



Sakeshwar Gramin Vikas Seva Sanstha's
Adsul's Technical Campus,
Ahmednagar
Department of Mechanical Engineering



Shri Aniruddha Adsul
Chairman



Dr. P.M. Patil
Principal



Mr. Jaware A. R.
Head of Department



Vision of Institute

To be a most preferred Rural Technical Campus in the region by creating competent multifaceted Engineers and Professionals ready to serve the industry and society at large.

Mission of Institute

To establish state-of-the-art facilities and create a conducive environment for transforming the rural minds into competent, skilled, professional, researchers, technically sound, innovative aptitude, and ethics through value-based education to develop the nation for global competitiveness.

Objectives of Institute

- To provide quality education with futuristic trends in engineering and technology
- To ensure continual improvement in quality management system
- To impart innovative teaching and learning

Vision of Department

To be a premier department in Mechanical engineering to serve the need of industry and society.

Mission of Department

M1: To provide state-of-the-art facilities to impart quality education.

M2: To undertake various value-added and add-on courses to make students technically sound and thorough professionals.

M3: To collaborate with the industries and strive to instil the research and problem-solving attitude amongst students and faculty.

M4: To inculcate high moral, ethical values, and spirit of national pride amongst students and faculty.

Program Educational Objectives (PEOs)

PEO1: To prepare Mechanical engineering graduate with standing knowledge of Mathematics, Science, Engineering, Technology, Management, Humanities and various other interdisciplinary subjects for successful career.

PEO2: To equip students with modern tools, technology and advance soft wares for deliberating Engineering solutions.

PEO3: To equip students with broad based knowledge to support the service industry, economic development and to address social and engineering challenges of nation.

PEO4: To inculcate student with leadership skill with high level of integrity and ethical value for team building and team work.

Program Outcomes (POs)

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

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

PO-3: Design/development of solutions: 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: Conduct investigations of complex problems: 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: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO-6: The engineer and society: 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: Environment and sustainability: 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: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

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

PO-10: Communication: 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: Project management and finance: 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: Life-long learning: 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.

Program Specific Outcomes (PSOs)

PSO1: An ability to design solution for thermal, hydraulic systems, design components and production processes that meet the specified needs with team work and management skill for safety, societal and environmental aspects through lifelong learning..

PSO2: An ability to use modeling and analysis software such as NX, Creo, CATIA, Ansys etc. technologies for obtaining quick, economical and accurate solution of engineering problems.

PSO3: An ability to design electromechanical and automation systems in multidisciplinary environments through better communication.

Silent features of Department:

- **Supportive learning for placement:** Placement learning is immersive and iterative. Support in the form of formative tasks and activities are crucial for student success, whilst being mindful of the need to ensure parity of student workload between modules of the same credit weighting. Placement assistance can offer students professional guidance and support to help them build successful careers. Students who might feel overburdened by the job search process might greatly benefit from placement assistance services.
- **Value added courses:** Value Added courses are career and market oriented, skill-enhancing courses that empower the students beyond their domain of study. The certificate programmes enable them to enrich their capability and enhance their employability. Value added courses are conducted for one week during the semester breaks by department faculty and external trainers.
- **Career oriented Add-On Courses:** Job-oriented courses are training and academic courses that prepare professionals for a particular career field or role. A traditional academic course may provide an overview of a certain topic or area, but a job-oriented course focuses on the knowledge and skills required for a particular job.
- **Teacher as Mentor:** The role of the Mentor Teacher is a complex blend of modeling, coaching, instructing, collaborating, and encouraging as candidates build competency in program standards. Mentor Teachers are expected to support candidates in developing the skills and knowledge to meet these standards.
- **Report writing and Paper Presentation:** A report is a specific form of writing, written concisely and clearly and typically organized around identifying and examining issues, events, or findings from a research investigation. Reports often involve investigating and analyzing a problem and coming up with a solution.
- **Professional Development for Industrial Engagement:** There are three types of employee engagement: **cognitive**, **emotional**, and **physical**. When employees are cognitively engaged, they're committed to their job, when they're physically engaged, they're invested in their work, and when they're emotionally engaged, they have an emotional connection to their work.
- **Personality Development and Soft Skill Training:** It also emphasizes personal management, grooming, health, and nutrition, as well as soft skills. This course educates students on the numerous aspects of self-development. Soft skills comprise pleasant and appealing personality traits as self-confidence, positive attitude, emotional intelligence, social grace, flexibility, friendliness and effective communication skills.

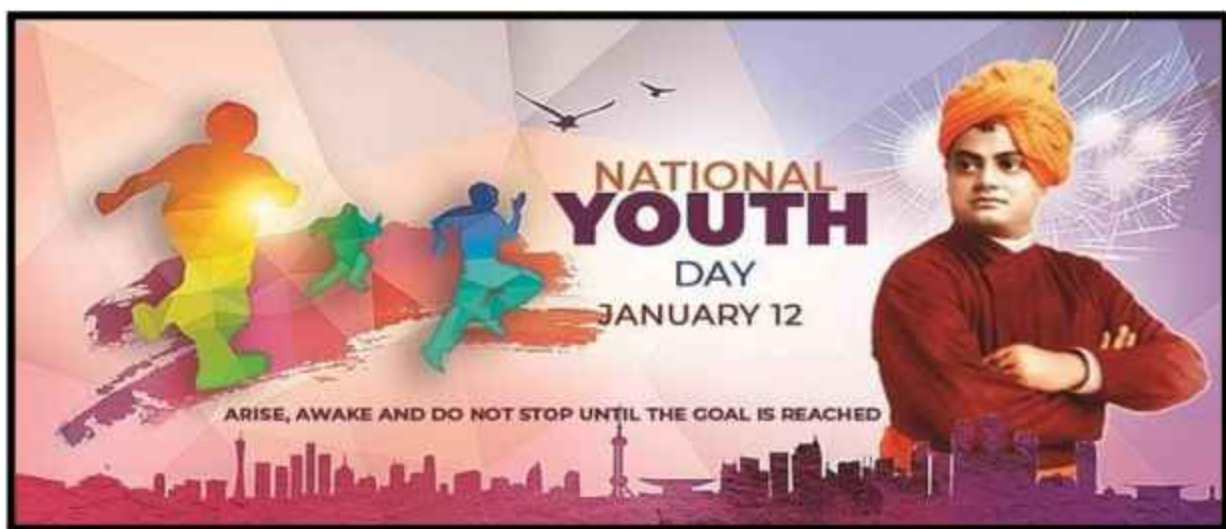
Savitribai Phule Jayanti Celebration at College

Savitribai Phule Jayanti was celebrated with great respect and enthusiasm at our college to honor the birth anniversary of Krantijyoti Savitribai Phule, India's first woman teacher and a pioneer of women's education and social reform. The program began with the **garlanding of Savitribai Phule's portrait**, followed by a floral tribute paid by the Principal, faculty members, non-teaching staff, and students. The ceremony highlighted her immense contribution to education, women empowerment, and social equality.



Faculty members delivered **inspiring speeches** emphasizing Savitribai Phule's role in promoting education for girls, fighting social evils, and advocating equality and justice. Students actively participated by presenting **speeches, poems, and thoughts** that reflected her vision of an educated and progressive society. The celebration aimed to create awareness among students about the importance of education as a tool for social transformation and to inspire them to follow the ideals of Savitribai Phule in their personal and professional lives. The program concluded with a **vote of thanks**, acknowledging the efforts of the organizing committee and participants. The celebration successfully instilled a sense of respect, motivation, and social responsibility among students, making the event meaningful and memorable.

National Youth Day Celebration at College



National Youth Day was celebrated with great enthusiasm at our college to commemorate the birth anniversary of **Swami Vivekananda**, whose thoughts continue to inspire the youth of the nation. The celebration aimed to motivate students to develop leadership qualities, self-confidence, and a sense of social responsibility. The program began with the **garlanding of Swami Vivekananda's portrait**, followed by a floral tribute by the Principal, faculty members, and students. The dignitaries highlighted the significance of National Youth Day and emphasized Swami Vivekananda's message of strength, character, and service to the nation.

Various **student-centric activities** such as speeches, poster presentations, motivational talks, and thought-sharing sessions were organized. Students actively participated and expressed their views on youth empowerment, discipline, and nation-building. Faculty members encouraged students to follow the ideals of Swami Vivekananda by focusing on education, innovation, and ethical values. The celebration successfully created awareness about the vital role of youth in shaping the future of the country. The program concluded with a **vote of thanks**, appreciating the efforts of the organizing committee and the enthusiastic participation of students. The event was both inspiring and impactful, leaving a lasting impression on young minds.

Shiv Jayanti Celebration at College

Shiv Jayanti was celebrated with great pride and enthusiasm at our college to honor the birth anniversary of Chhatrapati Shivaji Maharaj, the great Maratha warrior, administrator, and visionary ruler. The celebration aimed to inspire students with his ideals of courage, leadership, discipline, and good governance. The program began with the garlanding of the portrait of Chhatrapati Shivaji Maharaj, followed by floral tributes offered by the Principal, faculty members, non-teaching staff, and students.



The dignitaries highlighted the life and achievements of Shivaji Maharaj, emphasizing his role in establishing Swarajya, promoting justice, and ensuring people-centric administration. Students actively participated by delivering speeches, patriotic songs, and thought presentations, reflecting the values and vision of Shivaji Maharaj. The program encouraged students to imbibe qualities such as integrity, bravery, respect for women, and commitment to the nation. The celebration concluded with a vote of thanks, acknowledging the efforts of the organizing committee and participants. The event successfully instilled a sense of patriotism and pride among students, making the Shiv Jayanti celebration meaningful and memorable.

Student Articles

Role of Mechanical Engineering in Industrial Development

Mechanical Engineering plays a crucial role in the growth, development, and modernization of industries and is often regarded as one of the backbones of industrialization. Almost every major industrial sector including manufacturing, power generation, automotive, aerospace, chemical, construction, agriculture, and processing industries depends extensively on mechanical engineering principles for efficient operation, productivity improvement, and technological advancement. One of the primary contributions of mechanical engineering to industrial development is design and manufacturing. Mechanical engineers are involved in the design and development of machines, tools, equipment, production systems, and industrial components. They apply principles of mechanics, materials science, thermodynamics, fluid mechanics, and computer-aided engineering to develop products that are safe, reliable, economical, and efficient. The development of machine tools, CNC machines, automated production lines, additive manufacturing, and advanced manufacturing systems has significantly increased productivity, reduced manufacturing time, improved dimensional accuracy, and enhanced product quality.

Mechanical engineering also plays a central role in energy production, conversion, and management, which are essential for sustainable industrial growth. Mechanical engineers design, operate, and maintain systems such as boilers, turbines, compressors, pumps, heat exchangers, refrigeration systems, and thermal power plants. They also contribute to the development and implementation of renewable energy technologies such as solar thermal systems, wind energy systems, biomass energy, and waste-to-energy systems. Through energy-efficient equipment, waste heat recovery, cogeneration, energy audits, and improved thermal management, mechanical engineers help industries reduce energy consumption, operating costs, and environmental impact. Another important area is automation and industrial modernization. Mechanical engineers contribute to the integration of robotics, mechatronics, computer-aided manufacturing, sensors, control systems, and Industry 4.0 technologies.

Automation has improved workplace safety, production consistency, precision, and overall efficiency by reducing repetitive manual operations and minimizing human error. The adoption of smart manufacturing systems, connected machines, data-driven maintenance, and real-time monitoring is helping industries become more flexible and competitive. Mechanical engineering also has a significant role in maintenance and reliability management. Proper maintenance of machinery and equipment is essential for uninterrupted industrial production. Mechanical engineers develop preventive and predictive maintenance strategies to reduce machine breakdowns, increase equipment life, and minimize production losses. Modern techniques such as condition monitoring, vibration analysis, thermal imaging, and predictive maintenance enable industries to identify potential failures at an early stage.

Furthermore, mechanical engineers contribute to research, innovation, and sustainable development. They continuously work on developing lightweight materials, energy-efficient machines, electric and hybrid vehicles, advanced manufacturing processes, and environmentally friendly technologies. The growing emphasis on sustainable manufacturing, circular economy principles, waste reduction, and carbon emission reduction has further expanded the responsibilities of mechanical engineers in modern industries. In conclusion, Mechanical Engineering serves as a foundation for industrial growth, technological innovation, and sustainable development. From designing machines and manufacturing products to managing energy, automation, maintenance, and advanced technologies, mechanical engineers contribute to almost every stage of industrial operations. With the rapid emergence of Industry 4.0, artificial intelligence, robotics, additive manufacturing, renewable energy, and smart manufacturing, the role of mechanical engineering is becoming even more significant. Therefore, mechanical engineers will continue to play a vital role in building efficient, innovative, competitive, and sustainable industries for the future.

- **Modhave Aditya Parshuram (BE Mech)**

Energy Conservation Techniques in Industry

Energy conservation has become a critical requirement for modern industries due to rising energy costs, depletion of conventional energy resources, and growing environmental concerns. Industries are among the largest consumers of energy, and effective energy conservation techniques can significantly improve productivity, profitability, and sustainability. One of the most important energy conservation techniques in industry is energy auditing. An energy audit helps identify areas of energy wastage, inefficient equipment, and opportunities for improvement. Based on audit findings, industries can implement corrective measures to optimize energy usage without affecting production. Efficient operation and maintenance of equipment play a major role in conserving energy. Regular maintenance of boilers, furnaces, motors, compressors, and pumps reduces losses due to friction, leakage, and improper operation. The use of energy-efficient motors and drives is another effective technique. High-efficiency motors, variable frequency drives (VFDs), and proper motor sizing reduce electrical energy consumption, especially in applications involving fans, pumps, and conveyors.

Waste heat recovery (WHR) is widely used in industries such as cement, steel, power plants, and chemical industries. Heat lost through exhaust gases, flue gases, or cooling systems can be recovered using heat exchangers, economizers, or waste heat boilers and reused for preheating, power generation, or process heating. Improved insulation and heat management help reduce thermal losses in boilers, furnaces, steam pipelines, and hot equipment. Proper insulation materials and thickness minimize heat loss and improve overall thermal efficiency. Industries are increasingly adopting renewable energy sources such as solar, wind, and biomass to reduce dependence on fossil fuels. Solar water heating, rooftop solar power plants, and biomass boilers contribute to cleaner and sustainable energy use. Automation and process optimization also contribute significantly to energy conservation. The use of sensors, programmable logic controllers (PLCs), and smart energy management systems ensures optimal energy use by monitoring and controlling processes in real time.

- Sawant Kaustub Prakash (BE Mech)

Editorial Committee

We acknowledge the efforts of our editorial team, comprising faculty and students, for their valuable contributions in this publication:

Faculty Member : Dr. Ankur Vasava

Student Members : 1. Hasanpalli Sainath S
2. Beg Naved Babu
3. Darekar Priyanka Pramod
4. Karpe Sakshi Babasaheb
5. Sanap Sarthak Suryabhan