

# MECHATRONICS INSIGHTS

Winter 2022  
VOL 6

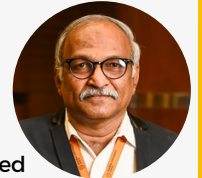
Bi-Annual Newsletter of  
The Department of Mechtronics,  
School of Automobile, Mechanical &  
Mechatronics Engineering



<p><b>Designer &amp; Editor</b> <b>Mr. Akshvin K Singhal</b> (Department of Mechatronics)</p>
<p><b>Editorial Board</b> <b>Dr. HC Shivaprasad</b> (Professor &amp; Director of SAMP) <b>Dr. Shahbaz Ahmed Siddiqui</b> (Professor &amp; HoD, Mechatronics) <b>Dr. Varun Jurwall</b> (Assistant Professor, Dept. of Mect.) <b>Dr. Mrinmoy Misra</b> (Assistant Professor, Dept. of Mect.)</p>
<p><b>Vision</b> Global excellence in Mechatronics domain to provide comprehensive solution for industrial advancements and societal challenges.</p>
<p><b>Mission</b> <b>M1:</b> Impart value-based education to fulfil industrial needs by nurturing inter-disciplinary knowledge for enhancing academic and professional excellence. <b>M2:</b> Provide with state-of-art academic and research facilities, fostering humanistic values and peer teaching-learning approach for enhancing employability and entrepreneurship skills. <b>M3:</b> Encourage inter-disciplinary approach to foster research and innovatice ideas for smart Mechatronics system by expiential learning. <b>M4:</b> Provide opportunity to exhibit and enhance life long learning skills with ethical values and social relevance.</p>

## The Director's Message

**Dr. Shiva Prasad H. C.**



I'm very happy to pen down as a school director message for the Mechatronics Engg. Dept. Newsletter. The year 2022 was the year of aspirations and faculty members have been involved in a gamut of Department activities. They have proved to be good at research and have received grants from multiple agencies. The quality journey of the Department has never stopped, and faculty members always thrive themselves to do better. The charm in core branches has globally dropped and while the recession in CSE, IT has begun as many companies are scared of chat GPT, if open AI dominates, what does the world do, and where and what do hardware manufacturing companies produce using open AI? Everything has a limit.

In order to gear up with technological changes and AICTE requests every four years once the Curriculum is revised, this year on 16 Jan 2023 we started revamping the new curriculum for the fresher of 2023 admitted students. The curriculum is designed keeping in mind NEP 2020 and agility for the student to opt for the focused area in the diverse field for Automobile or Mechanical Engg. Students can select from the bucket of electives and university electives with flexible core to learn the latest and supported by program electives to tune to fine engineers transform to global engineers. With disruption in the education field and foreign universities establishing their feet on Indian soil it would be a challenging time for the Indian education system. The Mechatronics Dept. HoD Prof. Dr. Shahbaz Ahmed Siddiqui has stewarded his team to be more vibrant and achievement-oriented which reflects in the listed events in this newsletter.

I congratulate the newsletter team for having taken the initiative of publishing the newsletter and wish them all the best.

## The HoD's Message

**Dr. Shahbaz Ahmed Siddiqui**



It is a great pleasure to add a few words to the department's annual newsletter. Modern day technology is changing very fast and to match with these dynamic technologies we need to keep ourselves aware with this new state of art. Keeping this in mind department aims to organize many events such as conferences, seminars, webinars, faculty development programs, other co-curricular & extracurricular activities, to make students informed about the contemporary and future technological aspects. Additionally, department has received praise for the faculty and students who have taken part in these activities. It gives me great delight to convey that this newsletter provides a summary of all the department's 2022-23 activities. More of these types of events are something I hope to see in the future for the department's overall growth.

<b>IN THIS ISSUE</b>	<p style="text-align: center;"><b>Overview</b></p> <p>The Department of Mechatronics Engineering was established at Manipal University Jaipur in 2012. Mechatronics is a multidisciplinary field of engineering with a rich knowledge base formed by various disciplines of engineering. Hence an integrated curriculum is designed so to provide a broad-based education in the basic principles of electrical, electronics, computing, mechanical and control systems. such a varied and diverse course is gaining much recognition and importance with every passing day and has become an engineering discipline high on demand.</p> <p style="text-align: center;"><b>Key Features</b></p> <ul style="list-style-type: none"> <li>• One of its kind in the state of Rajasthan offering courses for UG as well as for doctoral studies.</li> <li>• Excellent infrastructure in terms of manpower, books, teaching aids &amp; sophisticated equipment for producing excellent engineers.</li> <li>• Exposure to industries through periodical industries visits and ambient opportunities to take up industrial attachment or apprenticeship.</li> </ul> <p style="text-align: center;"><b>Program Specific Outcomes - B. Tech.</b></p> <p><b>PSO-1:</b> Apply the knowledge of basic sciences, analytical skills, and modern computing tools to design, perform and analyse experiments to meet desired goals within the given constraints.</p> <p><b>PSO-2:</b> Apply concepts of circuit analysis, analog and digital electronics, controls, electric drives, instrumentation, power systems, machine learning and artificial intelligence to design and automation of mechatronics systems.</p> <p><b>PSO-3:</b> Use the principles of solid mechanics, fluid mechanics, and strength of materials, advanced functional materials and manufacturing processes to design, manufacture, and commissioning of mechatronics systems.</p> <p style="text-align: center;"><b>Program Specific Outcomes - M. Tech.</b></p> <p><b>PSO-1:</b> Acquire advanced knowledge of Mechatronics domain to carry out research, design and development in the field of industrial automation and robotics.</p> <p><b>PSO-2:</b> Implement advanced concepts of designing, manufacturing and control of autonomous systems.</p> <p><b>PSO-3:</b> Provide advanced and creative solutions for industry and societal needs through lifelong learning, professionalism and remain continuously employable.</p> <p style="text-align: center;"><b>Program Educational Objectives</b></p> <p><b>PEO-1:</b> To understand, analyse, design, and develop the mechatronics system using modern tools and technologies to meet the industrial needs.</p> <p><b>PEO-2:</b> Prepare graduates to pursue higher studies by enhancing analytical and problem-solving skills in inter-disciplinary engineering for research.</p> <p><b>PEO-3:</b> Graduates of the programme will exhibit life- long learning skills, entrepreneurship competencies and ethical values for a successful professional.</p>
<b>STUDENT CLUB</b>	
<b>INTERNATIONAL GUEST LECTURE TALK SERIES</b>	
<b>DISCUSSION ON PATHWAY PROGRAM WITH UNIVERSITY OF MALTA</b>	
<b>SMARDEN AUTOMATION</b>	
<b>ONLINE QUIZZES</b>	
<b>CARRIER COUNSELLING</b>	
<b>WORKSHOPS</b>	
<b>TEACH TO CONNECT</b>	
<b>SIP BOOTCAMP</b>	
<b>CARRIER FAIR</b>	
<b>DEPARTMENT IN RESEARCH AND PUBLICATIONS</b>	
<b>CONFERENCE PAPER PUBLICATIONS</b>	
<b>RESEARCH GRANT</b>	
<b>STUDENT ACHIEVEMENTS</b>	
<b>TESTIMONIALS</b>	



## Departments Clubs & Student Chapters

### IEI Mechatronics Student Chapter, MUJ



The Institution of Engineers (India) [IEI] is a statutory body to promote and advance the engineering and technology, established in 1920 and incorporated by Royal Charter in 1935. It is the largest multi-disciplinary professional body of engineers encompassing 15 engineering disciplines with a Corporate membership of over 2 lakhs, and serving the nation for more than 9 decades. The IEI has its headquarters located in Kolkata with national presence through more than hundred centres and several Overseas Chapters, Foras and Organ. The IEI Mechatronics Student Chapter MUJ is affiliated by IEI and aims to mentor young engineering minds, encouraging growth and development with them.

#### Faculty Coordinators

Mr. Nikhil Shrivastava

Assistant Professor, Dept. of Mect.

Mr. Ashok Kumawat

Assistant Professor, Dept. of Mect.

#### President

Pallawi Kaushik, 3rd Year, Mect.

#### Vice-President

Lohith Sai Kishore, 3rd Year, Mect.

#### General Secretary

Lohit Shandilya, 3rd Year, Mect.

#### Treasurer

Dhruv Desai, 3rd Year, Mect.

#### Technical Secretary

Tanish Katiyal, 3rd Year, Mect.

#### Head of Events

Mrunalini Ghadage, 3rd Year, Mect.

Yatin Kohli, 3rd Year, Mect.

#### Head of Logistics

Aaresh Rajawat, 3rd Year, Mect.

### ISA Student Chapter, MUJ



The International Society of Automation's one of the main goal is to provide opportunities for its members to develop their professional skills and knowledge. We organize events, workshops, and seminars that cover a wide range of topics related to automation and control systems, such as IoT, Robotics, and Process Control. These events are designed to help our members stay up-to-date with the latest trends and developments in their field and to give them hands-on experience with the tools and technologies that are used in industry. Some other aspects of the chapter includes networking, and mentorship from experienced professionals in the field.

#### Faculty Coordinator

Dr. Princy Randhawa

Assistant Professor, Dept. of Mect.

#### President

Sarah Butaney, 3rd Year, Mect.

#### Vice-President

Mohaneesh Raj Pradhan, 3rd Year, IT

#### Secretary

Yogesh Agarwal, 3rd Year, CCE

#### Treasurer

Deepali Khandelwal, 3rd Year, CCE

#### Program Chair

Pulkit Gupta, 3rd Year, Mect.

Surat Rohit Venkat, 3rd Year, Mect.

#### Head of Marketing

Advika Gupta, 3rd Year, BA (J&MC)

Laasya Bobba, 3rd Year, CCE

#### Content Head

Shripoorna Katageri, 3rd Year, Mect.

#### Membership Chair

Brahma Reddy, 3rd Year, Mect.

### Autonomous Initiative



Autonomous Initiative is a student club consisting of members whose interests lean towards the field of robotics and automation. The club provides technical support to students who want to shape the future of Robotics here at MUJ. The club arrange various technical sessions for its members, which target basic applications in robotics and automation such as hands-on sessions on Arduino for controlling basic actuators and integrating sensors. The club also hosts robotics competitions for students within the club and outside. The club collaborates with technical companies.

#### Faculty Coordinator

Dr. Shambo Roy Chowdhury

Assistant Professor, Dept. of Mect.

#### President

Darshan Kapoor, 3rd Year, Mect.

#### Vice-President

Utkarsh Raj, 3rd Year, ECE

#### General Secretary

Ananmaya Rasalkar, 3rd Year, Mect.

#### Treasurer

Susant Raj, 3rd Year, Mect.

#### Technical Head

Abhishek Deep, 3rd Year, ECE

#### Head of Events

Sayush Lakhawat, 3rd Year, Mect.

#### Head of Graphic Design

Nripendra Anand, 3rd Year, CCE

#### Head of Promotions

Himanshu Kumar, 3rd Year, ECE

#### Head of Logistics

Bittu Kumar, 3rd Year, CCE

#### Head of Content

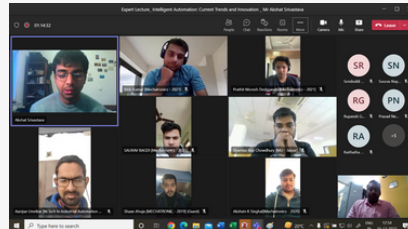
Abhinav Kumar, 3rd Year, ECE



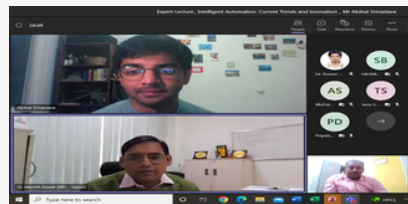
## International Outreach by the Department

### International Guest Lecture talk series

Mr. Akshat Srivastava presented a talk on AI and Automation: Recent Trends and Challenges. The talk was very informative and well received by students. The event was very interactive and UG and PG students posted a lot of questions. The queries were answered by the speaker in an elaborative manner.



Many UG students and PG students joined the online talk. They participated actively in the event and found the event to be informative. Mr Akshat Srivastava presented a talk on AI and Automation: Recent Trends and Challenges. The talk was very informative and well received by students. The event was very interactive and UG and PG students posted a lot of questions. The queries were answered by the speaker in an elaborative manner.



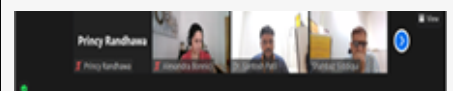
Mr. Akshat Srivastava taking online guest lecture

### Discussion on Pathway Program with The University of Malta

To discuss on possible joint program with Department of Signal, Systems and Control Engineering, University of Malta (UM) and Department of Mechatronics Engineering, Manipal University Jaipur.



On 19th of July 2022 The Department of Mechatronics Engineering, Manipal University Jaipur in collaboration with the Directorate of International Collaboration MUJ (DoIC MUJ) conducted a meeting with the delegates of the University of Malta, Dr. Alexandra Bonnici (HoD, Systems and Control Engineering Department) Dr. Luana Chetcuti and Dr. Lalit Garg for the Joint pathway program to explore the possible opportunities.



### Faculty interaction session with SmarDen Automation

Department of Mechatronics as part of their MOU with SmarDen Automation, invited Shrey Sharma to interact with Faculties of mechatronics for having a discussion on how to bridge the gap between industry and academia.

On 7th of July 2022 Department of mechatronics engineering organized a faculty interaction with Shrey Sharma of SmarDen Automation In offline mode. Mr. Shrey Sharma is the director-technical of SmarDen Automation. Smart and automation is an upcoming startup which provides automation solutions for industries and home applications. The objective of the interaction was to understand and find out probable solutions to bridge the gap between industry and academia.



Discussion on future collaboration & activities.

The event was opened with a welcome note from the director school of automobile mechanical and mechatronics Dr. HC Shivaprasad. This was followed by and welcome note from our HOD of Mechatronics department Dr. Shahbaz Ahmed Siddiqi and a brief presentation on the overview of our department. All the faculties of the department had a formal introduction with the guest before starting of the main discussion. The discussion led to many opportunities like conducting of FDP, student training and internship program to benefit both the industry and the academia. The event was concluded with closing notes from Director SAMM and possibilities for more such collaborative events between the two organizations.



Director of the department briefing about the Department

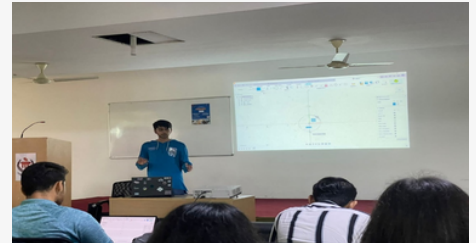
## Workshops and activities of the Department

### Workshop on fusion 360 conducted by International Society of Automation

A workshop on "Introduction to Fusion 360" by the International Society of Automation was conducted at Ab1 307 on September 10th, 2022 for the students of MUJ from 4 pm onwards.

International Society of Automation (ISA) MUJ Chapter was conducted an offline workshop on September 10th, 2022, from 4:00 PM onwards on "Introduction to fusion 360" for the students who want to expand their knowledge in the field of computer aided design. The speaker will brief through the basics of the fusion 360, briefing about the interface to building a piston arrangement. The workshop was conducted by the very talented and experienced core. They were exposed to a professional learning environment because of this workshop. 20 participants participated in this workshop. Vote of thanks was expressed by general secretary. Shripoorna Praveen Katageri. The entire event was smoothly conducted by Core team of International Society of Automation Chapter.

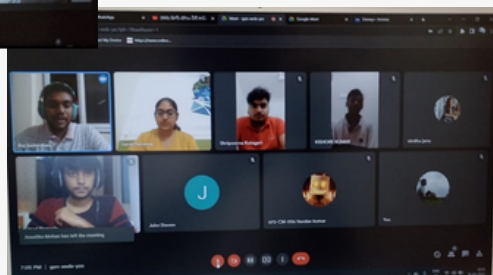
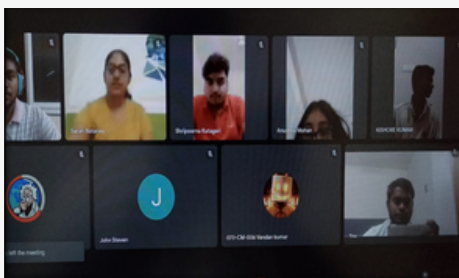
The Chief Guest- HC Shiva Prasad heaped praise for the successful organization of the event boosted the morale of the participating students and share the knowledge on the topic of "Introduction to Fusion 360".



### Online Quiz on Robotics & Artificial Intelligence for the Students of Class XI & XII

Department of Mechatronics Engineering in collaboration with The International Society of Automation (ISA) MUJ Chapter has organized a quiz on Robotics & Artificial Intelligence for the students of 11th and 12th class on 16th August 2022 from 6pm to 7pm.

This online quiz competition is organized by the Department of Mechatronics Engineering, MUJ and ISA MUJ Chapter. The main objective of this competition is to encourage and enhance the knowledge of students towards basics of robotics and Artificial Intelligence it will provide students a good platform where they can enhance and explore basics of robotics and automation.



### Online Quiz on Robotics for Students of Class XI & XII

Department of Mechatronics Engineering, Manipal University Jaipur in collaboration with the International Society of Automation (ISA) MUJ Chapter conducted an online quiz on July 20, 2022, from 11:00 AM to 12:00 PM on "Robotics" for the students of class XI & XII. Quiz questions were based on the XII class Physics syllabus, JEE, and other competitive examination patterns. The quiz was scheduled on July 20, 2022, from 11:00 AM to 12:00 noon.



## Workshops and Outreach by the Department

### Two-day Workshop on Internet of Things conducted by International Society of Automation collaboration with SmarDen Automation

A two-day workshop event organised in collaboration with SmarDen Automation Pvt. Ltd. The workshop on Day one, i.e., on October 7th, 2022, was conducted by SmarDen Automation in AB1 105 on the basics of IoT and automation, mainly targeted towards students who are just getting into automation. On day two, i.e., on October 8th, 2022, a workshop was on advanced topics of automation and IoT were covered.

The ISA MUJ Student Chapter, in collaboration with SmarDen Automation Pvt. Ltd. The workshop is conducted by SmarDen Technologies for the students participating in the workshop, which was targeted towards students getting into automation, in which the basics of smart automation and IoT are covered. Day two's workshop was aimed at advanced topics in smart automation and IoT. More than 60 participants participated in the event. Vote of thanks was expressed by Assistant Professor Dr. Princy Randhawa. The entire event was smoothly conducted by core team of International Society of Automation.

The Chief Guests, Dr. HC Shiva Prasad and Dr. Shahbaz Ahmed Siddiqui heaped praise for the successful organization of the event boosted the morale of the participating students and share the knowledge on the topic of "TECH & FUTURE".

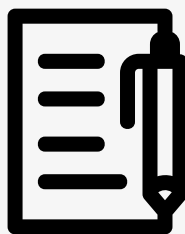


Group photo taken after the successful conclusion of the workshop

### Career Counselling and Awareness Session for students of Class XI and XII

Department of Mechatronics Engineering, MUJ in collaboration with the Directorate of Admissions conducted a career counselling session for 11th and 12th class on 9th Dec 2022 from 10: 00 AM to 12:30 noon. In the event queries of students related to future prospects in engineering education were answered. The session was followed by tea and snacks provided by Department of Admissions and later the campus visit of MUJ was conducted for the students. The students of Oxford International School interacted with the teaching faculty of the department and during the session queries of students were answered.

The main objective of this career counselling session is to make the students at the school aware about technical studies, opportunities and growth in the particular domain of B. Tech. Also, this session focused on to encourage and enhance the knowledge of students towards basics of robotics and AI as it will provide students a good platform where they can become aware about the avenues in engineering studies.



### Teach to connect by IEI Mechatronics at Mahatma Gandhi Government School

The educative visit was organised by I.E.I Mechatronics in collaboration with Kamla Bai Charitable Trust, Jaipur. It was commenced by a message delivered to the students by the chairperson of the club Miss Pallawi Kaushik. The students were briefed about various departments in engineering. Following the briefing session, students were shown various circuit parts that were used by our upcoming mechatronics engineers to build a prototype of a JVC arm machine. They were amazed and were really happy to control the machine by themselves. Now, we had a talk regarding the internet, development of website and the dangers over the internet (cybercrime) and how to prevent them. After the educative sessions we had some fun activities with the students.

At the start on asking the students who all were interested in engineering, we got no hands up but at the end we could see almost everyone was enthusiastic and interested in pursuing engineering.



## Bootcamp and Carrier Counselling Sessions

### Student Innovator Prog. (Bootcamp) 2022

Atal Incubation Centre in collaboration with Department of Mechatronics Engineering has participated in Student Innovator Program Bootcamp for school students from 19th Dec to 22nd Dec. 2022. Objective of this bootcamp is to make aware the students at school about technical studies, opportunities, and growth in the particular domain of B. Tech. Also, this program is intended to instill an entrepreneurial spirit among young enthusiasts. These four days at AIC-MUJ, were filled with brainstorming, envisioning, designing, prototyping, and networking. Later, the department of mechatronics organised a robotics laboratory visit giving insight to the students regarding robotics and automation.

The main objective of this bootcamp is to make aware the students at school about technical studies, opportunities, and growth in the particular domain of B. Tech. Also, this program is intended to instill an entrepreneurial spirit among young enthusiasts. These four days at AIC-MUJ, were filled with brainstorming, envisioning, designing, prototyping, and networking.



Students getting acquainted with the Robotic Arm.



Displaying Khepra Robot Working to Students.

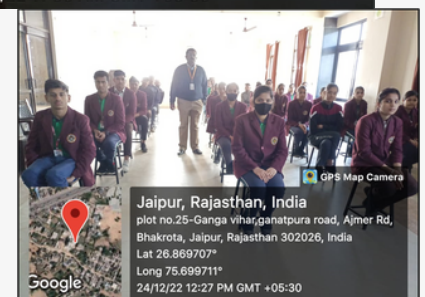
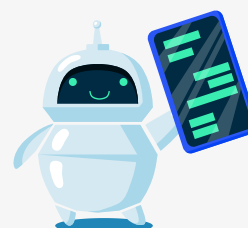
### Carrier fair for School Students

The Directorate of Admissions in collaboration with Department of Mechatronics Engineering has organized a career fair for 11th and 12th class on 26th Nov. 2022 at The Venkateshwar School Gurugram Haryana. In the event queries of students related to future prospects in engineering education were answered. The session was followed by tea and snacks sponsored by Department of Admissions and later the campus visit of MUJ was conducted for the students.



### Carrier Counselling at E-Planet Academy

Department of Mechatronics Engineering, Manipal University Jaipur has conducted a career counselling session for 11th and 12th class on 24th Dec 2022 from 10: 00 AM to 12.30 noon. In the event queries of students related to future prospects in engineering education were answered. Later a Q&A session was conducted solving various queries of the students and helping them time more objectively about the future in front of them.



## Department in Research and Publications

IPR ENTRY TYPE	FILING OFFICE	IPR NUMBER	DATE	TITLE	INVENTORS
Patent	South Africa	202206513	13/06/2022	Electrically Heated Tea Cozy	Dr. Amit Datta & Dr. Shambo Roy Chowdhury
Patent	South Africa	202202843	20/06/2022	Low-cost IOT enabled anti-theft device for two wheeled vehicles.	Dr. Princy Randhawa, Mr. Akshet Patel, Mr. Raj Sudarshan & Dr. Shiva Prasad H. C.
Patent	IP India	20221103952	11/07/2022	Hydrophobic coating and patterning the inner surface of a micro/ nano pipette.	Dr. Shahbaz Ahmed Siddiqui

## Journal Publications

S. No.	TITLE
1.	Shrivastava, D.R., <b>Siddiqui, S.A.</b> & Verma, K. New Data Driven Scheme for Real-Time Power System Transient Stability Assessment. J. Electr. Eng. Technol. (2022).
2.	<b>Ranjan, P.</b> , Chakraborty, B. & Chakraborty T. A systematic computational study of acridine derivatives through conceptual density functional theory. Mol Divers (2022).
3.	<b>Tandon H, Ranjan P,</b> Chakraborty T, Suhag V. Coronavirus (COVID-19): ARIMA-based Time-series Analysis to Forecast near Future and the Effect of School Reopening in India. Journal of Health Management.
4.	<b>Tandon H., Ranjan P. &amp;</b> Chakraborty T. A computational and theoretical study of some heavy metal heteronuclear dimers, Journal of the Indian Chemical Society, Volume 99, Issue 9,2022
5.	K.B. Manjunatha, Supriya S., Nawaz S. S., <b>Ranjan P.</b> , Chakraborty T., P. Poornesh, R. Dileep. Nonlinear optical and quantum chemical studies of Palladium benzimidazole Schiff base complex, Materials Science in Semiconductor Processing, Volume 151, 2022
6.	Abdul Latif, Megat F. Zuhairi, Fazal Qudus Khan, <b>Princy Randhawa, Akshet Patel</b> , "A Critical Evaluation of Procedural Content Generation Approaches for Digital Twins", Journal of Sensors, vol. 2022, Article ID 5629645
7.	Pratik Mane, Hyojung Bae, Vishal Burungale, Sang-Wha Lee, <b>Mrinmoy Misra</b> , Harichandra Parbat, Abhijit N. Kadam, Jun-Seok Ha, Interface -engineered Z-scheme of BiVO <sub>4</sub> /g-C <sub>3</sub> N <sub>4</sub> photoanode for boosted photoelectrochemical water splitting and organic contaminant elimination under solar light, Chemosphere, Volume 308, Part 1,2022



S. No.	TITLE
8.	<b>Shayeri Das, Prabhat Ranjan, Kumar Gaurav</b> , Praveen K. Surolia, Tanmoy Chakraborty, Structure, electronic and optical properties of chalcopyrite type semiconducting materials XGaY <sub>2</sub> (X = Cu, Ag, Au; Y = S, Se, Te) for solar cell applications: A DFT study, Physica B: Condensed Matter, Volume 646, 2022
9.	Saloni, Kumari D, <b>Ranjan P</b> , Chakraborty T. A computational study of potential therapeutics for COVID-19 invoking conceptual density functional theory. Struct Chem. 2022;33(6):2195-2204.
10.	Bhuwan Pratap Singh, Sunil Kumar Goyal, <b>Shahbaz Ahmed Siddiqui</b> , Amit Saraswat, Ravi Ucheniya, Intersection Point Determination Method: A novel MPPT approach for sudden and fast changing environmental conditions, Renewable Energy, Volume 200, 2022
11.	Jasmeen Dhiman, Kalyan Vaid, Treesa Johns, Ruchika Maurya, Mahima Arora, Ankita Negi, Ritika Gupta, <b>Mrinmoy Misra</b> , Ki-Hyun Kim, Vanish Kumar, Tyrosinase-functionalized gold nanoparticle-tailored ultrasensitive nano sensing probe for hazardous and nutritional phenolic compounds, Sensors and Actuators B: Chemical, Volume 371, 2022
12.	Nandana Chakinala, <b>Prabhat Ranjan</b> , Anand G. Chakinala, Parag R. Gogate, Performance comparison of photocatalysts for degradation of organic pollutants using experimental studies supported with DFT and fundamental characterization, Catalysis Communications, Volume 174, 2023
13.	<b>Jain M</b> , Patil S. A review on materials and performance characteristics of polymer gears. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science. 2022;0(0).
14.	<b>Meetu Nag</b> , Bhanu Pratap, <b>Ajay Kumar</b> . Multi objective design optimization of graphene piezo resistive MEMS pressure sensor using design of experiment. Int. J. Simul. Multidisci. Des. Optim. 13 27 (2022)

## Department in Book Publications

S. No.	TYPE	MONTH	TITLE	AUTHOR
1.	Book Series	August 2022	Internet of things (IoT) system security vulnerabilities and its mitigation	Akshet Patel, Dr. Princy Randhawa & Pranav Sharma
2.	Book Series	September 2022	Industrial IoT Technologies and Protocols	Mr. Rahul Devkar & Dr. Princy Randhawa
3.	Book	August 2022	Garbage Detection using surf algorithm based on merchandise marker	Lalit Gupta, Dr. Princy Randhawa, Samarth Jain, & Dhruv Bansal
4.	Book	November 2022	Implementation of Veco-taxis in turbulent environment for gas source localization	Mr. Kumar Gaurav
5.	Book	December 2022	IoT based smart city applications, infrastructure, research and development	Mr. Tarush Gupta, Mr. Nikhil Shrivastava & Dr. Princy Randhawa

## Conference Paper Publications

S. No.	TITLE
2.	<b>Gupta, A., Randhawa, P.</b> (2023). Implementing Industry 4.0 and Sustainable Manufacturing: Leading to Smart Factory. In: Chakrabarti, A., Suwas, S., Arora, M. (eds) Industry 4.0 and Advanced Manufacturing. Lecture Notes in Mechanical Engineering. Springer, Singapore.
3.	Agrawal, A., <b>Siddiqui, S.A.</b> , Soni, A. (2023). A Facile Route for the Synthesis of Pure & Ag-Doped ZnO for Dye-Sensitized Solar Cell Application. In: Dwivedi, S., Singh, S., Tiwari, M., Shrivastava, A. (eds) Flexible Electronics for Electric Vehicles. Lecture Notes in Electrical Engineering, vol 863. Springer, Singapore.
4.	Shrivastava, D.R., <b>Siddiqui, S.A.</b> , Verma, K. (2023). Enhanced Real-Time Power System Monitoring by Detecting Event Signature. In: Dwivedi, S., Singh, S., Tiwari, M., Shrivastava, A. (eds) Flexible Electronics for Electric Vehicles. Lecture Notes in Electrical Engineering, vol 863. Springer, Singapore.
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## Department in Research Grant

### Principal Investigator

Dr. Prabhat Ranjan, Associate Professor, Department of Mechatronics Engineering, Manipal University Jaipur, is the principal investigator and received grant from the Government of India for the following:

**Project Title:**

Computational Study of Nanoalloy Clusters for Potential Applications in Energy Sector.

**Funding Agency:**

Science and Engineering Research Board (SERB), Government of India.

**Sanctioned Amount:**

Rs. 47,42,264/-

**Project Duration:**

3 Years.

## Students Achievements

KPIT Sparkle organised a innovation challenge under the theme of Mobility and energy for the future. The event was held on 25th and 26th March 2022 at the Pimpri Chinchwad College of Engineering (PCCOE), Akurdi - Pune. This year the contest attracted participation from 1000+ colleges in 25 States & 4 Union Territories of India, representing an astonishing 20000+ students through 3000+ projects. Highlights for this year was the increased participation from premier institutes (IITs - 17, NITs - 21). The evaluation was done by a jury panel consisting of 24 jury members. where after the evaluation we received 3rd prize. We also got a chance to get incubated at IIT Patna with an initial funding of 10 lakh Rupees under the NIDHI PRAYAS Scheme



Sanyam Dheer participated in Powerlifting competition, in the sports fest held by BITS Pilani. He also participated in Powerlifting competition, in the sports fest held by Manipal University Jaipur.



Raghav Ruia Achieved Best Diplomat award at Best Diplomats United Nations Simulation, Dubai, UAE 2022.

Best Diplomats is a UN recognised Organisation based in New York, USA which conducts UN simulations across several countries. This year, from 16th to 19th September, 2022, the conference was held in Dubai, UAE with the agenda on table being "Global Food Crisis and Food Security" focusing on the July conference of United Nations over the same issue.

He was recognised and acknowledged by the Minister of Energy, UAE, the UAE Ambassador to United Nations and by the Vice Chancellor and the President of Manipal University Jaipur, Dr. G. K. Prabhu.



## Testimonials



Tarush Gupta,  
2018-22 batch  
Studying Masters in  
Computer, Control  
and Comm.  
Technische  
Hochschule  
Mittelhessen,  
Germany

From 2018 to 2022, I had the opportunity to study at Manipal University Jaipur (MUJ) and complete my Bachelor of Technology in Mechatronics. It gives me great pleasure to reflect and share my experiences during my time at MUJ.

MUJ is an excellent university that provides students with a holistic approach to learning. It has helped me immensely in both academics and extracurricular activities. The professors and teachers at MUJ are highly knowledgeable, supportive, and encourage students to work harder. This has undoubtedly helped me learn more and excel in my studies.

One of the significant advantages of studying at MUJ is the opportunity to engage in practical knowledge through research work, projects, and competitions on and off-campus. This has helped me to gain hands-on experience and apply the theoretical concepts I learned in class.

Moreover, MUJ hosts various events such as Oneiros, Techideate, and Abhivarta, providing opportunities for students to participate in extracurricular activities. Being a volunteer as a graphic designer helped me learn a new skill, and it also kept me active in extracurricular activities.

Lastly, MUJ has a diverse student body with students from all over the country residing on campus. This provides an excellent opportunity for students to interact with different cultures and people, making it an incredible experience.

MUJ has played a significant role in shaping my technical, extracurricular, and social skills in the last four years. My experience at MUJ has been fantastic, and it is evident that I have gained a lot of knowledge and skills that are useful to me in my current endeavors.



The Department of Mechatronics has been a very good addition to the curriculum. All the professors in this department have years of experience and have an enormous amount of knowledge about the program. My experience throughout my Bachelor's under this department has been a very enriching one. The professors were quite interactive and were extremely helpful, both academically and professionally.

~ Anshit Dhawan, Batch of 2018-22



I'm very grateful to the mechatronics department faculties. They have always been helpful and supportive in all the aspects, anywhere I needed help, I could turn to one of the professors knowing they'll help me. In addition, college provides a lot of opportunities and my professor has always nudged me to participate and achieve more. I'm happy to have chosen Manipal University and Mechatronics Engineering.

~ Akshvin K Singh, Batch of 2020-24



My life at Manipal University made me stronger and level up in life. I am thankful to all professors who supported me a lot in my academics. I loved the infrastructure at Manipal University and the life here. All the events and workshops helped me grow my confidence level and gain a better understanding of the domain. Lastly, I would like to thank Mechatronics faculty for all the support I've gotten from the department.

~ Vanshit Aggarwal, Batch of 2020-24