

Rayat Shikshan Sanstha's

Karmaveer Bhaurao Patil Polytechnic Satara



Newsletter

Volume 03 ISSUE 01

OFFICIAL NEWSLETTER OF

**DEPARTMENT
OF MECHANICAL
ENGINEERING**



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OUR TRIBUTE

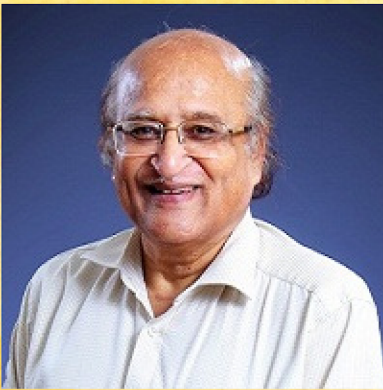


Dr. Karmaveer Bhaurao Patil
Founder,
Rayat Shikshan Sanstha,
Satara



Sou. Laxmibai Bhaurao Patil
Rayat Mauli

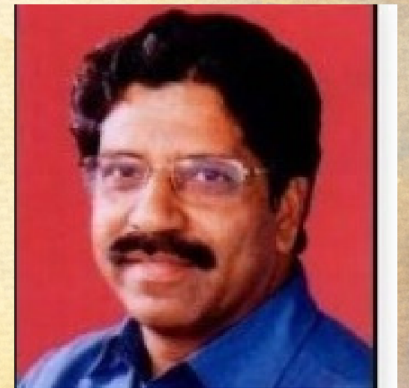
OUR DESK'S



Hon Dr. Anil Patil
Chairmen
Rayat Shikshan Sanstha,
Satara



Hon Dr. V. S. Shivankar
Secretary
Rayat Shikshan Sanstha,
Satara



Hon Dr. Shivling Menkudale
Joint Secretary
Rayat Shikshan Sanstha,
Satara



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



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

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Karmaveer Bhaurao Patil
Polytechnic , Satara
Received Best Polytechnic
Award in satara Region on
15th september 2022

Certificate of Honor Awarded
by Builders Association of
India (Satara Region) for
Academic Performance for
2021-22

BUILDERS ASSOCIATION OF INDIA SATARA CENTRE

"BEST POLYTECHNIC" AWARD

THIS CERTIFICATE OF MERIT IS PROUDLY
AWARDED TO

**KARMAVEER BHAURAO PATIL
POLYTECHNIC, SATARA**

**FOR ACADEMIC PERFORMANCE IN YEAR 2021-22
IN SATARA REGION**

Date: 15th September 2022

Estd. 1941


Mr. Omkar Shinde
Secretary


Mr. Rajesh Deshmukh
Chairman

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

PRINCIPAL'S DESK

Prin. Dr. K. C. Shaikh

I/c Principal

Karmaveer Bhaurao Patil Polytechnic, Satara



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.

HOD'S DESK

Mr. N. B. Devi

I/c Head of Department (Mechanical Engineering)



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 newsletter 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

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 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.

Our Faculty Members

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

DMESA Committee

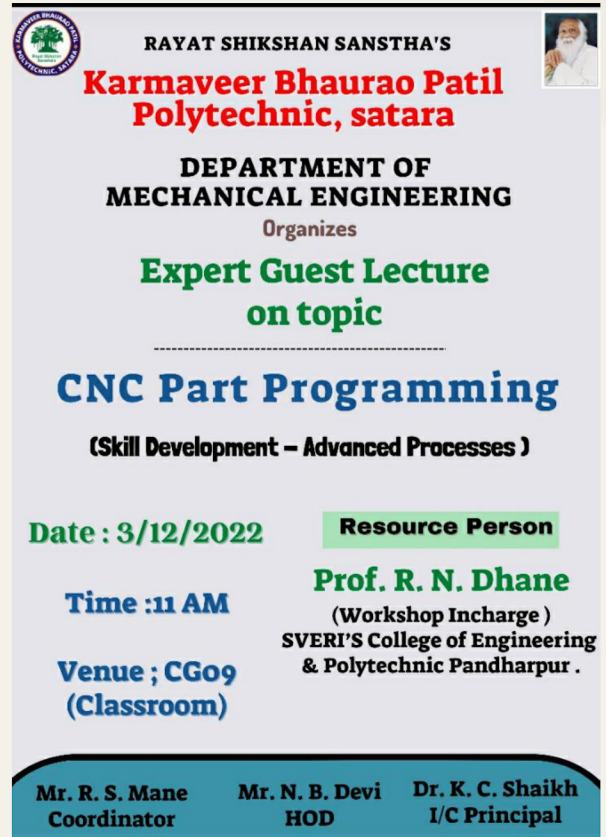
Sr. No	Post	Class	Name
1	President	TY	Indulkar Anish Shankar
2	Vice – President	SY	Salunkhe Atharav Govind
3	Vice – President	SY	Kale Sanket Rajendra
4	Treasurer	TY	Gonjare Omkar Amol
5	Treasurer	SY	Gujar Akshay Shivaji
6	Auditor	TY	Homkar Sejal Nilesh
7	Auditor	SY	Dhanawade Vedant Sandip
8	Class Representative	TY	Ingale Rudra Pratap
9	Class Representative	SY	Bhandirge Omkar Balasaheb/Dhurgude Suyash Arun
10	Ladies Representative	TY	Shitole Priti Dilip
11	Ladies Representative	SY	Thorat Arya Aakash
12	Class Representative	FY	Gawali Ajinkya Manik
13	Ladies Representative	FY	Lohar Vaishnavi Changdev

Departmental Activities

EXPERT LECTURE

Expert Guest Lecture delivered by Prof. R. N. Dhane (Workshop incharge) SVERI College of engg on topic of **CNC Part Programming** on 03 December 2022

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RAYAT SHIKSHAN SANSTHA'S
Karmaveer Bhaurao Patil Polytechnic, satara

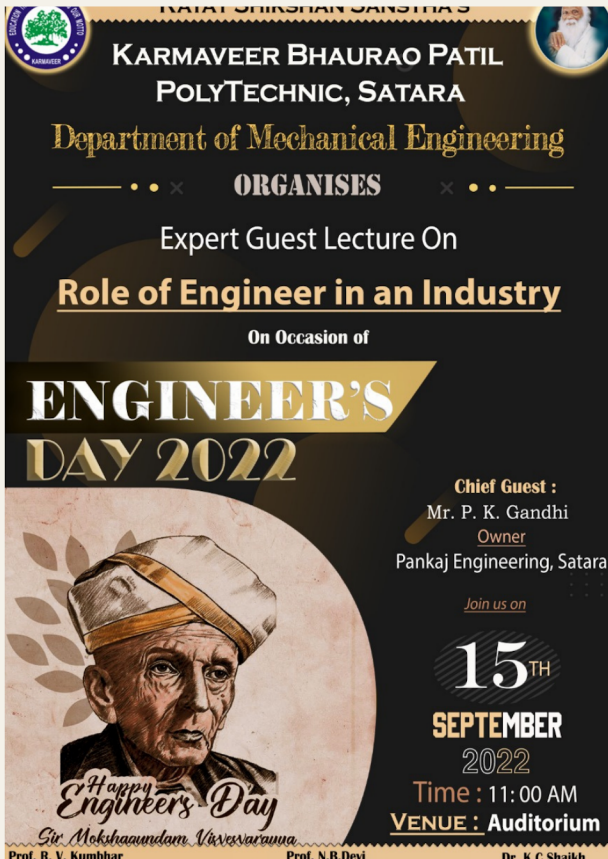
DEPARTMENT OF MECHANICAL ENGINEERING
Organizes
Expert Guest Lecture on topic

CNC Part Programming
(Skill Development – Advanced Processes)

Date : 3/12/2022 Resource Person
Prof. R. N. Dhane
(Workshop Incharge)
SVERI'S College of Engineering & Polytechnic Pandharpur.

Time : 11 AM
Venue ; CG09 (Classroom)

Mr. R. S. Mane Mr. N. B. Devi Dr. K. C. Shaikh
Coordinator HOD I/C Principal



KARMAVEER BHURAO PATIL
POLYTECHNIC, SATARA

Department of Mechanical Engineering
ORGANISES
Expert Guest Lecture On
Role of Engineer in an Industry
On Occasion of
ENGINEER'S DAY 2022

Chief Guest :
Mr. P. K. Gandhi
Owner
Pankaj Engineering, Satara

Join us on
15TH
SEPTEMBER
2022
Time : 11:00 AM
VENUE : Auditorium

Happy Engineer's Day
Sir Mokshaandam Vaidyanatha

Prof. R. V. Kumbhar Prof. N.B.Devi Dr. K.C.Shaikh

GUEST LECTURE ON “ROLE OF AN ENGINEER IN INDUSTRY

Expert Guest Lecture delivered by Mr. Pankaj Gandhi on topic of **Role of an Engineer in Industry** on 15 September 2022

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Departmental Activities

EXPERT GUEST LECTURE ON EDP FOR FINAL YEAR STUDENTS

Expert Guest Lecture on EDP delivered by Mr. Dinesh Mane on topic of Role of an Engineer in Industry on 21 November 2022



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Rayat Shikshan Sanstha's
Karmaveer Bhaurao Patil Polytechnic, Satara
----- Organises -----
Three Days Faculty Development Program
On
Empowerment of Technical Teachers

~ Resource Persons ~

 Mr. N. B. Devi HOD Mech. Dept.	 Mr. M. M. Vibhute Development Officer, PLI	 Dr. K. C. Shaikh I/c Principal	 Mrs. K. P. Bhoite Librarian	 Dr. Vijay Kumbhar HOD, D. C. College Satara
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~ Sessions ~

Mr. N. B. Devi : Preparation of Course File
Mr. M. M. Vibhute : Postal Life Insurance Policies
Mrs. K. P. Bhoite : MOOCs (SWAYAM and NPTEL)
Dr. K. C. Shaikh : Introduction of NEP 2020
Dr. Vijay Kumbhar : NEP 2020

Mrs. S. M. Jadhav
Program Coordinator

Date : 17th - 19th October, 2022 at 3.00 PM - 5.15 PM
Venue : Auditorium Hall, C - Wing

Dr. K. C. Shaikh
I/c Principal

THREE DAYS FDP ON EMPOWERMENT OF TECHNICAL TEACHERS

FDP Session on **Preparation Course File** was delivered by Prof. N. B. Devi on 17 OCT 2022

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Departmental Activities



National Engineers Day

Chief Guest - Mr. Pankaj Gandhi

Pankaj Engineering Pvt. Ltd.
L-18 Additional MIDC, Satara.

The Mechanical Engineering department of KBP Polytechnic Satara celebrated National Engineers Day on September 15, 2022. The event aimed to commemorate the birth anniversary of the famous engineer Sir Mokshagundam Visvesvaraya. The celebration included various activities such as guest lectures

Event was Successfully Coordinated by Mr. R. V. Kumbhar. HOD Mr. N.B. Devi and Prin. Dr. K.C. Shaikh shared their Valuable thoughts on inauguration of the event

On this Occasion a guest lecture by Mr. Pankaj Gandhi was arranged on topic "Role of an Engineer in Industry " for all SYME and TYME Students



Departmental Activities



TEACHERS DAY CELEBRATION

VENUE - MECHANICAL DEPARTMENT

The Mechanical Department celebrated Teachers' Day on 05 September 2022 with great enthusiasm and gratitude towards their teachers, organizing various activities to show their appreciation. It was a memorable day for everyone involved. Event was successfully coordinated by Mr. D. R. Waghmode



Departmental Activities



TREE PLANTATION

VENUE - C- WING GROUND

The Mechanical Engineering Department in our college took the initiative to promote tree plantation on the campus. Several trees were planted in various areas, creating a greener and more sustainable environment.



Departmental Activities



FDP On “PREPARATION OF COURSE FILE”

Venue : Auditorium

Prof N B Devi conducted an FDP (Faculty Development Program) on course file preparation for diploma engineering subjects. The FDP aimed to equip faculty members with the necessary skills and knowledge to prepare well-structured course files.

Prof N B Devi emphasized the importance of keeping the course file updated and organized to ensure a smooth learning process. The FDP covered topics such as syllabus preparation, assignment design, and note-taking, CO, PO Attainment. Overall, the FDP was a great success, and the faculty members gained valuable insights into course file preparation for diploma engineering.



Departmental Activities



Parents-Teacher-Students Meet 2022-23

Venue : **Auditorium**

Parents-Teachers-Students Meet
Organised by Mechanical Engineering
Department on 11 OCT 2022 for
parents whose ward are in Second Year
and Third year of Mechanical
Engineering Diploma.

Outline of Meeting

1. Overview of Mechanical Department
2. Academic Activities 2022-23
3. Class Test and MSBTE Exam
4. Feedback of Parents



WELCOME EVENT 2022-23

VENUE - AUDITORIUM , C- WING

The Mechanical Engineering department organized a welcome function for first-year and direct second year students on 9 November 2022. The event aimed to introduce the students to the college environment and provide them with a warm welcome. The function included various cultural activities, games, and interactions with senior students and faculty members. Event was successfully coordinated by Mr. R. V. Kumbhar.



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.



Departmental Activities



Industrial Visit - TYME

VENUE- RAYAT SCIENCE AND INNOVATION ACTIVITY CENTRE SATARA

One Day Industrial Visit was arranged for TYME Students on 07 OCT 2022 at RAYAT SCIENCE AND INNOVATION ACTIVITY CENTRE Satara under coordination of Mr. S. G. Sherkar



Departmental Activities



Industrial Visit - SYME

VENUE- MAHARASHTRA SCOOTERS, MIDC SATARA

One Day Industrial Visit was arranged for SYME Students on 12 DEC 2022 at Maharashtra Scooters, MIDC Satara under coordination of Mr. S.S Yewale and Mr. P. V. Zore



CNC Programming & Machining

VENUE - VISHWAKARMA ENGINEERING SATARA

One Day Industrial Visit and Training on CNC Programming and Machining was arranged for TYME Students on 19/12/2022 at Vishwakarma Engineering, Satara under coordination of Mr. R. S. Mane



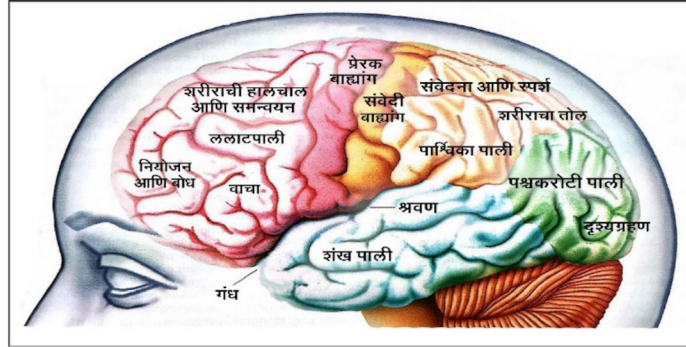
कार्य विश्व (world of work)

Prin. Dr. K. C. Shaikh

I/c Principal

प्रस्तावना:-

आपल्या सभोवताली वावरणारे सर्व सजीव प्राणी कोणते ना कोणते कार्य करीत असतात सर्व सजीवांना अन्नाची गरज असते पचनक्रिया प्रक्रियेपासून त्यांना ऊर्जा मिळवावी लागते आणि टाकाऊ पदार्थांचे उत्सर्जन करावे लागते. सर्व सजीव कार्य करण्यासाठी उर्जेचा वापर करीत असतात. ते नेहमी क्रियाशील असतात उदा लहान लहान मुंग्या सुद्धा अन्नाच्या शोधात भटकत असतात. मधमाशा मध गोळा करण्यासाठी फुलाफुलांवर भटकत असतात. या सर्व सजीव प्राण्यांमध्ये मनुष्य प्राणी अत्यंत चलाख आहे. मानवी मेंदू व इतर प्राण्याचे मेंदू यांचे तुलना केल्यास मानव हा खूपच प्रगत मेंदू असलेला प्राणी आहे हे आपल्या लक्षात येते. मानवाचे सरासरी शरीराचे वजन 70 किलो आहे त्यातील 1.5 ते 2 किलो वजन मेंदूचे आहे. अति प्रगत मेंदूचे वरदान लाभलेला हा मानव विचारी आहे तो कल्पनाविलास, आठवण, विविध विचारातून एकाची निवड व निष्कर्ष इ. करू शकतो. उपजत बुद्धीने जीवन प्रक्रिया करण्याऐवजी मानव काळजीपूर्वक विचार करतो.



तंत्रज्ञान आणि मानवी जीवन:-

प्रगत मेंदूमुळे माणसाला परिसराचे निरीक्षण करणे शक्य होते. सभोवताली घडणाऱ्या विविध घटनांचा तो अभ्यास करू शकतो. या अभ्यासाच्या व विचारांच्या सहाय्याने आपले जीवन अधिक सुखकारक करण्याच्या दृष्टीने तो ज्ञानसंचय करीत राहतो. प्राप्त केलेल्या ज्ञानाचा व्यवहारात वापर करण्याचे शास्त्र म्हणजे तंत्रज्ञान होय.

माणसाने लावलेल्या विविध शोधामुळे विकास कसा झाला ही बाब प्राचीन काळापासून आतापर्यंतच्या मानवी इतिहासाच्या अभ्यासाने स्पष्ट होते.



इतिहासपूर्व काळातील (सुमारे 50000 वर्षांपूर्वी) मनुष्यप्राणी हा रानटीच होता त्याची जीवनपद्धती ही इतर सस्तन प्राण्यासारखीच होते. अन्न मिळवण्यासाठी भटकंती करणे अन्न व निवारा या दोन मूलभूत गोष्टी मिळवण्यासाठी इतर हिंस्र श्वापदापासून व धोक्यापासून स्वतःचे संरक्षण करित तो भटकत असे या भ्रमंती मध्ये त्याच्या लक्षात आले की अन्नासाठी शिकार करणे व इतर श्वापदापासून रक्षण करणे या गोष्टी या आपल्या बांधवांच्या बरोबर राहिल्याने सोप्या होतात मग तो समूहाने राहू लागला आणि हळुहळु मानवी समाजाची निर्मिती झाली. अशी अनेक माणसे समूहाने राहू लागली व त्यांच्यामध्ये परस्पर दळणवळण किंवा देवाणघेवाणसाठी परस्पर सवाद साधण्याची गरज निर्माण झाली व यातूनच बोली भाषेचा जन्म झाला.



अशा प्रकारे मानवी समूह हा भटकंती करू लागला कारण एकाच ठिकाणी शिकार करण्याने त्यांची गरज भागणे शक्य नव्हते या भटकंतीमध्येच अग्नी निर्माण करण्याची प्रक्रिया त्यांना माहिती झाली. अग्नीचा शोध हा मानवी इतिहासातील महत्वाचा टप्पा मानला जातो अग्नीपासून मानवी समूहाला थंडीवाऱ्यापासून, रानटीपशुपासून संरक्षण प्राप्त झाले व अन्न शिजवण्याचे साधन ही मिळाले. दरम्यानच्या काळात काही प्राण्यांना आपलेसे करण्यामध्ये मानवाला यश मिळाले. उदा. गाय, शेळी, उंट, गाढव, घोडा इत्यादी. घोड्यावर किंवा इतर प्राण्यावर स्वार होऊन दूरचे अंतर अल्पावधीत कापता येते याची माणसाला जाणीव झाली गाय व शेळी यांचे दुध हे पोषक अन्न आहे याची सुद्धा त्यांना जाणीव झाली पुढे घोडागाडी व बैलगाडीहि वाहतुकीची नवीन साधने निर्माण झाली.



माणसाचे प्रारंभिक तंत्रज्ञान हे अग्नी, हत्यारे, वाहतुकीची साधने व भाषा यांचे मिळून बनले होते. या चार शोधांमुळे माणसाचे जीवन अधिक आरामदायक बनले. या शोधांनी मानवाला अन्न, वस्त्र व निवारा या मूलभूत गोष्टी प्राप्त झाल्या. मूलभूत गरजा भागल्यामुळे माणसाला फुरसत मिळाली व जीवनातील इतर बाबींचा विचार करण्यास त्यांना वेळही मिळाला, यांचे प्रत्यय आपणास प्राचीन गुहामध्ये व दगडावरील कोरीव काम पाहिल्यानंतर येतो.

हळूहळू पुन्हा तंत्रज्ञान विकसित होत गेले व मानवी जीवन प्रभावी झाले.

तंत्रज्ञान आणि मानवी गरजा:-

मानवी इतिहासाचा आपण बारकाईने अभ्यास केला असता तंत्रज्ञानचा विकास आणि मानवी गरजा या परस्पर पूरक आहेत हे स्पष्ट होते. मानवी गरजांच्या पूर्ततेसाठी एखाद्या तंत्रज्ञानाचा स्वीकार केला की त्यातून नव्या गरजा निर्माण होतात.



उदा. गेल्या काही दशकात भारतातील ग्रामीण भागात घडलेले बदल लक्षात घेवू पूर्वी खेड्यातील मंडळी मातीच्या किंवा काडाच्या घरात राहत असत सिमेंट आणि पोलाद या वस्तूच्या आगमनाबरोबर खेड्यातील घरे सुद्धा सिमेंट क्राँकीट मध्ये बांधली जात आहेत. पारंपारिक चुलीची जागा आता शेगडी किंवा घासलेट वर चालणारे स्टोव्ह यांनी घेतलेली आपण पाहतो. ग्रामीण भागाचे विद्युतीकरण झाल्याने तेलाच्या पणत्या, समया, कंदील यांची जागा विजेचे खांब व ट्यूब यांनी घेतली आहे. खेडुताच्या आवडीनिवडी या आता शहरी नागरिकांच्या बरोबरीने झाल्या आहेत. खेडे सुद्धा आता स्वयंपूर्ण बनले आहे. प्रसारमाध्यमांची साधने उदा. रेडीओ, टीव्ही तसेच दळणवळणाची साधने भरपूर प्रमाणात वापरली जात आहेत. शेतीच्या सुधारित पद्धतीचा अवलंब अधिक उत्पादन देणाऱ्या बियाणांचा वापर यामुळे अन्नधान्याचे भरघोस पिक मिळू लागले आहे.

तंत्रज्ञानामधील क्रांती:-

तंत्रज्ञानाच्या विकासाचा आराखडा पाहिल्यानंतर आपल्या असे लक्षात येते की वैज्ञानिक पद्धतीचा सुयोग्य वापर केल्यानेच आपल्या शास्त्रीय ज्ञान भांडारात वाढ होऊ शकते या शास्त्रीय ज्ञान भांडाराचे व्यवहारात उपाययोजन केल्यानेच तंत्रज्ञान विकसित होते.

अठराव्या शतकाच्या अखेरीस वैज्ञानिक पद्धत पूर्णपणे विकसित झाली होती याच सुमारास उर्जेचे नवीन स्रोत उपलब्ध झाले. अमेरिका आणि युरोप मध्ये मोठेमोठे कारखाने सुरु झाले यामधून पोलाद, आगकाड्या, वस्त्रे, मोटारी, विद्युत उपकरणे यांचे मोठ्या प्रमाणावर उत्पादन होऊ लागले या देशामध्ये एका औद्योगिक क्रांतीचा जन्म झाला.

एकोणविसाव्या शतकातील या औद्योगिक क्रांतीमुळे तंत्रज्ञानातील प्रगतीत एक नवेच पर्व सुरु झाले जीवनाच्या प्रत्येक क्षेत्रात अनेक नवेनवे शोध लागले वाफेच्या इंजिनमुळे आगगाडी वाहतुकीस उपलब्ध झाली. पेट्रोलच्या शोधामुळे हलक्या वजनाची पण अधिक कार्यशक्तीची इंजिने तयार झाली. उदा. विमाने, स्टेनलेस स्टील, प्लास्टीक, नायलॉन धागे आणि धातूची वेगवेगळी संमिश्रे (Alloys) उपलब्ध झाली. अनेक रोगांवर रामबाण ठरणाऱ्या औषधांचाहि शोध लागला.

एकोणिसाव्या शतकातील औद्योगिक क्रांतीचा वेग हा विसाव्या शतकामध्ये हि तसाच चालू असलेला आपण पाहत आहोत. उदा. आपण प्रसार माध्यम, रेडीओच्या जडणघडणातील बदल पाहू. इ.स. 1950 च्या आसपास वापरात असणारे रेडीओ आकाराने मोठे होते त्या

रेडीओमध्ये व्हाल्व वापरीत असत आणि त्यांना बाहेरून विद्युत पुरवठाहि करावा लागत असे. लवकरच अर्थ संवाद्काचा (Semi-Conductor) शोध लागला आणि व्हाल्वची जागा Semi-Conductor पासून तयार केलेल्या ट्रान्झिस्टरच्या वापराबरोबर खिशात बाळगण्याजोगे रेडीओ आणि टेप रेकॉर्डिंग निर्माण झाले.



अवकाश संशोधनामध्ये सुद्धा विसाव्या शतकामध्ये बरेच प्रगती झालेली आपणास दिसून येते. पृथ्वीभोवतीच्या कक्षेत पृथ्वीला प्रदक्षिणा घालणारा पहिला कृत्रिम उपग्रह स्पुटनिक इ.स. 1957 मध्ये सोडण्यात आला त्यानंतर इतर अनेक देशांनी कितीतरी उपग्रह पृथ्वीभोवती सोडले आहेत. या उपग्रहामधून यंत्रे पाठविली गेली तशीच माणसेही पाठविली गेली. मानवाने चंद्र भूमीवरतीही पाऊल ठेवले आहे व चंद्र पृष्ठावरील मातीचे नमुने हि आणले आहेत. भारत सुद्धा अवकाश संशोधन (Space Research) मध्ये प्रगती करत आहे. आजवर अनेक भारतीय उपग्रह अवकाशात पाठविण्यात आली असून नुकताच 23 जुलै 1993 रोजी इन्सॅट-2B हा भारतीय बनावटीचा उपग्रह अवकाशात सोडण्यात आला आहे. त्याचे कार्य सुद्धा व्यवस्थितरित्या सुरु आहे.



तंत्रज्ञान आणि ऊर्जा संकट:-

कोणत्याही देशातील ऊर्जेचा खप हा त्या देशातील नागरिकांच्या जीवन पद्धतीवर आणि वस्तूंच्या उत्पादन पद्धतवर अवलंबून असतो. तंत्रज्ञानाने प्रगत असलेल्या राष्ट्रांमध्ये ऊर्जेचा खप जास्त असतो. उदा. अमेरिका व रशिया या दोन राष्ट्रांची लोकसंख्या हि जगाच्या लोकसंख्याच्या केवळ 11% आहे. तथापि या देशातील ऊर्जेचे उत्पादन व खप जगाच्या तुलनेत 50% आहे. भारताची लोकसंख्या जगाच्या लोकसंख्याच्या 15% आहे. पण ऊर्जेचे उत्पादन व खप जगाच्या तुलनेत फक्त 2% आहे.

ऊर्जा उत्पादनासाठी आपण कोळसा खनिज तेल व नैसर्गिक वायू यांचा सातत्याने वापर करतो. अलीकडेच मानवाला सापडलेले युरेनियम हे इंधन अणुभट्ट्यांमध्ये वापरले जाते. हि इंधने पृथ्वीगोलच्या अगदी वरच्या थरात सापडतात. या इंधनांनी समृद्ध असलेले प्रदेश पृथ्वीच्या पाठीवर संख्येने फारच कमी आहेत. शिवाय ऊर्जा उत्पादनासाठी लागणारी हि सर्व खनिज संपत्ती

अतिशय मंद गतीने चालणाऱ्या भौतिक-रासायनिक प्रक्रीयेद्वारे तयार होते. उदा. कोळसा हा निसर्गाच्या Alteration of vegetable & Animal matter किंवा कोलीप्फीकेशन या नैसर्गिक प्रक्रियेने तयार होतो. हि अतिशय मंद प्रक्रिया आहे. खनिज तेल निसर्गामध्ये किंवा भूपृष्ठावर मोठ्या प्रमाणात सापडण्यासाठी विशीष्ट प्रकारच्या खडकाचे खनन करून मिळवतात. उदा. कूड पेट्रोलियम हे मुख्यत्वे गाळाच्या खडकाच्या आतील पृष्ठभागावर सापडते. (Sedimentary Rock) आणि या प्रकारच्या खडकाचे अस्तित्व फारच थोड्या भू पृष्ठावरती असलेले आपण पाहतो.



एका बाजूला हि इंधने आपण हवा, पाणी आणि जमीन अशी सर्वत्र विघटन टाकीत आहोत आणि दुसऱ्या बाजूला हा इंधनसाठा तयार व्हायला कोठ्यावधी वर्षे लागली. तो साठा आपण अतिशय वेगाने वापरून टाकीत आहोत. भारतातील कोळसासाठा अंदाजे ८० अब्ज टन आहे. आपण वर्षाला ४० कोटी टन वापरतो. या वाढत्या दराने कोळसा वापरल्यास आपला कोळश्याचासाठा पुढील फक्त २०० वर्षे पुरेल.

भारताचा तेलसाठा तर आणखीनच मर्यादित आहे. तो फक्त ५० कोटी टन आहे. वाढत्या दराने तेल साठा आपण वापरल्यास आपल्याला आवश्यक असणारे तेल लवकरच पूर्णपणे आयात करावी लागेल. या आयातीसाठी पैसा मोजणे आपल्या सारख्या विकसनशील देशाला परवडणारे नाही. म्हणूनच आपला देश एका अवघड ऊर्जा संकटाचा सामना करत आहे. ऊर्जा संकट हा केवळ आपल्याच देशाचा प्रश्न आहे असे नाही जगातील सर्व देशांना लवकर किंवा उशिरा अशा संकटाला सामोरे जावेच लागणार आहे.

हे ऊर्जा संकट टाळणे कठीण असले तरी अशक्य मात्र नाही यासाठी खालील गोष्टी अमलात आणल्या पाहिजेत.

१. कोळसा, डिझेल, पेट्रोल, ज्वलन वायू या सारख्या इंधनाच्या वाढत्या वापरावर नियंत्रण बसविणे.
२. सूर्य, वारा व सागरलाटा यापासून ऊर्जा निर्माण करण्यासाठी (Solar Energy) आवश्यक तंत्रज्ञान विकसित केले पाहिजे.
३. ऊर्जा वाया घालवणे हा मानवतेविरुद्ध गुन्हा आहे. आवश्यक असेल तेव्हाच ऊर्जेचा वापर करणे याची प्रत्येक व्यक्तीला जाणीव करून दिली पाहिजे.

तंत्रज्ञान आणि प्रदूषण:-

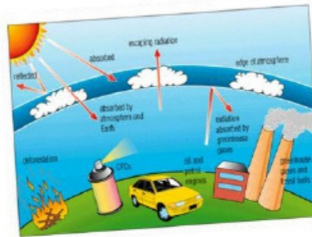
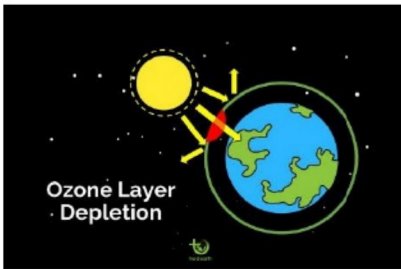
गेल्या काही दशकात तंत्रज्ञान वेगाने वाढले आहे. वेगवेगळ्या संशोधकांनी लावलेल्या नवनवीन शोधांमुळे उद्योगधंद्याचा आणि कारखान्याचा झपाट्याने विकास झाला शहरे उद्योग उद्योगधंद्यानी गजबजली कारखाने उभारण्यासाठी मोठ्या प्रमाणात जंगलतोड करण्यात आली.

भौतिक प्रगतीमुळे औषधीकरणाचा वेग जरी वाढला तरी 'पर्यावरण प्रदूषण' हि गंभीर समस्याही निर्माण झाली हे सत्य नाकारून चालणार नाही.



कारखान्यामधून निरनिराळ्या रासायनिक घटकांच्या क्रिया प्रक्रीयामधून निर्माण झालेल्या त्याज्य पदार्थांची विल्हेवाट लावणे हा प्रश्न दिवसेंदिवस गंभीर बनत चालला आहे. कारखान्यातून निघालेल्या धुरामुळे हवेच्या प्रदूषणात वाढ होत आहे. हवेतील CO_2 चे प्रमाण वाढल्यामुळे पृथ्वीतलाचे आणि वातावरणाचे उष्णतामान वाढत चालले आहे. जंगलविनाशामुळे भूपृष्ठीय व भूजलसाठे कमी होऊन जमिनी कोरड्या पडू लागलेल्या आहेत. म्हणजेच औद्योगिकरण व कारखानदारीचा विकास हा पर्यावरणाचा समतोल बिघडविणारा आहे.

पृथ्वीच्या पृष्ठभागापासून 16 कि.मी. उंचीवर सूर्याचे किरण ऑक्सिजनचे (O_2) चे रूपांतर ओझोनमध्ये (O_3) करतात. या उंचीपासून 23 कि.मी. पर्यंत ओझोनचे प्रमाण वाढत जाते. म्हणजेच पृथ्वीच्या वातावरणाच्या वरती ओझोन वायूचा थर आहे. सूर्यापासून येणाऱ्या प्रारणातील अपायकारक अतिनील किरण व जंबूपार किरण (Violet & Ultra violet rays) चा ओझोन थरात शोषले गेल्यामुळे पृथ्वीवरील सजीवसृष्टीचे रक्षण होते परंतु या थराला सुद्धा भगदाड पाडण्याचे काम क्लोरोफ्लुरोकार्बन (C.F.C.) हा रासायनिक पदार्थ करत आहे. सी.एफ.सी. या नावाचा रासायनिक पदार्थ शीतपेट्या व हवा थंड करण्याच्या यंत्रणेमध्ये वापरला जातो पूर्वी अमोनिया व SO_2 चा वापर केला जाईल पण अमोनियाचा उग्र वास व विषारी गुणधर्मांमुळे त्याची जागा C.F.C. ने घेतली व त्याच्या जागी C.F.C. चा वापर सुरु झाला बिनविषारी, बिनवासाचे व पेट न घेणारे हे रसायन भस्मासुर बनले आहे. दरवर्षी 10 लाख टन सी.एफ.सी. चे उत्पादन होते व त्यातील बहुतेक भाग नंतर हळूहळू निसटून वातावरणात जातो याचा पाण्याशी, प्राणवायूशी किंवा इतर कोणत्याही पदार्थाशी संयोग होत नाही. त्याचा हाच रासायनिक गुणधर्म मात्र पर्यावरणाला घातक ठरलेला आहे. कारण तो ओझोनचा थर नष्ट करत आहे व या थरामधून येणाऱ्या अतिनील किरणामुळे मोतीबिंदू, त्वेचेचा कर्करोग आणि माणसाची प्रतिकार शक्ती कमी होते. म्हणजेच सी.एफ.सी.ह्या रासायनिक पदार्थाच्या उत्पादनाने जरी औद्योगिक विकास साधला तरी संपूर्ण जीवसृष्टी नाश पावण्याचा आणि पर्यावरण असंतुलित होण्याचा धोका वाढेल हे निश्चित आहे.



पर्यावरणाचे प्रदूषण औद्योगिक व रासायनिक कारखान्याद्वारे कसे होते याचे आणखी एक बोलके उदाहरण म्हणजे 'ताजमहाल' होय आग्रा शहर आणि आजूबाजूचा संपूर्ण परिसर विविध औद्योगिक प्रकल्प आणि कारखान्यांनी गजबजून गेलेला आहे. या कारखान्यामधून

निघणान्या धुरामध्ये SO_2 वायू असल्याचे एका अलीकडच्याच पाहणीत आढळून आले आहे. निर्जीव दगडावरती परिणाम करणाऱ्या या वायूचा पर्यावरणातील सजीव सृष्टीवर सुद्धा परिणाम होऊन पर्यावरण संतुलन मोठ्याप्रमाणावर ढासळत आहे.

आजच्या पर्यावरण असंतुलनामुळे सर्व जीवसृष्टीचे अस्तित्व धोक्यात आलेले आहे. प्रदूषणाचा हा धोका टाळण्यासाठी सुयोग्य तंत्रज्ञान शोधण्याचा पर्यावरणवादी तज्ञ (Environmentalist) प्रयत्न करीत आहेत. पर्यावरणाच्या समतोलविषयी समाजाने सुद्धा जागरूक राहिले पाहिजे. आपला परिसर स्वच्छ ठेवणे, शेतीसाठी रासायनिक खते व जंतुनाशके याचे प्रमाण कमी करून सेंद्रिय खताचा जास्त वापर करणे. लोकसंख्येचे नियमन व वन्य प्राण्यांचे संरक्षण वगैरे कृती प्रत्येक समाजाने केल्या पाहिजेत.

विज्ञान आणि तंत्रज्ञान - समाज कल्याणाचे साधन



बुद्धी, जिज्ञासा स्मृती आणि विचारशक्ती हि वैशिष्ट्ये असलेला माणूस हा एकमेव प्राणी आहे. या क्षमतेचा वापर करून माणसाने विज्ञान व तंत्रज्ञान विकसित केले आहे. तंत्रज्ञानामुळे होणारा लाभ समाजात मिळतो आणि त्यातून समाजाचे जीवनमान उंचावते. तंत्रज्ञान समाजाच्या गरजांची पूर्ती करते समाजाचे कल्याण त्या समाजातील तंत्रज्ञानाच्या प्रगतीवर अवलंबून असते. तंत्रज्ञानातील प्रगतीमुळे सामाजिक जीवन पद्धतीमध्ये झालेला बदल आपणास पुढील उदाहरणावरून स्पष्ट होतो.

1. कीड प्रतिकारक आणि भरघोस पिक देणारे बियाणे विकसित झाल्यामुळे अन्नधान्याचे विक्रमी उत्पादन होवू शकते.
2. वैद्यकीय संशोधनातील वाढीमुळे नवी औषधे व रसायने बाजारात येऊ लागली आहेत. कॉलरा, पटकी, प्लेग व देवी या सारख्या साथीचे रोग सुधा पूर्णपणे बरे करणारी औषधे मानवाने विकसित केली आहेत.
3. तंत्रज्ञानातील प्रगतीमुळे जनावरांनी ओढल्या जाणाऱ्या गाड्यांच्या जागी मोटारी व आगगाड्या आल्या.



(प्रस्तुत लेखक डॉ. करीम चंदूलाल शेख हे कर्मवीर भाऊराव पाटील पॉलिटेक्नीक, सातारा येथे प्रभारी प्राचार्य या पदावर कार्यरत आहेत.)



Career Options after Diploma Mechanical Engineering

Mr. N. B. Devi

Head of Department (Mechanical Engineering)

1. Private Jobs

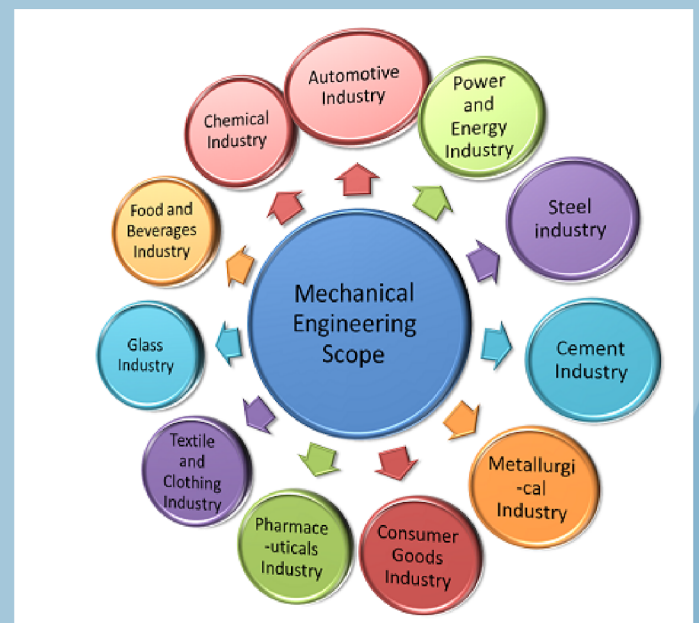
There are plethora of job opportunities available after diploma in Mechanical Engineering. There is always a huge demand for skilled mechanical engineers in manufacturing industries and automotive companies in India as well as all over the world. One can start their career as a Junior Engineer in these companies after completing their diploma. One way to get a private job is through College Placement or by searching on job websites like: Naukri.com, Monster.in

or LinkedIn etc. private jobs easily using popular. The posts advertised for diploma candidates include Operator, Junior Engineer, Supervisor, etc. Following are some of the popular industrial and automobile companies where a candidate can apply: TATA Group, Larsen & Toubro, Thermax, Godrej Group, Ashok Leyland, Kirloskar Group, Mahindra Group, Maruti Suzuki etc.

2. Government Sector Jobs

Government sector jobs though hard to crack are considered as the most secure jobs. The competition is very high in this field due to job security as well as limited vacancies. To prepare for such jobs, minimum preparation period of six months is required that can be extended up to maximum of

1-2 years. Following are some of the popular Government Sectors in which mechanical diploma candidates can apply to: Railways (ALP, Technician, JE), SSC JE, State Level JE Exams, DMRC, DRDO, NTPC, ISRO, NTRO, SAIL, Power Grid, IOCL, Coal India etc.



3. Apprenticeship

Apprenticeship is a system of structured training programmes that trains new individuals with on-the-job. They help one acquire the skills and knowledge needed to succeed in their chosen field of work or industry. Starting off your career with an apprenticeship is a great way to start in your field of work. One is able to acquire first-hand knowledge of the working of industry and gains a nationally recognised certification. They are paid during the training period. Various government sectors release vacancies for apprenticeship training after diploma. By this one can gain valuable 1 or 2 years of experience in their chosen field.

Following are some of the government sectors that provides apprenticeship training: Heavy Engineering Corp. Ltd, BHEL, BEL, Railways, SAIL, DRDO, NTPC, ISRO etc.

TATA Steel, Jindal, TATA motors, etc. and other private companies also provide apprenticeship training of 1-2 years after diploma and also provide permanent job on successful completion of training.

4. Higher Education

One can pursue higher education after completing their diploma in mechanical engineering.

- B. E. / B. Tech – Many institutes offer lateral entry to the diploma holders. That means one can directly get enrolled into the second year of Engineering.
- AMIE – If one has a job after diploma but still want to acquire a B. Tech degree then AMIE is the options for them. It is an engineering degree-level exam conducted for admissions to distance-based BE and B.Tech courses.
- Non-Technical Graduation Course– If one is not interested in technical field then one can also opt for graduation in Arts, Science, Commerce.

5. Short-Term Professional Courses

After completing their diploma in mechanical engineering, there are a variety of courses one can opt for. These courses will help one to get a well-settled job in future. The courses duration varies from 6 months, 1 year or 2 years. Following are some of the popular courses after diploma in Mechanical Engineering: ADCNC, AutoCAD 2D & 3D, CNC Training,

CAD/CAM Training, RADIOSS Training, Piping Design Training, Hyper Mesh Training, Fire & Safety Course, Boiler Operator Training etc.



The Power of Digital Twin Technology"

Mr. P. V. Zore

(Lecturer) B. E. Mechanical Engg

Digital twin technology is a rapidly emerging field in mechanical engineering that has the potential to revolutionize the way we design, develop, and optimize products. At its core, a digital twin is a virtual replica of a physical system or product, created using advanced computer modeling and simulation techniques. This virtual model is connected to real-time data from sensors, simulations, and other sources, allowing engineers to test different design scenarios, identify potential issues before they occur, and optimize performance in real-world conditions.

One of the most significant benefits of digital twin technology is its ability to improve product design and .

By creating a virtual prototype of a product, engineers can test different design iterations and identify potential issues before physical prototypes are

built. This not only saves time and money,

but also helps to ensure that the final product meets performance and quality requirements.

In addition to product design, digital twin technology is also being used to optimize product performance. By continuously monitoring and analyzing data from sensors and other sources, engineers can identify potential issues in real time and make adjustments to improve performance. This can help to reduce downtime, improve efficiency, and extend the lifespan of products.

Another important application of digital twin technology is in predictive maintenance. By analyzing data from sensors and other sources, engineers can predict when maintenance will be required and take action before problems occur. This can help to reduce downtime, improve reliability, and extend the lifespan of products.





The applications of digital twin technology in mechanical engineering are wide-ranging and varied, with potential applications in a wide range of industries, including manufacturing, aerospace, and healthcare. In manufacturing, digital twin technology can be used to optimize production processes, reduce waste, and improve product quality. In aerospace, digital twin technology can be used to improve aircraft design, optimize performance, and reduce maintenance costs. In healthcare, digital twin technology can be used to simulate and optimize surgical procedures, improving patient outcomes and reducing the risk of complications.

Overall, digital twin technology is a powerful tool for mechanical engineers, offering a wide range of benefits in product design, development, and performance optimization. As the technology continues to evolve and become more advanced, we can expect to see even more applications in a wide range of industries, helping to drive innovation and improve efficiency and productivity.



Industrial Fluid Power: Powering Essential Industries with Efficiency and Precision.

Mr. Sameer Shivaji Yewale
(Lecturer) M.E. Heat Power

Industrial fluid power is a critical technology that powers a wide range of machines and systems in the manufacturing, construction, and automotive industries. It involves the use of fluids, such as hydraulic oil or pneumatic air, to transmit power and control motion.

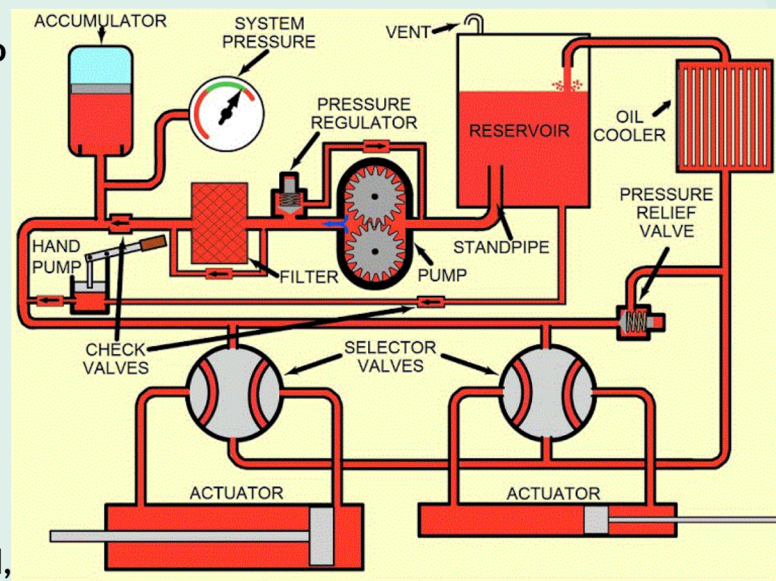
In hydraulic systems, pressurized fluid is used to move mechanical components, such as cylinders or pistons, which in turn generate force or motion. These systems are commonly used in heavy machinery, such as excavators, cranes, and bulldozers. Hydraulic systems can also be found in manufacturing applications, such as metalworking and plastic injection molding. Pneumatic systems, on the other hand,

use compressed air to generate motion or force. They are commonly used in manufacturing applications, such as assembly lines and robotics, as well as in automotive applications, such as braking systems and suspension systems.

Industrial fluid power offers many advantages over other forms of power transmission, including high efficiency, precise control, and compact design. Fluid power systems can also operate in harsh environments, such as high temperatures or corrosive conditions, making them ideal for a wide range of applications.

However, industrial fluid power systems also require careful maintenance and repair to ensure optimal performance and safety. This includes regular inspection and replacement of components, such as hoses and seals, and proper handling and disposal of fluid.

In conclusion, industrial fluid power is a critical technology that powers many essential industries. With proper maintenance and care, fluid power systems can provide efficient and precise power transmission for a wide range of applications.





The Role of Mechanical Engineering in Green Engineering

Mr. Dattatray Waghmode
(Lecturer) M.E. Heat Power

Mechanical engineering is a vital field in the development of sustainable solutions, and it plays a crucial role in the implementation of green engineering principles. Mechanical engineers use their knowledge of mechanics, materials, and thermodynamics to design and develop environmentally sustainable products, processes, and systems.

One of the key areas where mechanical engineers contribute to green engineering is in the design of energy-efficient systems. They work on developing machines and systems that use energy more efficiently, reducing waste and greenhouse gas emissions. For example, mechanical engineers can design more efficient heating, ventilation, and air conditioning (HVAC) systems that consume less energy while providing better comfort for users.

Mechanical engineers also play a critical role in the development of renewable energy technologies. They design and develop wind turbines, solar panels, and other renewable energy systems that capture and convert energy from the environment. They also work on optimizing these systems to improve their efficiency and reduce their cost.

In addition to these applications, mechanical engineers also contribute to the development of sustainable transportation systems. They work on designing more fuel-efficient engines, lightweight materials, and advanced control systems that improve the performance of vehicles while reducing their environmental impact.

In conclusion, mechanical engineering is a critical field in the implementation of green engineering principles. Mechanical engineers play a vital role in the design and development of sustainable solutions that minimize harm to the environment while providing economic and social benefits. As we move towards a more sustainable future, the contributions of mechanical engineers will be more important than ever.



Potential of Sodium-Ion Batteries as an Alternative to Lithium-Ion Batteries.

Mr. Kishor Babanrao Dhanawade
(Lecturer) M.E. Heat Power

As the world moves towards a more sustainable future, the demand for energy storage solutions continues to grow. This has led to the development of various battery technologies, including lithium-ion batteries, which are commonly used in portable electronics and electric vehicles. However, researchers are exploring new alternatives to lithium-ion batteries, such as sodium-ion batteries, which offer several advantages.

Sodium-ion batteries use sodium ions instead of lithium ions to store and release energy. Sodium is a more abundant element than lithium, which makes it a more cost-effective option for energy storage. Sodium-ion batteries also have a lower environmental impact than lithium-ion batteries, as the production process is less energy-intensive and less harmful to the environment.

While sodium-ion batteries are still in the early stages of development, there have been several promising breakthroughs in recent years. Researchers at the University of Birmingham in the UK have developed a sodium-ion battery that can be charged and discharged at room temperature, which is a significant achievement. This battery has a higher energy density than previous sodium-ion batteries, which means it can store more energy per unit of weight or volume.

Another advantage of sodium-ion batteries is that they are safer than lithium-ion batteries. Lithium-ion batteries are prone to overheating and can catch fire or explode, which has led to safety concerns. Sodium-ion batteries do not pose the same risk, as sodium is a more stable element than lithium.

However, there are still some challenges to overcome before sodium-ion batteries can be widely adopted. One of the main challenges is improving the energy density, which is currently lower than that of lithium-ion batteries. Researchers are also working on improving the cycle life of sodium-ion batteries, which refers to how many times they can be charged and discharged before losing their capacity.

In conclusion, sodium-ion batteries are a promising alternative to lithium-ion batteries for energy storage. While they are not yet as efficient as lithium-ion batteries, they offer several advantages, including lower cost, lower environmental impact, and improved safety. As research continues, we may see sodium-ion batteries becoming a more viable option for energy storage in the future.



Green Manufacturing

Ms. Komal H. Sakhare

(Lecturer) B. E. Mechanical Engg

Green manufacturing, also known as Environmentally Conscious Manufacturing or Manufacturing for Environment, etc. Its goal is to minimize the negative impact on the environment during the entire product life cycle from design, manufacturing, packaging, transportation, use to disposal. The highest utilization rate of resources has been improved, and the coordination and optimization of the economic and social benefits of the enterprise. Green manufacturing, a modern manufacturing model, is the embodiment of human sustainable development strategy in modern manufacturing.

Green manufacturing technology refers to a modern manufacturing model that comprehensively considers the environmental impact and resource efficiency under the premise of ensuring product functions, quality, and



cost. It minimizes environmental pollution during the entire product life cycle from design, manufacture, use to scrapping, meets environmental protection requirements, is harmless or has minimal harm to the ecological environment, saves resources and energy, and maximizes resource utilization. Lowest energy consumption. The traditional manufacturing model is an open-loop system, that is, raw materials-industrial production-product use-scrap-secondary raw material resources. The entire life cycle from design, manufacturing, use to product scrapping has the least impact on the environment and the highest resource efficiency.

That is to say, in the whole life cycle of the product, the environmental attributes of the product should be considered from system integration, and the original environmental protection method of the end treatment has been changed. In addition to the target requirements, the basic performance, service life, and quality of the product should be guaranteed.



REJECTION CONTROL IN INDUSTRIES

Mr. Pankaj Gandhi

Pankaj Engineering Pvt. Ltd.

Satara.

Today due to immense competition and low profit margins rejection of the job manufactured whether in process or after process is not acceptable.

Hence some practices which are mentioned below could reduce or completely eliminate rejection in the industries.

Communication is very important in the industry. Every industry has got processes / methods to manufacture the product. If the processes are not communicated properly there are chances of rejection.

Also proper drawing understanding is essential. Before manufacturing, the drawing should be studied properly. If any doubt we have to get it clarified.

We have to understand the geometrical tolerances like straightness, flatness, circularity, cylindricity, perpendicularity, circular runout, parallelism. Usually ISO symbols are mentioned on the drawing.

One must properly analyze the tolerance and Ra values and then only go for proper methods and processes to optimize profit. If any process mistake this will add to rejection.

After manufacturing component, if it does not meet the specified drawing it will be difficult to rework and the job will be marked as rejected.

In this we have to use poka-yoke which means mistake proofing or inadvertent error prevention. The value of using poka-yoke is that they help people and processes work right the first time which makes mistakes impossible to happen.

If the material what is mentioned in the drawing is not available we have to get the alternate material which should be approved by the customer and then only we have to manufacture. Now a days many MNC are in India especially from Germany , Italy Japan , America they use their standards for making a drawing , we have to convert to equivalent Indian Standards get it approved and start manufacturing.

Due to standardization everywhere there is drawing code given for the product to be manufactured.

For example 70A 25648 and 70E 25648 understanding the code is very important , the difference is only A and E everything is same by mistake if the Engineer does not see the difference there would be wrong drawing issued by production planning department and a wrong product could be manufactured.

Overconfidence in understanding the drawing should be reduced. It is recommended to adopt ballooning drawing methods and feasibility report to avoid any mistakes.

Rejection of the jobs due to improper machine maintenance, loose tightening of job and tool, vibrations should be taken care of. Proper packing of the goods /product with packing slip should be followed.

If the purchase order has many items pack them properly with proper Tags otherwise even if one item gets misplaced the receiving party will make GRN of less quantity and it will be treated as short received which is as good as rejection and again we have to supply the same part incurring losses.

Before manufacturing any part and to reduce non confirmation it is essential to understand both commercial and technical details.

By chance any part gets rejected unfortunately in spite of taking all precautions use CAPA (corrective action and preventive action) write down properly study well again so that the defect does not get repeated.



Future of Artificial Intelligence

Mr. Bharat Arvind Kadam (D. M. E)

Technical Assistant

Mechanical Engineering Department

Artificial Intelligence is going to change the world more than anything in the history of mankind. More than electricity.” — AI oracle and venture capitalist Dr. Kai-Fu Lee”

The future of Artificial Intelligence brings endless possibilities and applications that will help simplify our lives to a great extent. It will help shape the future and destiny of humanity positively. So, how will the future of Artificial Intelligence affect humans? Let's find out.

Transportation

Artificial Intelligence has already made deep inroads in the transportation sector. Autonomous vehicles are everywhere already. Major auto manufacturers and tech giants like Tesla, Google, General Motors, and others have already developed reliable autonomous vehicles that enable a safe driverless driving experience.

The future of Artificial Intelligence will further increase and enhance the applications of Artificial Intelligence in autonomous vehicles. For example, while we currently see autonomous driving restricted mostly to cars, we can see the technology being used in trucks, buses, motorcycles, and others. Similarly, we can also have true driverless automobiles with enhanced safety and user experience. The future of Artificial Intelligence in transportation is truly exciting and enticing!

Education

Artificial Intelligence is the next big frontier in the education sector. It is poised to change offline and online education, helping students and teachers explore new realms in the field. The future of Artificial Intelligence in education will see robot tutors that will assist teachers and help enhance the quality of education imparted. For example, if a teacher accidentally skips an important concept, the Artificial Intelligence tutor will quickly alert the teacher. AI robot tutors will also take control of repetitive tasks like checking the students' homework or taking class attendance. This can help save time and resources.

Healthcare

Healthcare is one of the most crucial sectors where Artificial Intelligence is making a huge impact, simplifying processes and helping save millions of lives. Its impact is set to increase further in the future. The future of Artificial Intelligence in healthcare will:

- Enhance the quality of care and improve productivity
- Improve patient engagement levels and streamline their access to patient care
- Increase the speed and reduce the costs of developing new procedures and treatments
- Personalize healthcare facilities and treatments with data analytics tools to provide better diagnosis and treatment

Hopefully, we will also find the balance between medical data access and privacy to ensure patient data confidentiality, which currently poses a major hurdle in implementing Artificial Intelligence in healthcare.

Home Robots

We already have Artificial Intelligence home robots that can do various tasks like cleaning, mowing, and vacuuming. However, in their current form, these robots are not that intelligent. Their capabilities are also limited.

The future of Artificial Intelligence will see home robots having enhanced intelligence, increased capabilities, and becoming more personal and possibly cute. For example, home robots will overcome navigation, direction, and object detection issues, enabling them to carry out tasks more efficiently. General Electric states, "The home robot will be not just a capable assistant, but something with personality—life-like, a companion in the home that you actually like having around."

Space Exploration

Major space exploration organizations, like NASA, are already using Artificial Intelligence for unmanned shuttles, rovers, and probes to explore distant galaxies. These Artificial Intelligence robots can detect objects and obstructions, find safe paths, and help discover new locations that weren't otherwise possible.

In the future, the use of Artificial Intelligence in space exploration will help right from mission planning, to execution, to operations, to the completion stage. Moreover, they will also detect and help prevent catastrophic events, like a meteor impact or spacecraft component failure. This will help enhance space exploration missions' efficiency, output, and safety. We can safely conclude that the future of Artificial Intelligence in space exploration is bright as the stars and galaxies it is helping us to find!



Policing

The 1987 sci-fi movie Robocops perhaps provided a glimpse into the future of using Artificial Intelligence robots as cops. Robocops will be seen fighting and investigating crimes. Moreover, the future of Artificial Intelligence robocops will also see them being used for other police duties, such as safeguarding prisons, taking over administrative tasks, controlling crime scenes, or answering 911 calls.

However, the most exciting application of Artificial Intelligence in policing is predicting crimes, somewhat along the lines of the future shown in Minority Report. Thanks to advanced facial and behavior recognition, object detection, pattern recognition, and other capabilities, Artificial Intelligence tools will help prevent crimes from occurring in the first place. This will help save countless lives, property damage, and other crime-related losses.

Wars

Robotic soldiers are not a sci-fi concept anymore. They are already being used autonomously in various war missions to aid human soldiers. They are helping change the way wars are fought, in a good as well as a bad way. For example, on the one hand, they are helping reduce human casualties. On the other hand, they are causing more destruction. Then, there is also the question of the ethics of using robots without any human control in wars.

However, the use of robots in wars will only increase in the future. We can see entire wars being fought using Artificial Intelligence robots. However, rules and regulations will be developed by international bodies regarding the type and role of robot soldiers that can be used in wars. Moreover, we believe that using complete autonomous robot soldiers in wars will never see the day of light. Some human control will be required to ensure that robots don't go rogue and cause significant mass destruction.

Use of Artificial Intelligence will keep on increasing as the technology becomes more advanced. It will help streamline various operations and simplify our lives to a great extent.

ARTIFICIAL INTELLIGENCE IN MECHANICAL ENGINEERING

By Anish Indulkar

TYME



Introduction

- Artificial intelligence is a computer science section that deals with the Automation of intelligent behavior and machine learning.
- Algorithm developing takes AI research and transforms it into relatable processes through mathematical formulas that can be implemented using hardware and software.

Objective

- The objective of general AI is to design a system capable of thinking for itself just like humans do.
- Also reducing human labor with AI machines such Robotic Arms, AI vehicles.

Advantages of AI

- Powerful data storage and calculation
- Precision of mechanical manufacturing and automation.
- Reduction in Human Error.
- Zero Risks.
- 24x7 Availability.
- Digital Assistance.
- New Inventions.
- Perform Repetitive Jobs.

Disadvantages of AI

- High cost of creation and design
- Humans become lazy

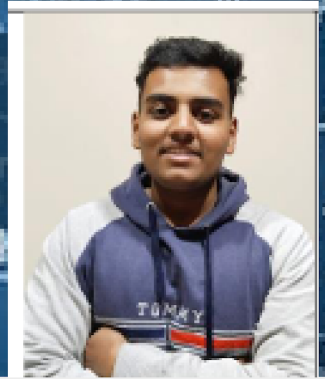
Conclusion

Artificial intelligence is a constellation of many different technologies working together to enable machines to sense, comprehend, act, and learn with human-like levels of intelligence.

MECHATRONICS

By Harsh Yadav

TYME



- Mechatronics is a branch of engineering that focuses on designing, manufacturing and maintaining products that have both mechanical and electronic components.

- The term was invented in 1969 by engineer Tetsuro Mori to describe the synergy that exists between electrical control systems and the mechanical machines they regulate.

- Mechatronics is a term originated by the Japanese to describe the integration of mechanical and electronics engineering.

What Does Mechatronics Include ?

1Mechanical. Electronics. Control System. Computer Engineering.

Where Mechatronics Is Used ?

- Cybersecurity, telecommunications, computer science, automotive engineering. etc

Example

- Industrial robots

They are general-purpose, re-programmable machines which respond to the sensory signals received from the system environment.

- Drone

Drones are pushing advances in all mechatronic fields to become useful in roles such as search and rescue, parcel delivery, surveying and inspections, and 3-D assembly.

- Now a days All mechanical equipments are run with the help of control system so the Mechatronics have more demand in the market .

- As it is used in many fields so it has been an major branch in the Engineering field.

LEAN MANUFACTURING

By Rudra Ingale

TYME



Lean Manufacturing - Is a way to eliminate waste for cost savings and to improve efficiency in a manufacturing activities, processes.

Originated from Japan – Shortages of raw materials and human labor/ workmen's. The roots of Lean can be found in the Japanese company of Toyota.

Toyota Production System – Lean manufacturing.

Principle Reduce wastage , produce what customer wants at right time, quantity & desired quality.

Continuous improvement in Japan - quest for perfection and excellence, further developed in today's era is towards continual improvement.

Benefits

Lean provides tangible/ direct benefits, Reduces costs not just selling price, effects organizations profit margins improved, Improves quality ,Improves customer ratings and perceptions, Increases overall customer satisfaction & further delight.

Improves employee involvement, morale, and organizations culture .

Helps “transform” manufacturers.

Conclusion

Requirement of planning, commitments, methodology, learning and safety seems to be main obstructions which can be appeared while implementing the Lean Manufacturing.

Lean operations is a management for any organization to achieve higher quality, increased productivity, improved delivery time, greater responsiveness to changing today's markets scenario and increased customer satisfaction.

MECHATRONICS

By *OMKAR BHANDIRGE*
SYME



Mechatronics is a synergistic combination of precision engineering, electronic control and mechanic systems

It is one of the most dynamically developing fields of technology and science.

The word 'mechatronics' appeared for the first time in Japan in 1969. .

Mechatronics for Robotics Purposes

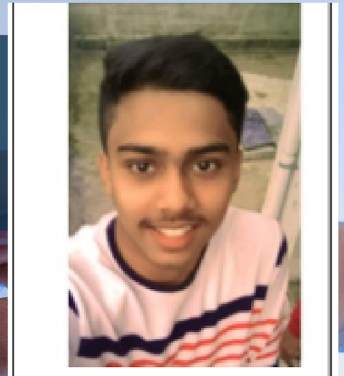
Robotics is one of the newest emerging subfield of mechatronics. It is the study of robots that how they are manufactured and operated. Since 2000, this branch of mechatronics is attracting a number of aspirants. Robotics is interrelated with automation because here also not much human intervention is required. A large number of factories especially in automobile factories, robots are found in assembly lines where they perform the job of drilling, installation and fitting. Programming skills are necessary for specialization in robotics.

Mechatronics for Industrial purpose

The branch of industrial engineer includes the design of machinery, assembly and process lines of various manufacturing industries. This branch can be said somewhat similar to automation and robotics. Mechatronics engineers who work as industrial engineers design and develop infrastructure of a manufacturing plant. Also it can be said that they are architect of machines. One can work as an industrial designer to design the industrial layout and plan for setting up of a manufacturing industry or as an industrial technician to look over the technical requirements and repairing of the particular factory.

ARTIFICIAL INTELLIGENCE IN MECHANICAL ENGINEERING

By SANKET DESHMUKH
SYME



What is AI in mechanical engineering?

Artificial intelligence (AI) is transforming the field of mechanical engineering. From designing autonomous vehicles to optimizing manufacturing processes, AI is playing an increasingly important role in mechanical engineering.

One of the key benefits of AI in mechanical engineering is its ability to analyze vast amounts of data and identify patterns that humans may not be able to detect.

Applications of AI in Mechanical Engineering

There are numerous applications of AI in mechanical engineering. From design and simulation to manufacturing and maintenance. One of the most significant applications of AI in mechanical engineering is in the field of robotics, where intelligent machines can perform tasks that are too dangerous or tedious for humans.

Design Optimization with AI

Design optimization is a critical aspect of mechanical engineering. With AI, engineers can create more efficient designs by analyzing large amounts of data and identifying patterns that would be difficult to detect manually.

Benefits of AI in Mechanical Engineering

AI-powered machines can also work 24/7 without human intervention, leading to higher productivity and faster turnaround times.

AI has transformed the world of mechanical engineering, enabling engineers to design and develop advanced machines that can perform complex tasks with ease.

While there are still challenges and limitations to overcome, the future of AI in mechanical engineering looks bright.

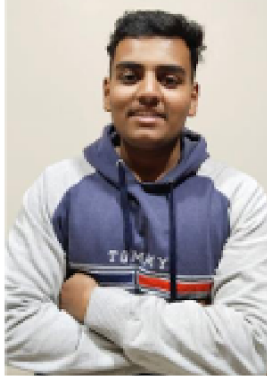


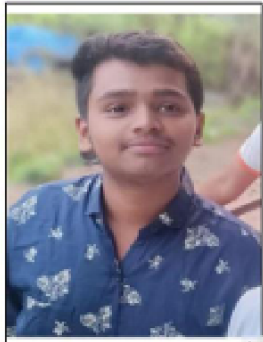
Faculty Achievements

FDP/STTP/CONFERENCE/WORKSHOP ETC. ATTENDED

Sr. No	Title	Faculty	Venue	Duration
01	One Day FDP on “ NEP 2020”	Mr. N.B. Devi	KIT KOLHAPUR	20-01-22
	Three Days FDP on “ Empowerment of Technical Teachers”	Mr. N.B. Devi	KBP POLY SATARA	17-10-22 to 19-10-22
02	Three Days FDP on “ Empowerment of Technical Teachers”	Mr. S. G. Sherkar	KBP POLY SATARA	17-10-22 to 19-10-22
03	Three Days FDP on “ Empowerment of Technical Teachers”	Mr. D.R. Waghmode	KBP POLY SATARA	17-10-22 to 19-10-22
04	Three Days FDP on “ Empowerment of Technical Teachers”	Mr. S.S. Yewale	KBP POLY SATARA	17-10-22 to 19-10-22
05	Three Days FDP on “ Empowerment of Technical Teachers”	Mr. K.B. Dhanawade	KBP POLY SATARA	17-10-22 to 19-10-22
06	Three Days FDP on “ Empowerment of Technical Teachers”	Mr. R.V. Kumbhar	KBP POLY SATARA	17-10-22 to 19-10-22
07	Three Days FDP on “ Empowerment of Technical Teachers”	Ms..K. H. Sakhare	KBP POLY SATARA	17-10-22 to 19-10-22
08	Three Days FDP on “ Empowerment of Technical Teachers”	Mr. R. S. Mane	KBP POLY SATARA	17-10-22 to 19-10-22
09	Three Days FDP on “ Empowerment of Technical Teachers”	Mr. P. V. Zore	KBP POLY SATARA	17-10-2022 to 19-10- 2022

MSBTE Exam Winter 2022 TOPPERS


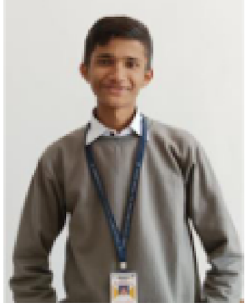
TYME

				
Indulkar Anish Shankar 85.62%	Yadav Harsh Amol 84.29%	Bagwan Junaid Javed 80.57%	Ingale Rudra Parag 80.19%	Gonjare Omkar Amol 79.91%
				
Shaikh Zaid Riyaj 79.71%	Jagtap Suraj Hanmant 77.62%	Homkar Sejal Nilesh 76.95%	Kumbhar Omkar Santosh 75.43%	

SYME

		
Deshmukh Sanket Tanaji 77.90%	Bhandirge Omkar Balasaheb 75.68%	Mulani Palak Shafiuddin 73.16%

FYME

	
Hitesh Kanhaiyalal Kumawat 69.29%	Pol Nikhil Janardan 66.43%

PLACEMENT RECORD

Mechanical Engineering (2021-22)

1	Dhonde Aniket Shailendra	Kirloskar Brothers Limited
2	Umardand Varadraj Mahesh	Tata Cummins / Bajaj Auto/ Cooper corporation
3	Khan Zeeshan Zuber	
4	Raje Yash Mahendra	Tata Cummins / Cooper corporation
5	Chavan Aditi Bhaskar	Cooper Corporation Pvt. Ltd
6	Dabade Amit Ramesh	
7	Salunkhe Aniket Sachin	
8	Pawar Deepanshu Jalindar	
9	Patukale Isha Mahendra	
10	Dixit Maithili Nitin	
11	Dixit Manasi Amol	
12	Jadhav Mayur Subhash	
13	Ruikar Nikhil Satish	
14	Sabale Rushikesh Jitendra	
15	Gaikwad Sahil Suresh	
16	Pawar Sairaj Sunil	
17	Bhilare Sanika Jeevan	
18	Korde Shubham Deepak	
19	Shinde Soham Krishna	
20	Andhalkar Suyash Sashikant	

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

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(Lecturer in Mechanical Engineering Department)
- **Mr. S. S. Yewale** (Co-Editor)
(Lecturer in Mechanical Engineering Department)

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 or zoreprathamesh@kbppoly.edu.in (OR) Editorial Board

THANKYOU

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