



Rayat Shikshan Sanstha's
**Karmaveer Bhaurao Patil
Polytechnic, Satara**



Newsletter

**Even Semester 2022-23
Volume 03 ISSUE 02**

Official Newsletter of

**DEPARTMENT
OF
MECHANICAL
ENGINEERING**



OUR TRIBUTE



Dr. Karmaveer Bhaurao Patil
Founder,
Rayat Shikshan Sanstha,
Satara



Sou. Laxmibai Bhaurao Patil
Rayat Mauli

OUR DESK'S



Hon'ble Chandrakant Dalvi,
IAS(Retd)

Chairman
Rayat Shikshan Sanstha,
Satara



Hon'ble Shri. Vikas Deshmukh,
IAS(Retd)

Secretary
Rayat Shikshan Sanstha,
Satara



Hon'ble Prin. Dr. Dnyandeo
Mhaske

Joint Secretary
Rayat Shikshan Sanstha,
Satara



Hon Prin. Dr. K. C. Shaikh
Principal
Karmaveer Bhaurao Patil Polytechnic
Satara



**EDUCATION
THROUGH
SELF-HELP
IS OUR
MOTTO"**

KARMAVEER

• **VISION** •

Mechanical engineering department strives to provide quality technical education and to provide the best and efficient technicians for meeting day to day challenges of industries.

• **MISSION** •

To empower the mechanical human resource at grass root level through strengthening technical education

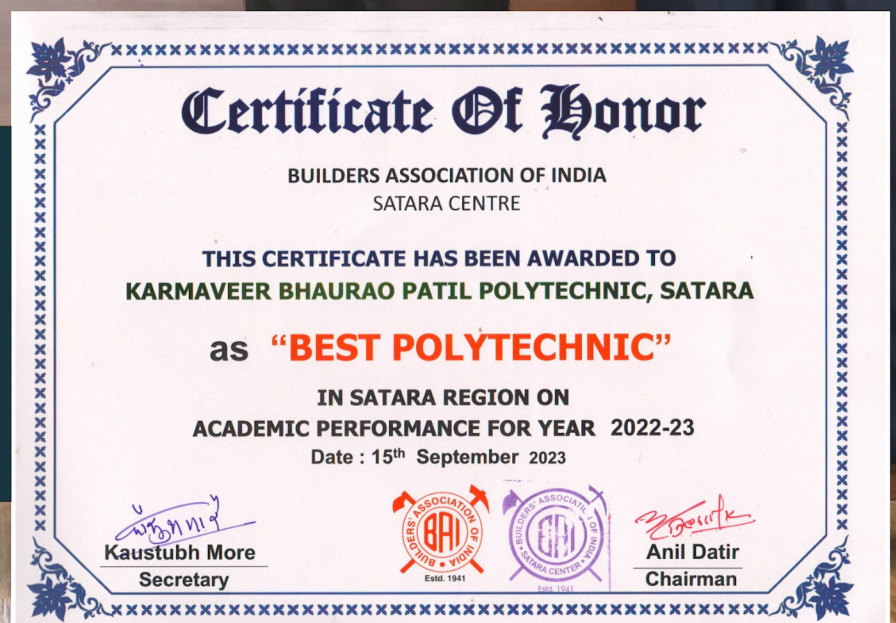
IN THIS ISSUE

About Department
PO's and PSO's
Principal's Desk
HOD's Desk
Editor's Desk
DMESA
Departments Activities
Faculty's Desk
Student's Corner
Faculty Achievements
Students Accomplishments
Placement Record

**Karmaveer Bhaurao Patil Polytechnic , Satara Received
“Best Polytechnic” Award in satara Region from Er.
Rupesh Mahamuni Vice President Engg. Deptt. Legacy
Life Spaces, Pune on occasion of Engineer's Day 2023
arranged by BAI, Satara Centre.**

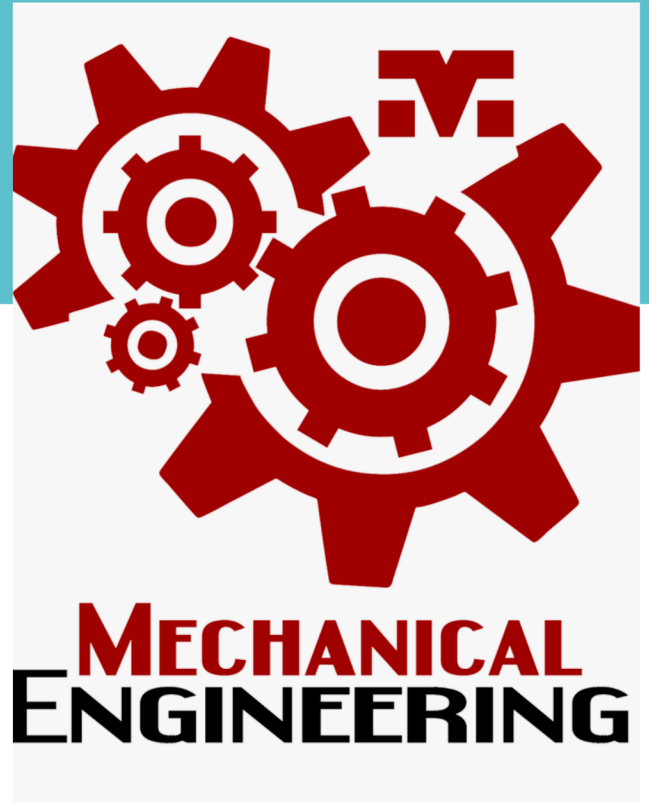


**Certificate of Honor Awarded
by Builders Association of
India (Satara Region) for
Academic Performance for
2022-23**



ABOUT MECHANICAL ENGINEERING DEPARTMENT

Mechanical engineering is one of the oldest branches of engineering. It is also referred to as the mother branch of engineering. Another appealing feature of mechanical engineering is that the application base of this field of study is extremely broad and diverse. Almost all inventions during the ancient period and a vast majority in the modern era are direct contributions of one or the other application of mechanics. Traditionally, mechanical engineers have to deal with concepts such as mechanics, thermodynamics, robotics, kinematics, structural analysis, fluid mechanics and many others. These concepts are applied in the process of designing state-of-the-art manufacturing units, different types of motor vehicles, aircraft and aerospace parts and a vast assortment of industrial machinery. Mechanical engineers also contribute in the development of various engines, power plant equipment, heating and cooling systems and other simple and complex machinery. Mechanical engineers not only design new mechanical systems but they are also responsible for testing, maintaining and manufacturing them. The aforementioned are the conventional roles and responsibilities of mechanical engineers.



However, times have changed. Nowadays the scope of mechanical engineering is expanding beyond its traditional boundaries. Mechanical engineers are focusing their attention towards new areas of research such as nanotechnology, development of composite materials, biomedical applications, environmental conservation, etc. The ever increasing scope of this particular job profile now requires professionals to get into financial and marketing aspects of product development and even into people and resource management. All in all mechanical engineering offers a wide bouquet of job options to students who are looking for a stable and stimulating career.

Program Outcomes (PO's) of Mechanical Engineering Department

At the entry point of the industry soon after successful completion of the diploma program, students will be able to

PO 1 - Basic Knowledge: Apply knowledge of basic mathematics, science and basic engineering to solve the broad-based Mechanical engineering problems.

PO 2 - Discipline knowledge: Apply Mechanical engineering knowledge to solve broad-based mechanical engineering related problems.

PO 3 - Experiment and Practice: Plan to perform experiments and practices to solve broad-based Mechanical engineering problems.

PO 4 - Engineering tools: Apply relevant Mechanical technologies and tools with an understanding of the limitations.

PO 5 - The engineer and society: Assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to practice in field of Mechanical engineering.

PO 6 - Environment and sustainability: Apply Mechanical engineering solutions also for sustainable development practices in societal and environmental contexts.

PO 7 - Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of the practice also in the field of Mechanical engineering.

PO 8 - Individual and team work: Individual and team work: Function effectively as a leader and team member in diverse/ multidisciplinary teams.

PO 9 - Communication: Communicate effectively in oral and written form.

PO 10 - Lifelong learning: Life-long learning: Engage in independent and life-long learning activities in the context of technological changes also in the Mechanical engineering and allied industry.

Program Specific Outcomes (PSO's) of Mechanical Engg. Department

At the entry point of the industry soon after successful completion of the Mechanical Engineering Diploma program, students will be able to

PSO 1 - Modern Software Usage: Use latest Mechanical engineering related software's for simple design, drafting, manufacturing, maintenance and documentation of mechanical engineering components and processes.

PSO 2 - Equipment and Instruments: Maintain equipment and instruments related to Mechanical Engineering.

PSO 3 - Mechanical Engineering Processes: Manage Mechanical engineering processes by selecting and scheduling relevant equipment, substrates, quality control techniques, and operational parameters

PRINCIPAL'S DESK

Dear students and faculty members,

It is my pleasure to welcome you to the latest edition of our technical newsletter for the Mechanical Engineering Diploma program at Karmaveer Bhaurao Patil Polytechnic, Satara. Our diploma program is designed to equip you with the skills and knowledge required to succeed in the industry.

I am proud to see our students excel in various areas of mechanical engineering, and I urge you to continue to work hard and stay focused on your goals. Take advantage of the resources provided by the college, technical events, to further enhance your skills.

Our faculty and staff are dedicated to providing you with quality education and practical training, and I am confident that our diploma program will prepare you for a successful career in the industry.

I wish all success for the Newsletter and hope they carry forward the vigor and dedication for bringing out the future volumes of Newsletter.



PRIN. DR. K. C. SHAIKH

**I/c Principal
Karmaveer Bhaurao
Patil Polytechnic, Satara**

HOD'S DESK

As the Head of the Mechanical Engineering Department at Karmaveer Bhaurao Patil Polytechnic, Satara, I am delighted to welcome you to the latest edition of our technical newsletter. Our diploma program provides a comprehensive education in mechanical engineering, and our faculty and staff are dedicated to providing you with practical training and the necessary skills to succeed in the industry. I am proud to see our students excel in various events

The department has a rich tradition of pursuing academic excellence and providing congenial environment for the overall development of its students. This newsletter provides a panoramic view of the academic, co-curricular activities and achievements of the faculty and students of this Department. I congratulate the editorial team for their sincere effort to bring out the news letter in time. This issue of newsletter should inspire all of us for a new beginning; enlighten us with hope, confidence and enthusiasm towards the road ahead.



MR. N. B. DEVI

**I/c Head of Department
(Mechanical Engineering)**

EDITOR'S DESK

Mr. P.V. ZORE

Lecturer (Mechanical Engineering)



Welcome to latest edition of Newsletter published by Department of Mechanical engineering . At the outset, let me deeply and whole-heartedly thank our Principal, Head of Department and all my colleagues who have extended their kind and timely support for the release of this newsletter. This issue is a fountain of information on the various activities and triumphs of our Department during the last semester. Be sure to read it all to gain an even better insight of our prestigious department. Enjoy reading. As always, we welcome your comments.

ABOUT D-MESA

Diploma Mechanical Engineering Student Association (DMESA) is an Association formed by the students of Mechanical Engineering Department to foster the growth of knowledge. With the support and guidance of the faculty, Technical and Nontechnical events are organized for assisting students to increase their knowledge and skills in planning, delegating, decision making and to develop a more positive and realistic attitude toward themselves, their peers and the institute. It provides opportunities for social interaction among organization members. Under DMESA we have conducted various events as paper presentation, industrial visits, guest lectures, soft-skills development programs, welcome function to all new comers of the entire Mechanical Engineering Department.

Our Faculty Members

Sr. No	Name	Designation	Qualification	Experience In Years
1	Mr. N. B. Devi	Head of Department	M. E. (Mechanical – Production)	34
2	Mr. S. G. Sherkar	Workshop Sup.	M. E. (Mechanical – Production)	33
3	Mr. P. V. Zore	Lecturer	B. E. (Mechanical)	10
4	Mr. S. S. Yewale	Lecturer	M. E. (Mechanical - Heat Power)	10
5	Mr. K. B. Dhanawade	Lecturer	M. E. (Mechanical - Heat Power)	10
6	Mr. D.R.Waghmode	Lecturer	M. E. (Mechanical - Heat Power)	10
7	Mr. R. V. Kumbhar	Lecturer	B. E. (Production)	9
8	Miss K. H. Sakhare	Lecturer	B. E. (Mechanical)	9
9	Mr. R. S. Mane	TPO	B. E. (Production)	9

DMESA Committee

Sr. No	Post	Class	Name
1	President	TY	MULANI PALAK SHAFIUDDIN
2	Vice - President	SY	CH IPLUNKAR YASH MILIND
4	Treasurer	TY	GUJAR AKSHAY SHIVAJI
5	Treasurer	SY	LOHAR ATUL SUNIL
6	Auditor	TY	BHANDIRGE OMKAR BALASAHEB/DHURGUDE SUYASH ARUN
7	Auditor	SY	DOUND ATHARV ANKUSH
8	Class Representative	TY	DESHMUKH SANKET TANAJI
9	Class Representative	SY	KACHARE ATHARV SACHIN
10	Ladies Representative	TY	THORAT ARYA AKASH
11	Ladies Representative	SY	GAIKWAD SAMRUDDHI SANTOSH

DEPARTMENTAL ACTIVITIES

EXPERT'S LECTURE

Expert Guest Lecture delivered by Mr. M.M. Wagh from Petroleum Conservation research Association on topic of **Energy Conservation & Energy Audit** on 16 February 2023 for TYME and TYEE Students

RAYAT SHIKSHAN SANSTHA'S
Karmaveer Bhaurao Patil Polytechnic, satara

DEPARTMENT OF
MECHANICAL ENGINEERING

Organizes
Expert Guest Lecture
On
**Energy Conservation and
Energy Audit**
(For TYME and TYEE students)

Date : 16/02/2023
Time : 11:00 AM

Guest Speaker
MR. M. M. Wagh
Petroleum Conservation Research
Association (PCRA)
Government of India, Kolhapur

Mr. R. V. Kumbhar Mr. N. B. Devi Dr. K. C. Shaikh
Coordinator HOD I/C Principal



EXPERT'S LECTURE

Expert Guest Lecture delivered by Ms. Mrunalini Kamble and Ms. Shital Vidhate from Red Dot Foundation on topic of **रस्त्या वरील छळवणुकी विरुद्ध उभे रहा** on 25 February 2023 for all TY Students

DEPARTMENTAL ACTIVITIES



Mr. Ingale Rudra Parag, Mr. Shaikh Zaid Riyaj, Mr. Yadav Harsh Amol, Mr. Sanglikar Yohan Sunil, Participated and Presented the Project entitled "Green Energy Generation Using Flywheel" at the Project Competition Held on behalf of MSBTE, Mumbai on 29th March 2023

STATE LEVEL PROJECT COMPETITION - 2023

STUDENTS OF TYME PARTICIPATED IN MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION STATE LEVEL PROJECT COMPETITION 2023 (PUNE REGION) ORGANIZED BY SOU. SUSHILA DANCHAND GHODAWAT CHARITABLE TRUST'S SANJAY GHODAWAT POLYTECHNIC, KOLHAPUR ON 29TH MARCH 2023.



Sou. Sushila Danchand Ghodawat Charitable Trust's Sanjay Ghodawat Polytechnic, Atigre	
Promoting Innovation, Talent & Creativity Through MSBTE Project Competition- 2023	
Title	Green Energy Generation Using Flywheel
Participants	Ingale Rudra Parag, Shaikh Zaid Riyaj Yadav Harsh Amol, Sanglikar Yohan Sunil
Guide	ZORE PRATHAMESH VIJAY,
Institute	0041-Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil Polytechnic , Satara City: Satara , District: Satara RBTE :Pune
Stall No. 12	

DEPARTMENTAL ACTIVITIES



INDUSTRIAL VISIT

INDUSTRIAL VISIT OF THIRD YEAR AND SECOND YEAR MECHANICAL ENGINEERING STUDENTS WERE ORGANISED AT **TJ MARINE PRODUCTS PVT. LTD., RATNAGIRI** ON 28TH FEBRUARY 2023



POLYQUEST 2K23



Polyquest 2k23 was arranged on 23th March 2023.

Mechanical Department Organized State level Technical Paper Presentation and Technical Quiz Competition.

Mr. Yewale S.S. Co-ordinated Technical Paper Presentation and Mr. D.R.Waghmode co-ordinated Technical Quiz Competition.

Hon. Dr. D. V. Jadhav Sir Joint Director Technical Education, Regional Office Pune Was Chief Guest for Above event.

Mr. Mane R.S. From Mechanical Deptt was convenor for Polyquest 2023



SPORTS

The students of our Mechanical Department have achieved great success in the sports organized by IEDSSA. They participated in various events and brought home multiple trophies and medals. We are proud of their hard work, dedication, and excellent performance on the field. Congratulations to the participating students and thank you to the Team Manager for their guidance and support.



National Education Policy 2020: A Paradigm Shift in Indian Education

Dr. K. C. Shaikh
I/c Principal
Karmaveer Bhaurao Patil Polytechnic, Satara



Faculty
Desk

Introduction

The National Education Policy (NEP) 2020, approved by the Government of India, marks a pivotal moment in the country's education system. This policy, the first major overhaul in over three decades, aims to revamp and modernize education from the ground up, addressing key challenges and opportunities in India's dynamic socio-economic landscape.

Key Highlights

Holistic Learning: NEP emphasizes holistic education, moving away from rote memorization. It encourages critical thinking, problem-solving, and creativity, nurturing well-rounded individuals.

Flexibility: The policy introduces flexibility in choosing subjects and allows students to pursue a multidisciplinary approach, opening doors for diverse career paths.

Vocational Education: A renewed focus on vocational education aims to equip students with practical skills, enhancing employability.

Multilingualism: The NEP promotes multilingualism and aims to preserve regional languages while emphasizing proficiency in Hindi and English.

Digital Learning: Embracing the digital age, NEP encourages the integration of technology in education, making quality education accessible to all, especially in remote areas.

Technology Integration: The policy advocates the integration of technology in education, facilitating remote learning and making quality education accessible to all, including those in remote areas.

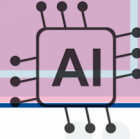
Challenges and Opportunities

The successful implementation of NEP 2020 hinges on overcoming challenges such as infrastructure gaps, teacher training, and funding. However, it offers a unique opportunity to transform India's education system into a global standard, fostering innovation, research, and inclusivity.

Conclusion

The National Education Policy 2020 is a visionary roadmap for India's education system. By fostering holistic learning, flexibility, and digital integration, it aims to prepare the youth for the challenges and opportunities of the 21st century. If executed effectively, it can propel India toward becoming a knowledge-driven society, unlocking the potential of millions and driving the nation's progress and development.

What is the Impact of Artificial Intelligence (AI) on Society?



Mr. N. B. Devi
M.E. (Mechanical-Production Engg.)
Head of Mechanical Engg. Department



Faculty
Desk

As with most changes in life, there will be positive and negative impacts on society as artificial intelligence continues to transform the world we live in. How that will balance out is anyone's guess and up for much debate and for many people to contemplate. As an optimist at heart, I believe the changes will mostly be good but could be challenging for some. Here are some of the challenges that might be faced (and we should be thinking about how to address them now) as well as several of the positive impacts artificial intelligence will have on society.

Challenges to be faced

Artificial intelligence will definitely cause our workforce to evolve. The alarmist headlines emphasize the loss of jobs to machines, but the real challenge is for humans to find their passion with new responsibilities that require their uniquely human abilities. According to PwC, 7 million existing jobs will be replaced by AI in the UK from 2017-2037, but 7.2 million jobs could be created. This uncertainty and the changes to how some will make a living could be challenging.

The transformative impact of artificial intelligence on our society will have far-reaching economic, legal, political and regulatory implications that we need to be discussing and preparing for Determining

who is at fault if an autonomous vehicle hurts a pedestrian or how to manage a global autonomous arms race are just a couple of examples of the challenges to be faced.

Will machines become super-intelligent and will humans eventually lose control? While there is debate around how likely this scenario will be we do know that there are always unforeseen consequences when new technology is introduced. Those unintended outcomes of artificial intelligence will likely challenge us all.

Another issue is ensuring that AI doesn't become so proficient at doing the job it was designed to do that it crosses over ethical or legal boundaries. While the original intent and goal of the AI is to benefit humanity, if it chooses to go about achieving the desired goal in a destructive (yet efficient way) it would negatively impact society. The AI algorithms must be built to align with the overarching goals of humans.

Artificial intelligence algorithms are powered by data. As more and more data is collected about every single minute of every person's day, our privacy gets compromised. If businesses and governments decide to make decisions based on the intelligence they gather about you like China is doing with its social credit system, it could devolve into social oppression.

Positive Impacts of Artificial Intelligence on Society

Artificial intelligence can dramatically improve the efficiencies of our workplaces and can augment the work humans can do. When AI takes over repetitive or dangerous tasks, it frees up the human workforce to do work they are better equipped for—tasks that involve creativity and empathy among others. If people are doing work that is more engaging for them, it could increase happiness and job satisfaction.

With better monitoring and diagnostic capabilities, artificial intelligence can dramatically influence healthcare. By improving the operations of healthcare facilities and medical organisations, AI can reduce operating costs and save money. One estimate from McKinsey predicts big data could save medicine and pharma up to \$100B annually. The true impact will be in the care of patients. Potential for personalised treatment plans and drug protocols as well as giving providers better access to information across medical facilities to help inform patient care will be life-changing

Our society will gain countless hours of productivity with just the introduction of autonomous transportation and AI influencing our traffic congestion issues not to mention the other ways it will improve on-the-job productivity. Freed up from stressful commutes, humans will be able to spend their time in a variety of other ways.

The way we uncover criminal activity and solve crimes will be enhanced with artificial intelligence. Facial recognition technology is becoming just as common as fingerprints. The use of AI in the justice system also presents many opportunities to figure out how to effectively use the technology without crossing an individual's privacy.

Unless you choose to live remotely and never plan to interact with the modern world, your life will be significantly impacted by artificial intelligence. While there will be many learning experiences and challenges to be faced as the technology rolls out into new applications, the expectation will be that artificial intelligence will generally have a more positive than negative impact on society.



Key note to go rock the world of Mechanical Engineering

Mr. S. N. Godse.
B.E.(Civil) M.E.(Civil-Structures)
I/c Head Of Civil Engg. Department



Faculty
Desk

Engineering is a creative profession. We are in a time of rapid social and technological changes; the need for engineers to think creatively is greater now than ever before. Engineering can be ideal profession if one likes to question, explore, think over any question, find alternative solutions, invent, discover and to create innovative.

A career in mechanical engineering is bright in future with variety of opportunities in industries and is rewarding. One can work in a team environment and enables to solve any problem and collaborate with others. With experience you will continue to work hard, progress in your current role, acquire necessary skills and experience to successfully lead a team as valuable member.

We are here to fill in the blanks and cover the things that will truly make you stand out on the job market if you study a diploma in Mechanical Engineering.

What is mechanical Engineering?

A Mechanical Engineer uses his acumen to design products by transforming them into functional prototypes, conducting analysis from an engineering viewpoint, implementing manufacturing methods & processes. Mechanical Engineering focuses on the design, manufacturing, testing and improvement of mechanical systems which are used in virtually any industry you can think of.

One of the reason Mechanical Engineering students choose this discipline is its versatility and the various career options available after diploma. You can work in fields like construction, the automotive industry, robotics, the energy sector and many others.

The type of courses you will take will vary depending on the curriculum of your Diploma programme. In general you can expect to study subjects/courses like Engineering Service and Statistics, Engineering Economy, Material Science, Technical Writing, Design & Automation, Thermodynamics, Mathematics, Engineering Analysis, etc.

Mechanical Engineering Skills

To be a successful mechanical engineer, some of the most important skills you can develop are:

Problem Solving skills: essential to solve all complex problems that stand between you and the perfect mechanical product /device/system.

Creativity: the only way to come up with innovative solutions sees what others do not, and create something from nothing.

Communication: needed to work with your team and even more important when explaining clients and users how to use your products or solutions.

Teamwork: mechanical engineers often work in groups, which helps them brainstorm ideas, compare suggestions and find the right answer to a given challenge or task.

Math skills: solving mechanical engineering problems most often requires the use of mathematical principles like Calculus or Statistics.

1. Choose a good international engineering college to make a name for yourself

We live in a world where names sell. This can't come as a surprise to you, but it does mean you have to be extra careful about what you include in your CV and how you can impress your higher-ups, even before they get to see your great mechanical skills at work.

If you really want to stand out from the crowd, you should orient your Bachelor's or Masters studies towards prestigious engineering college.

But many other international universities offer good quality Mechanical Engineering studies which are worth bragging about in your CV.

2. Make sure you pick the right country for Mechanical Engineering

Whoever you are and whatever you choose to do, your forming years are important. This applies to you, aspiring mechanical engineer! The more cultures and people you get to know, the more you learn about different ways to find solutions to problems. And isn't this what all engineers do?

And here's a secret: the countries where most Mechanical Engineering degrees are available are also likely to need most Mechanical Engineers.

3. Start gaining experience as a mechanical engineer early on

Yes, universities matter. Yes, choosing a country which needs mechanical engineers matters.

But you know what's something employers value even more? Experience! Hardcore, getting- hands- dirty experience.

Start developing your Mechanical engineering skills by doing internships, taking part- time jobs, volunteering or shadowing professionals. You must have practical insight about how to get the job done.

Consider this as an investment, seeing how you offer your time now, so you could exchange it later for money, power and world domination.

4. Take the example of famous mechanical engineers

Quick: what do Nikola Tesla, Rudolf Diesel, Karl Benz and Henry Ford have in common? No, they are not all "car parts" but they are Mechanical Engineering graduates! They are some of those who managed to stay on top of their field and bring new and fresh ideas to the table.

The point is this : you need to know about the big names in your field and follow their methods to avoid making rookie mistakes and get inspired when you are stuck or everything seems overwhelming. "Our primary focus should be international environment, teaching quality and a healthy learning atmosphere. If one has all these then it will be an easy choice to make"

5. Mechanical Engineering careers and salaries

Mechanical Engineering jobs are not only profitable, but also in high demand. The number of available work opportunities is both stable and growing.

Mission accomplished! You are now equipped with the key guidelines to go rock the world of Mechanical Engineering. If studying abroad is not an option, you can always view online jobs for you engineers.

Best of Luck, enjoy your studies and create an amazing career!

Biodiesel: A Sustainable Fuel Revolution

Mr. S.S. Yewale
M.E.(Heat Power)
Lecturer (Mechanical Engg. Department)



Faculty
Desk

In a world increasingly concerned with environmental sustainability and the urgent need to reduce carbon emissions, biodiesel has emerged as a promising and eco-friendly alternative to traditional fossil fuels. Derived from renewable organic sources, biodiesel offers a cleaner and more sustainable option for powering vehicles and machinery. In this article, we will explore the world of biodiesel, covering its benefits, and its pivotal role towards a greener energy landscape.

The Production Process

Biodiesel is a type of biofuel crafted from organic materials, typically vegetable oils, animal fats, or recycled cooking grease. The production process, known as transesterification, involves a chemical reaction between these feedstocks, an alcohol (commonly methanol or ethanol), and a catalyst. This reaction yields biodiesel and glycerin. The resulting biodiesel can be blended with traditional diesel fuel or used as a standalone fuel source in compression-ignition (diesel) engines.

Environmental Advantages

Renewable Resource: Biodiesel feedstocks, including soybean oil, canola oil, and algae, can be grown and harvested annually. This renewability factor makes biodiesel a sustainable alternative to finite fossil fuels, which take millions of years to form.

Reduced Greenhouse Gas Emissions: One of the most significant advantages of biodiesel is its potential to mitigate greenhouse gas emissions. When burned, biodiesel releases fewer carbon dioxide (CO₂) and particulate matter emissions compared to conventional diesel fuel. Furthermore, since biodiesel derives from renewable sources, the carbon dioxide emitted during its combustion is offset by the carbon dioxide absorbed during the growth of the feedstock crops.

Improved Air Quality: Biodiesel combustion produces fewer harmful pollutants such as sulfur dioxide (SO₂), nitrogen oxides (NO_x), and carbon monoxide (CO).

Challenges and Future Prospects

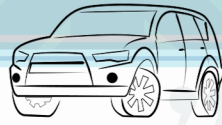
While biodiesel offers numerous advantages, it faces challenges, notably competition between biodiesel feedstocks and food crops, which raises concerns about land use and food security. Additionally, ensuring a consistent and high-quality supply of feedstock can be challenging.

Conclusion

Biodiesel represents a significant stride towards reducing our dependence on fossil fuels and mitigating the environmental impact of transportation and industry. As research and innovation continue to expand the horizons of biodiesel, we can anticipate even greater contributions towards a cleaner and greener world.

ADAS Technology: Transforming the Way We Drive

Mr.K.B.Dhanawade
M.E.(Heat Power)
Lecturer (Mechanical Engg. Department)



Faculty
Desk

Introduction

Advanced Driver Assistance Systems (ADAS) are revolutionizing the automotive industry by enhancing vehicle safety, improving driver convenience, and paving the way for autonomous driving. These innovative technologies are designed to assist drivers and reduce the likelihood of accidents by employing a combination of sensors, cameras, radar, and machine learning algorithms.

Enhanced Safety

ADAS technologies act as an extra pair of eyes and ears on the road. Features like adaptive cruise control, lane-keeping assistance, and automatic emergency braking help drivers maintain safe distances from other vehicles, stay within their lanes, and respond swiftly to potential collisions. This translates to a significant reduction in accidents and, subsequently, fewer injuries and fatalities on the road.

Improved Convenience

ADAS goes beyond safety; it also enhances the overall driving experience. Features like parking assistance, traffic sign recognition, and adaptive headlights simplify the driving process. Parking, especially in tight spaces, becomes effortless with automated steering, while traffic sign recognition ensures drivers are always aware of speed limits and other crucial information.

The Road to Autonomy

ADAS technology is a stepping stone towards fully autonomous vehicles. These systems collect vast amounts of data from sensors and cameras, which can be used to train machine learning algorithms. Over time, as the technology advances, vehicles will become increasingly capable of handling complex driving tasks without human intervention.

Challenges and Future Prospects

While ADAS technology offers numerous benefits, it also faces challenges. Ensuring that these systems work seamlessly in all weather conditions and under various scenarios remains a priority for manufacturers.

Conclusion

ADAS technology is transforming the way we drive, making our roads safer and driving more convenient. We can expect a future where accidents are a rarity, and vehicles are more efficient and capable of handling complex driving tasks autonomously. In essence, ADAS technology is driving us towards a safer and more convenient driving experience while paving the way for the self-driving cars of the future. In essence, ADAS technology is driving us towards a safer and more convenient driving experience while paving the way for the self-driving cars of the future.

Drone Technology

Mrs. Vaishali Navnath Gawade
Lecturer (M.A. B.Ed)
Department of Basic Science

Faculty
Desk



A drone is an unmanned aircraft. Drones are more formally known as unmanned aerial vehicles (UAVs) or unmanned aircraft systems. Essentially, a drone is a flying robot that can be remotely controlled or fly autonomously using software-controlled flight plans in its embedded systems, that work in conjunction with onboard sensors and a global positioning system (GPS).

Unmanned aerial vehicle technology covers everything from the aerodynamics of the drone, materials in the manufacture of the physical UAV, to the circuit boards, chipset and software, which are the brains of the drone.

Drones have become increasingly popular in recent years. They are used for a variety of purposes, including photography, videography, surveying, inspection, and even delivery.

The basic components of a drone are:

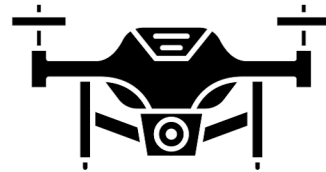
- Frame
- Battery
- Flight controllers
- Sensors
- Motors and Propellers

Types of Drones: Features and Differences

Drones come in a variety of types, each tailored to the unique demands of different industries. For instance, some people require lightweight drones to hold a camera for photography, while others need robust drones to transport heavy medical supplies. As a result, companies produce drones that come in four main types – single-rotor helicopter, multi-rotor, fixed-wing and fixed-wing hybrid VTOL.

What Are Drones Used for?

- Military drones
- Drones for delivery
- Drones for emergency rescue
- Drones in agriculture
- Drones in outer space
- Drones for wildlife and historical conservation
- Drones for photography



Future developments in drone technology include making drones smaller, lighter, more efficient, and cheaper. As such, drones will increasingly become available to the general public and be used for an ever-increasing scope of applications. Drones are expected to become more autonomous soon, and the ability to move in swarms will increase. So drones will become more visible in our daily lives.



Communication skills: Phonetics

Mrs. Saba Imtiyaz Shaikh
Lecturer (M.A. English)
Department of Basic Science



Faculty
Desk

Effective Communication skills are effective part of our life, helping us convey ideas, sharing information, understand others, build strong relationship, to handle various social and professional situations. When discussing English most important part is communication, and for proper communication we need to know proper pronunciation that is phonetics.

Phonetics is the study of the sounds of human language. Phonology is concerned with the properties of sounds and the ways that they are combined into words. Important Sounds, in the sense that we discuss them, are totally different from letters.

	monophthongs				diphthongs		PHONETIC CHART voiced unvoiced	
	i:	ɪ	ʊ	u:	ɪə	eɪ		
VOWELS	Need	ship	good	Few	here	Pay		
	e	ə	ɜ:	ɔ:	ʊə	ɔɪ	əʊ	
	Went	Alive	bird	door	tourist	noise	show	
CONSONANTS	æ	ʌ	ɑ:	ɒ	eə	aɪ	aʊ	
	cat	Fun	far	Rob	care	my	cow	
	p	b	t	d	tʃ	dʒ	k	g
	pin	bag	tea	dog	chose	June	cash	go
	f	v	θ	ð	s	z	ʃ	ʒ
	fly	vest	think	Those	see	zoo	Shirt	treasure
	m	n	ŋ	h	l	r	w	j
	man	now	bang	hat	law	red	wall	yes

The connection between words's spelling and pronunciation is called phonics. So, there are more sounds in English than there are letters. The International Phonetic Alphabet (IPA) main objective was to create a different symbol for each sound in a language. Non- native speaker of English

who can read the IPA can read a phonetic transcription to understand proper English pronunciation of that particular word. English, the global language has connected people across the world. Everyone knows the language, but most of us do not know the way it is pronounced. A neutral accent is acquired by the people. So it has variant forms in different places. To make it globally intelligible a concern must be given to the pronunciation, stress, syllables, intonation etc.

In English there are 26 alphabets. Out of them 21 consonants and 5 vowels are there. But out of 26 alphabets 44 sounds are there. Out of 44, 20 are vowel sounds and 24 are consonant sounds. In 20 vowel sounds, 12 are Monophthongs, and 8 are Diphthongs. A monophthong is where there is one vowel sound in a syllable, and a diphthong is where there are two vowel sounds in a syllable

Phonetics and Communication

Phonetics describes the way sounds are produced by the speech organs like lips, tongue and lungs, and it relate the sound of a word. The shape of lips and the position of tongue, and the modification of airstream by the larynx and articulatory organs enable the production and articulation of speech sounds. These sounds combine to form language, the means of communication. In communication, both written and spoken,

the grammar and rules should be followed for an effective result. In spoken form, phonetics put forward the rules of pronunciation. It says how the speech organs should be while uttering each sound which results in correct pronunciation and good communication. For example:-

i. Initial sound in 'bat' is produced with a vibration of vocal folds is said to be voiced and the initial one in 'pat' is voiceless which is produced without the vibration of vocal folds.

ii. In the production of consonant sounds /t/, /d/, /s/, and /n/, the place of articulation is the teeth ridge or the alveolar ridge (the tip of the tongue moves towards the teeth ridge). So they are called as alveolar sounds.

iii. The vowel sounds /i:/, /I/ and /e/ in the words meat, hit and met respectively are known as front vowels (produced when the front of the tongue raised).

iv. The vowel sounds /a:/, /I/, /U/, and /u:/ in the words calm, odd, full and fool are back vowels (back of the tongue is raised).

v. The vowels in the words cut, bird and short (/I/, /3:/ and /):/) are central vowels

These all show how a sound should be correctly pronounced. Vocabulary, spelling and grammar are the three distinct aspects of language other than pronunciation. Correct use of all these aspects gives an effective communication

Phonetic Transcription:

Word	Transcription	Word	Transcription
1. dog	/dɒg/	12. few	/fju:/
2. man	/mæn/	13. measure	/meʒə/
3. door	/dɔ:/	14. vessel	/ves ^ə l/
4. world	/wɜ:ld/	15. easy	/i:zi/
5. switch	/swɪtʃ/	16. bother	/bʌðə/
6. book	/bʊk/	17. morning	/mɔ:nɪŋ/
7. run	/rʌn/	18. party	/pɑ:ti/
8. walk	/wɔ:k/	19. cheering	/tʃiəriŋ/
9. jeans	/dʒi:nz/	20. curser	/kɜ:sə/
10. thrift	/θrɪft/	21. justice	/dʒʌstɪs/
11. pledge	/pledʒ/	22. vision	/vɪʒ ⁿ /

Importance of Phonetics:

Phonetics plays a very important role in improving our communication. All the alphabets and the words must sound correctly; else the content as well as our communication will lack luster and sound unimpressive. Phonetics has a great deal of importance in communication. A successful communication is pretty much dependent upon proper accent and mutual intelligibility. It makes us aware that communication is not just using words but also to correctly pronounce them. Pronunciation is the correct articulation of the words based on the phonetic language. Phonetics deals with the scientific study of the production of speech sounds that combine to form words and sentences.

Conclusion:

In the fast changing global scenario English language and communication plays an important role in day to day activity and corporate Industry. Phonetics is an important part of communication. In K Scheme it is prescribed for diploma students for to develop their communication skills in English.



Ramanujan's Magic Square

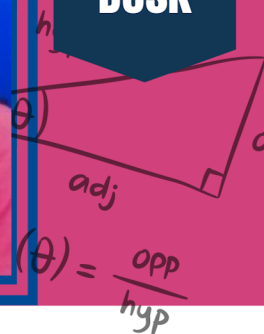


Miss Swati Jadhav
Head Of Department
Department of Basic Science

$$\frac{x}{a} + \frac{y}{b} \neq \frac{x+y}{a+b}$$



Faculty
Desk



22	12	18	87
88	17	9	25
10	24	89	16
19	86	23	11

This square looks like any other normal square but it is formed by Great Mathematician Shrinivas Ramanujan.....What is great in it?

Sum of columns numbers and row numbers are same 139

22	12	18	87
88	17	9	25
10	24	89	16
19	86	23	11

22	12	18	87
88	17	9	25
10	24	89	16
19	86	23	11

22	12	18	87
88	17	9	25
10	24	89	16
19	86	23	11

22	12	18	87
88	17	9	25
10	24	89	16
19	86	23	11

22	12	18	87
88	17	9	25
10	24	89	16
19	86	23	11

Sum of diagonal numbers is 139

Sum of corners numbers is 139

Sum of centered square numbers is 139

Sum of Identical coloured boxes is 139

Why it is called Ramanujan's Magic Square

It is created By Ramanujan's Birthday 22.12.1887

22	12	18	87
88	17	9	25
10	24	89	16
19	86	23	11

22	12	18	87
88	17	9	25
10	24	89	16
19	86	23	11

22	12	18	87
88	17	9	25
10	24	89	16
19	86	23	11

A	B	C	D
D+1	C-1	B-3	A+3
B-2	A+2	D+2	C-2
C+1	D-1	A+1	B-1

How it works ?

A Birthday

B Month of Birthday

C First two digit of Birthday

D Last two digit of Birthday

25	8	19	86
87	18	5	28
6	27	88	17
20	85	26	7

For example

Birthday 25.08.1986

Identical coloured boxes sum is 138

Try Your Birthday and make Magic Square.

3D SOLAR CELL



Mr. Bharat Arvind Kadam (D. M. E)
Technical Assistant
Mechanical Engineering Department



Faculty
Desk

The Sun is the ultimate source of energy that sustains modern life. In fact, virtually all forms of energy that we currently use, from fossil fuels to biofuels, are derived from the Sun at one time or another. For example, petroleum and coal are made from decomposed algae and plants that existed hundreds of millions of years ago. The Sun showers the Earth with enough solar energy. If we can capture a small portion of this energy and cost-effectively convert it into useful electricity, then we can inhabit the Earth for as long as the Sun exists without worrying about a shortage of energy. This single fact has propelled the solar industry on a path of exponential growth.

Despite the seemingly unlimited growth potential of the solar industry, there is one major problem facing the PV industry – the cost of buying and installing a solar system is more expensive than conventional electricity. The cost of a solar system or the economics of a solar cell cannot be measured by calculating a cost per watt for a solar cell. The power of the solar cell affects the entire installation. The more power coming out of the cell makes all the components less expensive relative to the power produced.

A solar cell (also called a photovoltaic cell) is an electrical device that converts the energy of light directly into electricity by the photovoltaic effect.

It is a form of photoelectric cell (in that its electrical characteristics—e.g. current, voltage, or resistance—vary when light is incident upon it) which, when exposed to light, can generate and support an electric current without being attached to any external voltage source.

Solar3D is developing a breakthrough 3-dimensional solar cell technology to maximize the conversion of sunlight into electricity. Up to 30% of incident sunlight is currently reflected off the surface of conventional solar cells, and more is lost inside the solar cell materials. Inspired by light management techniques used in fiber optic devices, solar cell technology utilizes a 3-dimensional design to trap sunlight inside a photovoltaic structure where photons bounce around until they are converted into electrons. An innovative wide-angle light collection feature on the cell surface allows for the collection of sunlight over a range of angles during the day.

Solar3D's breakthrough 3-dimensional solar cell technology is a novel solution that will help tip the solar cost curve in the direction of massive scalability and global deployment. The key features of the technology are high efficiency and wide-angle light collection. These two features are designed into a single wafer silicon solar cell to create substantially more

power output than any other silicon based technology. Solar is predicted to be the fast growing market in the world for the next 25–50 years. (3) The Department of Energy predicts that as the cost per watt of solar systems declines, the levels of market penetration will change dramatically.

Revolutionary Design-The revolutionary 3-dimensional silicon solar cell is designed to maximize the conversion of sunlight into electricity.

High Efficiency – Our innovative solar cell technology utilizes a 3-dimensional design to increase the conversion efficiency by trapping sunlight inside photovoltaic micro-structures where photons bounce around until they are converted into electrons.

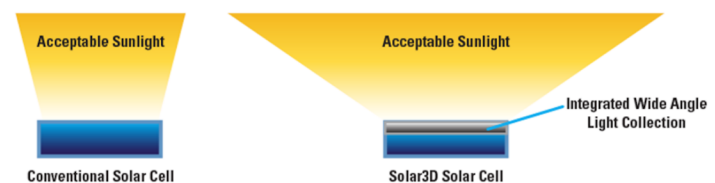
Wide Angle Light Collection - solar cell has a special wide angle feature on the surface to capture more light in the morning and evening hours, as well as in the winter months when the sun is not directly overhead.

We estimate that our patent-pending 3-dimensional cell can produce 200% of the power output of conventional solar cells. This will reduce the investment payback period of solar panel systems by more than 40%. The graph on the right compares our projected efficiency with a conventional solar cell across a range of incident sun angles.

Wide Angle Light Collection- Conventional solar cells become dramatically less efficient if the sun is not shining within a narrow range of incident angles. Sunlight that hits the cell outside of this range will be reflected off, and the reduced light energy causes the

cell's internal efficiency to drop. Because of a unique wide angle design, our solar cell can maintain its high efficiency over a wider range of incident angles. It can capture more light in the morning and evening hours, as well as in the winter months when the sun is not directly overhead.

The key to this breakthrough is a special design on the cell surface that collects sunlight over a wide range of angles. The collected light is then forced into 3-dimensional photovoltaic micro-structures beneath the cell surface that trap the light and convert it into electricity. As the sun moves across the sky, throughout the day or year, the Solar3D cell will be able to maintain its high conversion efficiency, as if the sun was directly above it.



High Efficiency-Solar cell efficiency is the measure of how much incident sunlight is converted into electricity. Most solar cells today are made from silicon, an inexpensive and abundant raw material. Due to the physics of silicon, the theoretical maximum efficiency of high-grade crystalline silicon solar cells is approximately 29%. In commercial practice, the efficiency ranges from 15% to 19%.(1) Our 3D solar cell is calculated to have an internal efficiency of 25.47%, more than any existing silicon solar cell, and is designed to take advantage of low cost manufacturing processes.

The Solution – 3D Light Trapping and Electron Extraction

Solar3D's 3-dimensional solar cell is designed from the ground up to optimally reduce all primary losses to achieve the highest conversion efficiency. Unlike conventional solar cells where sunlight passes through one time, our 3D solar cell design traps sunlight inside photovoltaic structures where photons bounce around until they are all converted into electricity. The key features and benefits of our 3D solar cell design are:

•**Wide Angle Light Collection** – Instead of allowing sunlight to bounce off the surface, our unique wide angle light collection feature is engineered to capture light from a wider range of angles including morning, evening and winter angles – and guides all incident sunlight into a subsurface micro-photovoltaic structure.

•**3D Photovoltaic Structure** – Conventional solar cells have only one photon absorbing surface. We use a multi-faceted 3D photovoltaic structure where photons can bounce off many surfaces until all photons that can be absorbed by the material are absorbed.

•**Thin Absorbing Regions** – Our 3D photovoltaic structure will be fabricated with very thin absorbing regions and designed to enhance charge carrier separation. Therefore, electron-hole pairs will travel short distances before reaching a contact wire where they will be quickly extracted to produce current. This approach also leads to an overall height and silicon material reduction when compared to conventional crystalline silicon cells.

•**Below Surface Contacts** – Unlike conventional solar cells where electrical contact wires run on the top of the cell, blocking sunlight, our design uses a network of contact wires that run below the light collectors. This approach allows our 3D solar cells to trap and utilize nearly 100% of the incident light.

The Problem – Light Reflection and Electron Loss

Conventional solar cells are 2-dimensional, utilizing a single pass sunlight conversion mechanism. There are two primary ways that these devices lose light and electrons, or electron-hole pairs, which result in a conversion efficiency much less than the theoretical maximum.

•**Surface Reflection** – Due to fundamental physics, approximately 30% of incident sunlight is reflected off the surface of silicon cells.

•**Electron Re-absorption** – When a photon strikes the solar cell, an electron is “knocked loose” creating an electron-hole pair that moves through the cell material, creating electrical current. However, in conventional 2-dimensional solar cell designs, these electron-hole pairs must travel a long distance before reaching a metal contact wire.

•**Morning, Evening and Winter Light Loss** – Conventional solar cells reach their quoted efficiencies of 15%-19% only when the incident sunlight is within its narrow acceptable angle. During morning and evening hours, and winter days, the sun is shining from outside of this angle. As a result of the reduced flux in solar energy during these times, the operating efficiency of conventional solar cell is often below its quoted number.

•**An Extraordinary New Solar Cell** – Solar panels using Solar3D cells can be installed on smaller surface areas, due to our 3D cell's high efficiency and high power output features. Solar panels using Solar3D cells will not need tracking systems that follow the sun to maintain high efficiency because of its wide angle light collection feature. Solar panels using Solar3D cells can be installed flat on surfaces that do not face the sun directly, eliminating the need for unsightly mounting structures. This next generation solar cell will be dramatically more efficient, resulting in a lower cost per watt and it will make solar power affordable for the world.

MODERN ENTREPRENEURSHIP

Mr. Neeraj Pankaj Gandhi
PANKAJ ENGINEERING, SATARA



Industrialist
speak

What is Entrepreneurship? I personally relate or connect the word “Entrepreneur” to our Sanskrit word अंतः प्रेरणा(Antah Prerna), meaning self-motivated, inspiration from within.

An Entrepreneur is someone who has an idea and who works to create a product or service that people will buy, as well as an organization to support that effort. An entrepreneur takes on most of the risk and initiative for their new business and is often seen as a visionary or innovator.

Entrepreneurship is the pursuit of creating, managing, and scaling a business by taking calculated risks, and being innovative. Entrepreneurship involves combining resources, skills, and vision to bring forth new products, services, or solutions that meet market demands and create value.

It is very important to note that though Entrepreneurship can result in huge gains like personal independence, monetary resources or fame and success; there are no Short cuts to Success!

Success mantra is based on strong foundation of tremendous irreversible belief in one-self, sheer hard work, persistent efforts, focus backed by strong determination, ability to endure and overcome failures and most importantly the zeal or the passion for something you like.

As we all know, “Modern Problem requires Modern Solutions” likewise, Modern Entrepreneur needs to think, act and execute in a Modern way. I feel Social Media is one of the best tools these days to Explore. It is up to the individual how best he can make use of it in a constructive way!

It is true that an Entrepreneur’s path is not a bed of roses; it’s not a 9 am to 5 pm thing, but it’s the other way around 5 am to 9 pm.

But believe me, few years of grinding and you will be rewarded for your efforts in a magnifying way!

There are many different types of entrepreneurs—

- 1) Small business owners,
- 2) Content creators,
- 3) Startup founders
- 4) Intrapreneurs: Intrapreneurship refers to entrepreneurial behavior within an established organization. When you will be working at an organization, your initiative and attitude can enable you to become an “Intrapreneur”. It means that you should be ready to identify some opportunity and then make the best of it through different innovative techniques.

Lastly I would like to say a famous line by greatest Indian Spiritual Leader, Reformer, and Missionary Shri Swami Vivekananda

“ARISE, AWAKE AND STOP NOT UNTIL YOUR GOAL IS REACHED”

All the best!!

Embracing the Future: How Artificial Intelligence is Transforming Mechanical Engineering



Mr.ATHARV GOVIND SALUNKHE
TYME



Student's
Corner

Introduction

Artificial intelligence (AI) is rapidly transforming the field of mechanical engineering. AI algorithms can now be used to automate tasks, optimize designs, and predict failures in a wide range of mechanical applications.

Mechanical engineering, a cornerstone of modern industry, has long been at the forefront of technological innovation. Over the past few decades, it has witnessed a profound transformation thanks to the integration of Artificial Intelligence (AI). This article delves into the realm of AI in mechanical engineering, exploring its myriad applications, the benefits it brings to the field, and the challenges it faces, while also highlighting the exciting prospects it holds for the future.

Artificial Intelligence in Mechanical Engineering

Here are some of the key ways in which AI is being used in mechanical engineering today:

Design: AI-powered design tools can help engineers to create more efficient and innovative products. For example, AI can be used to generate and evaluate millions of design options in a fraction of the time that it would take to do manually. This can lead to significant improvements in product performance, cost, and manufacturability.

Manufacturing: AI is also being used to improve manufacturing processes. For example, AI can be used to optimize production lines, predict machine failures, and ensure quality control. This can lead to increased productivity, reduced costs, and improved product quality.

Operations: AI is also being used to improve the operation and maintenance of mechanical systems. For example, AI can be used to monitor systems for potential problems, predict failures, and schedule maintenance tasks accordingly. This can lead to reduced downtime, increased safety, and extended system lifespans.

Here are some specific examples of how AI is being used in mechanical engineering today:

Generative design: Generative design is a new AI-powered design approach that can help engineers to create more innovative and efficient products. Generative design tools can automatically generate millions of design options based on a set of input requirements, such as performance, cost, and manufacturability. Engineers can then select the best design option for their needs.

Predictive maintenance: AI can be used to predict when machines are likely to fail, allowing engineers to schedule maintenance tasks accordingly. This can help to reduce downtime and extend the lifespan of machines.

Quality control: AI can be used to automate quality control tasks, such as inspecting products for defects. This can help to improve product quality and reduce costs.

Robotics: AI is being used to develop more intelligent and capable robots. For example, AI-powered robots can now be used to perform complex tasks in manufacturing and assembly lines.

The future of AI in mechanical engineering

AI is still a relatively new technology, but it has the potential to revolutionize the field of mechanical engineering. As AI algorithms continue to improve and become more sophisticated, we can expect to see even more innovative and groundbreaking applications of AI in mechanical engineering in the future.

AI is also being used to develop new applications in mechanical engineering, such as:

Autonomous vehicles: AI is essential for the development of autonomous vehicles. AI algorithms are used to perceive the environment, make decisions about how to navigate, and control the vehicle.

Renewable energy: AI is being used to develop more efficient and reliable renewable energy systems. For example, AI is being used to optimize the design and operation of solar panels and wind turbines.

Medical devices: AI is being used to develop new and innovative medical devices, such as robotic surgery systems and prosthetic limbs. For example, AI-powered robotic surgery systems can perform complex surgeries with greater precision and accuracy than traditional methods.

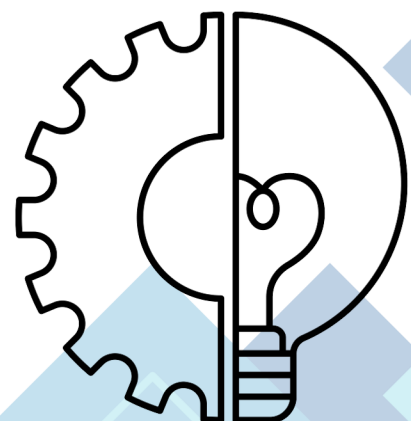
How mechanical engineers can prepare for the future of AI

Mechanical engineers who want to stay ahead of the curve should start to learn about AI and how it can be applied to their work. There are a number of online and in-person courses and training programs available. Mechanical engineers should also start to look for ways to incorporate AI into their current projects. This may involve using AI-powered design tools, developing predictive maintenance algorithms, or automating quality control tasks.

By learning about AI and how to apply it to their work, mechanical engineers can position themselves for success in the future.

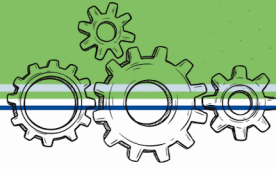
Conclusion

The fusion of Artificial Intelligence with mechanical engineering heralds an era of unprecedented possibilities. While challenges such as data security and ethics must be addressed, the potential for enhancing efficiency, quality, and innovation is immense. As AI continues to evolve, human-AI collaboration promises groundbreaking advancements, making the field of mechanical engineering more sustainable and efficient than ever before. It is not just a technological leap; it is a transformational journey towards a smarter and more capable future for the industry.



Why Study Engineering ??

Miss. THORAT ARYA AKASH
TYME



Student's
Corner

Engineering is an incredibly diverse field with a wide range of applications in the real world and a myriad of career options, wherever you choose to study. Deciding on the direction you wish to pursue is one that requires careful thought! This article is a tool that will help you in your consideration of whether you should study engineering at university.

Notice a problem? Design something to fix it!

First off, engineering is cool! You get to build and design some of the most complex and useful things used in society. A project starts off as nothing, an entirely blank canvas. Engineers take a few ideas, propose and design solutions, and finally bring their drawings on paper into reality.

Not many careers create this opportunity for job satisfaction. Engineers can look at a completed project that offers a practical solution to a real-world problem and say “I fixed that.” This is a pride that many engineers keep for their whole lives, as their work is used for generations. Engineering is a career that allows you to have a tangible impact on society for the better.

Variety of disciplines

Secondly, there are few industries as dynamic and varied as engineering. The six main fields of engineering extend to even more specific areas, all with phenomenal project variety. The skills you learn as an engineer are not limited to one specific use; you will be applying your abilities to projects of differing requirements over the course of your career.

For example, Arup is one of the largest engineering firms in the UK and has contracts on a wide range of large scale projects across all engineering disciplines. But the responsibilities of an engineer can span varying time frames across different projects.

An electronics engineer may have to edit some software, which might take a day; but they may also get to design an entirely new data centre for a global company, which would take many months. A chemical engineer might design and oversee the installation of new piping at an oil refinery; this could take a few months from design to installation. A structural engineer may work on the construction of a stadium

Next Generation of Mechanical Engineering

Mr. DHURGUDE SUYASH ARUN
TYME



Student's
Corner

INTRODUCTION :- The modern industry has undergone several iterations since then, with steam-powered locomotives giving way to internal combustion engine and now to electric vehicles. And now the world is in the process of ushering in greatest period of technological advancement known to man.

The rise of the internet and telecommunication industry in the 1990s revolutionized the way people, businesses, and countries connected and shared information. It also resulted in rapid shifts in the manufacturing industry, giving rise to production automation using memory-programmable controls.

Since the technological advancements of the last century have been a wonder to behold, they pale in comparison to what lies ahead.

Industry 4.0 and the Factory of the Future

Mechanical Engineering is the oldest and broadest of all engineering disciplines. It overlaps with various areas of industry, from building and construction to energy and industrial engineering. The wonders of mechanical engineering are vast, ranging from spacecraft, hybrid motorbikes, nano engines, robots to Bagger 288 (the world's largest land vehicle, tipping the scales at 12,840 tons). There's no doubt that this field of engineering has shaped the modern world. As Industry 4.0 takes hold, core mechanical engineering principles, such as

thermodynamics, mechatronics, and machine design will continue to revolutionize industry alongside emerging disciplines such as artificial intelligence, nanotechnology, and biomechatronics

A Look at the Future of Mechanical Engineering

Industry 4.0 is about merging the virtual and physical worlds. Still, the role of the engineer remains the same: to provide technological solutions to societal problems. The wicked problems of the 21st century include climate change, poverty, and world hunger. Mechanical engineers have a pivotal role to play in the journey towards a more sustainable world.

The principles of industry 4.0 are changing every aspect of design and manufacturing.

- Interoperability allows for real-time feedback, which decreases the design-production-feedback loop for faster, more efficient production times.
- Information clarity enriches digital plant models with smart data reducing inefficiencies in production and assembly lines.
- Technical assistance allows engineers to design products and production processes alongside machine learning manufacturing algorithms.
- Self-organizing factories that will see machines make decisions on their own to make improvements and perform tasks autonomously.

The next generation of mechanical engineering is going to look a little different. Domains such as product design and development as well as manufacturing and energy will benefit a great deal from big data and IoT.

1. The shift from mechanical systems to data-driven tools will increase accuracy and efficiency in product development.

Currently, many product iterations are carried out in CAD/CAM software. IoT-driven intelligent devices will reduce the need for constant prototyping and significantly reduce defects along production and assembly lines. Mechanical engineers will be able to identify and solve design problems or defects and make improvements faster and more efficiently. This means the new age of mechanical engineering will be focused on simulations and integrated design processes.

2. Sustainability and the end of the fossil fuel age

The world can no longer afford to burn fossil fuels not without engineering measures to counter the environmental effects. As countries embrace low-carbon development in the coming years, there will undoubtedly be an increased demand for renewable energy technologies – solar, wind, and geothermal being the most popular.

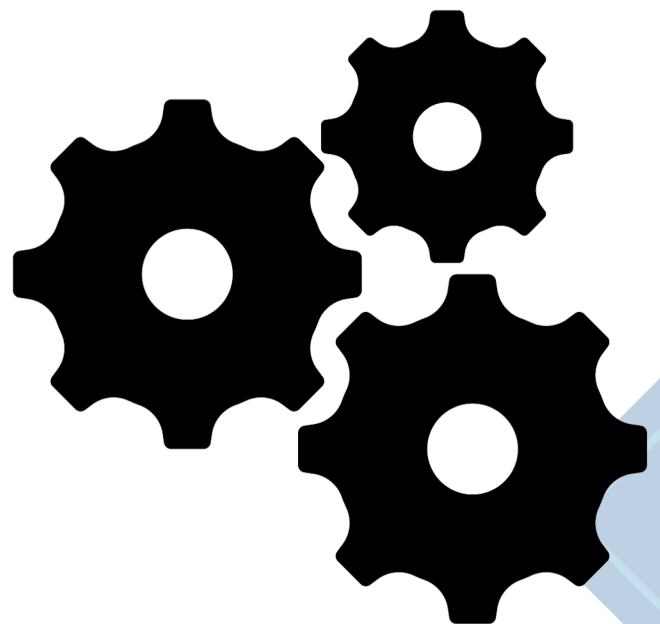
The manufacturing industry has a rich history of innovating to overcome challenges. Mechanical engineers are well-positioned to aid in the transition towards net-zero manufacturing and green recovery.

3. The rise of electric vehicles

One of the biggest challenges of the modern age will be the progressive shift from combustion engines to electric-powered vehicles. For mechanical engineers, replacing internal combustion engines with cleaner, battery-powered systems brings new challenges regarding how heat moves around vehicles. Other challenges include torque losses, how materials wear, and the design of mechatronics to support new electrical systems.

4. From Industry 4.0 to Engineer 4.0

The future is bright for the mechanical engineering and manufacturing industries. Opportunities abound to make the world a better, more sustainable place. Engineers have always been early adopters, which will result in a future of an industry that's more efficient, productive, and flexible.



FACULTY ACHIEVEMENTS

FDP/STTP/CONFERENCE/WORKSHOP ETC. ATTENDED

Sr. No	Title	Faculty	Venue
01	NBA ACCREDITATION Process For Polytechnic	Mr. N.B. Devi	KBP POLY SATARA
02	NBA ACCREDITATION Process For Polytechnic	Mr. S. G. Sherkar	KBP POLY SATARA
03	NBA ACCREDITATION Process For Polytechnic	Mr. D.R. Waghmode	KBP POLY SATARA
04	NBA ACCREDITATION Process For Polytechnic	Mr. S.S. Yewale	KBP POLY SATARA
05	NBA ACCREDITATION Process For Polytechnic	Mr. K.B. Dhanawade	KBP POLY SATARA
06	NBA ACCREDITATION Process For Polytechnic	Mr. R.V. Kumbhar	KBP POLY SATARA
07	NBA ACCREDITATION Process For Polytechnic	Ms..K. H. Sakhare	KBP POLY SATARA
08	NBA ACCREDITATION Process For Polytechnic	Mr. R. S. Mane	KBP POLY SATARA
09	NBA ACCREDITATION Process For Polytechnic	Mr. P. V. Zore	KBP POLY SATARA
09	Renewable Energy Sources for Sustainable Develeopment	Mr. R.V. Kumbhar	Yashoda Polytechnic
10	FDP On Solar Utilization, Resources, Yield and Advancement	Ms..K. H. Sakhare	GP Karad

MSBTE EXAM SUMMER 2023 TOPPERS

TYME



YADAV HARSH AMOL
87.22%



INDULKAR ANISH SHANKAR
85.44%



INGALE RUDRA PARAG
82.56%



JAGTAP SURAJ HANMANT
80.56%



JAGTAP ADITYA RAVINDRA
79.67%



BAGWAN JUNAID JAVED
78.56%



SHAIKH ZAID RIYAJ
78.00%



KUMBHAR OMKAR SANTOSH
77.11%



JADHAV DAIVSHILA POPAT
76.33%



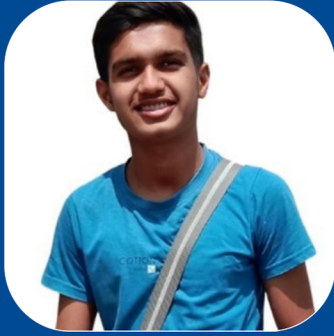
GONJARE OMKAR AMOL
75.33%



HOMKAR SEJAL NILESH
75.00%

MSBTE EXAM SUMMER 2023 TOPPERS

SYME



BHANDIRGE OMKAR BALASAHEB
83.38%



SALUNKHE ATHARV GOVIND
78.00%



KARANDIKAR SWAPNIL SHAILESH
77.00%



DESHMUKH SANKET TANAJI
75.25%

FYME



GURAV ADITYA BHIMAJI
68.93%



HITESH KANHAIYALAL
KUMAWAT
67.20%



POL NIKHIL JANARDAN
62.93%

PLACEMENT RECORD 2022-23



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Our Achievements



Academic Year	MSBTE Department Rating
2011-12	Excellent
2012-13	Excellent
2013-14	Excellent
2014-15	Very Good
2015-16	Very Good
2016-17	Very Good
2017-18	Excellent
2018-19	Excellent
2019-20	Very Good
2021-22	Very Good
2022-23	Excellent

WORD SEARCH

Mechanical Engineering

F C O U P L E Z Z F Y K Q S A K Q
F M F K N U F R O Y R L I C Z M C
C Q S J K F W R J H L F F I T J K
V Y G X F Q C V E Q F S J L N H S
P U Z G I E Z Y F J G I O U E Y M
D X C N K D F T V V O V K A M C C
Z Q G I O Y P O R T N E Q R O N U
E G N R T O D K M X G E G D M A U
R K A P V J O D M B L J V Y H Y L
R S W S X L Y J U Z L V F H Z O E
S C I N A H C E M D I U L F E U V
A W Z K Q X N V B P N R K N W B K
O G G N S U D C H O X T R E L X O
F X X K G X O Q V B V H M W U G J
E U Q R O T I W Q O D H U A X K N
L M O D V Y A V O R T E X T U B E
Q C B Z T R I L L U O N R E B G T

ENTROPY

FLUIDMECHANICS

SPRING

FORCE

VORTEXTUBE

BERNOULLI

MOMENT

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HYDRAULICS

BUOYANCY

COUPLE

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THANK YOU

Reporting of departmental activities and events is the main objective of this newsletter. It will be as good as your contribution and participation in helping us in collecting and organizing data and information pertinent to your portfolio. We hope you would appreciate this endeavor of ours and enrich us with your valuable feedback, comments and suggestions.



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