

Manipal Academy of Higher Education

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Faculty work

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Spring 7-1-2021

**A half yearly newsletter of Dept . of Mechatronics v4 s1 [July 2021]**

Chandrashekhar Bhat Dr

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JULY 2021 | VOLUME 4 | ISSUE 1

# MECHATRON



A half yearly newsletter of Dept . of Mechatronics, Manipal Institute of Technology, Manipal, MAHE

## HOD's Message

Pleased to release latest edition of Mechatron to showcase the departmental events, developments, activities and achievements of our students, faculty members and alumni. This is an incredible means to reflect our value-system and the efforts to strengthen the bond of Mechatronics family.

Education is boundless and being optimistic in unprecedented times often opens up the doors of opportunities. I wish you all equip yourself with all-round capabilities and skills to be future ready. Wishing you best of luck for the upcoming semester and hoping for an expeditious return.



Dr. Chandrashekar Bhat  
Professor and Head  
Dept. of Mechatronics

Student's Coordinator:

Mr. Ashwath Kapur  
Ms. Sanya Lakotia

Editors:

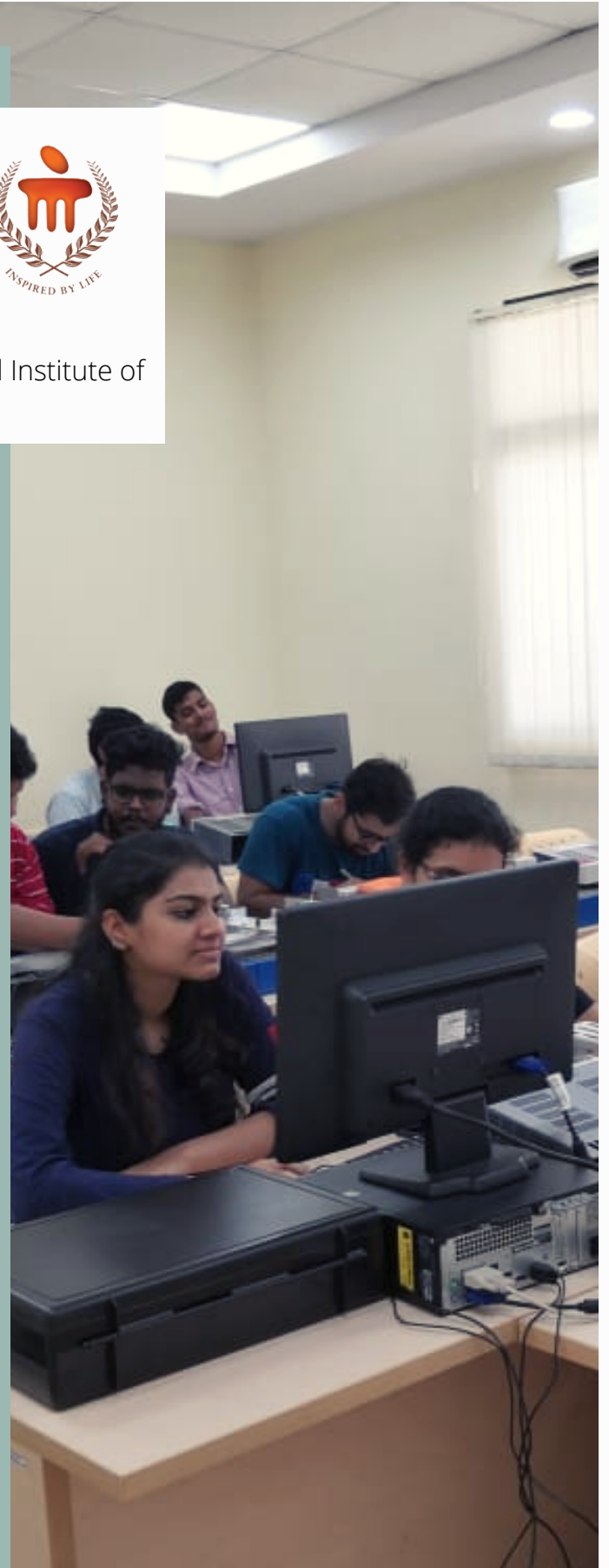
Mr. Mahesh Inamdar (Asst Professor)  
Ms. Dolly Sharma (Asst Professor)

## Vision

Excellence in Mechatronics Education through Innovation and Team Work

## Mission

Educate students professionally to face societal challenges by providing a health learning environment grounded well in the principles of Mechatronics Engineering, promoting creativity and nurturing teamwork



# Department

## PROGRAM SPECIFIC OUTCOMES

At the end of the course the student will be able to

- Apply the knowledge of sensors, actuators, controls, mechanical design and modern software tools to integrate a system for performing specified tasks
- Articulate design, modelling, analysis and testing of Mechatronics products, systems and controllers using appropriate technology and software tools.
- Interface devices and elements to a central system having the capability of real time data sharing, storage, retrieval, analysis, decision making with global connectivity features for visibility and intervention

## GRADUATE ATTRIBUTES

- Engineering Knowledge
- Problem Analysis
- Design/ Development of Solutions
- Conduct investigations of complex problems
- Modern Tool Usage
- The Engineer and Society
- Environment and Sustainability
- Ethics
- Individual and Team Work
- Communication
- Project Management and Finance
- Life-long Learning

## PROGRAM EDUCATIONAL OBJECTIVES

The Mechatronics graduates:

**PEO1:** Are expected to apply analytical skills and modelling methodologies to recognize, analyze, synthesize and implement operational solutions to engineering problems, product design and development, and manufacturing.

**PEO2:** Will be able to work in national and international companies as engineers who can contribute to research and development and solve technical problems by taking an initiative to develop and execute projects and collaborate with others in a team.

**PEO3:** Shall be capable of pursuing higher education in globally reputed universities by conducting original research in related disciplines or interdisciplinary topics, ultimately contributing to the scientific community with novel research findings.

**PEO4:** Are envisioned to become technology leaders by starting companies based on societal demands and national needs.

**PEO5:** Shall develop flexibility to unlearn and relearn by being in pursuit of research and development, evolving technologies and changing societal needs thus keeping themselves professionally relevant.

## DEPARTMENT AT A GLANCE

- Inception 2012
- 5+ MOUs with Industry and Academia
- 10 State of Art Labs
- 5 Student Startups

## PROGRAMS OFFERED

- B.Tech-Mechatronics Engineering(2006)
- M.Tech-Industrial Automation and Robotics (2015)

## ACCREDITATION

- National Board of Accreditation has accredited "B-Tech in Mechatronics" program for a period of 6 years (2019 - 2025).
- Department of Mechatronics Engineering also applied for Institution of Engineering and Technology (IET)Accreditation UK for its BTech and MTech courses.

## PROGRAM OUTCOMES

The POs are exemplars of the attributes expected of a graduate of an accredited programs

PO 1-Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2-Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3-Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4-Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5-Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO 6-Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7-Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8-Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9-Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10-Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11-Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12-Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

# Department Activities

## UNIVERSAL ROBOTS INTERACTIVE TRAINING - MARCH 2021

The Department of Mechatronics Engineering organized an interactive training program by **Universal Robots**, the acclaimed collaborative robotics company, to commemorate the arrival of a brand-new UR5e Collaborative Robotic Arm to the department.

The training program, conducted by **Mr Karan Deep Singh**, spanned over 3 days, from 8th March to 10th March 2021, and saw attendance by the faculty members of the department as well as students interested to learn about the wide applications of cobots. Faculty and students in large numbers attended the program.



## WEBINAR ON "ELECTRONIC CIRCUIT DEBUGGING -MADE FUN" BY BHARATH BASTI SHENOY GRADUATE STUDENT (PH.D.), MICHIGAN STATE UNIVERSITY, U.S.A

Mechatronics Department arranged a talk on "Electronic Circuit Debugging -Made Fun" on 15th May, 2021 by Bharath Basti Shenoy, Graduate Student (Ph.D.), Michigan State University, U.S.A. on MS Teams. Ms. Maithri M, Assistant Professor, Mechatronics Department welcomed and introduced the guest **Mr. Bharath Basti Shenoy** to the audience.

Mr. Bharath addressed the students and faculties and gave an overview on the problems faced by the students in circuit labs. He started by briefly categorising the problems as student defined problems and real problem. He went on to explain that student defined problems are basically the complaints that are raised by the students such as not familiar to the circuit and the components, no prior knowledge on handling different equipment etc.

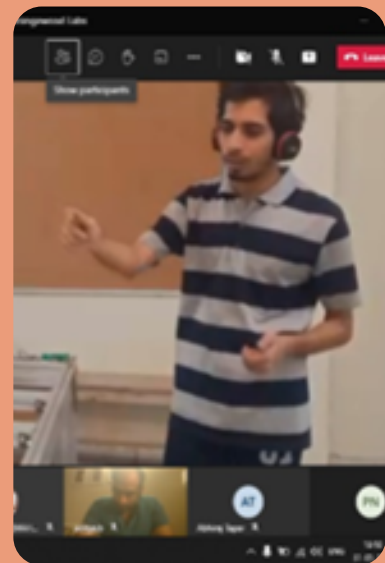


## A TALK ON VEHICLE DYNAMICS JUNE-2021

Vehicle dynamics encompasses all forms of conveyance – ships, airplanes, trains and rubber – tired vehicles. This workshop focuses on rubber – tired vehicles. The workshop was a 3-hour session wherein the resource person discussed the importance and measurement of aerodynamics of a car. Aerodynamic forces cause drag, lift, lateral forces on a car which affect the stability and directional control. This workshop gave an insight into world of vehicle dynamics from industry point of view. **Mr. DAP Prabhakar** Organized the talk.

## TELE-OPERABLE COLLABORATIVE ROBOTIC ARM MARCH-2021

The Department of Mechatronics hosted an online demonstration and hands-on session of tele-operable collaborative robotic arm from Orangewood Labs on the 31st of March, 2021. Orangewood Labs is a Combinator (W18) backed, IIMA/NID alumni tech venture manufacturing easy-to-use, collaborative, and tele-operable robotic arms designed for industrial processes.



The hands-on session was conducted by **Mr. Abhiraj**, **Mr. Aditya**, **Mr. Ashish** and **Mr. Prasang** and was attended by interested undergraduate and postgraduate students, faculty and HoD. .

# Department Activities

## WEBINAR ON TECHNOLOGY DEVELOPMENT AND ENTREPRENEURSHIP

Department of Mechatronics had organized a Talk on Technology Development and Entrepreneurship on 11 June 2021. The Talk was focused on the theme of fostering entrepreneurial spirit among students and Faculty.

The Talk was delivered by Dr Y Shrihari Upadhyaya, CEO, Manipal Universal Technology Business Incubator (MUTBI), Manipal. Dr Upadhyaya highlighted the various Policies, schemes and incentives offered by the Government agencies at the Center and state level for fostering the culture of Startup in the country. Mr Dundesh C organized the talk.

## GUEST LECTURE ON BLOCKCHAIN-ENABLED MICROGRID AND SMART GRID

The Department of Mechatronics Engineering organized an informative talk on prospects of Blockchain in Grids through online session. Mr Anand an prolific speaker and researcher delivered the lecture.

## A TALK ON PLACEMENT GUIDANCE JUNE-2021 PROF. APARNA BHAT

The Department of Mechatronics Engineering organised an interactive training session for incoming 4th year students on tips and tricks to excel during Group Discussions (GD) phases during the upcoming campus placements via MS Teams. The sessions were conducted by Prof. Aparna Bhat, TAPMI, and were conducted in two slots for both sections of students.

The sessions proved very fruitful to all the students who enthusiastically participated in the session, giving them a lot of insight into the entire process and making them aware of their strengths and shortcomings so they may better prepare for the campus placements.

## TALK ON ETHICS AND VALUE SYSTEM IN ACADEMICS

Department of Mechatronics under the arranged a talk on Ethics in Teaching - Learning and Academics through Zoom.



Dr. Sanjoy Mukherjee an esteemed Professor from IIM Shillong gave a thoughtful lecture with numerous anecdotes and stories from Indian History and Thinkers to facilitate understand.

# Faculty Corner

## POST DOCTORAL FELLOWSHIP

Dr. Munendra Singh got an opportunity for Post Doctoral Fellow in John Hopkins College US. He'll be working on Image Processing

## DOCTORAL JOURNEY

Mr. DAP Prabhakar is pursuing his doctoral work in NITK Suratkal, Karnataka. He is also the coordinator for ISA Student's Chapter. We wish him all the best in this endeavour.

## FACULTY OUTREACH

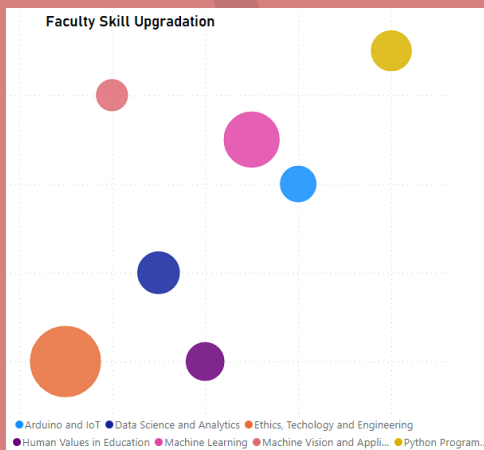


Dr. Vijay Babu K was a speaker in an Online Student Training Programme organized by Centre for Educational Technology, NIT Warangal on Teaching and Learning of SCILAB”

“He also held a workshop on “Scilab and its applications in Electrical Engineering” organized by Dept. of Electrical & Electronics Engg, BMSCE, and IEEE PELS, IES, SSIT Bangalore Chapters.

## SELF INITIATED AND DIRECTED LEARNING

Facing a future that we cannot foresee, the ability to adapt and learn is key. With plethora of courses available on internet, faculties invested in upgrading themselves.



This helps in improving the quality of teaching, assignments and projects given to students. This would also aid in our pursuit to bridge the industry-academia gap by upgrading the syllabus in tune with the current technological requirements/ trends.

## PUBLICATIONS

- Dr. SS Hiremath published paper on *Semi-Autonomous UAV based Weather and Air Pollution Monitoring System* at Advances in Smart Sensors, Signal Processing and Communication Technology organized by Dept. of Electronics Goa University March 2021.
- Mr. Ravikanth Dadi published paper on *Study on Human Fingers Perception over Textured Surfaces for the Textural Applications in Haptics Technology* at IOP Conference Series: Materials Science and Engineering Jan 2021

## BRIDGING THE GAP

In these bleakly times, an effort to bridge the gap between the students and faculty, Department under the guidance of HOD arranged many sessions in MS Teams to facilitate exchange of ideas, concerns and problems. This was a fruitful effort as many Students opened up about their problems and an collaborative course of action was crafted.

## FIRST YEAR ORIENTATION



To allay the apprehensions and clear the doubts of the students and parents, a three day department wise summit was arranged by the Institute. Department of Mechatronics with Department of Aeronautics and Aerospace conducted the sessions to present the academic curriculum, future prospects and a one to one Q&A session which was also chaired by Jt. Director.

## EXPERT TALK

- Dr. Asha CS and Dr. Munendra Singh joint gave a talk on machine learning and computer vision in Technical University, Dehradun. This talk was organized by the college under the aegis of TEQIP.
- Dr Ankur Jaiswal was a speaker on topic of Robots Kinematics and Hands on Session: Robo Analyzer organized by Mechanical Dept. Medi Caps University, Indore.
- Dr. SS Hiremath gave a talk on **Recent trends in Mechatronics** through online mode oragnized byu Kamala Institute of Technology Science sponsored by AICTE-ISTE

# Student's Corner

## STUDENT'S ACHIEVEMENTS



Harish Kommana - Top performer of the month January Month 2021  
Verzeo Star Performer of the month Organization level



Aditya Iyer participated in Speech Controlled Robotics Workshop and completed training in Robotics and Embedded Systems. He also has Autodesk Certified Credential in CAD and Digital Manufacturing

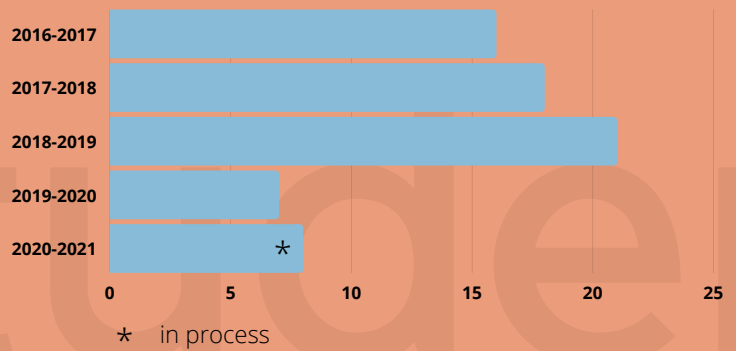


Mr. Arko C has founded and established a company Amigo which is a platform that caters to people going through mental health problems and design tools for them to be able to cope with it by connecting them to verified professionals.



In these tough times, students struggle to get through internships. Mr. Manan Agarwal of 4th Year has created InternFinder, a bot on twitter to optimize the search and help secure internships.

## STUDENTS ON HIGHER EDUCATION STATISTICS 2016-2021



## ISA TECH WORKSHOP ON IOT & ROBOTICS APRIL-2021

The International Society of Automation (ISA) Manipal Institute of Technology Student Section, in collaboration with their sister student section in Manipal University Jaipur, organized a technical workshop on IoT & Robotics.

The workshop, aimed towards 1st and 2nd year college students, focused on sensitizing participants to the various aspects of IoT and Robotics that are present, and through demonstration of simple applications in those fields, awaken their interests.

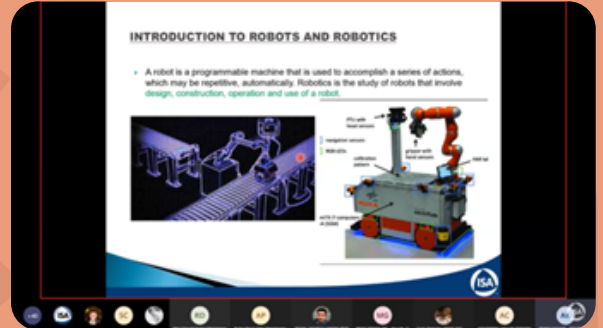
Speakers:

- Akshet Patel (President)
- Rahul Devkar (Vice-President)

ISA Manipal Topic: "Mathematics in Robotics"

Speakers:

- Arvind Kaushik (Mechanical & Robotics Subsystem)
- Ashwath Capur (Mechanical & Robotics Subsystem)





# Alumni Corner

## ISA INNOVATIVE ENGINEERING INTERACTIVE SESSION- SPEAKER VIJAY VARDA JUNE 21

Mr. DAP Prabhakar under the ISA Student's chapter arranged a Talk with Mr. Vijay Varda the CEO of Fracktal Works. He talked about his entrepreneurial journey, hurdles faced and the motivation which kept his going throughout. There was an overwhelming response from students

## SREYOSHI BHADURI

We are entrilled to congratulate Ms, Sreyoshi Bhaduri (Batch 2011) to have starting her doctoral degree in Virginia Tech college of Engineering.

She was working as Manager of Global People and Analytics NY, USA and have be an active member of many social societies.

We wish her all the very best for all of her endavours.



## ALUMNUS IN FORBES UNDER 30

Mr. Rishab Gupta (Batch 2015) an alumnus of Dept of Mechatronics, have been listed by Forbes under 30 under the area of Health Care & Science for their work in Aerospace logistics. He is co-founder of a Redwings Lab aims to reduce the reliance of Hospitals to refrigerator to store perishables like blood.

The startup has raised close to Million dollars in the recent seed funding and they are already working with some reputed companies. We wish him and his fellows co-founders all the very best and wish all the success.

