

Rayat Shikshan Sanstha's

# Karmaveer Bhauroao Patil Polytechnic Satara



# Newsletter

Volume 02 Issue 01

OFFICIAL NEWSLETTER OF

## DEPARTMENT OF MECHANICAL ENGINEERING

For Private Circulation Only

<http://www.kbppoly.edu.in/>





## 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





Karmaveer Bhaurao Patil  
Polytechnic , Satara  
Received Best Polytechnic  
Award in satara Region on  
15th september 2021



Certificate of Honor Awarded  
by Builders Association of  
India (Satara Region) for  
Academic Performance for  
2020-21



# ABOUT 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 Engineering 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



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# PRINCIPAL'S DESK

*Prin. Dr. Shaikh K. C.*

*I/c Principal*

*Karmaveer Bhaurao Patil Polytechnic, Satara*

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Dear students and faculty members,

Karmaveer Bhaurao Patil Polytechnic, Satara has a reputation of maintaining vibrancy by creating an environment where student can cultivate his prosperity.

I am glad to know that the Department of Mechanical Engineering of Karmaveer Bhaurao Patil Polytechnic, Satara is bringing out a Odd Semester Newsletter

The Polytechnic is proud of the achievements of the students and staff of the department and bringing out this Newsletter. The Department of Mechanical Engineering has carried a name for itself in pursuit of polytechnic's vision and mission and its own vision and mission. Its students, staff and alumni have made their alma mater proud by becoming very responsible citizens and professionals doing service to the society. I wish all success for the Newsletter and hope they carry forward the vigor and dedication for bringing out the future volumes of Newsletter.

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# HOD'S DESK

*Prof. N. B. Devi*

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

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I have immense pleasure for bringing out the Volume 2 of the "Newsletter" of Department of Mechanical Engineering of Karmaveer Bhaurao Patil Polytechnic, Satara. The Department of Mechanical Engineering started in 2005 has been the heart and spirit of this premier institution right from its inception. Rated very high, this department is Alma Mater to several successful entrepreneur's, industrialists and technocrats.

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 inaugural issue of newsletter should inspire all of us for a new beginning; enlighten us with hope, confidence and enthusiasm towards the road ahead.

# EDITOR'S DESK

**Prof. P.V. ZORE**

**Lecturer (Mechanical Engineering)**



Welcome to Second 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 DMESA

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.



# DMESA Committee

Sr. No	Post	Class	Name
1	President	TY	Jadhav Mayur Subhash
2	President	TY	Diwakar Vishwesh Shirishkumar
3	Vice – President	SY	Gonjare Omkar Amol
4	Treasurer	TY	Rathod Amit Devu
5	Treasurer	SY	Tupe Prasanna Dinesh
6	Auditor	TY	Phadatare Ganesh Rajendra
7	Auditor	SY	Homkar Sejal Nilesh
8	Class Representative	TY	Ghorpade Sanket Shankar
9	Class Representative	SY	Yadav Harsh Amol
10	Ladies Representative	TY	Chavan Aditi Bhaskar
11	Ladies Representative	SY	More Aakanksha Chandrashekhar
12	Class Representative	FY	Salunkhe Atharv Govind
13	Ladies Representative	FY	Thorat Arya Akash

# Departmental Activities

## EXPERT LECTURE

Expert Guest Lecturer delivered by Mr. Shaikh G.B. on topic of Educational Loan Scheme's for higher studies in india and abroad on 8 Oct 2021

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RAYAT SHIKSHAN SANSTHA'S  
**Karmaveer Bhaurao Patil Polytechnic, satara**

Organizes  
**Guest Lecture On**

**Educational Loan Schemes for Higher Studies in india and Abroad**

Resource Person



**Mr. Shaikh G. B.**

Date : 8 Oct 2021  
Time : 11:30 AM

Youtube Link  
<https://youtu.be/ZRvRf9Rg1VI>

Google meet Link  
<https://meet.google.com/ght-rssw-cyo>

**Dr. K. C. Shaikh**  
I/C Principal



RAYAT SHIKSHAN SANSTHA'S  
**KARMAVEER BHAURAO PATIL POLYTECHNIC, SATARA**

Organizes  
**GUEST LECTURE ON**  
Future Engineering



**9 OCTOBER, 2021**  
**11.30AM-12.30PM**

Resource Person  
**Mr. Rohit Jagdale**

**GOOGLE MEET LINK**  
<https://meet.google.com/ght-rssw-cyo>

Prof.Dr.Shaikh K.C.  
I/C Principal

## EXPERT LECTURE

Expert Guest Lecturer delivered by Mr. Rohit Jagdale, Owner of Rohit infrastructure, Satara on topic of Future engineering on 9 Oct 2021

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# Departmental Activities

## EXPERT LECTURE

Expert Guest Lecturer delivered by Prof. More G.N. on topic of **Artificial Intelligence, Machine Learning and Data Science** on 9 Oct 2021

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

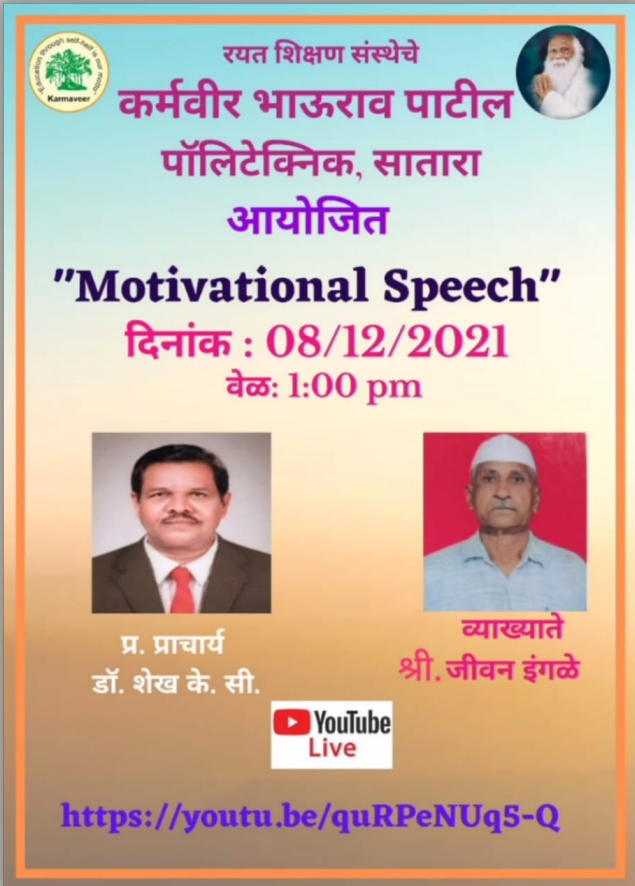
organizes  
**Guest Lecturer On**  
**Artificial Intelligence, Machine**  
**Learning & Data Science**

**Date: 9th October 2021**  
**Time: 1:30 p.m.**

**Platform: Google Meet**  
**<https://meet.google.com/ght-rssw-cyo>**


**Resource Person**  
**Prof. More.G.N.**


**Dr. Shaikh K.C.**  
I/C Principal




रयत शिक्षण संस्थेचे  
**कर्मवीर भाऊराव पाटील**  
पॉलिटेक्निक, सातारा  
आयोजित

**"Motivational Speech"**  
**दिनांक : 08/12/2021**  
**वेळ: 1:00 pm**

  
प्र. प्राचार्य  
डॉ. शेख के. सी.

  
व्याख्याते  
श्री. जीवन इंगळे



**<https://youtu.be/quRPeNUq5-Q>**

## EXPERT LECTURE

Motivational Speech by Mr. Jeevan Ingale was arranged on 08 December 2021

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# WELCOME EVENT 2021-22

VENUE - AUDITORIUM , C- WING

Welcome function was arranged on 31st December 2021 for all First year and Direct Second year Mechanical Engg students. It was a fun filled event at which the fresher's got an opportunity not only to showcase their talents and but also to interact with the seniors. The program kick-started with Games like one minute show, etc. Event was successfully coordinated by Prof. K.B. Dhanawade.





Felicitation of Toppers MSBTE Exam and DMESA Members





# Departmental Activities



## Industrial Visit

## CNC Programming & Machining

VENUE - VISHWAKARMA ENGINEERING SATARA

One Day Industrial Visit and Training on CNC Programming and Machining was arranged for TYME Students on 30 Dec 2021 at Vishwakarma Engineering ,satara under coordination of Prof. R.V. Kumbhar





**RAYAT SHIKSHAN SANSTHA'S**  
**Karmaveer Bhaurao Patil**  
**Polytechnic, satara**

**Department of Mechanical Engineering**

Organizes

**Training On**

**"CNC Programming & Machining"**

For TYME Students

**Name of Industry**

Vishwakarma Engineering  
Satara-Rahimatpur Road,  
Ganesh Nagar, Dhamner,  
Maharashtra

**Date : 30 Dec 2021**  
**Time : 10:00 AM**

**Prof. R. V. Kumbhar**  
Co-ordinator

**Prof. M. B. Devi**  
HOD, Mechanical Deptt

**Dr. K. C. Shaikh**  
I/C Principal





Online Parents-Teachers-Students Meet Organised by Mechanical Engineering Department on 23 October 2022 on google meet as well as YouTube live stream platform for parents whose children are in Second Year and Third year of Mechanical Engineering Diploma.



# Parents-Teacher-Students Meet 2021-22

Organised by  
Mechanical Department

Rayat Shikshan Sanstha's  
Karmaveer Bhauroao Patil Polytechnic, Satara

You are invited for

## Parents Teachers Students Meet

2021-22

Organised By  
Department of Mechanical Engineering

**Saturday 23 OCT. 2021 From 11 AM**

**Outline of Meeting**

1. Overview of Mechanical Department
2. Academic Activities 2021-22
3. Online MCQ Based Class Test
4. Feedback of Parents

Google Meet Link <https://meet.google.com/ycu-ghzg-xzt>

YouTube Link <https://youtu.be/AMuDLhOyGmw>

Prof. D. R. Waghmode Co-ordinator      Prof. N. B. Devi HOD Mechanical Engg. Department      Dr. K. C. Shaikh I/c Principal

## OUTLINE OF MEETING

1. Overview of Mechanical Department
2. Academic Activities 2021-22
3. Online MCQ Based Class Test
4. Use of Moodle For Academic activities
5. Feedback of Parents



# Departmental Activities



## National Engineers Day

**Chief Guest - Rohit Jagdale**

Director,  
Rohit Infrastructure, Satara

National Engineers Day was Celebrated on 15 September 2021 to recognise and honour the achievements of the great engineer Mokshagundam Visvesvaraya.

Event was Successfully Coordinated by Prof. S.S. Yewale. HOD Prof. N.B. Devi and Prin. Dr. K.C. Shaikh shared their Valuable thoughts on inauguration of the event

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On this Occasion a Online guest lecture by Mr. Rohit Jagdale was arranged on topic "Future World Post Covid " for all SYME and TYME Students on Google Meet App



# Departmental Activities



## Vaccination Camp

Venue - Auditorium , C- Wing

Vaccination camp was arranged on 28th october 2021 for all eligible students above 18 year old under "Mission Yuva Swasthya" Initiative by government of Maharashtra and higher technical education board, Maharashtra





रयत शिक्षण संस्थेचे  
कर्मवीर भाऊराव पाटील पॉलिटेक्निक, सातारा





DTE CODE : 6406

**युवा स्वास्थ्य अभियान**

MSBTE CODE : 0041

उच्च व तंत्र शिक्षण विभाग आणि आरोग्य विभाग यांच्या संयुक्त विद्यमाने आयोजित

**युवा स्वास्थ्य कोव्हीड लसीकरण मोहीम**

**दिनांक**  
दि. २८ ऑक्टोबर  
२०२१

**वेळ**  
सकाळी  
१०:३० ते सायं. ५:००

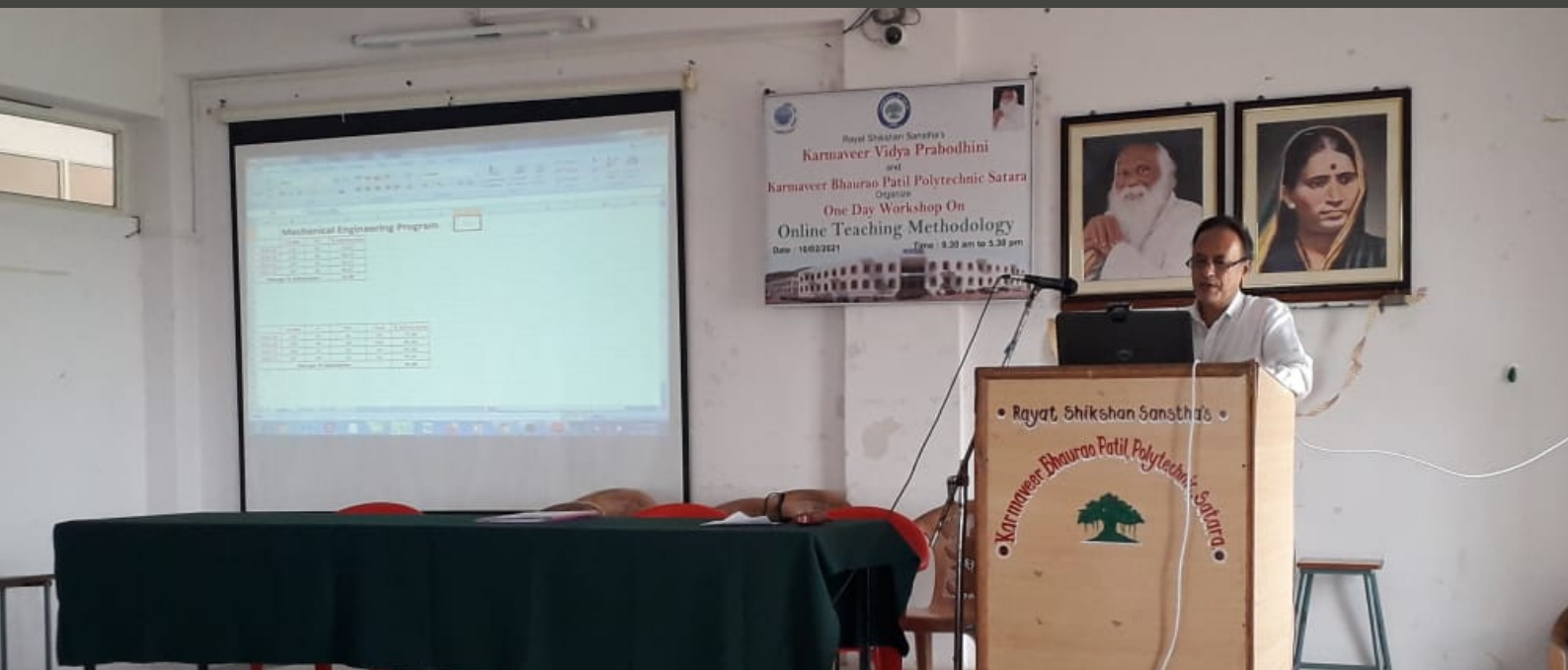
**स्थळ**  
स्थळ : Auditorium , C - विंग  
कर्मवीर भाऊराव पाटील  
पॉलिटेक्निक, सातारा







# Departmental Activities



## FDP ON NBA ACCREDITATION

by **Prof. N.B. Devi ,**  
**HOD Mechanical Deptt**

Department of Mechanical Engineering of Karmaveer bhaurao patil polytechnic, Satara has organized 1 Day Faculty Development Program (FDP) on NBA Accreditation on 01 november 2021

Prof. N.B. Devi HOD (Mechanical Deptt) Explained the different criteria and the sub criteria as specified in the evaluation guidelines of SAR. He also specified the corresponding documents to be kept for each sub criteria. He cleared all the doubts raised by the participants to prepare efficient SAR.





# Traditional Learning Vs. Online Learning

**Prof. N. B. Devi**

**Head of Department (Mechanical Engineering)**

These days online courses/training have become extremely popular, as more and more institutes and companies are offering courses online. However, despite the popularity of online education, vast groups of people consciously stay away from such methods, mostly due to misconception. At the same time, despite the rising popularity of online courses, traditional (classroom) training is fighting back and trying to adopt newer means of retaining learners' interest. There are always two sides of a coin. For some individuals, online training is more appropriate, while for others classroom training is the preferred delivery method.

Let us compare the two methods.

### Online Learning

People take professional level courses usually to increase their qualifications and enhance their career opportunities in their jobs. For example, to get promotion in higher level and higher paid jobs; in management related professional degrees, diplomas are helpful. However many employees may be exhausted after their work and don't want to attend regular classes. So, naturally, an online class is more convenient for them, as it saves valuable time, money, and energy.

The best thing about online learning is that individuals can take a course from the comfort of their office or home. Even with a busy schedule, one can find some spare time to take a course or study for it.

In online classes, the learner is not directly interacting with the faculty. So in case of having any questions, they may find it difficult to ask their online instructor, as communication is often very impersonal. However, these courses often offer alternatives to live query resolution like online forums, emails, and chatrooms. Using these alternatives can be helpful for individuals to get their queries answered.



People often think that interacting with a trainer live is the best way to learn, as it is interactive and allows for two-way communication. For such types of people, synchronous online courses will be more appropriate.

Another way to acquire knowledge through an online medium is by searching on different search engines like Google, Bing, etc. Although this helps by reducing the amount of books one has to read, there may be too many sources of information one has to read, and choose the relevant ones, which can result in information overload.

Thus online learning may be more suitable for grownups who are continuing their education while they're working in their regular jobs.

### **Traditional Learning**

Traditional classes are more suitable for young children, teenagers, and young adolescents who are yet to join the workforce. Regular attendance in classes helps them interact with other individuals of their own age, be better disciplined, follow a regular schedule, and improve their physical fitness and mental alertness.

Classroom learning helps students and teachers know each other in a better manner. This allows teachers to know the students and evaluate their strengths and weaknesses better, act as mentors, and guide students in their career possibilities.

In a traditional classroom, students can directly share their views and clarify their own queries with the teacher, thus getting their questions answered right away.

Most of the time books and classroom notes are very useful for studying and passing exams. Understanding the Question & Answer pattern, and with suggestions provided by experienced teachers, students can find it more helpful to learn than when using generalized online notes and suggestions available on the internet.

Also, classroom learning is more helpful due to a continuous interaction between students and teachers, as it helps students to get rid of their fears regarding exams, which can rarely happen with online guidance.

Lastly, interactions with good teachers help motivate students to achieve higher marks.

# Is Online Education Better than Traditional Education?

**Prof. Sameer Shivaji Yewale**  
**M.E. Heat Power**



Educational institutes have been practicing the traditional teaching method since ages. Most of us are familiar with the traditional model where one teacher is teaching fifty students at a time. No-one knows if those fifty students are able to understand what is being explained or if they are even paying attention to the lecture.

This style of teaching is not considered very effective today. Students have access to new technology which helps them learn and retain information in a far better manner. Which means, it is time for educational institutes to bring some changes to its teaching methods. A popular alternative to traditional education is online education or eLearning.

Online education is better than traditional education, debates the most significant element of the online education model. The online education model is basically trying to overcome the disadvantages of the traditional education system, while also providing additional benefits.

In a traditional teaching model, students listen to long lectures, take notes, and usually resort to rote memorization.

This leaves little or no room for active interaction in the classroom. Online education, on the other hand, encourages participation in classroom activities and peer-to-peer collaboration.

With the availability of various forms of online study resources, students are able to engage with their courseware and gain knowledge in a much more engaging manner.

# Why offline mode of learning relatively better than online learning

**Prof. Waghmode Dattatray Ramchandra**  
**M.E. Heat Power**



Now that schools and colleges are limping back to offline mode after Covid 19 pandemic, a question may strike whether offline mode of learning is really better when compared to online learning process. However, both forms of education have their own advantages and disadvantages.

### Advantages of online education:

- 1) It is flexible. All you need is a device with internet connection and can attend your classes from anywhere across the world.
- 2) Class recordings are available for later reference.
- 3) It is budget friendly and saves the cost of transportation , lodging and other necessities that one has to pay whilst physically attending classes.

### Advantages of offline learning:

- 1) Face to face student and teacher interaction helps in better understanding as teacher can give full attention to students, address their issues and solve them.
- 2) No distractions whilst studying since there are no other modes of entertainment where students might focus on whilst studying.

### Disadvantages of online learning:

- 1) Students might indulge in other activities such as surfing net, visiting social media platforms etc whilst attending classes which in turn will hamper their learning process.
- 2) Another disadvantage is technical glitches. Internet connectivity issues might arise during online classes thus disrupting smooth learning.

### Disadvantages of offline learning:

- 1) No recording is available for students for later references.
- 2) Time management becomes an issue for students living faraway.



# Hydrogen : Future's Fuel

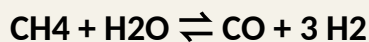
**Prof. Kishor Babanrao Dhanawade**

**M.E. Heat Power**

Hydrogen is one of the most abundant and promising fuel source available in the air. It is lighter than air and incredibly pure. When used in the fuel cell it is highly efficient and leaves no carbon emission behind. And best of all it is virtually everywhere. It is found everywhere in the plants, water, manure etc. But the problem arises before it can be used it has to be separated.

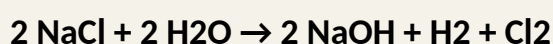
There are a lot of ways to produce hydrogen:-

**I. Steam reforming:** Steam reforming of methane is the most common method for the hydrogen production. It combines methane with the high temperature steam to trigger a reaction and separate the hydrogen. At high temperatures (700 – 1100 °C) and in the presence of a metal-based catalyst (nickel), steam reacts with methane to yield carbon monoxide and hydrogen.



**II. Gasification:** Gasification is a process that converts organic or fossil fuel based carbonaceous materials into carbon monoxide, hydrogen and carbon dioxide. This is achieved by reacting the material at high temperatures (>700 °C), without combustion, with a controlled amount of oxygen and/or steam.

**III. Electrolysis:** Hydrogen can also be produced by separating water into its two primary elements—hydrogen (H<sub>2</sub>) and oxygen (O<sub>2</sub>). This process, known as electrolysis, passes an electrical current through the water to extract hydrogen. The electricity can be sourced from clean, renewable energy such as wind, solar, or hydro.







One such FCV (Fuel Cell Vehicle) concept car is Toyota mirai. The unveiled FCV concept was a bright blue sedan shaped like a drop of water "to emphasize that water is the only substance that hydrogen-powered cars emit from their tailpipes. The FCV uses Toyota's proprietary, small, light-weight fuel cell stack and two 70 MPa high-pressure hydrogen tanks placed beneath the specially designed body. The Toyota FCV concept can accommodate up to four occupants. The FCV concept also uses portions of Toyota's Hybrid Synergy Drive technology including the electric motor, power control unit and other parts and components from its hybrid vehicles to improve reliability and minimize cost. The hybrid technology is also used to work together with the fuel cell. At low speeds such as city driving, the FCV runs just like any all-electric car by using the energy stored in its battery, which is charged through regenerative braking. At higher speeds, the hydrogen fuel cell alone powers the electric motor. When more power is needed, for example during sudden acceleration, the battery supports the fuel cell system as both work together to provide propulsion High-pressure hydrogen tanks The Mirai has two hydrogen tanks with a three-layer structure made of carbon fiber-reinforced plastic consisting of nylon 6 from Ube Industries and other materials.

The tanks store hydrogen at 70 MPa (10,000 psi). The tanks have a combined weight 87.5 kg (193 lb) and 5 kg capacity. Safety features: 1. multi-patented, carbon-fiber-wrapped, polymer lined tanks are built in a three-layer structure and absorb five times the crash energy of steel. 2. In a high-speed collision, sensors stop the flow of hydrogen. 3. Any leaked hydrogen is quickly dispersed. Since the gas is lighter than air, it rapidly disperses, reducing the time window to cause damage in the event of an ignition. Thus with the help of scientific studies and curious minds if we can create and store this hydrogen easily then it would be revolution in the field of technology. As we would get efficient and pollution free energy for the future. Thus encouraging the concept of sustainable development.

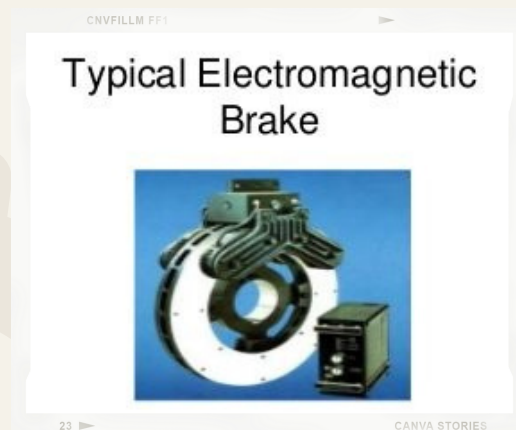
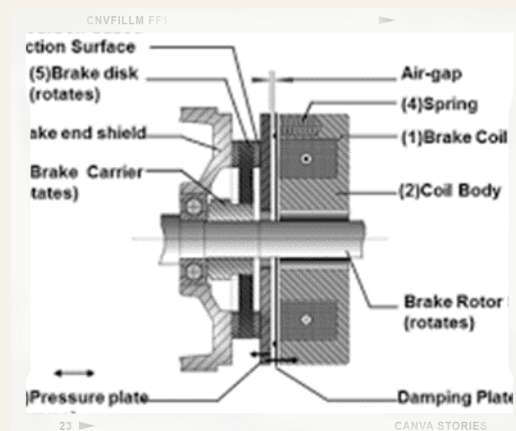
## ELECTROMAGNETIC BRAKING SYSTEM

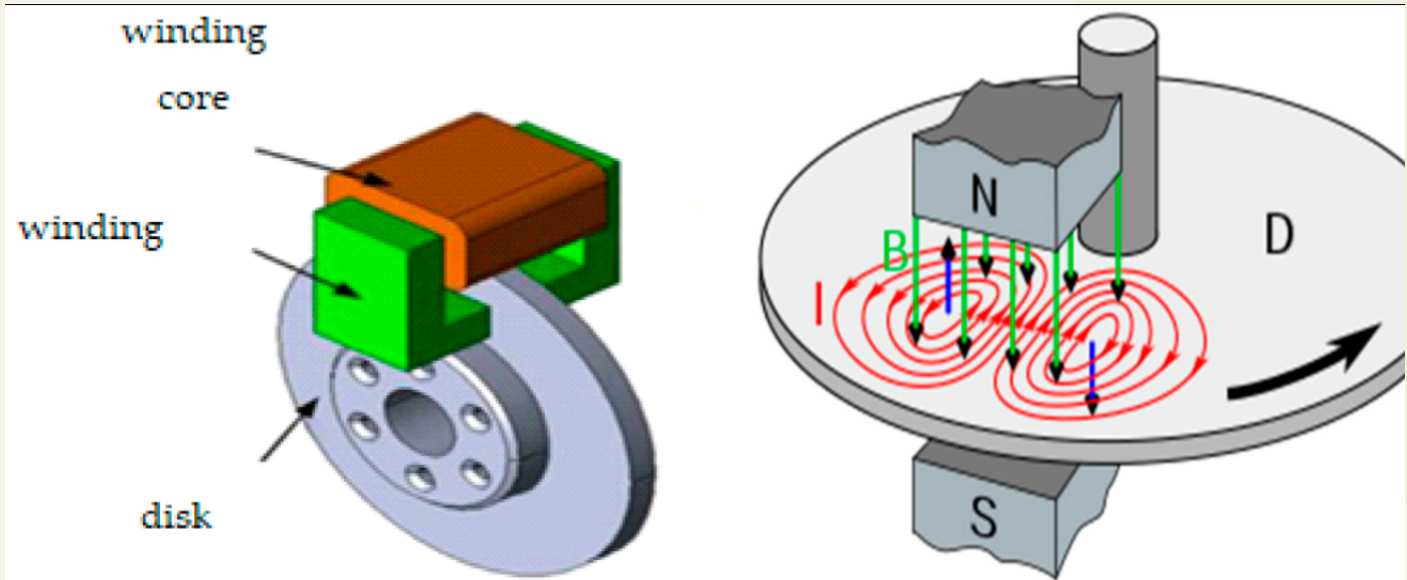
By : Varadraj Mahesh Umardand

CLASS : TYME



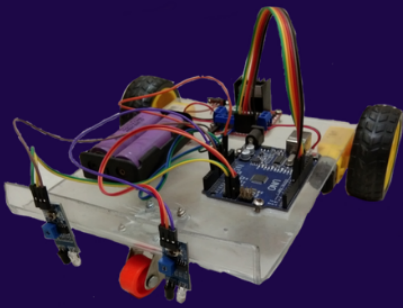
- Electromagnetic brakes (also called electro-mechanical brakes or EM brakes) slow or stop motion using electromagnetic force to apply mechanical resistance (friction). The original name was "electro-mechanical brakes" but over the years the name changed to "electromagnetic brakes", referring to their actuation method.
- Since becoming popular in the mid-20th century especially in trains and trams, the variety of applications and brake designs has increased dramatically, but the basic operation remains the same.
- Electromagnetic brakes are the brakes working on the electric power & magnetic power. They work on the principle of electromagnetism.
- These brakes are an excellent replacement on the conventional brakes due to their many advantages. The reason for implementing this brake in automobiles is to reduce wear in brakes as it is frictionless. Electromagnetic brakes are of today's automobiles.
- Many conventional brakes, which are currently used in the vehicle, are frictional brake. This causes drag and wear. If the vehicle speed is high, the brake cannot provide the much higher force and cause braking problems.
- This disadvantage of ordinary brakes can be overcome by a simple and effective mechanism of braking systems "Electro-magnetic braking" or "eddy current brake".





- In the Electromagnetic Brake when the rotating wheel enters the magnetic field, an electric field is induced in the metal and eddy currents are generated. These currents act to oppose the change in flux through the plate, according to Lenz's law.
- This eddy current produce heat finally it reduce its kinetic energy. As a result it develops a torque and eventually the vehicle comes to rest .
- These brakes can be incorporated in heavy vehicles as an auxiliary brake. The electro-magnetic brakes can be used in commercial vehicles by controlling the current supplied to produce the magnetic flux.
- Making some improvements in the brakes it can be used in automobiles in future.
- It is found that electromagnetic brakes can develop a negative power which represents nearly twice the maximum power output of a typical engine, and at least three times the braking power of an exhaust brake.
- By using by using the electromagnetic brakes as they are supplementary retardation equipment, the friction brakes can be used less frequently, and therefore practically never reach high temperatures. The brake linings would last considerably longer before requiring maintenance and the potentially "brake fade" problem could be avoided.
- The installation of an electromagnetic brake is not very difficult as there is enough space between the gearbox and the rear axle. It not need a subsidiary cooling system.
- The electromagnetic brake control system is an electric switching system which gives it superior controllability.





# DC LINE FOLLOWER ROBOT

## Basic Principle of line follower robot

The basic principle involved in line follower is that it captures the line position with optical sensors mounted at front end of the robot. For this a combination of IR LED's and Photo Transistor called an opto coupler is used. The line sensing process requires high resolution and high robustness , and it should steer robot to track the line with any steering mechanism.

## Uses of line follower robot

Line follower robot which is a fully automatic and programmable device which can be used in various industrial and domestic applications such as to carry goods, floor cleaning, delivery services and transportation.

## MY EXPERIENCE WITH THIS PROJECT

Dc line follower robot was one of the most challenging project i made , the project includes Computer Engineering , Electronics Engineering , Microelectronic Engineering and mechanical engineering . This project is entirely based on Arduino micro controllers , after referring to an expert student Mr.Raghav Narewadikar who has vast knowledge about arduino , we were able to write an Arduino code on the project . From the final drawings to the final programming this project took about 3 months to make . The final design took most of the time as once the design was ready the making did not take much time .

## MATERIAL SELECTION

Selection of material for the main body was a very tough job .

My first prototype failed as i used MS steel in my main body work , as Ms steel is a good conductor of electricity it caused a malfunction in the battery resulting in a small blast . So correct selection of material is must while making a project in any field .

After some research and study i found out the perfect material for my specific project , which was acrylic (Acrylic is a transparent plastic material with outstanding strength, stiffness, and optical clarity.)

## CHARACTER REFERENCES

OM AMOD KOTIBHASKAR

THIRD YEAR MECHANICAL  
Karmaveer Bhaurao Patil  
Polytechnic, Satara





## AUTOMATION IN MANUFACTURING

By Aditya Vijay Gaikwad  
SYME



- Conventional wisdom tells us that automation steals manufacturing jobs. Yet the industrial automation industry in India is expected to touch \$3.5 billion by 2020, and by then the manufacturing sector alone is expected to create 90 million new jobs. It is widely agreed that automation makes manufacturing processes more efficient and leads to fewer defects. It is this increase in efficiency that is leading many Indian manufacturers to automate processes. Demand for factory automation has given an impetus to the industrial automation industry in India. Industries in India like the automotive, chemicals, and mining industry are automating processes and making such processes more innovative.
- The manufacturing sector has led to prosperity in many East Asian countries. Some leading economists and leaders had believed more than a decade ago that India held the potential to emulate the growth model of East Asian countries such as South Korea. By doing what South Korea had done, they felt India could duplicate the tremendous economic success that South Korea had already attained by then.
- Advantages commonly attributed to automation include higher production rates and increased productivity, more efficient use of materials, better product quality, improved safety, shorter workweeks for labour, and reduced factory lead times.
- Automation in the industrial workplace provides the advantages of improving productivity and quality while reducing errors and waste, increasing safety, and adding flexibility to the manufacturing process. In the end, industrial automation yields increased safety, reliability, and profitability.

## ELECTRIC VEHICLE

By Omkar Kumbhar

SYME



An electric vehicle (EV) is a vehicle that uses one or more electric motors for propulsion. It can be powered by a collector system, with electricity from extravehicular sources, or it can be powered autonomously by a battery (sometimes charged by solar panels, or by converting fuel to electricity using fuel cells or a generator). EVs include, but are not limited to, road and rail vehicles, surface and underwater vessels, electric aircraft and electric spaceflight

EVs first came into existence in the mid-19th century, when electricity was among the preferred methods for motor vehicle propulsion, providing a level of comfort and ease of operation that could not be achieved by the gasoline cars of the time. Internal combustion engines were the dominant propulsion method for cars and trucks for about 100 years, but electric power remained commonplace in other vehicle types, such as trains and smaller vehicles of all types.

Electric motive power started in 1827, when Hungarian priest Ányos Jedlik built the first crude but viable electric motor, provided with stator, rotor and commutator; the next year, he used it to power a tiny car. In 1835, professor Sibrandus Stratingh of the University of Groningen, the Netherlands, built a small-scale electric car, and between 1832 and 1839 (the exact year is uncertain), Robert Anderson of Scotland invented the first crude electric carriage, powered by non-rechargeable primary cells. American blacksmith and inventor Thomas Davenport built a toy electric locomotive, powered by a primitive electric motor, in 1835. In 1838, a Scotsman named Robert Davidson built an electric locomotive that attained a speed of four miles per hour (6 km/h). In England a patent was granted in 1840 for the use of rails as conductors of electric current, and similar American patents were issued to Lilley and Colten in 1847.



## MECHATRONICS

*By Somesh Rajendra Mane*  
*SYME*



Mechatronics, also called mechatronics engineering, is an interdisciplinary branch of engineering that focuses on the integration of mechanical, electronic and electrical engineering systems, and also includes a combination of robotics, electronics, computer science, telecommunications, systems, control, and product engineering.

As technology advances over time, various subfields of engineering have succeeded in both adapting and multiplying. The intention of mechatronics is to produce a design solution that unifies each of these various subfields



Originally, the field of mechatronics was intended to be nothing more than a combination of mechanics and electronics, hence the name being a portmanteau of mechanics and electronics; however, as the complexity of technical systems continued to evolve, the definition had been broadened to include more technical areas.

The word mechatronics originated in Japanese-English and was created by Tetsuro Mori, an engineer of Yaskawa Electric Corporation. The word mechatronics was registered as trademark by the company in Japan with the registration number of "46-32714" in 1971. The company later released the right to use the word to the public, and the word began being used globally. Currently the word is translated into many languages and is considered an essential term for advanced automated industry.

Many people treat mechatronics as a modern buzzword synonymous with automation, robotics and electromechanical engineering.

French standard NF E 01-010 gives the following definition: "approach aiming at the synergistic integration of mechanics, electronics, control theory, and computer science within product design and manufacturing, in order to improve and/or optimize its functionality".



## MECHATRONICS ERA

By Omkar Gonjare

SYME

### WELCOME TO MECHATRONICS ERA :

The field of mechatronics is changing the world one automated solution at a time. The benefits to consumers include more affordable and well-made products and faster production times. The most advanced technology depends on mechatronic applications to fabricate and machine consumer products that you use every day. Mechatronic solutions have been integrated into products in ways to enhance safety, such as anti-lock brake systems and medical imaging equipment. The impact on human health, wellness, and security that these innovations have brought cannot be understated.



### MECHATRONICS:

Modeling, identification and control of mechatronic systems; motion and vibration control; micro/nano systems and devices; automotive systems; biomedical mechatronic systems; and advanced manufacturing equipment and processes.

### ROBOTICS:

Modeling, control, learning and system issues related to: autonomous vehicles and robots, marine, underwater, and aerial robots, legged robots, soft robots, field robots, industrial robots, medical robots; human-robot interaction; teleoperation; haptics; and multi-robot systems.

## USING PLC PROGRAMMING DAY TO DAY LIFE

By Aakanksha More

SYME



We are using PLC Program in our Day to day life knowingly or unknowingly. We know that all the a most of the appliances like Refrigerators, Washing Machine, Traffic Control Systems , Roller coasters etc. We know how they works or runs but we don't know how they actually runs what is the program behind that machines how they are on and off or how they repeats after a specific interval of time.All this is possible due tothe PLC Programming. The full form of plc is Programmable Logic Controller.



This PLC program is also used at Industry levels at huge amount. Most of the machines works on The PLC was Introduced in PLC Programming. 1960 •

First commercial and Successful Programmable Logic Controllers was designed and developed by Madison as a relay replacer for General Motors .PLC is an industrial computer that motions inputs and outputs to make decisions based on the program Use stored to the PLC's memory. The of PLC's helps to reduce human decisions making efforts to gain higher efficiency . Not only Ple their: their is also. Scada which is used to monitor and control equipment in process automation. Because of this technology the world is being changed where before in industries large no. Of workers where in large scale but due to this PLC Programing Scada the human on labour is reduce almost to 70%. Now a day only 1 or 2

# Faculty Achievements

## FDP/STTP/CONFERENCE/WORKSHOP ETC. ATTENDED

Sr. No	Title	Name of Faculty	Organised By	Duration
01	"OBE and NBA Process in Technical Education"	Prof. N.B. Devi	Government Polytechnic, Awasari	14-02-2022 to 19-02-2022
02	Complete Training on Quality Circle (QC)	Prof. D.R. Waghmode	NIT Polytechnic, Nagpur	20-12-2021 to 24-12-2021
03	Complete Training on Quality Circle (QC)	Prof. K.B.Dhanawade	NIT Polytechnic, Nagpur	20-12-2021 to 24-12-2021
04	Complete Training on Quality Circle (QC)	Prof. P.V. Zore	NIT Polytechnic, Nagpur	20-12-2021 to 24-12-2021
05	Complete Training on Quality Circle (QC)	Prof. S.S. Yewale	NIT Polytechnic, Nagpur	20-12-2021 to 24-12-2021
06	NPTEL E-Awareness Workshop	Prof. P.V.Zore	NPTEL	16-12-2021
07	NPTEL E-Awareness Workshop	Prof. K.B.Dhanawade	NPTEL	21-12-2021
08	Teaching with Technology	Prof. P.V.Zore	Punjabrao Deshmukh Poly, Amravati	08-12-2021 to 12-12-2021
09	Teaching with Technology	Prof. N.F. Momin	Punjabrao Deshmukh Poly, Amravati	08-12-2021 to 12-12-2021



# Students Accomplishments

Paper Presentation/Project/Quiz Participation Etc

Sr. No	Title	Name of Students	Organised By	Duration
01	"Techno Spark 2K22" A Technical quiz	Khan Zeeshan Zuber	PVPIT Bavdhan, Pune.	28-02-2022.
02	"Techno Spark 2K22" A Technical quiz	Varadraj Mahesh Umardand	PVPIT Bavdhan, Pune.	28-02-2022.
03	Region level Project Competition	Salunkhe Aniket Sachin	Government Polytechnic, Karad	15-12-2021
04	Region level Project Competition	Sayyad samad salim	Government Polytechnic, Karad	15-12-2021
05	Region level Project Competition	Umardand Varadraj Mahesh	Government Polytechnic, Karad	15-12-2021
06	Region level Project Competition	Dhonde Aniket Shailendra.	Government Polytechnic, Karad	15-12-2021
07	Region level Project Competition	Dangare Prasad Sanjay.	Government Polytechnic, Karad	15-12-2021
08	Region level Project Competition	Chavan Vinayak Ramchandra.	Government Polytechnic, Karad	15-12-2021
09	Region level Project Competition	Gaikwad Sahil Suresh.	Government Polytechnic, Karad	15-12-2021
10	State Level Paper Presentation Competition	Rudra Parag Ingale	Government Polytechnic, Aurangabad.	18-09-2021,

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## A Word from the Newsletter Team

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.

*Please write us at or contact: [hodme@kbppoly.edu.in](mailto:hodme@kbppoly.edu.in) or [zoreprathamesh@kbppoly.edu.in](mailto:zoreprathamesh@kbppoly.edu.in) (OR) Editorial Board*

# THANKYOU

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