

MECHANICAL ENGINEERING DEPARTMENT



YASHO TECH MECH

WE ARE GEARS OF TOMORROW

Vol. 1 | Issue 1

Even Sem 2022-2023

YSPM



YSPM's Yashoda Technical Campus, Satara

Mechanical Engineering Department

YASHO TECH MECH

Even Semester

2022-23

OVERVIEW OF THE DEPARTMENT

The Mechanical Engineering program leading to the bachelor's degree in Mechanical Engineering (B. Tech.) is having a structured curriculum that prepares students for a broad range of career choices in the different areas of Engineering. The Course is intended for students whose career objectives require greater flexibility. Mechanical Engineering deals with material selection, design and production of tools, machines, and all other Mechanical equipment to be used in industries. Our Department prepares the students who are the driving forces behind many of our technologies and industrial processes including innovative products.

The Mechanical Engineering Department has been accredited with institute level accreditation program by National Assessment and Accreditation Council (NAAC) with B+ grade.

Our Departmental faculties are specialized in areas like Thermal Engineering, Design, Materials and Manufacturing & CAD/CAM etc. Our Students have been recruited in many reputed organizations.

Strength of Department

- Good infrastructure.
- Well-equipped laboratories.
- Well-qualified and experienced teaching faculties.
- Departmental Library facility for students.
- Personal Monitoring of Students with the help of Guardian Faculty Members
- Good academic performance
- Good Campus Placement Record
- Faculty Retention

Vision of the Department

To be identified as a department with excellence in academics by synergism of teaching-learning, skill development and research.

Mission of the Department

M1 : To develop state of the art facilities to stimulate faculty, staff and students to create, analyze, apply and disseminate knowledge.

M2 : To hone employability and entrepreneurship skills of the students through industry-institute interaction.

M3 : To create an environment for the students to excel in mechanical engineering field, engage in research and development activity and participate in professional activities.

M4 : To develop an ability to use techniques, skills, modern software and machine tools necessary in the practice of Mechanical Engineering Profession.



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Program Educational Objectives (PEOs)

PE01 : Graduates should excel in engineering positions in industry and other organizations that emphasize design and implementation of engineering systems and devices.

PE02 : Graduates should excel in best post-graduate engineering institutes, acquiring advanced degrees in engineering and related disciplines.

PE03 : Alumni should establish a successful career in an engineering-related field and adapt to changing technologies.

PE04 : Graduates are expected to continue personal development through professional study and self-learning.

PE05 : Graduates should be good citizens and cultured human beings, with full appreciation of the importance of professional, ethical and societal responsibilities.

Program Specific Outcomes (PSOs)

PS01 : Make the students employable in engineering industries.

PS02 : Motivate the students for higher studies and research.

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INSIDE

1. STUDENT ARTICLES

2. FACULTY ARTICLES

3. FACULTY STUDENT CORNER

4. Art Gallery

Contributors

Faculty Name

Prof. Maner V B

Prof. Rathod M L

Prof. Nimbalkar P P

Prof. Raut S K

Prof. Atpadkar A B

Prof. Shivade A S

Student coordinators

1) Sawant Kailesh Somnath

2) Paramane Shivam Narendra

3) Kate Preeti Bapusaheb

4) Sakate Shivraj Mohan

5) Kunal Nandkumar Bagade

6) Kori Sachin Raju

**All
Students of
Department**

Head of the Department
Dr. Tarang Shinde

Principal
Prof. Dr. D. S. Badkar

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Solid Works Innovation Day 2022

Dassault Systems had organized Solidworks Innovation Day on October 19 2022 at The Westin, Pune to launch the Solidworks 2023 version of the object modeling software Solidworks. Dr. Tarang R. Shinde, Head of the Department of Mechanical Engineering and Dean, Industry-Institute Interaction, MoU & IPR Cell, Faculty of Engineering, Yashoda Technical Campus, Satara, attended the program and discussed regarding installation of Solidworks at the institute with the officials from Solidworks suppliers. Solidworks is widely used by Mechanical and Civil Engineers and the expertise of the students in the same would certainly be beneficial for them to explore the opportunities in the field of modeling and simulation.



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Engineers Day 2022

MESA celebrated "Engineers' Day" on 15/09/22. An expert lecture program was arranged for the same which was presided by two resource persons. The first resource person was Mrs. Varsha Vhotkar who is an Executive Engineer at Wind mill subdivision, MSEDCL, Satara with 15 years' experience. The other resource person was Mrs. Avantika Sameer Yawatkar who is Asst. Engineer at Testing Division in MSEDCL, Satara. She is presently working as a member of Mahila Surksha Samiti, Satara. YTC Director, Dr. V. K. Redasani, felicitated the guests; Prof. Priyanka Yadav anchored the program. Dr. Tarang Shinde expressed vote of thanks.



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Visit to ST Workshop Satara

In an enriching educational excursion, TY Mechanical students delved into the intricacies of Internal Combustion Engines at the Satara State Transport Workshop. Under the guidance of Prof. S. K. Raut, the visit provided a hands-on opportunity for students to comprehend the operational dynamics and maintenance nuances of heavy transport vehicles. The immersive experience allowed them to witness the real-world application of theoretical knowledge, fostering a deeper understanding of their academic curriculum. The trip not only enhanced their technical acumen but also underscored the practical relevance of their studies, bridging the gap between classroom learning and real-world industry practices.





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Additive Manufacturing in Powder Metallurgy

Introduction

Additive manufacturing (AM), commonly known as 3D printing, has revolutionized the field of manufacturing by enabling complex geometries, reducing material waste, and enhancing production efficiency. In the realm of powder metallurgy (PM), AM has opened new avenues for creating high-performance metal components with improved mechanical properties.

[Insert Image: 3D printing process with metal powder bed fusion]

Additive Manufacturing Techniques in Powder Metallurgy

1. **Selective Laser Melting (SLM):** A laser selectively melts metal powder layer by layer to build intricate components.
2. **Electron Beam Melting (EBM):** Uses an electron beam to fuse metal powders, suitable for high-strength applications.
3. **Binder Jetting:** Involves the deposition of a liquid binding agent onto a powder bed, followed by sintering to form the final part.
4. **Direct Metal Laser Sintering (DMLS):** Similar to SLM but differs in powder fusion mechanisms, producing fine-grained microstructures.

[Insert Image: Comparison of different AM techniques in powder metallurgy]

Advantages of Additive Manufacturing in Powder Metallurgy

- **Complex Geometries:** Enables the production of intricate designs that traditional machining cannot achieve.
- **Material Efficiency:** Reduces material waste by utilizing only the necessary powder.
- **Customization:** Ideal for prototyping and low-volume production with tailored material properties.
- **Enhanced Mechanical Properties:** Optimized microstructure leads to improved strength and durability.

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Applications of AM in Powder Metallurgy

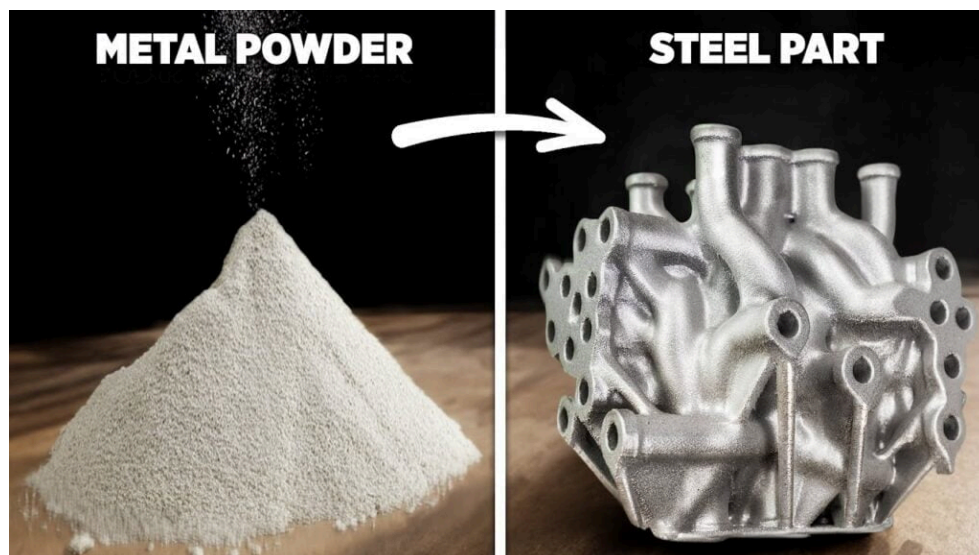
- **Aerospace Industry:** Lightweight, high-strength components for aircraft and spacecraft.
- **Automotive Sector:** Custom engine parts, heat exchangers, and lightweight structures.
- **Medical Implants:** Biocompatible implants such as orthopedic and dental prosthetics.
- **Tooling and Molds:** High-performance tools with complex cooling channels for enhanced efficiency.

[Insert Image: Examples of AM-produced components in aerospace and medical fields]

Challenges and Future Prospects

While AM in powder metallurgy offers numerous benefits, challenges such as high production costs, material limitations, and process standardization still exist. Ongoing research focuses on improving powder properties, optimizing process parameters, and enhancing machine capabilities to expand industrial adoption.

Conclusion Additive manufacturing in powder metallurgy is reshaping the manufacturing landscape, offering new possibilities for innovation and efficiency. As technology advances, AM will continue to push the boundaries of material science and engineering, making high-performance metal components more accessible across industries.



Written By: Mr. Siddharth Raut SY Mech



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WINNER !!!



19-04-2023

Third Prize for Best Project
at Rotarex 2023 Exhibition

Where-

Rotarex 2023 Project
Competition
organized by Rotary Club
Satara

Who-

Mr. Akshay Patil,
Mr. Shivraj Jadhav,
Mr. Kunal Bagade, and
Mr. Shivraj Sakate

The innovative prowess of B.Tech. Mechanical final year students shone brightly as Mr. Akshay Patil, Mr. Shivraj Jadhav, Mr. Kunal Bagade, and Mr. Shivraj Sakate clinched the Third Prize for Best Project at the prestigious Rotarex 2023 Exhibition. The event, hosted by the Rotary Club Satara, unfolded at the historic Maharashtra Scooters premises in Old MIDC, Satara, spanning April 17-18th, 2023.

Under the expert guidance of Prof. V. B. Maner, the quartet embarked on a groundbreaking project titled "Design and Development of 3D Printer and Writing Machine." Their inventive endeavors were not only recognized but celebrated by a discerning audience and fellow participants. The project showcased a convergence of engineering excellence and technological innovation, earning accolades for its practicality and forward-thinking approach.

This triumph not only reflects the students' dedication and proficiency but also underscores the academic prowess and mentorship provided by Prof. V. B. Maner. The Third Prize at Rotarex 2023 cements the institution's commitment to nurturing talent and fostering an environment that encourages cutting-edge research and development in the field of mechanical engineering.





Conference Presentation

Renowned in the field, Dr. Tarang R. Shinde, Associate Professor of Mechanical Engineering, showcased his expertise at the International Conference on Powder Metallurgy and Particulate Materials + Exhibition (PM-23) held at The Lalit Mumbai on March 13-14th, 2023. His presentation, a poster-cum-oral discourse, delved into cutting-edge advancements in the realm. Co-authored with Prof. Ajinkya Sagare, Vice President of Yashoda Technical Campus, Satara, the paper unveiled collaborative insights. The event served as a platform for industry professionals and academics to exchange groundbreaking ideas, reinforcing Dr. Shinde's commitment to pushing the boundaries of knowledge in the dynamic field of mechanical engineering.



Conference Paper Presentation by Student

Kunal Bagade, a dynamic TY BTech Mechanical student, showcased his academic prowess by presenting a paper online at the prestigious "7th International Conference on Production & Industrial Engineering." The event, orchestrated by Dr. Babasaheb Ambedkar National Institute of Technology, Jalandhar (Punjab), provided a platform for Kunal to delve into cutting-edge research. Guided by esteemed mentors Prof. A. B. Atpadkar and Prof. S. K. Raut, Kunal collaborated with fellow bright minds Kaustubh Pathak, Ranjit Jadhav, and Onkar Jangam (TY Btech Mech) as co-authors. Their collective efforts marked a significant contribution to the conference's discourse on advancements in the field.





INTERACTIVE SESSION

organized by
Industry-Institute-Integration Cell,
in association with ISTE Students Chapter, YTC and
Mechanical Engineering Student's Association (MESA)

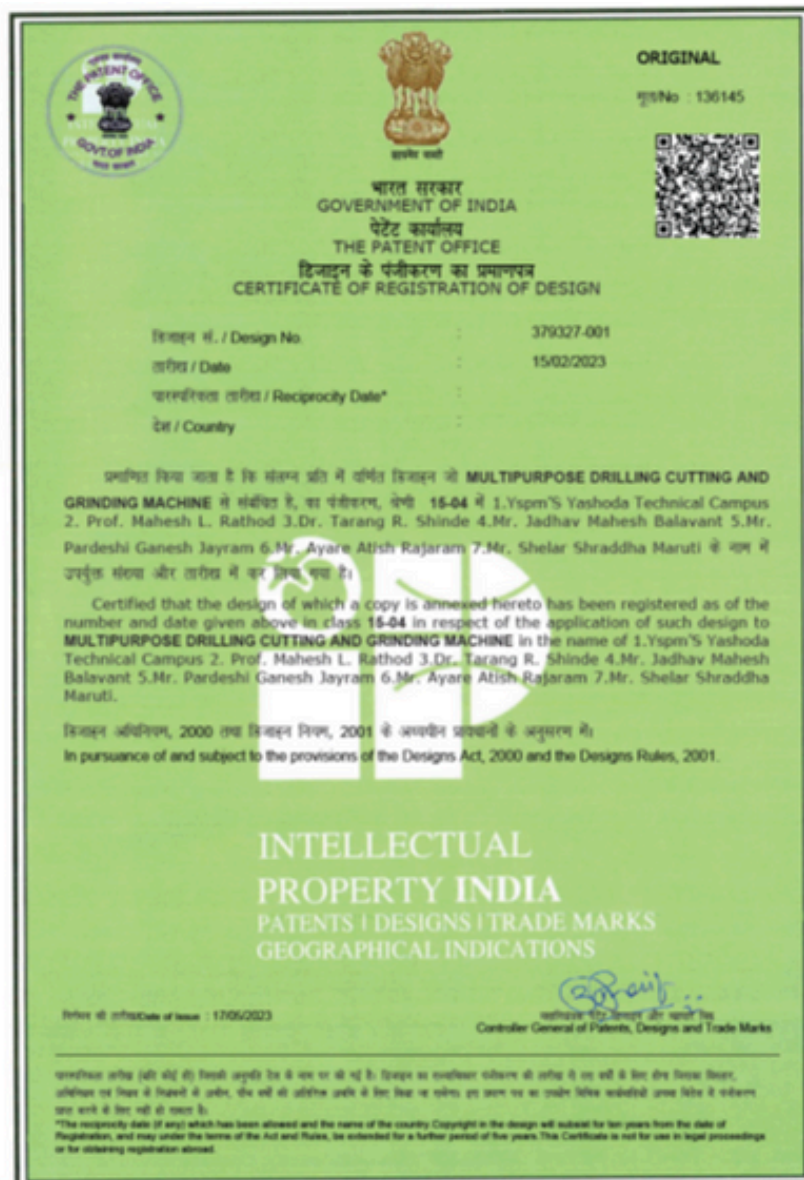
The Industry-Institute-Integration Cell, in association with ISTE Students Chapter, YTC and Mechanical Engineering Student's Association (MESA) had organized an interactive session on "3D Experience Platform enhancing your concept to product" by Mr. Ashish Wanjari, Application Engineer, Pelf InfoTech Pvt. Ltd. Pune on 29th March 2024 at 3.45 pm in Mechanical Seminar hall, YTC. The session included clearing the doubts of students related to Solid Works. The Electrical and Civil Engineering students also participated in the program.





PATENT GRANTED

Patent was granted for the project titled "Multipurpose drilling, cutting and grinding machine" under the guidance of Prof. M. L. Rathod and Dr. T. R. Shinde. The project was manufactured by final year mechanical students Mahesh Jadhav, Ganesh Pardeshi, Atish Ayare, Shraddha Shelar.

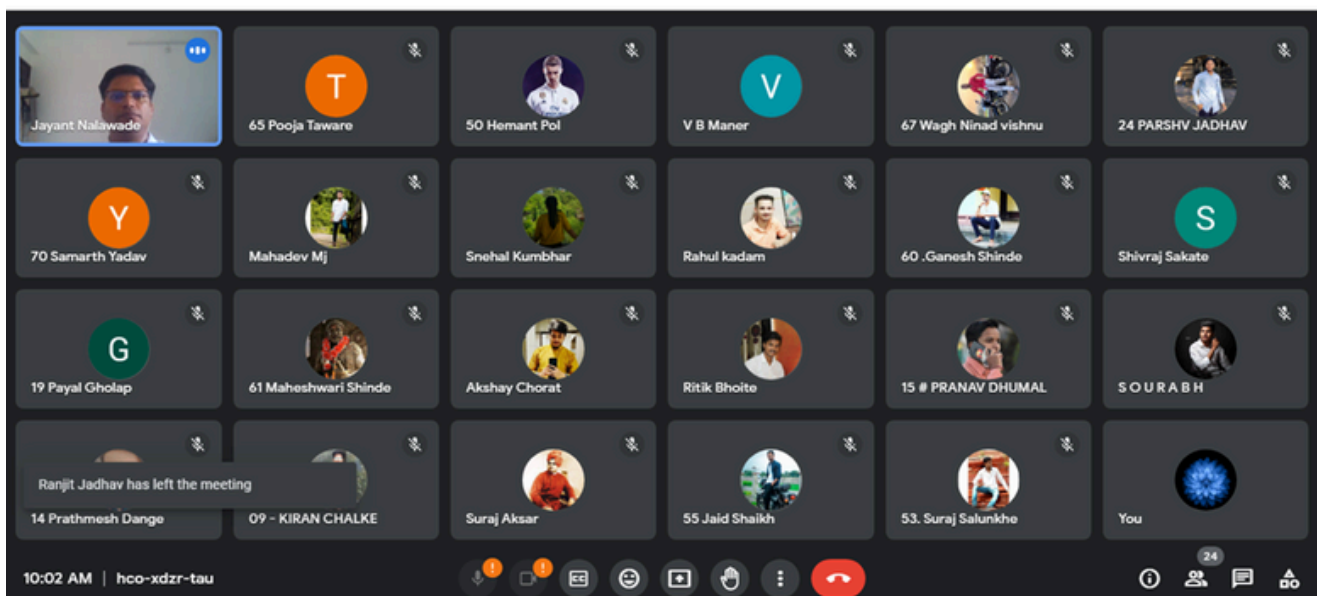




GUEST LECTURE ON SAP Tool

An online guest lecture and hands-on-training on SAP tool for third year Mechanical students was organized on June 3rd 2023. Er. Jayant Nalawade, Sr. SAP Engineer, Deloitte ToucheTohmatsu Limited, Pune, delivered the day long interactive session. SAP tools has an advantage in Mechanical engineering field.

The students were benefitted through his expertise and had an active role in hands on training conducted by the experts. Prof. V. B. Maner had organized this session for Mechanical Department. The students of Mechanical department are benefitted from the academic point of view. The students are going to use this knowledge in their professional life. It is a very useful session for third year students.





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Successfully Completed for the SWAYAM / NPTEL courses in 2022-23.

The following students were registered, attended and Successfully Completed for the SWAYAM / NPTEL courses in 2022-23.

Course Name: Fundamentals of Automotive Systems

Subject Code: BTMEC801A Duration : Jan-Apr 2023

Student Name

- 1 Yogesh Sonawane
- 2 Bhise Pravin Vilas
- 3 Sawant Rushikesh Manohar
- 4 Nanavare Sachin Dnyandev
- 5 Shivam Narendra Paramane
- 6 Abhishek Prabhakar Ingale
- 7 Momin Alfarhan Faruk
- 8 Saurabh Shankar Pharande

Course Name: Non-conventional energy Resources

Subject Code: BTMEC801FDuration : Jan-Apr 2023

Student Name

- 1 Kate Preeti Bapusaheb Jan-Apr 2023
- 2 Yogesh Sonawane Jan-Apr 2023



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Successfully Completed SWAYAM / NPTEL Certificate.



NPTEL Online Certification

(Funded by the MoE, Govt. of India)



This certificate is awarded to
NANAWARE SACHIN DNYANDEV
for successfully completing the course

Fundamentals of Automotive Systems

with a consolidated score of **56** %

Online Assignments	22.06/25	Proctored Exam	33.75/75
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Total number of candidates certified in this course: **1088**

Devendra Jalihal

Prof. Devendra Jalihal
Chairperson,
Centre for Outreach and Digital Education, IITM

Jan-Apr 2023
(12 week course)

Prof. Andrew Thangaraj

Prof. Andrew Thangaraj
NPTEL, Coordinator
IIT Madras



Indian Institute of Technology Madras



Roll No: NPTEL23DE01S34600292

To validate the certificate



No. of credits recommended: 3 or 4

STUDENT ACHIEVEMENT

Kate Preeti Bapusaheb

“Dream Big, Work Hard, Achieve Greatness.”

Mechanical Engineering Department
YSPM's Yashoda Technical Campus, Satara