VIVEKANAND EDUCATION SOCIETY'S POLYTECHNIC CHEMBUR,400071

MECHANZIA 2025 - 26

DEPARTMENT OF MECHANICAL ENGINEERING

VOLUME - 1

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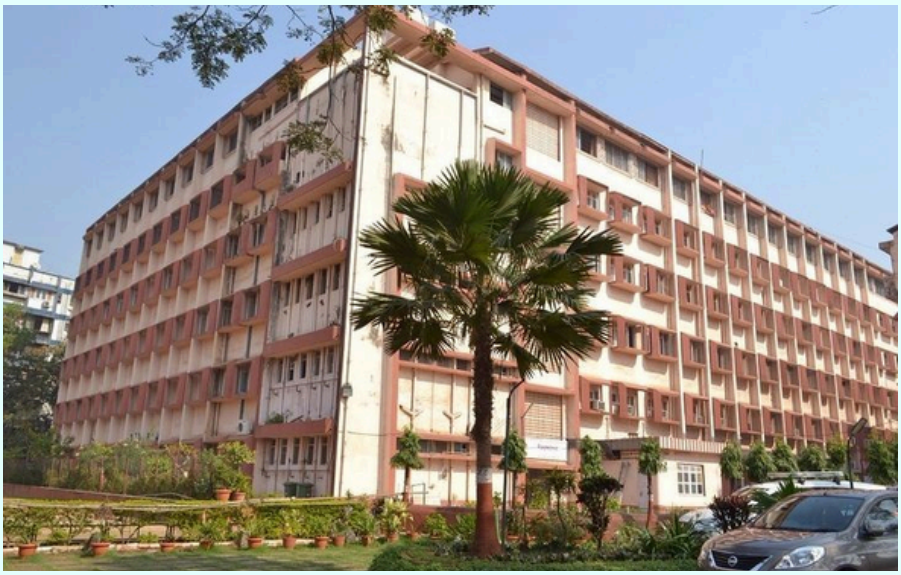

About Department

- Established: Department of Mechanical Engineering started in 2018 with an intake of 60 students.
- Core Focus: Applies principles of physics, mathematics, and materials science to design, analyze, manufacture, and maintain mechanical systems.
- Field Overview: One of the oldest and broadest engineering disciplines, covering mechanics, thermodynamics, materials science, and structural analysis.
- Tools Used: CAD, CAM, and life cycle management for designing and analyzing systems like machinery, transport, robotics, and medical devices.
- Infrastructure: Advanced facilities and labs beyond the curriculum to provide a conducive learning environment.
- Continuous Learning: Engineers must stay updated with emerging trends and technologies in the industry. Learning is a lifelong process.

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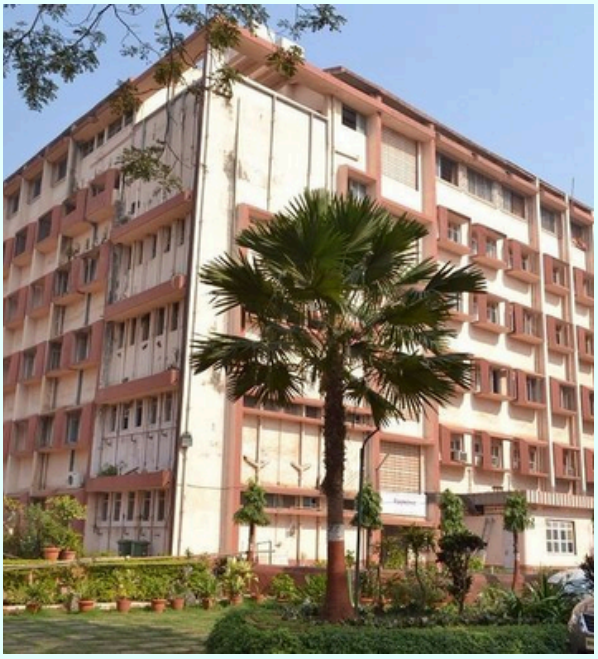

Vision

- To produce mechanical engineers with technical competency driven by ethical values.

Mission

- To impart value based quality education thus enabling students to meet up with the demands of industry as well as society
- To create technically expertise engineers with the desire for lifelong learning
- To provide platform for overall personality development of students

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Program Outcomes

- PO1-Basic And Discipline Specific Knowledge: Apply Knowledge Of Basic Mathematics, Science And Engineering Fundamentals And Engineering Specialization To Solve The Engineering Problems.
- PO2-Problem Analysis: Identify And Analyse Well-Defined Engineering Problems Using Codified Standard Methods.
- PO3-Design/ Development Of Solutions: Design Solutions For Well-Defined Technical Problems And Assist With The Design Of Systems Components Of Processes To Meet Specified Needs.
- PO4-Engineering Tools, Experimentation And Testing: Apply Modern Engineering Tools And Appropriate Technique To Conduct Standard Tests And Measurements.
- PO5-Engineering Practices For Society, Sustainability And Environment: Apply Appropriate Technology In Context Of Society, Sustainability, Environment And Ethical Practices.
- PO6-Project Management: Use Engineering Managament Principles Individually, As A Team Member Or A Leader To Manage Projects And Effectively Communicate About Well-Defined Engineering Activities. "
- PO7-Life Long Learning: Ability To Analyse Individual Needs And Engage In Updating In The Context Of Technological Changes.

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PROGRAM EDUCATION OUTCOME

- PEO1:- Provide socially responsible, environment friendly solutions to Mechanical Engineering related broad based problems adapting professional ethics.
- PEO2:- Adapt state-of-art Mechanical Engineering broad based technologies to work in multi disciplinary work environment.
- PEO3:- Solve broad based problems individually and as a team member communicating effectively in the world of work

Program Specific Outcome

- PSO1:-Modern Software Usage: Use latest Mechanical Engineering related software for simple design, drafting, manufacturing, maintenance and documentation of mechanical engineering components and processes.
- PSO2:-Equipment and Instruments: Maintain equipment and instruments related to Mechanical Engineering.
- PSO3:-Mechanical Engineering Processes: Manage Mechanical engineering processes by selecting and scheduling relevant Equipment, subtracts, quality control techniques and operational parameters.

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Highlights of Departmental activitiesdone by Faculties

- **Geetanjali Thakur** successfully completed an NPTEL course in **Power Plant Engineering** and a two-day National Level Online Faculty Development Program on **Advancement and Sustainable Practices** in Power Plant Engineering.
- **Pranit Nigade** successfully completed an NPTEL course in Engg Mechanics and a two-day National Level Online Faculty Development Program **on Advancement and Sustainable Practices in Power Plant Engineering.**
- An **internal and institutional growth program**, sponsored by **MSBTE**, was successfully completed by **Mahesh Zope.** The program focused on academic improvement and overall institutional development.
- **Nikhil Shewale and Prathamesh Kasar** successfully completed a one-week Faculty Development Program on **Electric Vehicles and Sustainable Technology, conducted by MSBTE**.

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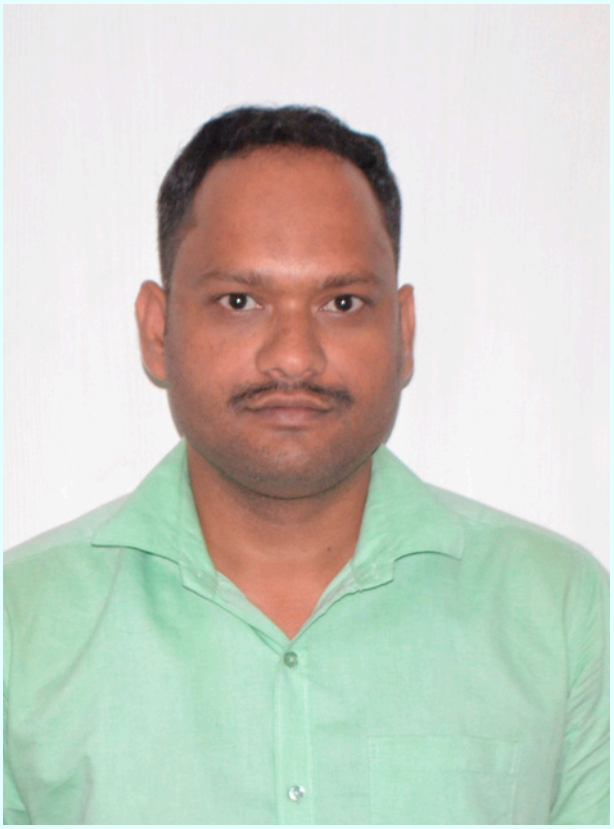

Mr. Mahesh Zope
I/C HOD
Mechanical Engg.

Mr. Mangesh Bidkar
Program Coordinator
Mechanical Engg.

Mahesh Zope and Mangesh Bidkar have successfully completed their **Advanced Diploma in Industrial Safety from MSBTE** (Maharashtra State Board of Technical Education), Mumbai.

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Student Articles

A simple space for students to share their ideas, tech tips, and creative stories. It’s the perfect place to show off your thoughts and improve your writing skills.

- **Role of Mechanical Engineering in Make in India**
- **Introduction to Mechanical Engineering and Its Scope**
- **Artificial Intelligence in the Automobile**
- **Artificial Intelligence (AI) and Machine Learning(ML)**
- **Green Technology: The Future of Mechanical Engineering**

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Role of Mechanical Engineering in Make in India

India’s growth as a global manufacturing hub strongly depends on mechanical engineering. The Make in India initiative, launched to boost domestic manufacturing and reduce imports, cannot succeed without the contribution of mechanical engineers.

Mechanical engineering plays a vital role in the design, development, production, and maintenance of machines and manufacturing systems. From small-scale industries to large automobile and aerospace companies, mechanical engineers form the backbone of industrial growth in India.

One of the key contributions of mechanical engineering is in manufacturing and production. Mechanical engineers design machines, tools, and production lines that help industries produce goods efficiently and at lower cost. This directly supports Make in India by increasing local production and improving product quality.

Mechanical engineering is also crucial in the automobile, defence, railways, power, and heavy machinery sectors. Indigenous development of engines, vehicles, turbines, and industrial equipment reduces dependency on foreign countries and strengthens the Indian economy.

With the rise of automation, CNC machines, robotics, and Industry 4.0, mechanical engineers are helping Indian industries become more competitive globally. Advanced manufacturing technologies improve accuracy, productivity, and safety in factories.

Mechanical engineering is a vital pillar of the "Make in India" mission. Through innovation and advanced manufacturing, engineers are driving the nation toward self-reliance and global industrial leadership.

Yogesh shivaji kumbhar

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Introduction to Mechanical Engineering and Its Scope

Mechanical engineering is the driving force behind India's transformation into a global manufacturing powerhouse. As the cornerstone of the Make in India initiative, it provides the technical foundation necessary to shift from import dependency to self-reliant production.

Beyond simple assembly, mechanical engineers act as the architects of industrial progress. They specialize in the design, precision development, and optimization of complex systems that power everything from grassroots SMEs to elite aerospace and automotive sectors. By engineering high-efficiency production lines and advanced tooling, they enable industries to scale rapidly while maintaining world-class quality at competitive costs. Ultimately, their expertise turns the vision of a "Self-Reliant India" into a tangible, industrial reality.

Mechanical engineering is also crucial in the automobile, defence, railways, power, and heavy machinery sectors. Indigenous development of engines, vehicles, turbines, and industrial equipment reduces dependency on foreign countries and strengthens the Indian economy.

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Pradnya chavan.

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Artificial Intelligence in the Automobile

Artificial Intelligence (AI) is becoming very important in the automobile branch. AI means giving intelligence to machines so they can think, learn, and make decisions on their own. In the automobile industry, AI helps to make vehicles smarter, safer, and more comfortable for users.

One major use of AI in automobiles is in self-driving cars. These vehicles use AI along with sensors, cameras, and radar to understand road conditions, identify traffic signals, and avoid accidents. AI also supports safety systems such as automatic braking, lane-keeping assist, parking sensors, and collision warning systems, which help reduce road accidents.

In automobile manufacturing, AI is used in robots that assemble vehicle parts with high accuracy. It helps in quality checking, detecting faults, and improving production speed. This saves time, reduces errors, and lowers manufacturing costs. AI is also useful in vehicle maintenance. Smart systems can predict engine problems early and inform the driver before serious damage occurs.

AI improves the driving experience through voice assistants, smart navigation, fuel-saving systems, and personalized settings. Drivers can control music, calls, and navigation using voice commands.

In conclusion, Artificial Intelligence is transforming the automobile branch. It increases safety, efficiency, and comfort, and its role will grow more important in the future of transportation.

Akshada phadtare

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Artificial Intelligence (AI) and Machine Learning (ML)

Artificial Intelligence (AI) and Machine Learning (ML) are two of the most advanced and rapidly growing technologies in the modern world. Artificial Intelligence refers to the ability of machines and computer systems to perform tasks that normally require human intelligence, such as thinking, learning, problem-solving, and decision-making. Machine Learning is a branch of AI that enables machines to learn from data and improve their performance without being explicitly programmed.

AI and ML are widely used in many fields such as healthcare, education, finance, transportation, and manufacturing. In healthcare, they help in disease diagnosis, medical imaging, and drug discovery. In daily life, AI is seen in voice assistants, recommendation systems, facial recognition, and smart devices. Machine Learning algorithms analyze large amounts of data to identify patterns and make accurate predictions.

These technologies help industries increase efficiency, reduce errors, and save time and cost. However, the use of AI and ML also raises concerns such as data privacy, job displacement, and ethical issues. Therefore, responsible development and proper regulations are necessary.

In conclusion, Artificial Intelligence and Machine Learning are transforming the way we live and work. When used wisely, they have the potential to create innovative solutions and contribute significantly to the progress of society and future technology.

Vrushank Chavan

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Green Technology: The Future of Mechanical Engineering

As a third-year mechanical diploma student, I have spent the last two years studying engines, thermodynamics, and manufacturing. However, the industry is changing rapidly. We are moving away from traditional fossil fuels toward Green Technology, which focuses on creating machines that are efficient, sustainable, and eco-friendly.

For mechanical engineers, Green Tech is an exciting challenge. It involves designing Electric Vehicles (EVs), where we focus on battery cooling systems and lightweight chassis design to increase range. It also includes Renewable Energy, such as designing advanced wind turbine blades or solar tracking systems that follow the sun for maximum power. Even in traditional factories, we are now implementing "Circular Economy" principles—using heat exchangers to recycle waste energy back into the production line.

In our college workshops, we are learning that "Green" doesn't just mean "Solar." It means using 3D printing to reduce material waste and choosing biodegradable lubricants for machines. As I prepare to enter the professional world, I realize that our responsibility is no longer just to build faster machines, but to build smarter, cleaner ones. Green technology is the key to a sustainable future, and as engineers, we are the ones who will make it a reality.

Saumil Tharwal

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Departmental Spotlights in Art

Kalyan Fast .....

Racing down the tracks in a 12 coach local train
Cannot rest your back to crowded to explain ...

From Mumbai we Began, quit slow at the start ...
But then the driver makes the plan to tear the tracks apart ..
Hey kalyan fast kalyan fast showing no restrain, ooo what fun it is to ride a 12 coach local train... ll2ll

Dadar was like hell, the crowd got quite insane, sion bought a smell but no one did complaint

Kurla made things worst and so did ghatkopar
the journey felt like such a curse till we reached Thane bumping in ....
Hey kalyan fast kalyan fast showing no restrain, ooo what fun it is to ride a 12 coach local train... ll2ll

We are almost there , The journey's at an end ..
Not time to sit and stare ...platform to pretend ..

Tired and forlorn , A rikshaw I locate . The driver starts blowing the horn , to go back to Mumbai....
Hey kalyan fast kalyan fast showing no restrain, ooo what fun it is to ride a 12 coach local train... ll2ll

Saumil Tharawal

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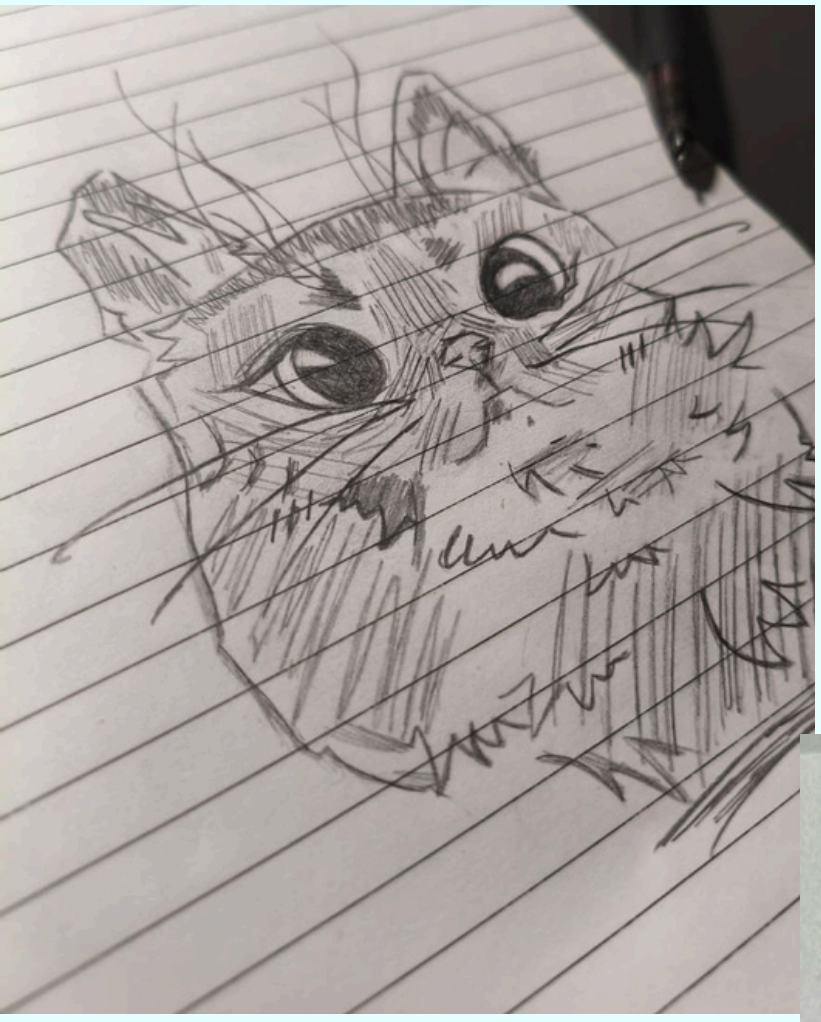

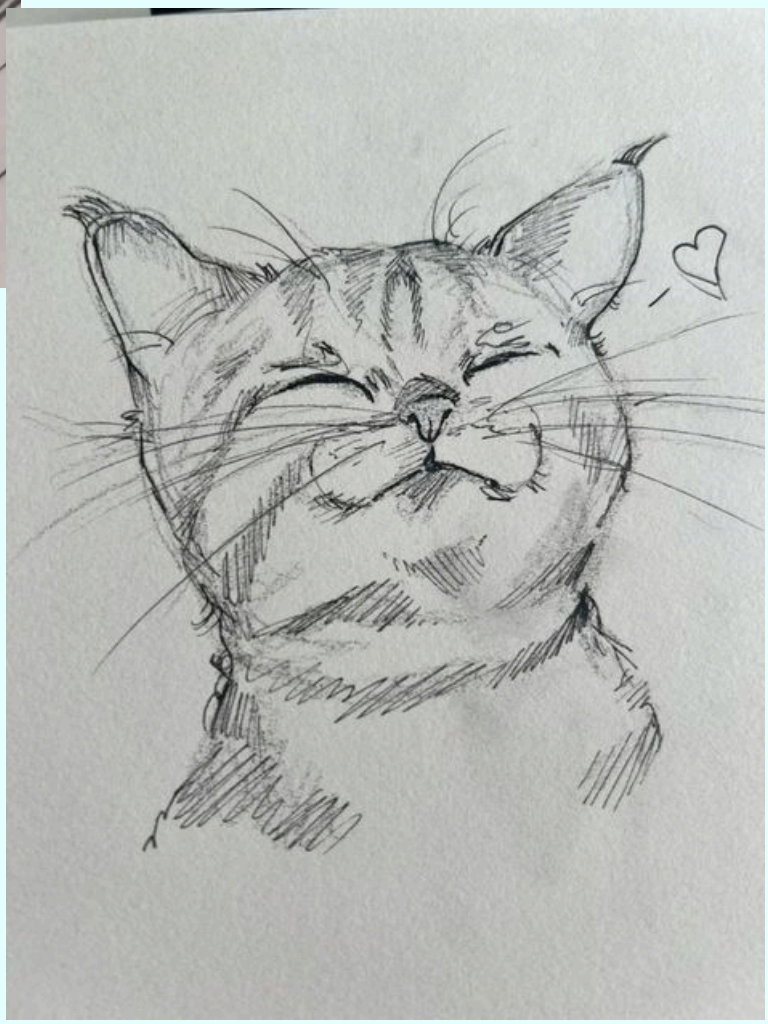

Sketches by Parth Ghawre

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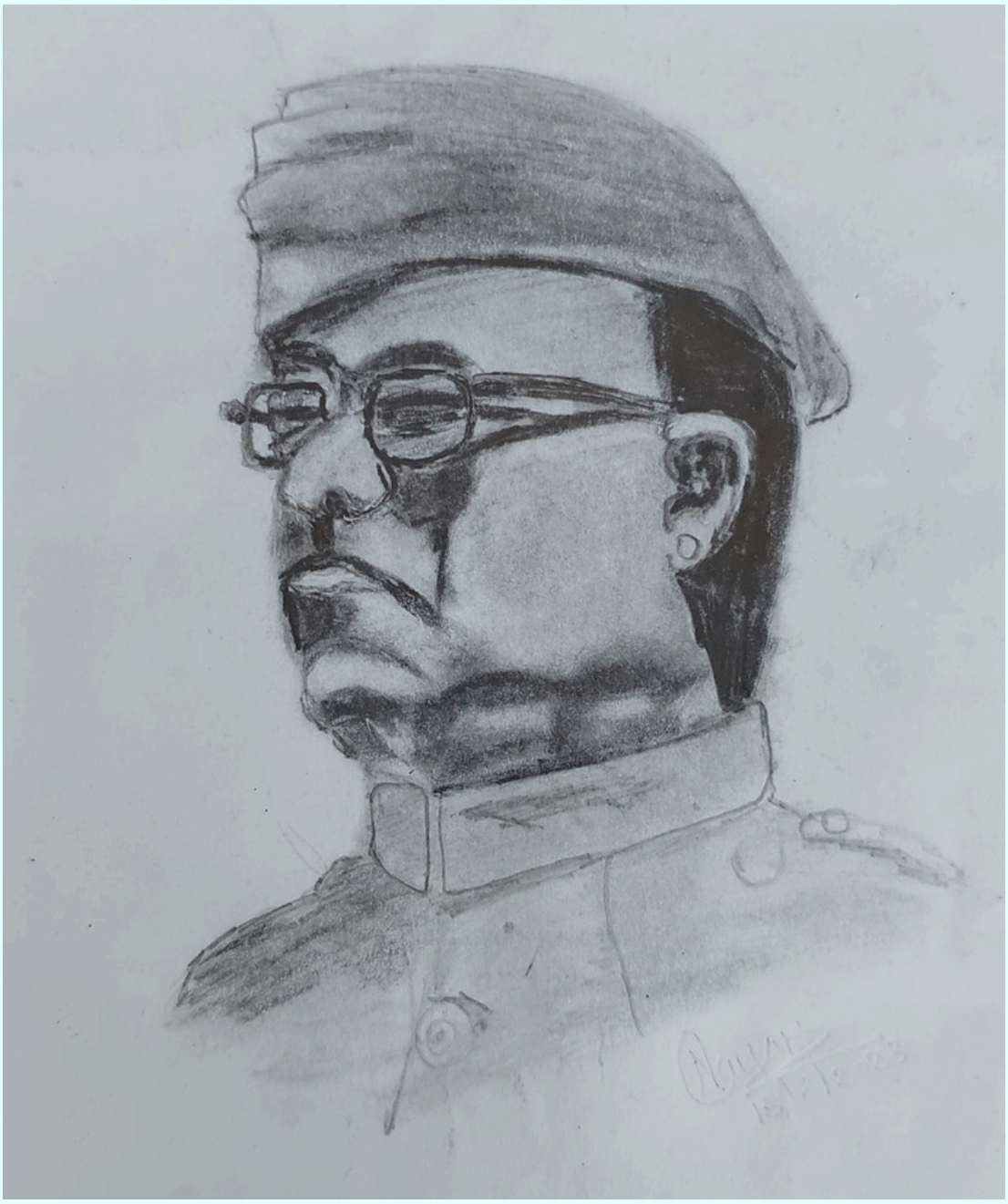

Sketch Nishant Gopal

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ACADEMIC TOPPERS

Even Semester 2024-25

DEPARTMENT OF MECHANICAL ENGINEERING

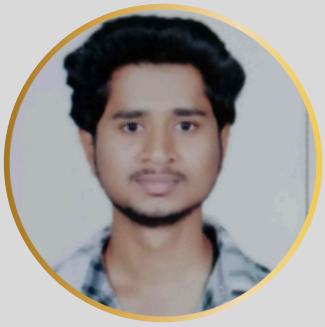
FIRST YEAR

AYAN KHAN
87.03 %

KASODEKAR DURGESH PARAG
82.06%

SUYASH PRASHANT GADKARI
80.63%

SECOND YEAR



SOMVANSHI ROHIT NITIN
84.94%

SHRUNGARPURE PRANAV RAKESH
79.33%

THARWAL SAUMIL SACHIN
78%

THIRD YEAR

BHAVESH BORADE
81.13 %

NAMBIKARTHIK K.
80.62%

PARTH VIJAY MANEPATIL
80.62%

SHREYASH SAWANT
80.56%

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Editor

SAUMIL THARWAL

PRATHAMESH KASAR