Paper Presentation

INTRODUCTION

Ready to showcase your presentation prowess? The paper presentation competition isn't just a stage; it's your arena to shine, offering students and researchers a dynamic platform to showcase, receive constructive feedback, and network with industry professionals. Ideas have the power to change the world, but without proper guidance, they can falter. That's where research comes in, providing the essential direction to tackle specific problems and turn innovative ideas into impactful solutions.

We at Mechanica allow young minds to sharpen their imagery and develop authentic solutions to academic problems.

Mechanical engineering stands as a dynamic and ever-evolving discipline, witnessing daily influxes of novel research and innovations. The paper presentation serves as an exceptional avenue for students and researchers to present their innovative ideas and discoveries to a wide-ranging audience. We extend a cordial invitation to all interested individuals, urging their participation to collectively contribute towards the progressive growth of the field of mechanical engineering.

WHAT TO DO ?

- All participants need to make 2 submissions :
    - A research paper (PDF format preferably)
    - A presentation PPT

In the following link :

- Participants need to write and submit a Paper / Literature Review on the topics given below.

- You need to create a presentation/PPT and the team needs to present a talk on the day of the event during Mechanica at IIT Madras.

- Submission Guidelines: The research paper should be submitted within the given deadline. The paper should be original and not plagiarized, make sure you give references and citations wherever necessary.

- **Presentation Guidelines**: Participants are required to prepare a presentation based on their research paper. The presentation should be in PowerPoint or any other digital format and should not exceed the specified time limit.

- **Time Limit**: Each presentation should not exceed the specified time limit. Participants will be penalized if they exceed the time limit.

- **Judging Criteria**:

1. The first criterion is the quality of content in the paper, effort put into research, and some weightage to illustrations and outlook of the paper.

2. The presentations will be judged based on the content, delivery, organization, and overall impact.

- **Plagiarism:** Participants should not plagiarize any content directly from an existing research paper. If any plagiarism is found, the participant will be disqualified.

- Equipment: Participants are responsible for bringing their laptops and other necessary equipment for the presentation.

- **Questions and Answers**: After the presentation, the judges may ask questions related to the paper and presentation.

RULES

- Each team can have a maximum of 3 members, but groups of 2 and single-member teams are also allowed.

- The contestants will be allotted 8 minutes to present their work.

- The presentation must be your original work. Otherwise, it may result in disqualification.

- A copy of both files should uploaded on the form which will be circulated soon on the website and WhatsApp groups.

- Please make sure you add your details in the Paper PDF and the Presentation PPT.

- If any issues arise, the decision of the judges will be final.

- Any details about the event are subject to change based on the situation.

DESCRIPTION 📝

Only the teams that qualify from the first round will be eligible

for the second round.

Choose one among the below-mentioned Topics and come up with a paper and presentation, where

(a) is to be done for the first presentation(Round), i.e., 30th March, and

(b) is to be done for the second presentation(Round), i.e., 31st March.

*It is not allowed to choose (a) and (b) from different problem statements. Both should be from the same problem statement.

**Only those who clear the first round are eligible to present in the second round, and hence all participants should come prepared for both rounds beforehand.

Problem Statement

▼ **Optimization of Cooling System for High-Performance Automotive Engine:**

a) Outline a comprehensive design framework integrating CFD, thermal analysis, and experimental validation to optimize modern automotive cooling systems, considering space constraints, weight reduction targets, and environmental regulations.

b) Discuss how emerging technologies like variable cooling systems and active aerodynamics enhance thermal management efficiency and overall vehicle performance.

▼ **Additive Manufacturing of Bimetallic components by Powder Based Fusion Process:**

a) Discuss the key challenges encountered with fabrication of bimetallic components using powder based fusion process.

b) What are the solutions that you would propose to overcome these challenges to ensure successful fabrication.

You can take examples and explain the above two points

▼ **Investigating the efficacy of Machine Learning tools for optimizing biodiesel composition to enhance engine performance while reducing exhaust emissions.**

a) Experimental exploration of Machine Learning tool (any) to optimize biodiesel composition for improved engine performance and reduced exhaust emissions.

b) Analyzing the effectiveness of Machine Learning tool (any) in identifying the optimal blend of biodiesel constituents to maximize engine efficiency and minimize harmful emissions.

▼ **Thermal Engineering, Subtopic:- Battery Thermal Management System (BTMS).Designing of a BTMS for an 18650 cylindrical Li-ion battery pack.**

a) Experimental investigation on the proposed BTMS for a battery pack consisting of six 18650 batteries with a discharge rate of 4C.

b) Analysis of the effectiveness of the BTMS and time required to reach the setpoint temperature of 60°C when the battery pack is powered by a constant power source and a fluctuating power source (with the power source having cyclic on-off time).

PRIZE MONEY 🏆

1st prize - 5000/-

2nd prize - 3000/-

3rd prize - 2000/-

EVENT TIMINGS 🕐

1st Round - 30th March 1 pm -4 pm

2nd Round -31st March 1 pm-4 pm

REGISTRATION FEE 🖊

MEA members need not pay anything for this event.

For people from outside IIT Madras, they need to purchase the Mechanica Passport just for Rs /-. Using the passport, participants can attend lectures and participate in various exciting events and competitions, including paper presentations, case studies, idea challenges, and quizzes, with more than 1 Lakh prize pool. A hard copy certificate will also be awarded to participants who attend all

the events they sign up for.

FAQs ?

▼ How to register for the event?

The registration link is on the website.

▼ Do I need to bring a copy?

We insist you obtain a copy of your work in an easily accessible   format(pen drive etc.)

▼ Do we need to pay for the event?

MEA members need not pay anything for this event. For non-MEA members from inside and outside IITM, need to purchase the Mechanica Passport just for Rs300/-. Participants can attend lectures and participate in various exciting events and competitions, including paper presentations, case studies, idea challenges, and quizzes, with a more than 1 Lakh prize pool. A hard copy certificate will also be awarded to participants who attend all the events they sign up for.

▼ What is the mode of the competition?

You have to submit a paper about the problem statement of your choice and give the presentation offline.

▼ Is there a fixed format for the presentation? Do we need to prepare the paper in IEEE format?

No, there is no set format required. However, it is recommended to follow a professional layout to ensure that your paper is well-organized. A classic style includes an introduction, main content with diagrams where necessary, references or citations, and a conclusion or result.

▼ Can a single person or a team of two people participate?

Yes, you can participate, but the maximum number of participants in one team is three.

▼ Is there a limit to the number of pages that must be presented?

No, there are no restrictions on length in terms of pages.

▼ Are there any critical points we should focus on during the paper presentation?

The emphasis should be on highlighting the main points and insights of the literature review.

▼ What is the deadline to register yourself and your team?

The deadline is 30th March, but be sure to start your work well before that.

▼ Do we need to pay for the event?

No, payment of fees is not required. However, make sure to register for the event.

▼ Should we get a pass for the whole team or each person?

You should obtain a pass for each participant.