



Mech Matter

vol 1

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3. Committee

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Chief Editor's Desk:-

The Mechanical Engineering Department established in 2010 has intake of 60 students. Mechanical Engineering is one of the major streams in the engineering profession and its principles are involved in the design, development, production and construction of nearly all of the physical devices and systems. Mechanical engineers use the basic principles of motion, energy, and force to design and manufacture a vast-range of products.

Mechanical Engineering is a creative profession in which students are trained to conceive, construct, test, and operate all kinds of mechanical, thermal, and biomedical devices. The Department along with well-equipped teaching staff also has well established Machine shop & Workshop, CNC Lab, Fluid Mechanics & Machinery Lab, Thermal Engineering Lab, Theory of Machine Lab, Manufacturing process Lab, Mechanical Engineering Materials Lab, Metrology & Quality Control Lab, Industrial Fluid Power Lab, along with the Academic development, various activities are organized to develop soft skills of the students such as Paper Presentation, Industrial Visits and Expert Lectures etc.

The Mechanical Engineering Department at BSIET Polytechnic aims to create high-caliber mechanical engineers for a demanding profession which helps them to learn how to design and conduct experiments and to collect, analyze, and interpret data

-Mr. A. R. Nadaf

Vision:

- To be the preferred department of skill-based education in mechanical engineering for producing competent industry professionals with responsible contribution towards manufacturing sector.

Mission:

- M1 – To impart skill-oriented quality education for enriching students learning experience. (Quality Education in OBE process)
- M2 – To develop critical thinking and problem-solving attitude and by providing hands-on experiential training (Critical Thinking and Research Skills)
- M3 – To encourage students and teachers for frequent industry interactions towards better skilling, entrepreneurship and job opportunities. (Industry Professionals, skilling)
- M4 – To instill professional ethics, environment safety, communal harmony and sensitize all the stakeholders towards upliftment of our society. (Sensitizing towards nation building).

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO-1 –Domain knowledge – Diploma Graduates will make use of their technical knowledge along with practical hands-on skills for analyzing and solving real problems in Mechanical industry.

PEO-2 –Professionalism – Diploma Graduates will apply modern tools, high ethical standards, professional & soft skills for the growth of their organization

PEO-3 -Lifelong learning – Diploma Graduates will utilize their lifelong learning abilities to upgrade their knowledge & skills for accelerating their professional career growth.

Academic Achievements

MSBTE RESULT WINTER 2024

Class	Rank	Name	Percentage
FY	FIRST	SANRAJ A PATIL	83.89%
	SECOND	PRITHVIRAJ V. SATHE	79.56%
	THIRD	ATHARV R. ADAKE	78.56%
SY	FIRST	SOHAM S. SURYAWANSHI	88.63%
	SECOND	KRISH U PATIL	84.50 %
	THIRD	RIDDHI S VARNE	79.38 %
TY	FIRST	ABHISHEK R VEDANT	90.62 %
	SECOND	AYUSH A MIRAJKAR	87.23 %
	THIRD	ADITYA S PATIL	80.36 %

Faculty list

Sr. No.	Staff Name	Qualification	Designation
1	Mr. A. R. Nadaf	M.E. Mechanical Design Engineering	HOD
2	Mr. B. B. Patil	M. E. Design (Applied), B.E. Production	Lecturer
3	Mrs. P. S. Khade	M. E. Production (Applied), M. B. A, B. E. Mechanical	Training Placement Coordinator
4	Mr. H. T. Shinde	Ph. D (Appearing), M. Tech Material Science & Metallurgy	F. Y. Coordinator
5	Mr. S. R. Koli	M.E. Mechanical Design Engineering	Academic Coordinator
6	Mr. J. A. Mullani	M. E. Mechanical Machine Design	Workshop Superintendent
7	Mr. T. P. Kulkarni	M.E. Production (Appearing), B.E. Mechanical	Lecturer
8	Mr. S. V. Pujari	M. E. Production (Applied), B. E. Mechanical	Lecturer
9	Mrs. S. K. Mestri	M. E. Heat Power engine (Applied), M. B. A, B. E. Mechanical	Lecturer

Industrial Visit

1. Industry visit to Top Gear Transmission

On 9/11/2024 The class of TY Mechanical visited to Top Gear Transmission M-71 Satara M.I.D.C.TY student gain practical knowledge of Transmission Products such as Planetary Drives, Planetary mill drives, Helical Gearboxes, Geared motors, winches, Hoist drives, Belt drives, centrifuge drives and customized drives Assembly of Gear boxes, Testing of Gear boxes, Gear hobbling, Shaving, Grinding processes related to Gear manufacturing & finishing and also the work flow process And industrial management skills.



2. Industry visit to Kirloskar oil Engine

On 16/10/2024 the class of TY Mechanical visited to Kirloskar Oil Engine, D1 Five Star M.I.D.C. Kagal. Student gain practical knowledge of Engine Component manufacturing, Machining of Engine components, Assembly of Engine, Testing of Engine, Gurukul section of training, Quality control dept., Generator manufacturing and Assembly section. Also the work flow process and industrial management skills.



3. Industry visit to Gokul Dudh Sangh

On 14/10/2024 The class of TY Mechanical visited to Gokul Dudh Sangh, MIDC Gokul Shirgaon, students gained practical knowledge of Refrigeration system, Control of Refrigeration system using SCADA Software, Powder making process, Pasteurization process, different types of compressors, Condensers, Evaporators, Refrigerants. Also the work flow process and industrial management skills.



4. Industry visit to Wilo Pumps

On 4th October 2024 SY Mechanical visited to Wilo Pumps MIDC Gokul Shirgaon, Kolhapur. Wilo work closely with leading OEMs and manufacturers of products such as boilers, heat pumps and air-conditioning systems.



5. Industry visit to SUVARNA ALLOYS

On Friday 30/08/2024, The class of TY Mechanical attended the visit to SUVARNA ALLOYS KAGAL 5 STAR MIDC, student gain practical knowledge of EDM, Wire Cut EDM machine as well Furness, pressure die casting machine, quality control lab, shot blasting process, different machining operations, as well CMM Machine working as well work flow process as well industry management and working process



6. Industry visit to CH.RAJARAM SUGAR FACTORY

On Saturday 31/08/2024 the class of SY Mechanical attended the visit to CH.RAJARAM SUGAR FACTORY Kasaba Bavada, Kolhapur student to gain practical knowledge of boils, Condenser, Economizer, Cooling Towers, and Steam Turbine also the work flow process and industrial management skills.



Expert Lecture

1. Expert Lecture on Recent Trend in Production Development

On Tuesday, 10 September 2024, Mechanical Department arranged Expert lecture on topic Recent Trend in Production Development for SY and TY students. The lecture delivered by Mr. Vikram Suryawanshi, Divisional Manager, Ashok Leyland, Chennai.



2. Expert lecture on Entrepreneur Opportunity for Mechanical Engineer

On 20/09/2024, Mechanical engineering Department arranged a Guest lecture for SY and TY students on topic Entrepreneur Opportunity for Mechanical Engineer. Special thanks to Ms. Shivranjani Maladkar, (Plant head, Afeco heating and Automation Pvt. Ltd).



4. Expert lecture on Trends in professional tool engineering.

On 19/10/2024, The Department of Mechanical Engineering organized Guest lecture on topic Trends in professional tool engineering. This program was attended by Second and Third-year mechanical engineering students. The expert lecture is delivered by Mr. Bharat Maharugade, Division Manager, Machine tool Design, Bajaj Auto Ltd, Pune.



5. Expert lecture on Trends in professional tool engineering.

On 25/10/2024, The Department of Mechanical Engineering organized Guest lecture on topic Opportunities in Manufacturing Sector. This event was attended by Second and Third-year mechanical engineering students. The expert lecture is delivered by Mr. Virajanand Ingawale, Senior Sales Manager, Faseco India Ltd.



Personality Development Lecture

On Monday, 22/07/2024, at 2.00 pm to 03.30 pm, we have arranged an Expert Lecture on "Personality Development" on the occasion of Gurupournima for the Second- and Third-Year Mechanical Engineering Students. The lecture was given by Mr Surajkumar R. Satavekar, who is Career Counsellor in Kolhapur.



October 12, 2024

Dasara Celebration (खंडे नवमी)

Khandenavami was celebrated with great enthusiasm at the Mechanical Engineering Department of Dr. Bapuji Salunkhe Institute of Engineering and Technology. Khandenavami is celebrated on the ninth day of Navratri (Ashwin Shuddha Navami). On this day, warrior communities worship their weapons, and artisans worship their tools.

In Maharashtra and Rajasthan, there is a tradition of worshiping weapons and tools as deities on this day. Both these states give great importance to Khandenavami. In Maharashtra, after worshiping weapons on this day, warriors would cross the border and embark on a mission on the next day (Vijaya Dashami).



Life Skills Development Program

A three-day "Life Skill Development Program" was successfully conducted at Dr. Bapuji Salunkhe Institute of Engineering and Technology from 25th to 27th September 2024. The program received an overwhelming response from students and was conducted by trainers from TWJ Institute. The program was organized by the Training and Placement Department of the institute





Extra co-curricular Activity

November 9, 2024

On 9th and 10th November industrial visit and trip arranged for TY mechanical students at Top Gear transmission Satara and Mahableshwar, Panchgani etc





MESA EVENT 2024-25

Engineers Day Event

On 15th September occasion of Engineers Day mechanical engineering department organized technical and nontechnical event. No of student was participated in this event





Faculty Achievement

THE FUTURE OF INTELLIGENCE QUANTUM COMPUTING IMPACT ON AI AND MACHINE LEARNING

Abstract: Quantum Machine Learning (QML) represents a transformative intersection between quantum computing and artificial Intelligence, poised to enhance computational capabilities in ways that could reshape data processing and algorithmic efficiency. This Review delves into the foundational principles of QML, exploring the mechanics behind quantum-enhanced algorithms, such as Quantum Support Vector Machines (QSVM) and Quantum Neural Networks (QNN), and the development of hybrid quantum-classical models that Seek to overcome the current limitations of quantum hardware. The study highlights significant applications of QML in critical fields, including finance, healthcare, and natural language processing, demonstrating the technology's broad-reaching impact and transformative Potential across industries. In addition to discussing practical applications, the review critically examines pressing challenges facing QML today-particularly issues related to data encoding, error correction, and noise mitigation, which are essential to ensure robust performance on quantum devices. Finally, the paper outlines future research directions aimed at achieving tangible quantum advantage in machine Learning, paving the way for QML to transition from experimental setups to practical, real-world solutions. Index Terms: Quantum Machine Learning, quantum computing, artificial intelligence, algorithms, hybrid models, applications, Challenges.

Paper published by- Mr. T. P. Kulkarni.

Scope of Mechanical Engineering

Mechanical engineering, a broad and impactful field, focuses on the design, analysis, manufacturing, and maintenance of mechanical systems, with a scope encompassing diverse industries like automotive, aerospace, manufacturing, and renewable energy.

Core Principles and Applications:

Mechanical engineering applies principles of physics, mathematics, and materials science to analyze, design, and develop mechanical systems.

Industries and Job Roles:

- **Automotive:** Designing and developing vehicles, including engines, suspension systems, and aerodynamics.
- **Aerospace:** Working on aircraft, satellites, and other space-related technologies.
- **Manufacturing:** Designing and optimizing production processes and machinery.
- **Robotics:** Developing and implementing robotic systems for various applications.
- **Renewable Energy:** Designing and developing systems for harnessing renewable energy sources.
- **Thermal Plants:** Designing and maintaining power plants and related systems.
- **Other Industries:** Mechanical engineers are also employed in the defense, railways, and research & development sectors.
- **Specific Job Titles:**
 - Aerospace Engineer
 - Automotive Engineer
 - Mechanical Design Engineer
 - Maintenance Engineer
 - Research and Development Engineer
 - Nuclear Engineer
 - Powertrain Engineer
 - Senior Design Engineer
 - Tool Engineer
- **Skills and Knowledge:**
 - Strong analytical and problem-solving skills.
 - Knowledge of thermodynamics, fluid mechanics, and materials science.
 - Proficiency in CAD/CAM software and other engineering tools.
 - Ability to work in teams and communicate effectively.
- **Future Outlook:**

The field of mechanical engineering is expected to continue growing, with increasing demand for skilled professionals in various industries.

In Government sector

Mechanical engineers in the government sector in India find opportunities in various public sector undertakings (PSUs) and government departments, with roles ranging from research and development to project execution and maintenance, offering good job prospects and competitive salaries.

- **Public Sector Undertakings (PSUs):**
- **Oil & Gas:** ONGC (Oil and Natural Gas Corporation), IOC (Indian Oil Corporation), BPCL (Bharat Petroleum Corporation Limited), HPCL (Hindustan Petroleum Corporation Limited), GAIL (Gas Authority of India Limited).
- **Power:** NTPC (National Thermal Power Corporation), NHPC (National Hydroelectric Power Corporation), BHEL (Bharat Heavy Electricals Limited).
- **Steel:** SAIL (Steel Authority of India).
- **Defense:** DRDO (Defense Research and Development Organization).
- **Space:** ISRO (Indian Space Research Organization), VSSC (Vikram Sarabhai Space Center).
- **Other:** Railways, Heavy Industries, and various state-level departments.
- **Government Departments:**
- **Project Execution:** Working on large-scale infrastructure projects, construction, and industrial development.
- **Research and Development (R&D):** Developing new technologies and improving existing systems in various sectors.
- **Maintenance and Operations:** Ensuring the smooth functioning of machinery and equipment in government facilities and industries.
- **Quality Control:** Ensuring that products and processes meet specific standards and regulations.
- **Job Roles:**
- **Assistant Engineer/Junior Engineer:** Entry-level positions with responsibilities in design, construction, and maintenance.
- **Project Engineer:** Managing the entire project lifecycle, from planning to execution.
- **Research and Development Engineer:** Focusing on innovation and improvement of existing systems.
- **CAD Technician:** Creating technical drawings and plans for products and parts.

How to Get a Government Job:

- **Competitive Examinations:**

Individuals can apply for government job vacancies through competitive examinations conducted by various recruiting agencies such as UPSC (Union Public Service Commission), SSC (Staff Selection Commission), and state-level public service commissions.

- **Engineering Degree:**

A Bachelor of Technology (B.Tech) degree in Mechanical Engineering is generally required for most government jobs.

- **Specialization:**

Some roles may require specialization in areas like thermal engineering, fluid mechanics, or manufacturing.

- **Networking:**

Building connections within the industry and attending job fairs can also help in securing a government job.