ASHOKRAO MANE POLYTECHNIC, VATHAR
Mechanical Engineering Department

NEWSLETTER : MECH-MASTER
VOL-IX, ISSUE-I, DECEMBER 2023

INSIDE

VISION OF DEPARTMENT

To excel in engineering education for creating competent mechanical engineers with high social and ethical standards to serve the society.

MISSION OF DEPARTMENT

- m1. To impart basic as well as discipline knowledge to solve engineering problems.
- m2. To direct towards skill development by using modern tools and emerging technologies to enhance employability.
- m3. To develop leadership qualities and ability to visualize needs for entrepreneurship development.
- m4. To inculcate sense of responsibility towards society and environment through professional and social ethics.

THEME -ROBOTICS

ABOUT INSTITUTE

Shri Balasaheb Mane Shikshan Prasarak Mandal Ambap's, Ashokrao Mane Polytechnic, Vathar (AMPV) is established in 2008 and is located near Kolhapur. This institute has AICTE approval for the Six diploma courses. i.e. Mechanical Engineering, Computer Engineering, Electrical Engineering, Automobile Engineering, Civil Engineering & Electronics and Computer Engineering. AMPV has emerged as a leading technological institute to promote technical education for rural communities. It provides modern educational facilities to mould young and talented students who can compete in the global arena. Institute endeavours to offer a holistic education with values and ethics allowing students to pursue successful career growth. This institute is a perfect destination for quality & outcome based technical education. The aim of AMPV is to rank among leading institutes of India.

ABOUT DEPARTMENT

Mechanical Engineering Department is established in 2008 in beautiful campus of AMP, Vathar. The department is honoured with NBA accreditation, ISO certification and also received excellent / very good remark by MSBTE.

This department has well equipped laboratories and excellent upgraded facilities. The department has an enthusiastic team of qualified and experienced teaching and non-teaching staff.

The department attracts aspiring students every year and aims to provide solid foundation for careers in industry, research and academia. The department has great history of highest admissions, best academic results and Higher placements.

The department also conducts various departmental activities like technical events, expert lectures, industrial visits, career guidance training programs and workshops to aware the students about the technical knowledge.

Messages

Message from Principal Desk

Prof. Y. R. Gurav
Principal,
Ashokrao Mane Polytechnic, Vathar Tarf Vadgaon.

Dear Readers,
Best wishes for the New Year. It's a prideful moment to interact with the readers on the start of the new year. Newsletter is an initiative by department which has a specific purpose in it. The contribution made so far by the teachers, students, academicians and industrialists has compelled to promote such moves in the era of emerging technologies such as Robotics, Artificial Intelligence, Machine Learning, Internet of Things, etc. Newsletter is also acting as a medium to convey message about its vision and values along with future strategies and plans. The newsletter has a unique theme 'Robotics', which is widely used now a days, I appreciate the editing team, which is putting efforts of compiling various news about diploma education system in department along with views and information about a relevant theme and disseminating it to a cohesive community of stakeholders - students, faculty, parents, administrators, institutes, industry and community at large, through this newsletter.

Message from Editor's Desk

Mr. S. N. Yadav
H.O.D. Mechanical Engineering,
Ashokrao Mane Polytechnic, Vathar Tarf Vadgaon.

Greetings to faculties and friends !
It gives an immense pleasure to congratulate department newsletter committee for releasing semester wise department newsletter. We strived hard, gave our best possible efforts to make "MECH- MASTER" really versatile.
We have tried to give the students those memories that stand as a footprint of progress where each word speaks out with knowledge. It gives the scope and freedom to imagination power of the students to express their line of thought through creative ideas. Besides imagination is a mirror to our academic progress, co-curricular and extra-curricular activities, achievements and a reflection of the strength of our department that gives us new energy to grow. The Mechanical Engineering department is striving towards the goal of providing innovative and quality education with high standard to achieve academic excellence.

DEPARTMENTAL NEWS

Engineer's Day Celebration

On the occasion of Engineer's Day celebration, Mechanical Engineering Department had proudly organised two competitions for all students of Ashokrao Mane Polytechnic on Friday 15th of September 2023.
1.Assembly Champ Event
2.Puzzle Maniac Event

The inaugural and welcome function was carried out in the presence of Prof. Y. R. Gurav (Principal, AMPV.), Mr. S. N. Yadav (H. O. D, Mechanical Engineering) and all other dignitaries.

Assembly Champ Event:
"Assembly Champ" competition was organised and conducted by the students of Mechanical Engineering Department under the guidance of competition coordinators Mr. S. B. Lambe and Mr. S. R. Koli.
In this competition each student had to assemble the disassembled parts of tail-stock assembly of lathe machine. Total 39 students had participated in this competition.

Puzzle Maniac Event:
"Puzzle Maniac" competition was organised and conducted by the students of Mechanical Engineering Department under the guidance of competition coordinators Mr. V. A. Patil and Mr. R. B. Mulik.
In this competition each student had to solve the given jigsaw puzzle.Total 65 students had participated in this competition.

EXPERT LECTURES

On 26/09/2023, Mechanical Engineering Department had arranged an expert lecture on **"Automation in Mechanical Engineering"** for the Second Year Mechanical Engineering students. The lecture was given by Mr. Sujay Patil-Desai, who is Software Engineer at KPIT Technology Ltd., Pune. In this lecture, students learned the different electric and magnetic circuits used in industry and the various concepts related with it included in subject Basic Electrical & Electronics.

On 05/10/2023, Mechanical Engineering Department had arranged an expert lecture on **"Industry 4.0"** for the Third Year Mechanical Engineering students. The lecture was given by Mr. Sujay Patil-Desai, who is Software Engineer at KPIT Technology Ltd., Pune.In this lecture, students learned modern manufacturing technology in industry. and the various concepts related with it included in subject Advance Manufacturing Process.

On 12/10/2023, Mechanical Engineering Department has arranged an expert lecture on **"Self- Discipline"** for the Second Year Mechanical Engineering students. The lecture was given by Mr. Sandip Vishwas Gharage, who is Assistant Professor at MBA department, Ashokrao Mane Group of Institution Vathar, Kolhapur.In this lecture, self-discipline is the ability to push yourself forward, stay motivated, and take action, regardless of how you're feeling, physically or emotionally. This lecture can help students to develop their Self-discipline.

On 25/10/2023, we had arranged an expert lecture on **"Norms for Exhaust Emissions and Control"** for the Third Year Mechanical Engineering students. The lecture was given by Mr. Sunnyraje B. Bhosale, RTO Inspector, Kolhapur. In this lecture, students learned internal-combustion engine details and the test performance of I.C. engine. and the various concepts related with it included in subject Power Engineering & Refrigeration (22562).

INDUSTRIAL VISITS

Department of Mechanical Engineering from Ashokrao Mane Polytechnic, Vathar Tarf Vadgaon arranged one day industrial visit for Second Year students to **"Tejashree Industries, C 586/5, Shiroli MIDC, Shiroli, Tal. Hatkanangle, Dist. Kolhapur, 416122",** on 27th September, 2023 for technical knowledge enhancement of students. In this visit, students have seen the different types of material used in industry and also the complete procedure of hardness testing methods of materials. and various concepts related with it included in subject Mechanical Engineering Material.

Department of Mechanical Engineering from Ashokrao Mane Polytechnic, Vathar Tarf Vadgaon arranged one day industrial visit for Second Year students to **"A tech Engineering, Plot No.: B 62, Shiroli MIDC, Shiroli, Tal. Hatkanangle, Dist. Kolhapur, 416122"**, on 27th September, 2023 for technical knowledge enhancement of students. In this visit, students have seen the different production design, Students learned the different mechanical engineering design software. and the various concepts related with it included the subject Mechanical Working Drawing .

Department of Mechanical Engineering from Ashokrao Mane Polytechnic, Vathar Tarf Vadgaon arranged one day industrial visit for Second Year students to **"Shailesh Enterprises-Balaji Enterprises, W-57, Shiroli MIDC, Tal. Hatkanangle, Dist. Kolhapur, 416122"**, on 27th September, 2023 for technical knowledge enhancement of students.In this visit, students understood the various gauges, fits and tolerances for machine components and the various concepts related with it included in subject Engineering Metrology.

Department of Mechanical Engineering from Ashokrao Mane Polytechnic, Vathar Tarf Vadgaon arranged one day industrial visit for Third Year students to **"Mayura Steel Pvt. Ltd. Unit II, Shiye Phata, Shiroli MIDC, Shiroli, Tal. Hatkanangle, Dist. Kolhapur, 416122"**, on 07th October, 2023 for technical knowledge enhancement of students.In this visit, students have learned the different management principles to execute daily activity, students also have seen the advance manufacturing processes used in both machine shop, Foundry and the various concepts related with it included in subject Advance Manufacturing Process and Management.

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INDUSTRIAL VISITS

Department of Mechanical Engineering from Ashokrao Mane Polytechnic, Vathar Tarf Vadgaon arranged one day industrial visit for Third Year students to **"Dynamic Hydraulics, Gate No.: 527, Shiroli MIDC, Shiroli, Tal. Hatkanangle, Dist. Kolhapur, 416122"**, on 07th October, 2023 for technical knowledge enhancement of students.In this visit, students have seen the different advanced production machines, like special purpose machine used in manufacturing process. and the various concepts related with it included in subject Advance Manufacturing Process.

Department of Mechanical Engineering from Ashokrao Mane Polytechnic, Vathar Tarf Vadgaon arranged one day industrial visit for Second Year students to **"Axies Engineering System, G-35, Shiroli MIDC, Shiroli, Tal. Hatkanangle, Dist. Kolhapur, 416122"**, on 07th October, 2023 for technical knowledge enhancement of students. In this visit, students have seen various cutting tools used in machine shop and the jig and fixture design for the different component. and the various concepts related with it included in subject Tool Engineering.

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SCHOOL CONNECT PROGRAM

In case a student wishes to take admission for 'Polytechnic' and is at Xth standards, he or she generally wants the information about:

1. Which are the different programs or branches available under Polytechnic?
2. Which are the best courses in it?
3. What is the admission process of Polytechnic? How to apply for online admission process and when it starts?
4. What are the opportunities in higher education after diploma? What is the nature of placements or jobs or entrepreneurship avenues available after completing diploma?

To provide answers for all above questions, difficulties and confusions, a project or initiative has been taken up by our staff of Mechanical Engineering Department. The program involves a face-to-face interactive session with students of class Xth of different schools in local region.

CAREER GUIDANCE TRAINING PROGRAM

A career guidance training program of was conducted from 20th Sept. 2023 to 22th Sept. 2023 for the third year students of Mechanical Engineering Department under career guidance educational training program at Ashokrao Mane Polytechnic, Vathar Tarf Vadgaon. This training was organized by Training & Placement Cell of Ashokrao Mane Polytechnic and the resource person was Mrs. Tanushree Ghosh-Shinde from Rubicon Skill Development Pvt. Ltd., Barclays-NASSCOM.

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WORKSHOP ON '3D' PRINTING TECHNOLOGY

Workshop on 3D Printing Technology was organized by Mechanical Engineering Department on Friday, 03/11/2023. This workshop was arranged to provide knowledge of rapid prototyping technologies to students. This workshop was helpful to students to get more knowledge 3D Printer functioning. Also students got the knowledge about software used to generate program required to be fed to 3D printing machine in order to produce different 3D products. Students were introduced to different softwares used for 3D printing process.

FACULTY SPEAK.....

Mr. R. D. Nagvekar
Lecturer,
Mechanical Engineering Department,
Ashokrao Mane Polytechnic, Vathar Tarf Vadgaon.

Appearance and working of robots :

Robots can take any form, but some are made to resemble humans in appearance. This is claimed to help in the acceptance of robots in certain replicative behaviours that are usually performed by people. Such robots attempt to replicate walking, lifting, speech, cognition, or any other tasks mainly performed by a human. Many of today's robots are inspired by nature, contributing to the field of bio-inspired robotics.Certain robots require user input to operate, while other robots function autonomously. The concept of creating robots that can operate autonomously dates back to classical times, but research into the functionality and potential uses of robots did not grow substantially until the 20th century. Throughout history, it has been frequently assumed by various scholars, inventors, engineers, and technicians that robots will one day be able to mimic human behaviour and manage tasks in a human-like fashion. Today, robotics is a rapidly growing field, as technological advances continue; researching, designing, and building new robots serve various practical purposes, whether domestically, commercially, or militarily. Many robots are built to do jobs that are hazardous to people, such as defusing bombs, finding survivors in unstable ruins, and exploring mines and shipwrecks. Robotics is also used in STEM (science, technology, engineering, and mathematics) as a teaching aid.

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Mr. P. S. Patil
Lecturer,
Mechanical Engineering Department,
Ashokrao Mane Polytechnic, Vathar Tarf Vadgaon.

Robots and Robotics :

Robots are machines with characteristics and behaviours that resemble those of humans. Following their programming, they may carry out duties. Robots have been significantly reducing human workloads over the past ten years or more, notably in the industrial sector. Robots are typically used in the manufacturing sector. These tasks are typically repetitious and boring for workers. It is normal for people who play a certain position for a long time to become tired of it and desire to stop or finish the duty unwillingly. Also, this will make them less effective than they were before they started working. As a result, individuals become burned out and lack the desire or excitement to continue working. Robots are especially useful in this situation since they make humans' lives simpler than before. Although a robot in fictional works often resembles a humanoid, a robot's shape might vary depending on its usefulness and role. They are capable of doing a variety of jobs, from larger ones like installing heavy gear to lighter ones like cooking and cleaning. The advancement of robots is necessary for the growth of contemporary industries. The use of robots reduces human work significantly, yet their use is restricted and requires some oversight from human intellect. Robotics applications have been very beneficial to industries during the past few decades. The company's production and earnings have increased dramatically as a result of their use. Humans can now complete difficult or time-consuming activities with ease thanks to robotics and artificial intelligence, and this technology is only likely to advance in the future.

STUDENT SPEAK.....

Mr. Sujit M. Patil
Student,
Third Year Mechanical Engineering Department,
Ashokrao Mane Polytechnic, Vathar Tarf Vadgaon.

Robotics in Various Fields :

Robotics is an interdisciplinary field that involves the design, construction, operation, and use of robots.Robotics integrates many fields that deal with specific aspects of robotics. For example, within mechanical engineering, the term robotics refers to the construction of the physical structures of a robots, while in computer science, robotics focuses on the study of robotic software.

There are also many other aspects of robotic development and related fields that overleap in its, including electrical, control, software, information, electronic, telecommunication, computer, mechatronic, materials and biomedical engineering. The goal of robotics is to design machines that can help and assist humans. The field of robotics develops machines that can automate tasks and do various jobs that a human might not be able to do. Robots can be used in many situations for many purposes, but today many are used in dangerous environments (including inspection of radioactive materials, bomb detection and deactivation), manufacturing processes, or where humans cannot survive (e.g., in space, underwater, in high heat, and clean up and containment of hazardous materials and radiation).

Mr. Shivtej K. Jagtap
Student,
Third Year Mechanical Engineering Department,
Ashokrao Mane Polytechnic, Vathar Tarf Vadgaon.

Applications of Robotics :

Robots all have some kind of mechanical construction, a frame, form or shape designed to achieve a particular task. For example, a robot designed to travel across heavy dirt or mud might use caterpillar tracks. Origami inspired robots can sense and analyse in extreme environments. The mechanical aspect of the robot is mostly the creator's solution to completing the assigned task and dealing with the condition of the environment around it. Form follows function.All robots contain some level of computer programming code. A program is how a robot decides when or how to do something. In the caterpillar track example, a robot that needs to move across a muddy road may have the correct mechanical construction and receive the correct amount of power from its battery, but would not be able to go anywhere without a program telling it to move. Programs are the core essence of a robot, it could have excellent mechanical and electrical construction, but if its program is poorly structured, its performance will be very poor (or it may not perform at all). There are three different types of robotic programs: remote control, artificial intelligence, and hybrid. A robot with remote control programming has a pre-existing set of commands that it will only perform if and when it receives a signal from a control source, typically a human being with remote control. It is perhaps more appropriate to view devices controlled primarily by human commands as falling in the discipline of automation rather than robotics. Robots that use artificial intelligence interact with their environment on their own without a control source, and can determine reactions to objects and problems they encounter using their pre-existing programming. A hybrid is a form of programming that incorporates both AI and RC functions in them.

INDUSTRY SPEAK.....

Mr. Farzin B. Irani
Director,
Extencore Solution Private Limited,
Pune.

Robotics in the Assembly Process :

Robotics plays a crucial role in the assembly process in various industries, contributing to increased efficiency, precision, and flexibility. Here are key ways in which robotics is utilised in the assembly process:

1.Automated Component Placement:Industrial robots are used to pick up and accurately place components in the assembly line. This includes tasks such as placing electronic components on circuit boards or assembling mechanical parts.

2.Screwing and Fastening:Robots are programmed to handle repetitive tasks like screwing and fastening. They can ensure consistent torque and positioning, leading to a higher quality of assembly.

3.Adhesive Application:Robots are employed for precise application of adhesives or sealants during the assembly process. This ensures uniform coverage and minimises waste.

4.Part Inspection:Vision systems integrated with robots are used for inspecting parts during the assembly process. Robots can identify defects, measure dimensions, and verify the correct placement of components.

The application of robotics in the assembly process enhances productivity, reduces errors, and provides manufacturers with the flexibility to adapt to changing market demands. As technology continues to advance, the role of robotics in assembly is expected to evolve, incorporating more sophisticated capabilities and contributing to the on-going transformation of manufacturing industries

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Mr. Shailesh Agale
Production Head,
Balaji Enterprises,
Shiroli.

Robotics in the Manufacturing Process :

Robotics in the manufacturing process has revolutionised the way goods are produced across various industries. Here are key aspects of how robotics is integrated into the manufacturing process:

1.Automated Assembly:Industrial robots are used for assembling products in manufacturing lines. They can handle repetitive and precise tasks such as placing components, tightening screws, and attaching parts.

2.Welding and Joining:Robots are commonly employed for welding tasks in the automotive, aerospace, and metal fabrication industries. They offer consistent and high-quality welds, contributing to increased efficiency.

3.Material Handling:Robots play a significant role in material handling processes, including picking, placing, and transporting materials within the production facility. This enhances efficiency and reduces the risk of injuries associated with manual handling.

4.Painting and Coating:Painting and coating tasks in manufacturing, such as applying a uniform coat of paint on vehicles or products, are often carried out by robotic systems. This ensures precision and uniformity..

Integrating robotics into the manufacturing process offers numerous benefits, including increased efficiency, precision, and safety. As technology continues to advance, the role of robotics in manufacturing is expected to expand further, driving innovation and reshaping the landscape of industrial production.

STUDENT ACHIEVEMENTS

ACHIEVEMENTS IN SUMMER EXAM-2023

FIRST YEAR MECHANICAL ENGINEERING

Miss. Shravani Maruti Thorat : 78.13 %

Miss. Amina Sayyad Nadaf : 74.13 %

Mr. Adarsh Divakar Kamble : 71.47 %

SECOND YEAR MECHANICAL ENGINEERING

Mr. Shivatej Kakaso Jagtap : 82.63 %

Mr. Sumedh Ananda Minachekar : 82.00 %

Mr. Sujit Mahade Patil : 80.88 %

THIRD YEAR MECHANICAL ENGINEERING

Mr. Sanket Mahableshwar Patil : 89.67 %

Mr. Gaurav Sanjay Bhiungade : 87.03 %

Mr. Sangram Sambhaji Parit : 86.00 %

OTHER COLLEGE EVENT PARTICIPATION

Mr. Sumedh Aananda Minchekar , student of third year Mechanical Engineering Department , Ashokrao Mane Polytechnic won 1st Prize in CAD Booster Competition held at DKTE Polytechnic Ichalkaranji on 15/09/2023

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STAFF ACHIEVEMENTS

Mr. S. N. Yadav, H.O.D. was Awarded for Best Performance in Academic year 2022-23

Mr. P. S. Patil, Lecturer was Awarded for Best Performance in Academic year 2022-23

Mr. A. S. Patil, Lab Assistant was Awarded for Best Performance in Academic year 2022-23

SUCCESS STORY

I am Mr. Patil Tejas Chandrakant. I had taken an admission in Ashokrao Mane Polytechnic in Mechanical Engineering Department 2019-20 . I was an average student, but with very big dreams. I always wanted to be an entrepreneur . AMP provides all needful things because of that now I am an entrepreneur. I have started my own garage, named as “Sagar Auto Garage” at Aitawade, Dist. Sangli. When asked me about Ashokrao Mane Polytechnic, Vathar, I said, “The three years, I spent here were really knowledgeable". I would like to thank all the teachers for their affectionate co-operation and guidance. What a great experience. It has made my life.

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Theme of the next Issue : Lean Manufacturing

The responsibility of the authenticity of the information in this Newsletter lies with the author. Views expressed by the authors are solely theirs; they are neither the views of Mechanical Engineering Department nor are they endorsed by Mechanical Engineering Department. Queries, comments, feedback and information may be sent to ampvmechdept@gmail.com. Edited, Printed and Published by Mr. S. N. Yadav, H. O. D.- Mechanical Engineering, Ashokrao Mane Polytechnic, Vathar Tarf Vadgaon,416112,Website - www.amietv.org