



# MANIPAL INSTITUTE OF TECHNOLOGY MANIPAL

(A Constituent Unit of MAHE, MANIPAL)

Annual Newsletter  
January 2024 | Vol 6

## Flying Wheel

### Vision

"Excellence in Education of Aeronautical and Automobile Engineering fortified through Research, Innovation and Teamwork"

### Mission

- **M1:** Educate students professionally to face societal challenges.
- **M2:** Provide a conducive environment for learning, reinforced with the principles of Aeronautical and Automobile Engineering.
- **M3:** Promote Research, Enhance Creativity and Nurture Teamwork.
  
- The Department of Aeronautical and Automobile Engineering offers 2 UG (**Aeronautical Engg. and Automobile Engg.**) and 4 PG (**Avionics, Defence technology and Automobile Engg., Applied CFD**) courses.
  
- The Department of Aeronautical and Automobile Engineering Under Graduate programs are NBA/IET accredited.



**Department of Aeronautical and Automobile Engineering**

**MANIPAL INSTITUTE OF TECHNOLOGY**

MAHE, Manipal - 576104

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<https://manipal.edu/mit/department-faculty/department-list/aeronautical-and-automobile-engineering.html>



**Dr. Laxmikant G Keni**, Assistant Professor-Sr. Scale, successfully defended his thesis titled **“Biomechanical simulation of Obstructed Ureteral Flow during Peristalsis using Computational Fluid Dynamics”** on 15/09/2023.

**Guide:** Dr. Mohammad Zuber, **Co-Guide:** Dr. Satish Shenoy B, and Dr. Masaaki Tamagawa (Professor, Department of Biological Functions: Engineering, Kyushu Institute of Technology, Japan).



**Dr. Chetan K N**, Associate Professor, and **Dr. Laxmikant G Keni**, Assistant Professor-Sr. Scale, published their patent titled

- **Dental hand Piece**
- **An intra Oral Device for the reduction of Aerosol in dentistry**

**Dr. Anand Pai**, Assistant Professor-Sr. Scale, successfully defended his thesis titled **“Fabrication and Analysis of Shielding armors employing partially auxetic materials for enhanced endurance against shock impact during low-intensity blasts”** on 25/02/2023.

**Guide:** Dr. Satish Shenoy B **Co-Guide:** Dr. Chandrakant R Kini



**Dr. Yogeesha Pai**, Assistant Professor-Sr. Scale, successfully defended his thesis titled **“Experimental Investigation of Hygrothermal Effects on Low-Velocity Impact Behavior of Aramid-Basalt Hybrid Polymer Composites”** on 24/01/2023.

**Guide:** Dr. Dayananda Pai, **Co-Guide:** Dr. Vijaya Kini M

**Dr. Chandrakantha Bekal**, Associate Professor, has participated in the **Summer Faculty Research Fellow Programme-2023** under Continuing Education Programme held from 16 May 2023 to 14 July 2023 at **IIT, Delhi**

**Faculty Mentor:** Dr. Narsing Kumar Jha



**Dr. Srinivas G**, Assistant Professor-Sr. Scale, has received the recognition of Mentor in the 2023 **NASA International Space Apps Challenge**. In honor of his 2023 participation and Mentoring, he also received the official **“Galactic Local Mentor”** certificate.

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## Notable Mentions Faculty



**Dr. Thara Reshma I V**, Assistant Professor-Sr. Scale, presented a paper titled “**Unsteady Shock Reflections Over Curved Surfaces**” co-authored by Vishnu Prasad, Vinoth P, and Rajesh G, **IIT Madras** at the 7th National Symposium on Shock Waves, held at Physical Research Laboratory Ahmedabad, Gujarat from 15-17 February 2023.

Presented a paper titled “**Estimation of Mach Stem Height in the Weak Shock Reflection Domain**” co-authored by Prathamesh R Sirmalla, Rajesh G, **IIT Madras**, at the 34th International Symposium on Shock Waves (ISSW 34) held at **Daegu, South Korea** from July 16-21, 2023.

Was part of the **Organising Committee and Chaired Session** at the **15th International Symposium on Experimental and Computational Aerothermodynamics of Internal Flows (ISAIF 15)** held at **IIT Madras** from 23-27 October 2023.



**Dr. Manish Varun Yadav**, Assistant Professor – Sr. Scale, published patents titled

- Microwave sensor with surface wave transmission line.
- Device and method for facilitating surface wave excitation and fault detection on a transmission line.

## Adjunct Faculties of the Department



**Dr. Prakash B kamath**, General Manager, Mahindra Rise, Pune, Maharashtra.

**Cmdr. S L Deshmukh**, NM (Retd.), VP-Sungroup, Gurgaon.



**Dr. Suresh Sampath**, Head of Gas Turbine Systems Engineering & Operations, Cranfield University, UK.

## Flying Wheel

## Notable Mentions Department



Department has secured **FIRST PLACE** in the **Research Achievements** during the **Research Day** celebrated at MIT on 5th April 2023.

The Department of Aeronautical and Automobile Engineering faculty members have published **67 research articles** in various Scopus Indexed journals and also presented in several International Conferences.



Department has successfully established the **IEEE AESS (Institute of Electrical and Electronics Engineers Aerospace and Electronic Systems Society)** Student Chapter. This momentous achievement opens up a world of thrilling opportunities for students interested in the aerospace and electronic systems fields.

**Faculty In-charge: Dr. Manish Varun Yadav**



A workshop on **OpenVSP for Aircraft Design** by Mr. Nouman Uddin, M. Tech. in Aerodynamics and Flight Mechanics Indian Institute of Space Science and Technology, Thiruvananthapuram, Kerala.

**Coordinator: Dr. Manikandan M and Dr. Balbir Singh**



A guest lecture by **Dr. Sridhar Ravi**, Associate Professor, from School of Engineering and Information Technology UNSW Canberra on the topic "Autonomous Navigation Through Complex Environments- from Animals to Robots."

## Guest Lectures

**Dr. A K Ghosh, Professor (HAG), Aerospace Department, IIT Kanpur on the Topic: “Young Minds-Evolution of Drones: Roles and Responsibilities”.**



**Er. Rajat Hebbare, Lead Manufacturing Engineer (Product and Planning), GKN Aerospace Nederland, on the Topic: Emerging Technologies in Aviation.**



**Mr. John Platt, Trustee & Head of Membership, IPowerE on the Topic: Operational Reports of Power Plants around the world.**



**Suraj S D, Founder and CEO, Decibels Lab Pvt Ltd, Bengaluru on the topic: Electric Vehicle Powertrain 1-D Simulation. Also established electric vehicle test set up (Vehicle Chassis Dynamometer) in Automotive Transmission Lab in collaboration with Decibels Lab Pvt Ltd, Bengaluru.**





**Manipal Academy of Higher Education, Manipal** has signed an **MOU** with the prestigious multi-national company **UD Trucks (India) Pvt. Ltd.** on 11th Aug 2023 to enhance the industry-academia relationship. This MOU is aimed at equipping the Automobile Engineering laboratories in Manipal Institute of Technology, a constituent unit of MAHE, with ongoing and upcoming motor vehicle technologies, training the faculty, staff and students, facilitating certification courses and transfer of knowledge.



As a part of the MOU, an **Advanced Driveline System of UD Trucks** from the company under the **CSR scheme** is provided to the Department and Institute.



Our distinguished alumni, **Mr. Mayur Shetty, CEO, Blackfrog Technologies Pvt. Ltd.** delivered a talk to the new batch of B.Tech. Automobile Engineering 2023. Mayur spoke about his experience in MIT Manipal, the scope and challenges for aspirant automobile engineers, the entrepreneurial opportunities that the program offers, and professional mindset inculcated here. He was accompanied by Mr. Nishant Shet (B.Tech. Automobile - 2017) and Mr. Nithin Chengappa (B.Tech. Automobile - 2019).

# Flying Wheel

# Notable Mentions Students



Ms. Shivani Ranjan Got the Outstanding contribution Award (in Paper presentation session category) at the IEEE ICORT-2023 held from 23rd-25th, Feb 2023, organized by ITR-DRDO, Chandipur, Odisha. The award was announced by Director ITR-DRDO and General chair IEEE ICORT-2023 (Sri H K Ratha) Chandipur, Odisha. Title of the paper "Flight Aerodynamic Performance of Single and Twin Air Channel for Radar Cross Section Reduction".

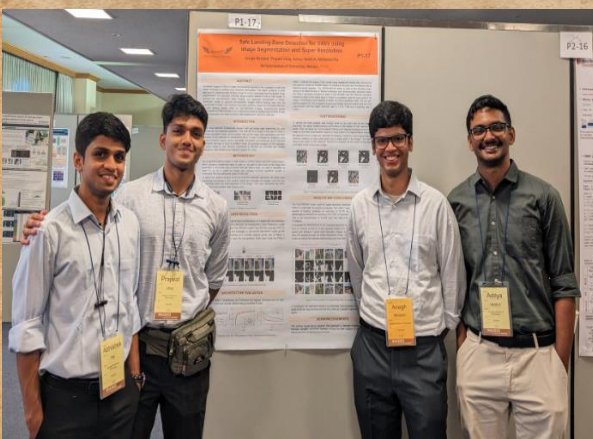
Guide: Dr. Manish Varun Yadav

## BAJA SAE India 2023: Prize money won - ₹40,000

BAJA SAE India 2023 held at the NATRAX facility (Asia's largest automotive test track), Indore MP from the 14th - 19th of February 2023. Overall Physical Dynamics - 2<sup>nd</sup>, Suspension and traction - 5<sup>th</sup>, Sledge Pull - 6<sup>th</sup>, Manoeuvrability - 6<sup>th</sup>, Endurance - 10<sup>th</sup>, mBAJA Static events result (out of 114 participating colleges), Validation event - 1<sup>st</sup>, CAE - 4<sup>th</sup>, 8th Overall (Statics + Dynamics), 2nd Overall Dynamics.



Mentor: Dr. Mahesha G T



TeamAeroMIT, one of the flagship Major Student Projects of our institute presented a paper titled "Safe Landing Zone Detection for UAVs using Image Segmentation and Super Resolution" at the 18th MVA Conference held in Hamamatsu, Japan in July 2023. This work presented a novel solution for the detection of safe landing zones for UAVs that are in their flight phase. The presented pipeline achieved a 6.3% increase in accuracy over the present state-of-the-art model.

Mentor: Prof. Kamlesh Kumar



### Aircraft Design Workshop



### Air Crash Investigation Workshop



### Automotive Engines Workshop, Automotive Transmission Workshop, Vehicle Display + Aerodynamics Workshop

This workshop involved the junior members of the club learning about various components of internal combustion engines used in automobiles and all driveline components of a combustion-driven vehicle downstream of the flywheel.

## Semester Abroad Program



Mr. Takshay Surana, Ms. Nidhi Salvi and Mr. Prakyath Shetty are perusing their 6<sup>th</sup> semester at the Ecole Supérieure des Techniques Aéronautiques et de Construction Automobile, France.







**Mr. Aditya Sadhukhan (M Tech student, Defence Technology)**, was awarded with the best paper for “Recent Developments of Battle Tanks Used in Defence Applications – A Review” which was presented in the International Conference Modern Research In Aerospace Engineering (MRAE 2023) organised by Amity University in Noida (UP) , technically co-sponsored by springer publication.

**Guide: Dr. Mahesha G T**



**Mr. Prithesh Pinto (BTech, Aeronautical Engineering)** was awarded best paper for "Performance enhancement of an axial flow compressor using active flow control technique" at the International Conference on Recent Advances in Fluid Mechanics and Nanoelectronics (ICRAFMS 2023), MIT Bengalure held during July 12-14, 2023.

**Guide: Dr. Srinivas G**



**Mr. Flaxon Nazareth**, Batch of 2023, B.Tech. Aeronautical Engineering conducted an informative session on Semester abroad programs at International universities having undergone the program at the University of Sydney, Australia 2022-23, during the orientation program for the new batch of B.Tech. Aeronautical Engineering and Automobile Engineering 2023-27.

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# Notable Mentions Students



**Mr. Hathim Mohammed**, MTech Avionics and **Ms. Kushboo Daga**, MTech Defense Technology has presented their research articles on **High Efficient Central Feed Compact Antenna for 5g Microwave Applications** and **A compact circular 5G antenna with TU-shaped design for microwave applications** at the IETE International Conference India on AI & ML Driving 5G & Beyond (IICI-23), which was organized Organizing by The Institution of Electronics and Telecommunication Engineers (IETE) Recognized As SIRO (Scientific and Industrial Research Organizations) By Govt of India, Jointly With Bharat Electronics Ltd (BEL) & Centre For Development of Telematics (C-Dot) At BEL Academy Of Excellence (Nalanda) Bengaluru, India respectively.

**Guide: Dr. Manish Varun Yadav**



**Ms. Ridhi Gupta** has presented a paper titled " TL-Shaped Circular Parasitic Compact Planar Antenna for 5G microwave Applications" at the (International Springer Conference) 4th international conference on electrical and electronics engineering held in Chitkara university on August 19-20, 2023. (ICEEE-23), which was organized Organizing by Chitkara university, HP and ADSRS Education and Research Foundation.

**Guide: Dr. Manish Varun Yadav**



# \*\* Editorial Board \*\*

Flying Wheel

## Mentor

Dr. (Cdr) Anil Rana  
Professor & Director, MIT

## Chairman

Dr. Dayananda Pai K  
Professor & Head, AAE

## Co-Ordinators

Dr. Mahesha G T  
Professor, AAE

Dr. Manish V Yadav  
Asst. Professor-Sr. Scale, AAE

Dr. Navya T Hegde  
Asst. Professor, AAE



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