

MECHANICAL

JANUARY-JUNE 2023

NEWSLETTER



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Vision & Mission



VISION

To create an excellent environment for quality base education in the field of Mechanical Engineering for preparing socially responsible technocrats and entrepreneurs.

MISSION

- Impart quality education and enhance the creative and innovative skills to nurture globally acceptable mechanical engineer.
- Provide state-of-the-art laboratories and teaching-learning environment through qualified faculties.
- Develop linkage with Industry for excellence in research and consultancy services.
- Encourage life-long learning, ethical values and entrepreneurship culture for industrial and societal needs.

Program Educational Objectives (PEOs)

- Apply core subject knowledge to various challenging problems.
- Adopt technical skills and leadership capability to explore the problems and present the solutions with professional ethics.
- Plan and manage the production of components as per needs of the society.
- Utilize engineering software and experimental capabilities to pursue research, higher education and entrepreneurship.

Program Specific Outcome (PSOs)

- Graduates will be able to apply technical knowledge to identify, formulate and solve Mechanical Engineering problems relating to thermodynamics, fluid sciences, materials science, design and dynamics and industrial management.
- Graduates will utilize their skills to solve industrial and R&D problems using modern engineering tools, latest software and equipment for environment friendly solution.
- Graduates will be able to pursue their career as professional entrepreneur.

From the HOD's desk

It is my pleasure to present the newsletter for the first half of 2023. This period has been marked by significant achievements from our faculty and students. In the first half of 2023, we focused on bringing education to life, fully embracing a vision of skill-based and innovation-driven learning. This spirit was championed by our faculty, with Dr. Digant S. Mehta earning a nomination for the prestigious Vikram Sarabhai Best Ph.D. Thesis Award and presenting research at an international conference.

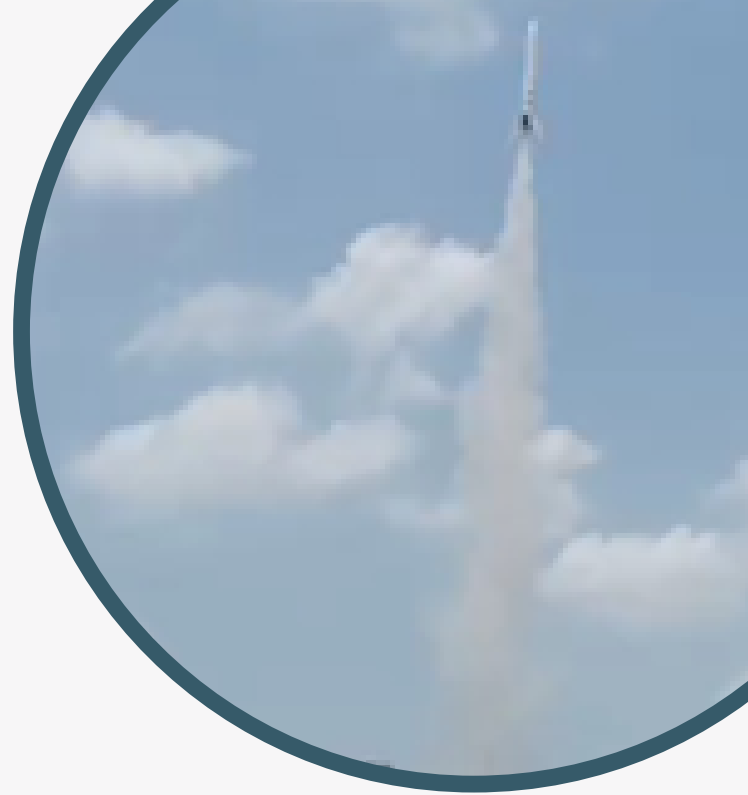
Our students embodied this spirit of innovation. A new chapter was written with the founding of the VGEC Rocketry Team, whose nine months of dedication culminated in the successful 108-meter launch of a rocket built entirely in-house. This hands-on success was complemented by academic achievements, including students qualifying in GATE 2023 and presenting research on 3D printing. We reinforced these efforts by bridging classroom theory with real-world practice through numerous industrial visits, workshops, and expert lectures.

I sincerely thank all industries, experts, and collaborators for their valuable support, which has been instrumental in enriching our students' learning journey. Moving forward, we remain committed to fostering innovation, entrepreneurship, and excellence in mechanical engineering education

Dr. P K Brahmhatt



Research and Innovation



Sustainable Hydrogen Research

Dr. Digant S. Mehta presented his research paper titled “Towards Sustainable Hydrogen Production: Review on Existing Technologies, Challenges and Future Scope” at the 1st International Conference on Green Hydrogen for Global Decarbonization (ICGHGD), PDEU Gandhinagar (17–18 March 2023). His work highlights the role of hydrogen as a future energy solution.

3D Printing Innovation by UG Students

Undergraduate students **Pavitra Patel** and **Neha Tiwari** co-authored a paper on “The Effect of Adaptive Infill Pattern on the Flexural Strength of FDM 3D Printed PLA”. The paper was presented at the 26th ISTE Gujarat State Annual Faculty Convention (27th April 2023). Their contribution showcases the department’s commitment to fostering undergraduate research.

VGEC ROCKETRY TEAM

VISION

Our vision is to revolutionize rocketry through innovation and teamwork. We aim to break barriers and reach new heights, setting new standards in the field

MISSION

- 1) To become the center of aerospace learning and passion where students can come to get core hands on learning experience
- 2) To become a name in Indian amateur rocketry circles where we are referred to as pioneers of the industry in India

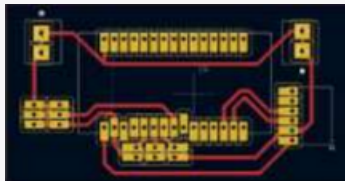
MOTOR MANUFACTURING

First Ejection Test - The parachute ejection mechanism was successfully tested for the first time on 3rd April, 2023.



FLIGHT COMPUTERS AND PCBS

Crafting our own PCBs for two intermediately complex flight computers was both challenging and rewarding. Initially, we used circuits without PCBS, but they proved unreliable. We then began producing our own printed circuit boards using the etching process. This enabled us to build a simple flight computer capable of tracking altitude and igniting the ejection system for parachute deployment.



OUTREACH AND KNOWLEDGE SHARING

11th June, 2023 Webinar on Solid Rocket Fuel Conducted a webinar introducing the basics of solid rocket fuel and its role in amateur rocketry.



ROCKET ANANTA

Successful Launch - After multiple refinements, we achieved a fully successful launch of Ananta on 1st February, 2023.



THRUST VECTOR CONTROL (TVC)

We designed and developed a thrust vector control mechanism along with the required software. The system is currently undergoing PID tuning on the test stand. Over time, we researched and developed more than three prototypes before arriving at the current manufactured design.



Faculty Achievement

Dr. Digant S. Mehta

Presented a research paper on “Towards Sustainable Hydrogen Production: Review on Existing Technologies, Challenges and Future Scope” in 1st International Conference on Green Hydrogen for Global Decarbonization (ICGHGD) organized by PDEU, Gandhinagar during 17-18 March, 2023.

Dr. Digant S. Mehta

Ph.D work has been nominated for the Vikram Sarabhai Best Ph D Thesis Award in વિજ્ઞાન ગુર્જરી National Level Event ‘Gujarat Vigyan Sammelan 2023’. The event was organized on 28/02/2023 at Science City Ahmedabad



List of quality publications in referred/SCI journals, citations, books/book chapters etc by faculty in 2023

Sr. No.	Name of Faculty	Title of Paper/Title of Book/Book Chapter (with ISSN/ISBN)	Journal Name/Book Publisher
1	T Y Rathod	Meta-Learning for Autonomous AI Agents: Enabling Self-Improvement Beyond Training Data ISSN 1695-7504	Journal: REDVET - Revista electrónica de Veterinaria Citation: Vol. 24, Issue 3, 2023
2	M N Parmar	Characterization Of Mechanical Properties Of Cryorolled Aa8011 Alloys Sheet ISSN: 1001-4055	Journal: TuijinJishu/Journal of Propulsion Technology Vol. 5, Issue 3, 2023
3	P K Brahmbhatt, S P Patel	Review on effect of biodiesel blends on tribological properties of lubricating oil ISSN: 1751-5874	Journal: International Journal of Design Engineering Vol. 9, Issue 1, pp. 263-268, 2023

FDP attended by faculty

Prof M I Vyas attended one week training on Advanced Industry Powered Faculty Immersion Programme during 29 May-3 June, 2023 at L&T, Edutech, Chennai

Prof. K P Prajapati and Prof. K T Dodiya attended two week training Cooling Technology: Why and how utilised in Food Processing and Allied Industries during 2 Jan-April 2023 Online

Prof. S S Patel, Prof. J M Joshi, Prof V K Patel and Prof. Pipaliya attended twelve-week training Student Assessment during Jan- April 2023 at NPTEL, MOOC

Prof. V K Patel attended one week training on Patent Drafting and Filing 20-24 February, 2023 at i Hub, KCG

Prof. M N Parmar attended one week training on Ultrasonic Testing Level II 16-20 January, 2023 at NITTTR, Ahmedabad

Prof. M N Parmar attended one week training on Train the Trainer Program on -Paint Technology during 27-31 March, 2023 at i-ACE Gandhinagar

Prof. A A Pujara and Prof. M M Modan attended two-week training on Product Design and Manufacturing during 2 (Jan-April 2023) at NPTEL, MOOC

Student Achievements

Meetkumar Rakeshbhai Rajvanshi (Sem VI-Mechanical Engineering Department) qualified GATE 2023 Examination in Mechanical Engineering with AIR 8907

Pavitra Patel and Neha Tiwari (Sem 4 Mechanical) Co authored and presented the research paper entitled "The effect of Adaptive Infill pattern on the Flexural Strength of FDM 3D printed PLA in 26th ISTE Gujarat State Annual Faculty Convention and Conference on Global Exigencies for smart and sustainable Technologies on 27 April 2023

Pavitra Patel and his rocketry team collaborated with Team Dyaus, SAE Nirma Collegiate Club to help them to design and build the rocket. Rocket will be designed and built by our student which will be used by Team Dyaus for their Satellite Launch

Shah Sarjak Rakesh (Sem VIII-Mechanical Engineering Department) qualified GATE 2023 Examination in Mechanical Engineering with AIR 9848

DEPARTMENTAL ACTIVITIES

Department organized the Industrial Visit for its students on 7th and 9th January, 2023, at Shilp Gravures Limited. The main objective of the visit was to make students explore new technologies and automation in the fabrication and engraving in printing cylinders. At the end of the visit, a question and answer session was conducted to solve students' queries. The visit concluded with the vote of thanks and lunch for all the attendees. Total 58 students of sem III attended the visit along with Prof. M I Vyas, Prof. S A Pawar and Prof. K T Dodiya



Department organized a One Day Workshop on Advanced Manufacturing Practices on 20 February 2023 at PDPU, Raisin Gandhinagar. Objective of this workshop was to make students aware of different types of welding methods and the workshop machines like lathe, milling, EDM, 3D printers, etc. Students learnt about the different types of welding processes and different welded joints like butt joints, lap joints, etc. Other welding methods like spot welding, friction welding, and friction stir welding, etc. were also discussed. Total 35 students attended the workshop along with Prof R K Patel.

Department under IIC organized a Seminar on Business Plan and Fund Raising for Startups on date: 3rd March 2023 by an expert Dr. Mayank Patel, CEO, IIPHG Technology Business Incubator. The objective was to make students aware about the various concepts of start-ups and business planning. Students were given knowledge about the various required resources of the start-ups.



Department organized an industrial visit to the International Automobile Centre of Excellence, Gandhinagar on 11 April, 2023. This one day visit was very much useful for our Mechanical Students. Facilities available with you have helped our students to gain the knowledge about the latest technology across the automotive systems & manufacturing process. Cut-out sections of the actual systems, combination of hardware- software equipment has helped students understand the basics of each system. Visit was attended by 12 students along with Prof. K R Patel

Department organized an expert lecture on “Role of an industrial engineer in current industries” on 29 April, 2023 for Semester IV and VI students. The main objective of the event was to make students aware about the role of an industrial engineer in organization. Expert gave an overall view of technologies used for production, planning and control in industry. At the end of the session, questions and answer session was conducted to solve students queries. Expert session was delivered by expert Mr. Viren Sarvaiya, Sr. Associate OPEX at Baxter International Inc. Event was coordinated by Prof S A Pawar and Prof. T Y Rathod. 43 students attended the session



Department arranged training on “Essentials of Industrial Automation” during 24 April to 13 May, 2023 for Semester 6 students in collaboration with Tata Indian Institute of Skills. Total 24 students attended the training program

YOUNG MINDS

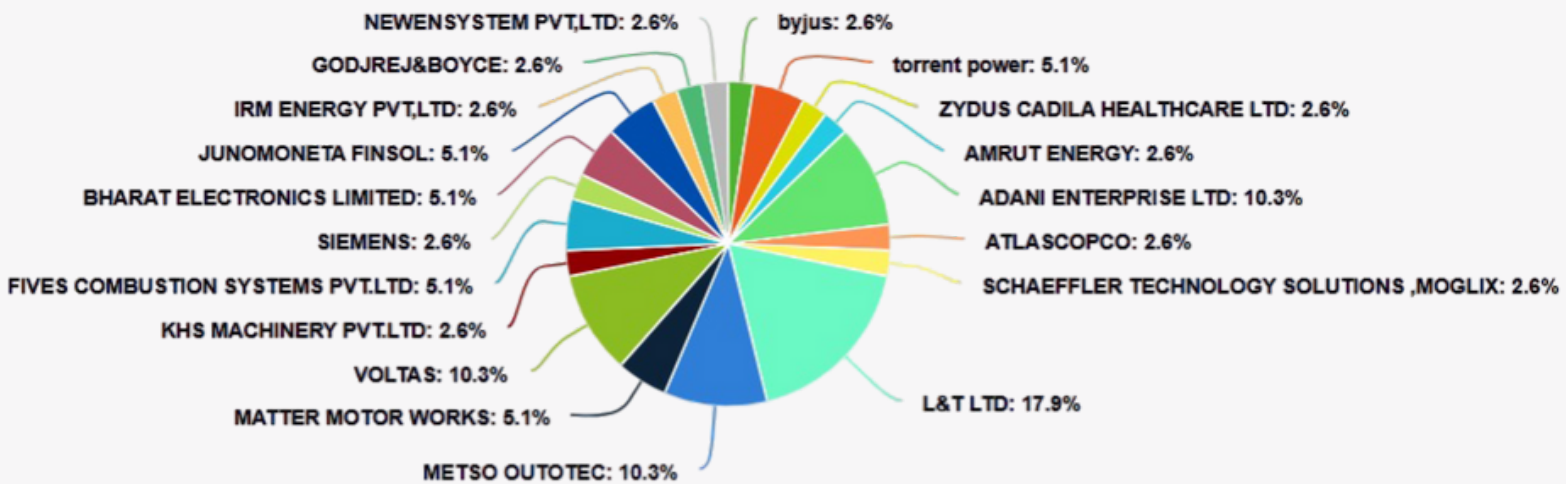
Pavitra Patel 4 Sem Mech (Founder, VGEC Rocketry Club)

Work hard in silence, let your success be your noise...

This is one of those quotes that you are probably sick of hearing, but you only truly understand its meaning when you have done it yourself. I founded the VGEC Rocketry Team 9 months back and since then we have been working in our workshop in silence. Very few people had even heard of us even in our campus. But undeterred by this we worked relentlessly, and 9 months later we have our first sign of success! A Rocket, launched to 108 meters in height, or 354 feet!

This is no easy feat, especially when all of the components of the rocket were made inhouse, including the rocket motor, which most amateur rocketeers steer clear off and buy commercially available ones. This launch is just the beginning of what we dream of achieving but a huge milestone in our journey to learn as much as we can about rocketry and aerospace. Maybe an Air launched rocket or a 2 staged rocket or maybe a point to point emergency delivery drone who knows what we will do next? It is an exciting and bumpy journey ahead and we are all set and prepared for the setbacks and obstacles to come!

PLACEMENT & INDUSTRY CONNECT



Our Major Recruiters



Closing Message

The Mechanical Engineering Department at VGEC continues to move forward with a clear vision – to nurture engineers who are innovative, industry-ready, and research-oriented. Through faculty development, student achievements, industrial collaborations, and research excellence, the department remains committed to building a future-ready generation of mechanical engineers.

“Innovation distinguishes leaders from followers, and teamwork turns ideas into reality.”

Faculty Coordinator

Prof. Viral A. Thakar
Prof. Swapna A. Pawar

Student Coordinator

Bhavadip Vagh
220170119104

Student

Tirth Makwana Arpit Ashok Bendre
Shwetanshu Shah Nisarg Islaniya

Vansh KO Patel
Hariom Raval

A photograph of the San Francisco skyline at sunset, featuring prominent skyscrapers like the Transamerica Pyramid and the Salesforce Tower. The sky is a mix of orange, yellow, and blue. The image is overlaid with semi-transparent geometric shapes: a large grey triangle on the left and a blue triangle at the bottom right.

PREPARED FOR :
OLIVIA THOMPSON

ANNUAL REPORT

2025 - 2026