

Mechanical Engineering Department Seed Money Grant Presentation (8th April, 2026)

On 8th April 2026, the Mechanical Engineering Department organized the first-stage presentation for the Seed Money Grant of the University in the committee room of the department. The event aimed to provide a platform for newly appointed Assistant Professors to present their research proposals and receive constructive feedback. The presentations were conducted in the presence of the Head of the Department, Prof. Vinay Pratap Singh, and the Associate Dean, School of Engineering, Prof. Nishant Kumar Singh. Prof. J. RamKumar from the Mechanical Engineering Department, IIT Kanpur, served as the external expert and joined the session in online mode, offering valuable insights and suggestions. Five Assistant Professors presented their proposals during the session: Dr. Rishi Kant, Dr. Gaurav Saini, Dr. Rohit Kumar, Dr. Saurabh Sangal, and Dr. Chandrakant Kaithwas. Each presentation was followed by an interactive discussion, where the panel provided feedback to help refine the proposals for subsequent stages. The session was highly engaging and intellectually enriching, fostering a research-oriented environment within the department and encouraging young faculty members to pursue innovative research ideas. Photographs of the event are appended below.

Screenshots of the online event

rohit.k kumar (Presenting)

Methodology

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graph TD; A[Raw Material Collection] --> B[Fiber Cleaning (Distilled Water Washing)]; B --> C[Alkali Treatment (5% NaOH Solution, 3 Hours)]; C --> D[Washing & Drying (60°C, 24 Hours) and Cutting (15-25 mm)]; D --> E[Resin Preparation (Epoxy + Hardener, 10:1 Ratio)]; E --> F[Fiber Mixing (25-40 wt.%)]; G[Compression Molding + Hand Rolling] --> H[Curing Process (Room Temp 24 hrs) Post-Curing (80°C, 2 Hours)]; H --> I[Specimen Preparation (ASTM Standard Cutting)]; I --> J[Testing & Characterization (Tensile test (ASTM D3039), Flexural strength (ASTM D79), Izod impact test (ASTM D256), TGA, DSC, SEM, Water Absorption)];
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Dr. Gaurav Saini

Saurabh Sangal

4 others

rohit.k kumar (Presenting)

Methodology

Optimizing Pump Performance: A 4-Phase Methodology

- Phase 1: Design & Simulation
- Phase 2: Fabrication
- Phase 3: Experimental Setup
- Phase 4: Data Analysis

The diagram illustrates a 4-phase methodology for optimizing pump performance. Phase 1 (Design & Simulation) shows a 3D model of a pump. Phase 2 (Fabrication) shows a physical pump being manufactured. Phase 3 (Experimental Setup) shows the pump connected to a test rig with a flow meter and pressure sensors. Phase 4 (Data Analysis) shows a graph of flow rate versus pressure, comparing an 'Optimized Pump' (higher flow rate) with a 'Conventional Pump' (lower flow rate).

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Dr. Gaurav Saini

Saurabh Sangal

4 others

rohit.k kumar (Presenting, annotating)

Microchannel
Inlet 1
Inlet 2
Sensing chamber for IoT integration
Region for Test-chaotic mixing
Microchannel
Outlet
Proposed design in current work

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rohit.k kumar
Janakarajan Ramkumar
Saurabh Sangal
Dr. Gaurav Saini

rohit.k kumar (Presenting)

Justification for Budget

S. No.	Item	Estimated Cost (₹)
1	Minor Fabrication Equipment Hydraulic Compression Molding Machine, Hot Air Oven, Digital Weighing Balance	1,10,000
2	Contingency including software, Consumables, Travel (in India only) etc. Chemicals, Specimens Preparation, Testing, Travels and Contingency	85,000
3	Others	5,000
	Total	2,00,000

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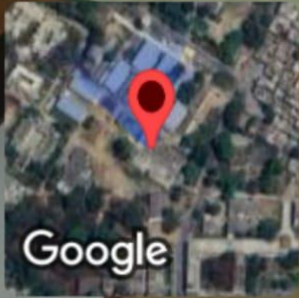
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Dr. Gaurav Saini
Saurabh Sangal
4 others

Other photographs of the event



GPS Map Camera



Kanpur, Uttar Pradesh, India 
F8v4+xcq, Hbit East Campus, Nawabganj,
Kanpur, Uttar Pradesh 208002, India
Lat 26.494969° Long 80.306168°
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... and creativity to cater to the needs of the industry and society.

MISSION

- M1. To offer academic programs or courses for the requirements of the industry.
- M2. To conduct research and development activities for solving real life problems.
- M3. To provide conducive environment for promoting creativity and innovation.

PROGRAM EDUCATIONAL OBJECTIVES

- 1. To develop understanding of basic technical computing concepts.
- 2. To develop analytical capabilities for solving real life problems.
- 3. To provide opportunity to work in team and to develop leadership qualities.
- 4. To develop entrepreneurial capabilities.
- 5. To encourage and nurture students for self-learning.

PROGRAM SPECIFIC OUTCOMES

- 1. Ability to apply theoretical engineering knowledge and skill for solving real life problems.
- 2. Capability to identify, formulate, analyze and solve problems in mechanical engineering and allied domains.
- 3. Collaborative learning to find out the design options and associated technical

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 208002, India
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Department of Mechanical Engineering

VISION

To produce quality Mechanical Engineers with knowledge, skill and expertise to cater to the needs of the industry and society.

MISSION

1. To offer quality engineering education with the participation of the industry.

2. To conduct research and development activities for solving real life problems.

3. To provide suitable environment for promoting innovation and inventions.

PROGRAM EDUCATIONAL OBJECTIVES


1. To develop engineering graduates equipped to meet the needs of the industry.
2. To develop graduates capable to employ in the industry.
3. To provide graduates a good working and learning environment.
4. To develop responsible graduates.
5. To ensure graduates capable to self-learning.

PROGRAM SPECIFIC OUTCOMES

1. Graduates will have the ability to apply their knowledge and skills to solve complex engineering problems.
2. Graduates will be able to design and develop mechanical systems and components.
3. Graduates will be able to work in a team and will be able to communicate effectively.
4. Graduates will be able to work in a team and will be able to communicate effectively.

GPS Map Camera



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Kanpur, Uttar Pradesh 208002, India

Lat 26.494852° Long 80.306086°

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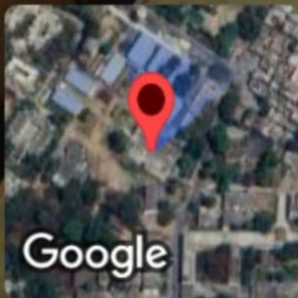
Project Outcome


- Estimated heat transfer performance in PCM-based thermal energy storage systems using hybrid nanofluids.
- Reduction in charging and discharging time due to improved thermal conductivity and turbulence effects.
- Detailed understanding of convective heat transfer involving fluid flow, solid conduction, and phase change.
- Validated CFD model capable of accurately predicting system behaviour under varying operating conditions.
- Development of machine learning-based predictive models for performance estimation and optimisation.
- Identification of optimal operating parameters (Reynolds number, nanoparticle concentration, etc.).
- Establishment of design constraints and guidelines for efficient thermal energy storage systems.

Fig 3. Deepwater Condensation

MAHARAJA BUTLER TECHNICAL UNIVERSITY

GPS Map Camera



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F8v4+xcq, Hbit East Campus, Nawabganj,

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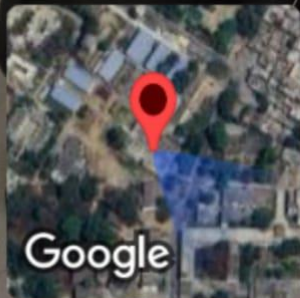
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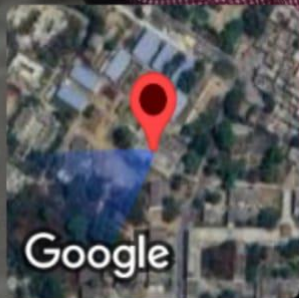
Department of
Mechanical Engineering
VISION
To produce quality mechanical engineers with leadership
skills and creative capacity to the needs of the industry and society.


MISSION
1. To offer quality education to students with the requirement
of the industry.
2. To undertake research and development activities for solving
real life problems.
3. To provide excellent environment for promoting innovation
and entrepreneurship.

PROGRAM EDUCATIONAL OBJECTIVES
1. To develop capability of the student engineering graduates
2. To provide excellent opportunities for solving real life problems.
3. To develop professional attitude.
4. To develop communication capabilities.
5. To encourage and promote interest for self learning.

PROGRAM SPECIFIC OUTCOMES
1. Apply to solve mechanical engineering knowledge and skill for real life
situation.
2. Identify to identify, analyze, and solve problems in mechanical
engineering of their domain.
3. Communicate effectively both in the form of written and oral presentation.

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Kanpur, Uttar Pradesh, India 

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