

GOVERNMENT ENGINEERING COLLEGE PATAN  
MECHANICAL ENGINEERING DEPARTMENT  
NEWSLETTER

# TORQUE-TALK

## JULY-DEC 2024



Editor Team:

PROF. K. V. PATEL  
YASH PATEL  
DARJI PAVAN

## MESSAGE FROM THE HEAD OF DEPARTMENT

# Prof. Dr. A B Dhruv

Head of Department  
Mechanical Engineering

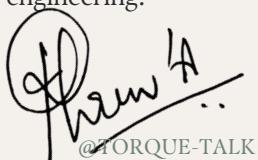


Greetings to all.

It is a matter of great pride to address you through this newsletter of the Mechanical Engineering Department. Our department continues to grow through academic excellence, innovation, and the active participation of our students and faculty members.

We are committed to creating a dynamic learning environment that promotes technical knowledge, practical skills, and overall personality development. The achievements highlighted in this newsletter reflect the hard work and dedication of our entire department.

I express my sincere gratitude to all faculty, students, and stakeholders for their continuous support and contributions. Let us continue to work together toward greater success and advancement in the field of mechanical engineering.



@TORQUE-TALK

## MECHANICAL ENGINEERING DEPARTMENT

# ABOUT THE DEPARTMENT



Our strong academic performance in high school enables you to pursue a range of educational opportunities. One avenue you'll want to explore is mechanical engineering. Studying mechanical engineering at Government Engineering College Patan will equip you with a broad education, preparing you for a variety of career paths graduation and providing a solid foundation for continuing education. Mechanical engineering encompasses many areas. In short, anything that involves the design and or manufacturing of mechanical, thermal or electronic devices and or processes falls entrepreneurs, chief engineers, astronauts, faculty, physicians and patent attorneys, among other occupations. The field includes activities such as designing, developing, manufacturing, managing, researching and controlling engineering systems and their components.

## VISION

To create a centre of excellence for imparting education in mechanical engineering field to meet the current and future challenges of technological and sustainable development.”

## MISSION

- To build enabling environment for excellent teaching, learning and research in order to produce entrepreneurs and innovators in the field of Mechanical Engineering for sustainable improvement.
- To impart adequate fundamental knowledge, technical and soft skills to students.
- To develop Mechanical Engineering solutions for the problems of industry and society.



## Programme Educational Objectives (PEOs)

1. To prepare graduates with a technical knowledge of mathematical, scientific, engineering, technology, management, humanities and various other interdisciplinary subjects for a successful career.
2. Graduates will apply the knowledge of Mechanical Engineering to solve real Engineering problems for sustainable development.
3. To inculcate graduates with leadership skills with high level of integrity, Professional personality and ethical values.
4. To equip graduates with modern tools, technology and advanced software's for deliberating engineering solutions.

## Programme Specific Outcomes (PSOs)

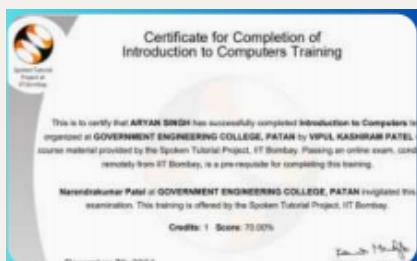
- PSO1: Apply the advanced software skills to model, simulate, analyze and optimize Mechanical systems and Processes.
- PSO2: Acquire technical and managerial skills for innovative activities.

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# SPOTLIGHT



JHA MANISH NABONATH stduent of 1st sem 240220119008 take part in BRC camp in Abu on November 15



- Suthar Karankumar Ashvinbhai (Enrollment No. 210220119028) participated in an AutoCAD Mechanical Training Course, which was conducted online through Mind Luster on 12/08/2024.
- Suthar Karankumar Ashvinbhai (Enrollment No. 210220119028) also attended the Explore Emerging Tech program, organized online via IBM Skills Build on 06/07/2024.

## ONE-DAY WORKSHOP ON

# Industrial SolidWorks & GD&T



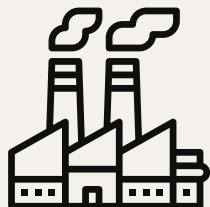
Prof. Rakesh A. Oza and Prof. B. B. Patel organized One-Day Workshop on Industrial SolidWorks & GD&T on Date: 13th August 2024 for final year student.

The one-day workshop on Industrial SolidWorks & GD&T was a successful initiative that bridged the gap between academic knowledge and industry requirements. It provided students with valuable insights into the practical applications of these tools and the skills needed to excel in the competitive job market. The faculty members also benefited from the workshop, as it enriched their teaching methodology with up-to-date industry practices. Around 46 students have taken benefit of this workshop.



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# INDUSTRIAL VISIT



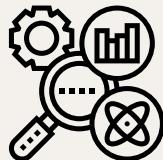
Students from the 5th semester of the Mechanical Department at GEC Patan embarked on an insightful industrial visit to industrial visit at NAMTECH company which is situated in industrial park IIT Gandhinagar on 24 September 2024 . Accompanied by Prof. B B Patel Patel and Prof. R A Oza and Prof. V. K .Patel the visit aimed to deepen their understanding of sustainable technologies and their applications in real-world settings.



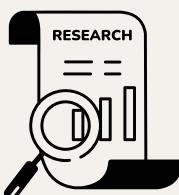
Industrial visit for 7th sem mechanical student at Gujarat Apollo Industries Limited, Dholasan, Near Shankus Water Park, Mehsana -382 732 on date 1/10/20247 Accompanied by Dr. S. P. Patel. The visit aimed to deepen their understanding of sustainable technologies and their applications in real-world settings.

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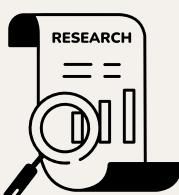
# RESEARCH AND PUBLICATIONS



Prof. (Dr.) D K Patel published a research article on Investigation of varying tip clearance gap and operating conditions on the fulfilment of low speed axial flow fan= on dated October 1, 2024, International Journal of Turbo Jet Engine 2024 with DOI <https://doi.org/10.1515/tjj-2024-0067>



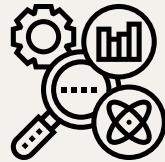
Prof. (Dr.) D K Patel published a research article on Numerical and Experimental Analysis of Tip Clearance Effect of Low-Speed Axial Flow Fan on dated December 20, 2024, SAE Technical Paper 2024-01-6009, 2024. doi:10.4271/2024-01-6009



Prof. (Dr.) Kaushik Patel published article on Development of thermodynamic relation for mean density of mixture in the risers of natural circulation boilers in Applied Chemical Engineering Vol. 7 No. 4 (2024): Vol. 7 No. 4(Publishing) on date 31/12/2024., <https://doi.org/10.59429/ace.v7i4.5555>

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# ACHIEVEMENT



# CONGRATULATION

Prof. M. G. Patel completed his PhD from GTU Ahmedabad on the topic "Optimization of WEDM Process Parameters for Machining of Nimonic-90 Superalloy."

FACULTY



# TRAINING ATTENDED

- Prof. C. C. Patel underwent Industrial Training at Mehsana Dairy and Food Products Limited at Mehsana (offline) during 15-07-2024 to 27-07-2024.
- Prof. (Dr.) H. R. Parjapati underwent Industrial Training at Atlas Technologies Pvt. Ltd. at Atlas Technologies Pvt. Ltd. during 15-07-2024 to 28-07-2024.
- Prof. N. R. Makwana underwent Industrial Training at Mehsana Dairy and Food Products Limited at Mehsana (offline) during 15-07-2024 to 27-07-2024.
- Prof. K. H. Thakkar underwent Industrial Training at Royal Castor Products Limited at Royal Castor Products Limited, Khali during 15-07-2024 to 28-07-2024.
- Prof. M. G. Patel underwent Industrial Training at APS at Tajpur (offline) during 15-07-2024 to 26-07-2024.
- Prof. V. K. Patel underwent Industrial Training at Royal Castor Products Limited at Royal Castor Products Limited, Khali during 15-07-2024 to 28-07-2024.
- Prof. R. A. Oza underwent Industrial Training at Royal Castor Products Ltd. at Khali, Mehsana–Siddhpur Highway, Siddhpur during 08-07-2024 to 21-07-2024.
- Prof. B. B. Patel underwent Industrial Training at Royal Castor Products Limited at Royal Castor Products Limited, Siddhpur during 08-07-2024 to 21-07-2024.
- Prof. M. G. Patel underwent Industrial Training at Mehsana Dairy and Food Products Limited at Mehsana (offline) during 01-07-2024 to 13-07-2024.

# FACULTY AND STAFF



## Dr. Anand Dhruv

Designation : Professor  
Qualification : Ph. D  
Experience : 34 Years  
Area of Interest : CAD-CAM, Metal Forming, Automobile Engg, Manufacturing Engg  
Email : anand.dhruv@gecpatan.ac.in



## Dr. Dineshkumar Patel

Designation : Professor  
Qualification : Ph. D  
Experience : 33 Years  
Area of Interest : Solar Energy  
Email : dinesh.patel@gecpatan.ac.in



## Prof. Dipak Parmar

Designation : Assistant Professor  
Qualification : M.Tech (I.C. & Automobile)  
Experience : 18 Years  
Area of Interest : Jet propulsion and gas turbine  
Email : dipak.parmar@gecpatan.ac.in



## Prof. Chiragkumar C. Patel

Designation : Assistant Professor  
Qualification : M.Tech.  
Experience : 18 Years  
Area of Interest : Thermal Science and Engineering  
Email : ccpatel09@gmail.com



## Dr. Miteshkumar Govindbhai Patel

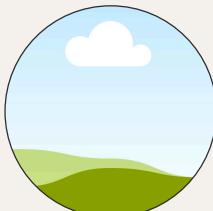
Designation : Assistant Professor  
Qualification : Ph. D  
Experience : 18 Years  
Area of Interest : Production  
Email : mitesh.patel@gecpatan.ac.in

# FACULTY AND STAFF



## Prof. Sachin P. Patel

Designation : Assistant Professor  
Qualification : M. E.  
Experience : 18 Years  
Area of Interest : Machine Design  
Email : sachinunjha84@gmail.com



## Dr. Narendra A. Patel

Designation : Assistant Professor  
Qualification : Ph. D  
Experience : 18 Years  
Area of Interest : Machine Design  
Email : narendra.patel@gecpatan.ac.in



## Dr. Kaushikkumar V. Patel

Designation : Assistant Professor  
Qualification : Ph. D  
Experience : 18 Years  
Area of Interest : Machine Design  
Email : kaushik.patel@gecpatan.ac.in



## Prof. Kamlesh Hasmukhlal Thakkar

Designation : Assistant Professor  
Qualification : M. Tech  
Experience : 13 years  
Area of Interest : CAD/CAM  
Email : kamlesh.thakkar@gecpatan.ac.in



## Prof. Bhargavkumar Patel

Designation : Assistant Professor  
Qualification : M. Tech  
Experience : 13 years  
Area of Interest : Non Conventional Machining Processes,  
Finite Element modelling.  
Email : bhargav.patel@geccpatan.ac.in

# FACULTY AND STAFF



## Prof. Vipulkumar Kashirambhai Patel

Designation : Assistant Professor

Qualification : M.E.

Experience : 13 years

Area of Interest : CAD/CAM

Email : [vipul.patel@gecpatan.ac.in](mailto:vipul.patel@gecpatan.ac.in)



## Prof. Narendrasinh Ramjibhai Makvana

Designation : Assistant Professor

Qualification : M.E. (IC/Auto)

Experience : 13 years

Area of Interest : IC/Auto

Email : [narendrasinh.makvana@gecpatan.ac.in](mailto:narendrasinh.makvana@gecpatan.ac.in)



## Dr. Hitesh Panchal

Designation : Assistant Professor

Qualification : Ph. D

Experience : 13 years

Area of Interest : Solar Thermal, Solar Photovoltaic, IC Engine

Email : [engineerhitesh2000@gmail.com](mailto:engineerhitesh2000@gmail.com)



## Prof. Rakesh A. Oza

Designation : Assistant Professor

Qualification : M. E.

Experience : 13 years

Area of Interest : CAD-CAM

Email : [rakesh.oza@gecpatan.ac.in](mailto:rakesh.oza@gecpatan.ac.in)



## Dr. Hirenkumar Rameshbhai Prajapati

Designation : Associate Professor

Qualification : Ph. D.

Experience : 14 Years

Area of Interest : Design, Dynamics and Manufacturing, CAD-CAM

Email : [hiren.prajapati@gecpatan.ac.in](mailto:hiren.prajapati@gecpatan.ac.in)

# FACULTY AND STAFF



## Prof. Chirag P Kadiya

Designation : Assistant Professor

Qualification : B.E.

Experience : 18 Years

Area of Interest : Power Plant Engineering

Email : cpkadiya@gecpatan.ac.in



## Prof. Kiran K. Rabari

Designation : Assistant Professor

Qualification : M.E.

Experience : 16 Years

Area of Interest : CAD-CAM

Email : rabarikiran15@gmail.com



## Prof. Dharmesh K. Patel

Designation : Assistant Professor

Qualification : M. Tech.

Experience : 14 Years

Area of Interest : Manufacturing

Email : rabarikiran15@gmail.com



## Shri. Rakesh V. Patel

Designation : Lab Assistant

Qualification : D E

Experience : 14 year



## Ms. Priyanka J. Patel

Designation : Lab Assistant

Qualification : B E

Experience : 15 year

DEPARTMENT

# LABORATORIES



## Refrigeration and Air Conditioning Lab:

This laboratory houses the vapor compression refrigeration system, air conditioning, heat pump setup, refrigerator to determine the most crucial performance parameters of RAC devices. This lab plays a very important role to understand various refrigeration cycles used in domestic as well as Industrial purpose.



## CAD/CAM Lab:

This laboratory emphasizes on computer aided design and manufacturing, quality control and measurement too. It also provides various activities in nonconventional manufacturing, flexible manufacturing system and automation. This lab is equipped with CNC turning centre, 5 axis robot and other equipment's required as per syllabus.



## Heat Transfer Lab:

This lab course is primarily being offered to the III Year B.E. Mechanical Engineering Students to make them understand the principles of i.e. conduction, convection, Radiation boiling and Condensation modes of heat transfer and principles of Refrigeration and Air Conditioning. Laboratory is equipped with the set up of Pin Fin Apparatus, Heat transfer in Natural convection, Composite Wall Apparatus etc.

# LABORATORIES



## Workshop and Machine Shop Lab:

Workshop has various facilities like Machine shop, Carpentry shop, Fitting shop, Welding shop, Smithy shop, Plumbing shop, Foundry shop etc. to cater to hands on experience for the students. For manufacturing process, this workshop has a more no. of lathe machine, drilling machine, shaper machine, shearing machine etc.



## Internal Combustion Engine Lab:

This laboratory is equipped with modern instruments like modern internal combustion engine test rig, diesel smoke meter, variable compression ratio engine test rig, five gas exhaust gas analyzers etc. In this lab, performance optimization of engine parameters like power, fuel consumption and emissions etc are being taught to the students.



## Kinematics and Dynamics of machines Lab:

Students are greatly benefited by studying the demonstration of the Slider Crank Mechanism, Cam Follower Mechanism, Different Gears and Gear train Mechanism, Gyroscope etc.



## Computer-Aided Design (CAD) Lab:

This lab is facilitated It is having computer systems with high-end configurations to ensure seamless performance to support students in design, simulation and analysis tools essential for modern engineering applications. The CAD Lab has 30 computers, with 12 PCs equipped with ANSYS for simulation and analysis, while all have Autodesk software for drafting and design.

# LABORATORIES



## Fluid Mechanics and Fluid Power Engineering Lab:

This laboratory helps students to understand the principles of fluid behavior and hydraulic machinery operations. It offers hands on experience with devices like flow meters, pumps, turbines, and hydraulic systems. Experiments cover fluid properties, flow measurement, and performance testing of machines. The lab enhances practical knowledge of theoretical fluid mechanics concepts learned in classrooms.



## Automation in Manufacturing Lab:

The laboratory component of the Automation in Manufacturing course aims to provide hands-on experience with automation technologies used in manufacturing industries. Through practical experiments, students will explore industrial robotics, flexible manufacturing systems (FMS), and automation machinery. The lab exercises are designed to reinforce theoretical concepts and develop problem-solving skills for real-world automation challenges.



## Basic Mechanical Engineering Lab:

The Basic Mechanical Engineering Laboratory provides practical exposure to fundamental mechanical systems and components. It includes models of boilers along with their mountings and accessories, helping students understand steam generation and safety mechanisms. The laboratory also features internal combustion (IC) engine models, including four-stroke and two-stroke petrol and diesel engines, enabling students to study engine components, working principles, and thermodynamic cycles.



## Engineering Graphics & Design Lab:

Engineering Graphics & Design (EGD) is a vital subject that enables students to communicate engineering ideas, designs, and concepts in a clear and precise manner. The laboratory has several shapes of 2D & 3D models, which will be helpful in the visualization and understanding of the subject.

## DEPARTMENT MAP



## GROUND FLOOR

