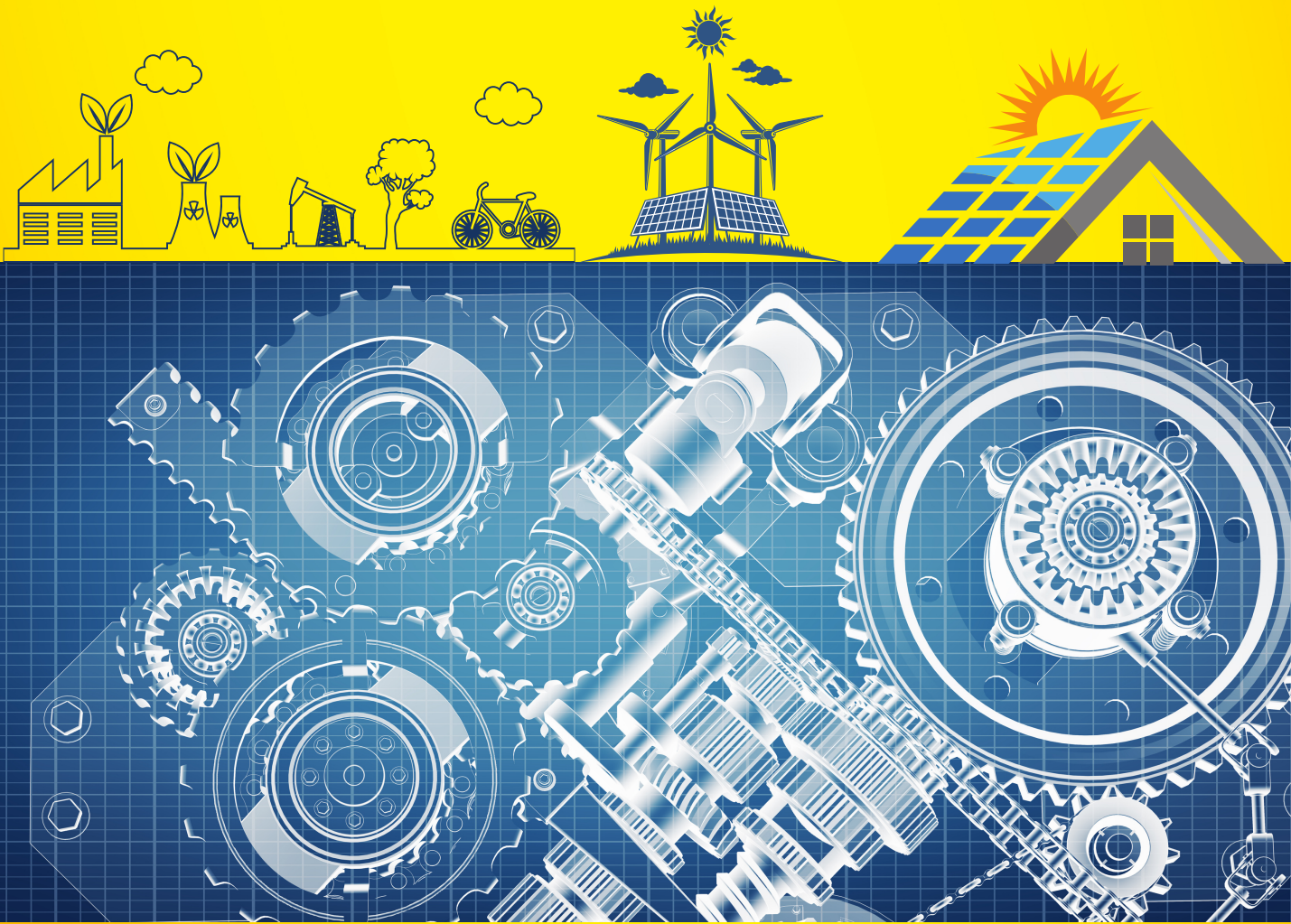


# Annual Report

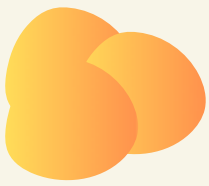
Academic Year : 2022-23



**Department of Mechanical Engineering**

**Sardar Patel College of Engineering**

**Andheri (west), Mumbai-400058**



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# Department Overview

The Department of mechanical engineering of Sardar Patel College of Engineering started in 1962. It offers the following programs.

- *B.Tech. in Mechanical Engineering,*
- *M.Tech. in Thermal Engineering,*
- *M.Tech. in Machine Design, and*
- *Ph.D. program.*

The B.Tech. and M. Tech programs are NBA accredited.

The department has modern infrastructure with well-equipped laboratories and computational facilities with up-to-date hardware and software resources. The well-qualified and experienced faculty of the department imparts knowledge to the students in the fundamental and applied aspects of Mechanical Engineering courses by adopting conventional as well as the latest teaching and assessment tools.

The program curriculum is aligned with the current Industrial requirements. It offers courses in emerging areas along with the fundamental and applied courses of mechanical engineering. A new curriculum, R-2022 has been introduced in the academic year 2022-23. Students can go for a 6-month internship in their 8th semester. Students can take online courses through SWAYAM/NPTEL portal and the record of these courses can appear on students' grade-card.

Each of the academic programs includes frequent industrial visits for our students to expose them to real-life engineering scenarios. Students are acquainted with cutting-edge technologies through industrial guest lectures, industry-sponsored projects, and industrial internships. Students benefit from association with professional organizations such as MESA, TESA, IIIE, ASHRAE, ISHRAE, and SAE. Department also offers co-curricular activity platforms- SPCE Racing, SPCE WAVE, and SPCE Robocon. Student chapters

Our undergraduate students regularly get admitted for higher studies in the top national and international universities.





# Institute Vision & Mission Statements

## Institute Vision

"Sardar Patel College of Engineering (SPCE) aspires to be an institution of national repute that will create professionals with competence and motivate research for the progress of the nation."

## Institute Mission Statements

- To impart quality education through the time-relevant curriculum in academic programs,
- To enhance career opportunities for students through industry institute interaction and value-added courses,
- To promote excellence by encouraging innovative ideas and lateral thinking,
- To inculcate a sense of discipline and responsibility toward society.







# Department Vision & Mission Statements



## Department Vision

"To be a nationally recognized mechanical engineering department producing a blend of responsible and competent engineering graduates with research motivation and inculcation of human values."



## Department Mission Statements

- To impart need-based technical education by designing a curriculum in collaboration with stakeholders
- To develop linkages with renowned industries and research organizations in India and abroad for excellence in teaching and research
- To provide state of art laboratories and facilities to encourage innovative ideas and lateral thinking and to impart field knowledge to mechanical engineering students
- To encourage the students to participate in extracurricular activities for overall personality development and be responsible person of the society.





# Program Educational Objectives

## BTech in Mechanical Engineering

**PEO1:** Graduates will apply knowledge gained in engineering to improve lives and subsistence through a successful career in mechanical engineering and other interdisciplinary fields

**PEO2:** Graduates will become entrepreneurs, innovators and researchers to address social, technical and business challenges.

**PEO3:** Graduate will engage in lifelong learning such as higher studies, research and other continuous professional development activities.

## MTech in Machine Design

**PEO1:** Graduates will apply knowledge gained in engineering to improve lives and subsistence through a successful career in Design Engineering and associated fields

**PEO2:** Graduates will become academicians, researchers, and consultants to address social, technical, and business challenges

**PEO3:** Graduate will engage in lifelong learning such as higher studies, research, and other continuous professional development activities.

## MTech in Thermal Engineering

**PEO1:** Graduates will apply knowledge gained in engineering to improve lives and subsistence through a successful career in Thermal Engineering and associated fields

**PEO2:** Graduates will become academicians, researchers, and consultants to address social, technical and business challenges

**PEO3:** Graduate will engage in lifelong learning such as higher studies, research and other continuous professional development activities.





# Curriculum Changes

Department of Mechanical Engineering has adopted a new curriculum framework (Regulation -2022) with approval from the Board of Studies and the Academic Council. The following significant changes were incorporated into the curriculum-

1. In semester VIII, students will be completely free from classroom teaching-learning activities. They can take a 6-month industrial internship.
2. Students will start their BTech project work in semester VI and finish in the semester -VII.
3. To improve the student's class participation, an internal evaluation of 10 points. The points will be awarded purely based on the teacher's observations about the students. Academic books provide guidelines for this assessment.

A new elective course was introduced, "Fatigue Fracture and Failure Analysis (PE-BTM718)".





# General Communication

The Department of mechanical engineering had 13 faculties and 15 supporting staff during the academic year 2022-23.

- Dr. Sudhakar S Umale retired from the services on 30th June 2022
- Dr. R S Maurya took over the charge of department head on 1st June 2022 for the next three years.
- The National Board of Accreditation team visited the department in March 2023 to assess the department's performance. Department got accredited for three years up to June 2025.
- The following laboratories shifted from the workshop area to the main building area and renovated-

**Mechanical Engineering Measurement,  
Dynamics of Machines,  
Heat and Mass Transfer and  
Refrigeration and Air Conditioning**

- A new committee room for the department is created and furnished. It was inaugurated by Dr. M M Murudi, Principle, SPCE.
- A practice to award the best BTech mechanical engineering project every academic year is initiated. It is decided to award the work in the Design, Thermal, Manufacturing, and Emerging areas.
- Alumni Miss Sharada Gavde received admission to TU Delft (61st in QS world ranking 2022) for the MS program in Management of Technology with the prestigious Justus and Louise van Effen Excellence Scholarship for full coverage of tuition fees and living expenses (refer to attachments).
- Alumni Miss Sharada Gavde provided generous sponsorship to the SPCE to procure data acquisition kits for the Mechanical Engineering Measurement laboratory.
- Alumni Mr. Alan Correa has been honored by RWTH Aachen University Germany (147th in QS world ranking 2023) for his outstanding performance in the Master's program in Computer Aided Conception and Production in Mechanical Engineering.
- One non-teaching workshop staff member Mr. Kumar Shinde passed away.



# Student Activities / Achievements

- **Academic Performance:**

In the semester VIII examination held in May-June 2022, 74 students appeared. Seventy students passed the examination, where 43% got distinction, and 46% passed with the first class.

- **Campus Placements:**

More than 90% of all eligible students got campus placement with the highest salary of 11.4 Lakhs per annum and an average salary of 5.5 Lakhs.

- **Higher Studies:**

Number of students who qualified for national/international level examinations.

GATE - 09 students,

CAT -05 students,

GRE - 06 students, and

TOFEL -02.

Mr. Tushar Parekh got AIR-31 rank in the mechanical stream in the GATE-2022 Examination. He joined the master's program at IIT Mumbai.

- **Internship:**

35 students of mechanical engineering went for summer and winter internships at several reputed organizations like - Air India, Idea Forge, Paras Aerospace, Mahindra and Mahindra, Bajaj Steels, Mercedes Benz India, etc.

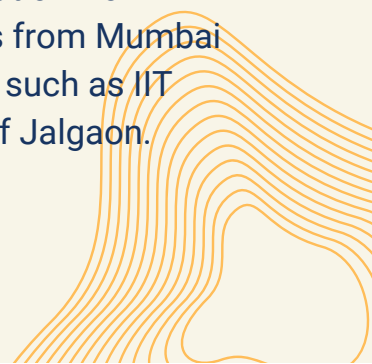






# Student Activities / Achievements

- **Industrial Tours, Training, and Expert Lecture Sessions:**
- Forty-nine third-year mechanical engineering students went for a 9-day industrial tour to Chandigarh, Kullu, Manali, and Amritsar from 13 February 2023. Prof. Sharad Valvi and Prof. Haseen Sheikh accompanied the team.
- On the 23rd of September 2022, MESA organized a one-day industrial visit to MSME Research and Technology Centre IDEMI, Mumbai. Thirty-five students participated.
- To demonstrate different welding processes, the final-year mechanical students went on an industrial visit on 26th August 2022 to Marol Industrial Estate under the supervision of Prof. Sharad Valvi.
- An expert lecture on '3D printing technology' organized by MESA on 29/9/2022
- MESA organized A 4-day certified workshop on 'AUTOCAD Workshop.' From January 6 -13, 2023. Sixty-two students from civil, mechanical, and electrical engineering attended the program.
- Prof. Parag K Muley organized an Industry visit to Maharashtra State Power. Generation Company (MAHAGENCO) - Gas Turbine Power Station (GTPS), Uran on 02/05/2023, for providing practical exposure of a power plant to the 35 students of Power Plant Engineering,
- MESA organized a cultural event named "Khushyion Ki Diwali." In this event, two artistic competitions were held, namely 'Digital Poster-Making' and 'Short Reel-Making' competitions.
- The Sports Fest, SPCE Cup 2022, is organized jointly by MESA, EESA, and CEA. It took place from 8th November 2022 to 18th November 2022.
- On 19th of November 2022, MESA organized an online webinar on "Technical Report Writing" by Dr Ajaz Ahmed A Rauf Deliwala, a TCS Research Post-Doctoral Fellow.
- On 18th March 2023, MESA organized an Inter College Technical Quiz Competition via online mode.
- An Inter College Technical 3D Modelling Competition - Model Mania, held online on 18th March 2023. The event witnessed active participation from students representing various engineering and diploma colleges from Mumbai and other cities in Maharashtra, including esteemed institutions such as IIT Bombay, YCCE Nagpur, DJ Sanghvi Mumbai, and Govt College of Jalgaon.

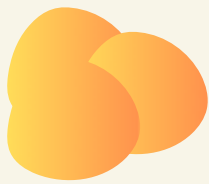




## Student Activities / Achievements

- On National Science Day, MESA organized a one-day industrial visit to Bhabha Atomic Research Centre (BARC) in Anushakti Nagar, Trombay, Mumbai on 2nd March 2023. The "New Generation Nuclear Reactors" event took place from 28th February to 2nd March 2023.
- The Women's Day celebration was held on 8th March 2023 under MESA. It was a lively and memorable occasion marked by enthusiasm and student and faculty participation.
- The three student instructors (MESA) from SPCE – Dhaval Prabhudesai, Suyash Mahale, and Aniruddh Nangare conducted a two-day Workshop Programmable Logic Controller (PLC) on 25th and 26th March 2023. The program had 25 participants.
- MESA –SPCE and IDEMI jointly organized a collaborative workshop on 27th March 2023 on the "Entrepreneurship Awareness Program."
- To educate students on how to achieve their career goals, an expert lecture was conducted on 24th April 2023. The speaker for the event was Dr. Ganesh Soni, a Quality Control Manager from Hexagon Group.
- An unforgettable 2-day trek to Kalsubai Peak in Igatpuri was organized on 7th and 8th April 2023. Around 80 students from the first year to the final year of the mechanical engineering department participated in this thrilling adventure.





# Student Activities / Achievements

- **Awards and Special Recognition**

- Mr. Chinmay Dabholkar, Mr. Jai Naik, and Mr. Harsh Harale, under the supervision of Prof. Parag Muley, published a journal paper, 'Design of battery thermal management system of the electric vehicle for Indian scenario' in the International Journal of Industrial Electronics and Electrical Engineering.
- Miss. Isha Likhite, Miss. Ishani Prabudesai and Miss. Kripa Sethi, awarded with the best paper award for their presentation at ICES-2023, held at VJTI on 16th and 17th March
- Mr. Bhaveshkumar Pasi, under the guidance of Dr. S B Rane, got the second rank for his research proposal at the 16th inter-collegiate/institute/departement 'AVISHKAR' research convention organized by the University of Mumbai.
- Mr. Shrikant V Baste, under the supervision of Dr. Sudhakar Umale, received the 'Gold Medal' under the automotive category for a poster presentation on his Ph.D. research work at the International Exhibition INVENTCOR held at Romania from 15 to 17 December 2022.
- Ms. Radhika S Mhaske got selected for 'INDIAN AIR FORCE' under the technical branch.
- Mr. Piyush Dhatrak and Mr. Saad Khan secured 3rd rank at ASHRAE RAL. (International level) paper presentation competition.
- Mr. Madan Naryanan, Mr. Kaif Badshah, and Mr. Shashank Phulmai secured 2nd runner-up at the ASHRAE Mumbai paper presentation competition (chapter level)
- Team SPCE Wave won 2nd rank in the best technical presentation and 3rd rank in overall performance –regular class, at 7th SAEISS Aero Design Challenge held at SRM Institute of Science and Technology, Chennai, 1 to 3, September 2022
- SPCE Racing team of 30 core students participated in Formula Bharat 2023 competition at Coimbatore from 19-23 January 2023, with their first EV prototype, 'Voltron'. Team own 6th rank in overall, 3rd position in engineering design presentation, 2nd rank in concept goal management report, 7th position in cost and manufacturing events.





# Student Activities / Achievements

- The Department of Mechanical Engineering has awarded the following students for their outstanding work on final-year project work.
  - a. **Ms. Esha Deshpande, Mr. Piyush Waman, and Ms. Samiksha Rathod** for their work on '*In-house manufacturing of Pultruded Carbon Fibre Rod* ' under the supervision of Prof. Sachin Vankar.
  - b. **Mr. Harsh Harale, Mr. Chinmay Dhabolkar, and Mr. Jai Naik** for their work on '*Design of battery thermal management system of electric vehicles for the Indian scenario*' under the supervision of Prof. Parag K Muley.
  - c. **Ms. Aditi Bhoir, Ms.Poonam Kage, and Ms.Kaushika Shrivastava** for their work on '*Developing and comparing multiple novel solutions of bicycle frame design using Grasshopper plug-in Rhino 3D and Autodesk Fusion 360*' under the supervision of Dr. Rajesh B Buktar

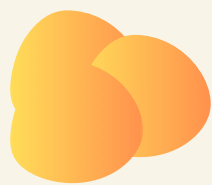




## Student's Campus Placement

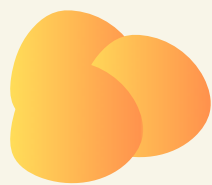
Sr. No.	Name of Students	Company Name
1	Meghana Vihulekar	GEP
2	Milind Tambuskar	GEP
3	Saad Khan	Worley
4	Aditya Akhegaonkar	Worley
5	Piyush Dhatrak	Reliance Retail
6	Kamlesh Guthale	Reliance Retail
7	Nayan Mohite	Reliance Retail
8	Ashish Patil	OMP
9	Aniruddh Nangare	TCS Digital
10	Aniket Deshmukh	TCS Digital
11	Dhanashree Mehare	Technip
12	Abhishek Khairnar	Technip
13	Mohd Irfan	Tata Motors
14	Jayshree Mahajan	Tata Motors
15	Pranjal Pawar	Tata Motors
16	Jay Kapadia	Tata Motors
17	Harkishan Patil	Tata Motors
18	Yogini Choudhary	Schneider
19	Shreya Shete	Aker Solutions
20	Aditi Lohar	Lodha
21	Vrushali Randive	Lodha
22	Suyash Mahale	Lodha
23	Ayan Ansari	Lodha
24	Kunal Jondhale	Lodha
25	Alisha Dhawde	L&T





## Student's Campus Placement

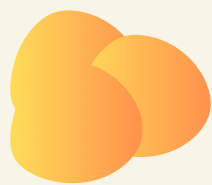
Sr. No.	Name of Students	Company Name
26	Aniruddh Nangare	L&T
27	Krishna Sali	L&T
28	Isha Likhite	L&T
29	Devesh Langade	SBI
30	Anesh Raina	CBRE
31	Ganesh Kele	CBRE
32	Kripa Kaur Sethi	Tata Power
33	Krishna Pendhare	Reliance Jio
34	Aniruddh Sankhe	Dar Al Handasah
35	Pratik Kadam	Dar Al Handasah
36	Jay Mohite	Dar Al Handasah
37	Samiksha Tupe	Blue Star
38	Shreyas Mali	Blue Star
39	Aniket Salve	ICICI Bank
40	Deepesh Prajapati	Tecnimont
41	Sujit Bhoje	Tecnimont
42	Guarav Mane	Tecnimont
43	Shripad Chavan	New Horizons
44	Suraj Prajapati	New Horizons
45	Abhishek Surve	John Cockerill
46	Pranil P Bhalshankar	Mahindra & Mahindra
47	Tejas Kashinath Wayal	Mahindra & Mahindra
48	Ishani Prabhudesai	Mahindra & Mahindra
49	Bhavya Parekh	Mahindra & Mahindra
50	Shreyas Murumkar	Jotun



## Student Internship

List of the students from MED who went for internship during AY 2022-23:

Sr. No.	Students Name	Name of the Company	Duration
1	Siddharth Dilip Brahmkar	Mercedes Benz India	2 Months
2	Sharmeen Kazi	CGC -Vishwaniketan	1 Month
3	Chinmay Satish Bhangale	BARC Training School	03 Months
4	Madan L Narayanan	SE Central Railway	15 Days
5	Sakshi Rajendra Thakur	Petrofac Engg. India Pvt.Ltd	2 Month
6	Sharvari Kishor Shirsath	Mazagon Dock Limited	2 Month
7	Lina Jitendra Patil	Petrofac Engg. India Pvt.Ltd	2 Month
8	Santosh Vivek Khandebharad	Force Motors	2 Month
9	Vaibhav Ramesh	Unilactic Enterprises	2 Month
10	Shalmali Kishore Naitam	Central Railway	15 Days
11	Manasvi Mangesh Mahadik	Air India	1 Month
12	Harsh Rajendra Habbu	Idea Forge Technology Ltd	2 Months
13	Suraj Narendra Swami	Carriage Repair Workshop WR	15 Days
14	Siddharth Dilip Brahmkar	Carriage Repair Workshop WR	15 Days
15	Shashank Sanjeev Phulmali	Carriage Repair Workshop WR	15 Days
16	Anshuman Anil Khasbage	Carriage Repair Workshop WR	15 Days
17	Devesh Rashmin More	Carriage Repair Workshop WR	15 Days
18	Vineet Ravindra Mankar	Carriage Repair Workshop WR	15 Days
19	Sahil Shamrao Chandode	Carriage Repair Workshop WR	15 Days
20	Kanase Pramesh Sambhaji	Carriage Repair Workshop WR	15 Days
21	Manjotsingh Oberai	Carriage Repair Workshop WR	15 Days



## Student Achievements - Internship

Sr. No.	Students Name	Name of the Company	Duration
22	Roshan Sudhakar Sakhare	Carriage Repair Workshop WR	15 Days
23	Kashyap Tryambak Petkar	Carriage Repair Workshop WR	15 Days
24	Lohar Vaishnav Vikas	Carriage Repair Workshop WR	15 Days
25	Suhail Javaid Dar	Carriage Repair Workshop WR	15 Days
26	Sagar Kadel	Paras Aersapce Private Limited	2 Months
27	Kaif Husain Javed Badshah	Mahindra And Mahindra Ltd	1Month
28	Ashish Ajit Patil	Kenmark Tech Solutions	40 Days
29	Madan Lekshmi Narayanan	Bajaj Steel Industries Ltd.	1 Month
30	Fawaaz Umar Ahmed	Sabka Dentist	2 Months
31	Sakshi Rajendra Thakur	Mazagon Dock Limited	46 Days
32	Sharvari Kishor Shirsath	BARC	1 Month
33	Sai Satish Jaiswal	Hindustan Aeronautics Limited	1 Month
34	Bhiva Mohan Jethe	Hindustan Aeronautics Limited	1 Month





## Faculty Activities / Achievements

- MED Faculties published more than 35 research works in the SCOPUS Indexed Journals.
- Dr. S B Rane and Dr. Kiran Bole led the Sardar Patel International Conference on “Industry 4.0 – Nascent Technologies and Sustainability for ‘Make in India’ initiative” held on 22-23, December 2022
- Dr. S B Rane \_ coordinated the online National FDP – Analysis of Engineering System by CREO from August 1-8, 2022.
- Prof. Shard Valvi and Dr. Kunal Bhavsar were selected for Ph.D. at SPCE research center, MU.
- Dr. Kiran Bhole and his team received the best paper award at the ASME conference 2022 IDETC/CIE, August 14-17, 2022, St. Louis, Missouri, for their work on ‘ Anisotropic approach to control viscous fingering patterning pattern generated I lifting plate Hele-Shaw cell. CSIR funded travel.
- Dr. Santosh B Rane and his student team have been granted a patent by the patent office, GOI, for their invention entitled ‘A MACHINE FOR SOWING OF SUGARCANE UTILIZING RING PIT METHOD’ on 21/06/2022.
- DR. S. B. Rane received the SEA India Foundation Championship Award in New Delhi on 10 October 2022.
- Dr. Santosh B. Rane continued his research journey and received a milestone of 1000 Scopus Citations.
- Dr. Megha Nagrale published her research work .01 in an international journal and 01 work in an international conference and attended 03 short-term training program.
- Dr. Kiran Bhole published his research work in 07 Scopus-indexed journals and 07 in international conferences.
- The best research award by IE (I) was given to Dr. Kiran Bhole.
- Dr. R S Maurya, Prof. D N Jadhav, and Dr. Bhasme each published one international conference.
- Prof. Haseen Shaikh had 02 international journal publications and attended a 12-week faculty development program.
- Prof. Parag K Muley's research on ‘ Thermodynamic analysis of LNG distribution system’ in 28th National Symposium on Cryogenics and Superconductivity (NSCS-28), 18-21 October 2022, IIT Kharagpur.





## Faculty Activities / Achievements

- Prof. Parag K Muley published research on 'Condition monitoring- an emerging predictive maintenance technique in continuous process plant' at SPICON-2022, held from 22-23 Dec 2022.
- Prof. Parag K Muley published his work on 'Performance evaluation of a helium recondensing cryostat in vacuum' at SADHANA (Indian Academy of Science)
- Prof. Sachin Vankar published his research on 'Methodology for testing the compressive strength of protruded composites in the Journal of Reinforced Plastic and Composites.







# Photo Gallery



SPCE WAVE TEAM -2022-23







# Photo Gallery



SPCE RACING TEAM -2022-23







# Photo Gallery



Mini-project competition on ARDUINO applications, 2022-23



Industry visit to IDEMI Mumbai on 23rd of September 2022

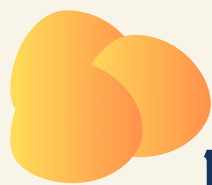


Mumbai, Maharashtra, India

4RFP+875, Old D N Nagar, Munshi Nagar, Andheri West, Mumbai,  
Maharashtra 400047, India

Entrepreneurship awareness program





Academic Year 2022-23

# Photo Gallery



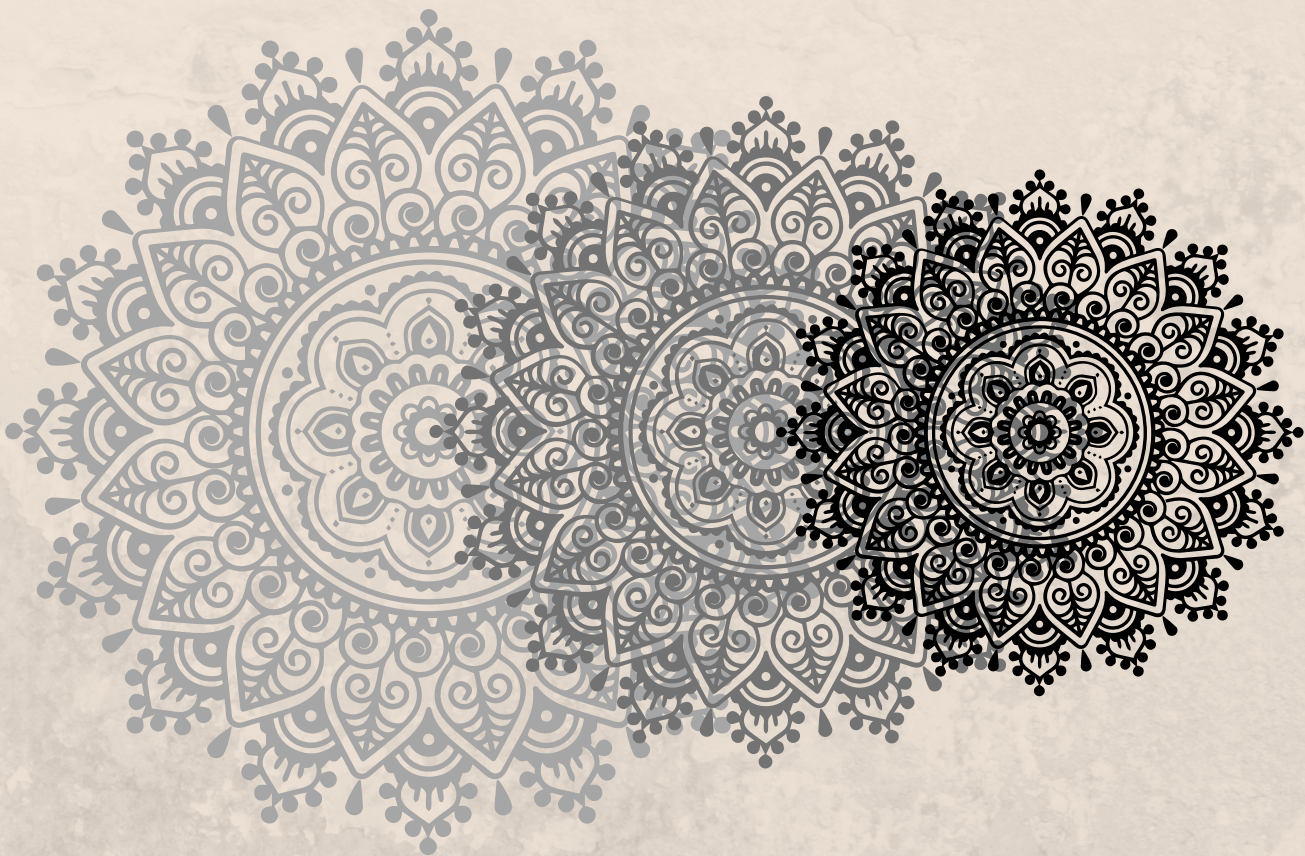
Workshop on AUTO CAD 6th, 9th, 12th and 13th of January 2023



Inauguration of SPCE Cup 8th -18th November 2022







**Department of Mechanical Engineering**  
**Sardar Patel College of Engineering, MUMBAI**