P. Narayanasamy, King Mongkut's University of Technology North Bangkok, Thailand.**

Dr. P. Narayanasamy gave a presentation on the concept of sustainable manufacturing and practices. He discussed about sustainable various materials and recycling technique and manufacturing practices.

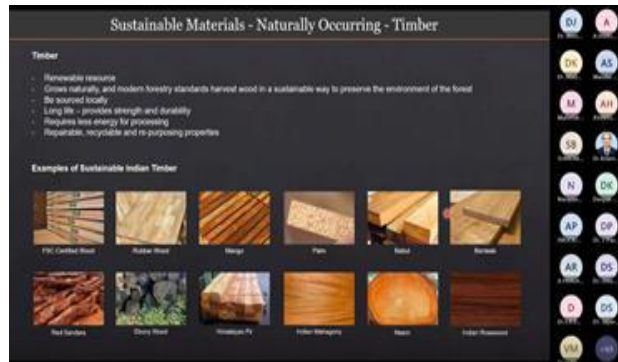


Figure 7 - Session: II by Dr.P.Narayanasamy, King Mongkut's University of Technology North Bangkok, Thailand.

**Date: 23.02.24, Session: I, Resource Person: Dr. Elammaran Jayamani, Swinburne University of Technology, Malaysia.**

Dr. Elammaran Jayamani gave talk on Leading the way designed for sustainability. He discussed about need for sustainability, practices, methods and practices.

**Date: 23.02.24, Session: II, Resource Person: Dr. Sathish Kumar Palaniappan, King Mongkut's University of Technology North Bangkok, Thailand.**

Dr. Sathish Kumar Palaniappan gave talk on Advancements in Composite Research and Sustainable Development. He discussed about research activity in composites, failure analysis and developments of composite structure.

**Valedictory Ceremony**

Dr. Anantharaman, Assistant Professor, Dept. of Mechanical Engineering, MITS anchored the valedictory ceremony. The Vice Principal (Academics) addressed in the valedictory ceremony meeting. Few participants shared his experience and highlighted the FDP. Dr. S. Baskaran briefed about the summary of the FDP program and thanked all the participants for providing support and attending the 5 Day program.



Figure 7 - Valedictory Ceremony