

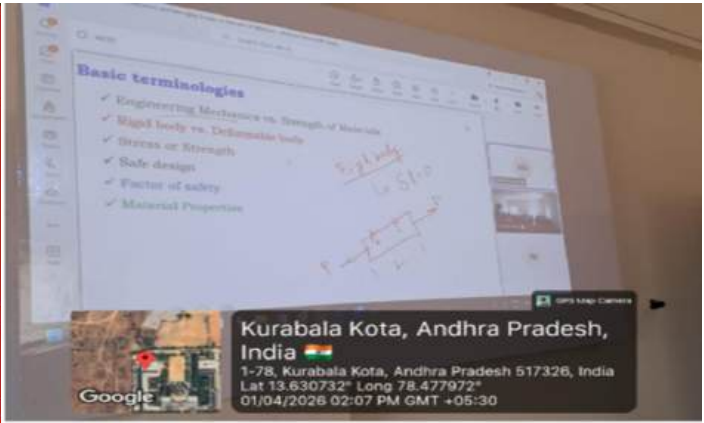


# MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE (Deemed to be University)

Affiliated to JNTUA, Ananthapuramu & Approved by AICTE, New Delhi  
NAAC Accredited with A+ Grade, NIRF India Rankings 2024 - Band: 201-300 (Engg.)  
NBA Accredited - B.Tech. (CIVIL, CSE, ECE, EEE, MECH, CST), MBA & MCA



## A Report on Webinar on “Advances and Emerging Trends in Strength of Materials” Organized by Department of Mechanical Engineering on 01.04.2026



Report Submitted by: **Dr. D. Arunkumar, Dr. A. Pruthvi Deep, Assistant Professors, Dept. of Mechanical Engineering, MITS.**

Resource Person Details: **Dr. Karthik Babu NB, Assistant Professor and Head (I/C), Department of Mechanical Engineering, Rajiv Gandhi Institute of Petroleum Technology, Sivasagar Campus, Assam.**

Venue: **KKB008**

Date: **01.04.2026 Time: 1.30 PM**

Report Received on **09.04.2026.**

Mode of Conduct: **Offline**

### Overview:

Advances in Strength of Materials play a vital role in modern engineering design, structural integrity assessment, and the development of high-performance materials for Industry 4.0 applications. With the rapid evolution of smart materials, composite structures, and computational analysis techniques, this field offers significant and promising career opportunities for mechanical engineers. To create awareness among students about the latest developments, emerging technologies, and real-world applications in this domain, the Department of Mechanical Engineering, MITS, in association with the ISTE Student Chapter, organized a webinar titled “Advances and Emerging Trends in Strength of Materials.”

The webinar aimed to familiarize students with recent innovations in material behavior analysis, advanced testing methods, and the practical relevance of Strength of Materials in modern engineering applications. A total of 51 students actively participated in the event, showing keen interest and engagement throughout the session



### Report

The webinar commenced with Dr. D. Arunkumar, Assistant Professor, Department of Mechanical Engineering, who introduced the relevance of the topic of the event for the current times and he welcomed the gathering and emphasized the importance of exploring multidisciplinary career opportunities beyond conventional mechanical engineering roles.

Subsequently, Dr. A. Pruthvi Deep, Assistant Professor, Department of Mechanical Engineering, formally introduced the Chief Guest, outlining the guest's expertise and professional contributions to the Strength of Materials field.

The Chief Guest delivered an insightful and engaging lecture on “Advances and Emerging Trends in Strength of Materials and Career Opportunities for Mechanical Engineers.” The session provided a comprehensive overview of the evolving landscape of material science and structural engineering, highlighting the importance of Strength of Materials in modern engineering applications.

The webinar emphasized the critical role played by mechanical engineers in the analysis, design, and development of safe and efficient structures across industries such as aerospace, automotive, civil infrastructure, energy, and biomedical sectors. The speaker highlighted emerging areas such as advanced composite materials, smart materials, nano-materials, fatigue and fracture analysis, and computational methods like Finite Element Analysis (FEA) used for predicting material behavior under complex loading conditions.

In addition, the lecture shed light on future-focused domains including material innovation, structural health monitoring, sustainability in material usage, lightweight design, and the integration of digital tools in stress analysis and testing. These advancements are shaping the next generation of engineering design and manufacturing practices.

The Chief Guest further guided students on essential skill sets such as analytical thinking, proficiency in simulation tools, experimental techniques, and interdisciplinary knowledge. He also discussed relevant certifications, higher education opportunities, and strategic career planning to help students align their mechanical engineering background with emerging industry requirements.

The session was highly interactive, with students actively participating and raising questions related to career opportunities, industry expectations, and future advancements in the field of Strength of Materials.

The programme concluded with a Vote of Thanks delivered by Dr. Ved Prakash, Assistant Professor, Department of Mechanical Engineering, who expressed gratitude to the Management, Chief Guest, HOD & faculty members of Mechanical Engineering Department, ISTE student chapter coordinators, and student participants for their enthusiastic involvement and support in making the Webinar a success.

### **Outcome of the Webinar**

- Students gained awareness of career opportunities in the field of Strength of Materials and its significance in mechanical engineering applications.
- Improved understanding of current trends, advanced technologies, and industrial applications related to material behavior, structural analysis, and design.
- Exposure to diverse domains such as composite materials, smart and nano-materials, fatigue and fracture analysis, and computational tools like Finite Element Analysis (FEA).
- Motivation to pursue specialized skills, certifications, research, and higher studies in advanced materials, structural engineering, and related emerging technologies.

### **Summary**

The webinar on Advances and Emerging Trends in Strength of Materials successfully provided valuable insights into the latest developments, applications, and future scope of material science and structural engineering. With the active participation of 51 students, the event effectively achieved its objective of enhancing awareness and understanding of emerging trends, advanced materials, and innovative analytical techniques relevant to mechanical engineering.