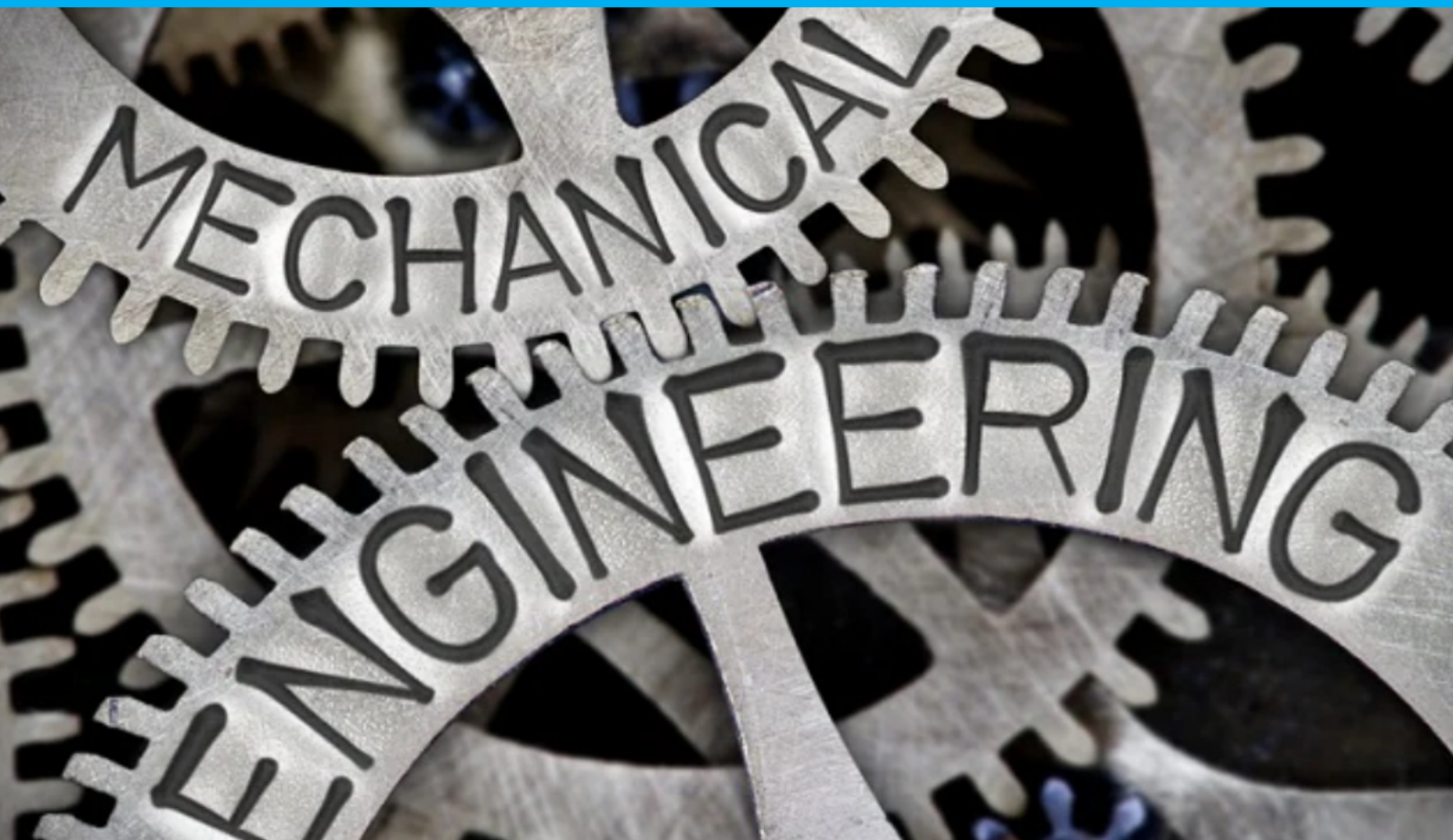


Department of Mechanical Engineering

NEWSLETTER

ISSUE 10: Summer 2024



Shanti Education Society's

**A. G. PATIL POLYTECHNIC INSTITUTE
SOLAPUR (MAHARASHTRA)**

(NBA ACCREDITED PROGRAMS)



Mr. R. S. Motgi
HOD Mechanical

VISION:

- To provide technical education and values in areas of Mechanical Engineering to create professionals to meet the needs of industry, business and society

MISSION:

- To provide skilled manpower to the industry
- To educate students to be Entrepreneurs and Team leaders with ethics
- To motivate students for research and innovation for humanity

PEO's:

- To develop ability to work as Supervisor, Manager and Entrepreneur
- To present themselves as responsible Mechanical Engineering professionals with ethics
- To inculcate ability to develop Mechanical product and processes by considering social and environmental aspects

NEWS FROM THE DEPARTMENT:

I'm happy to speak with you in our department newsletter as the academic year draws to a close. I would like to take this opportunity to thank you for your hard work, devotion, and excitement. You have accomplished so much, and I am very proud of you.

To begin with, let me congratulate each and every one of you on your academic success. Your dedication to learning is clear, as many of you have excelled in your studies. Those who have won honors and distinctions deserve special acknowledgment. Furthermore, I take great pride in our students' enthusiastic involvement in a variety of events. The numerous projects and technical activities in which you participated were a great success.

The team consisting of Mr. Bangar Aditya, Mr. Chavan Aditya, and Miss Balingal Bhavana earned "First Prize" in Dipex-2024 (State Level Project Competition) held in the Mumbai.

A project group consisting of Mr. Kadam Prathmesh, Mr. Patil Hamid, Mr. Bagale Samruddha, and Mr. Gadadure Rohit won first prize in the state-level project competition organized by VVPIT, Solapur, and AGPIT, Solapur. Over fifteen students took prizes, while one hundred and twenty kids engaged in various extracurricular activities.

In addition, you should be commended for your community service and extracurricular activity. You have proven your dedication to social responsibility and personal development through leadership positions, volunteer work, and student organizations, among other activities. I want to encourage you to keep aiming for greatness as we proceed. Make the most of the chances and resources at your disposal, look for fresh challenges, and encourage one another to pursue your academic and personal goals. Never forget that the faculties and staff are available to help and advise you at every turn.

We have a number of intriguing events scheduled for the upcoming year, such as industrial tours, workshops, and guest lecturers. Since these activities are meant to expand your horizons and improve your educational experience, I strongly advise you to get involved.

Finally, I would like to thank you from the bottom of my heart for all of your hard work and devotion. Our department revolves around you, and we are proud of your accomplishments. Together, let's keep pushing forward to accomplish great things and have a positive influence both inside and outside of our academic community.

Best wishes for the upcoming academic year.

RANKERS 2023-24

FIRST YEAR



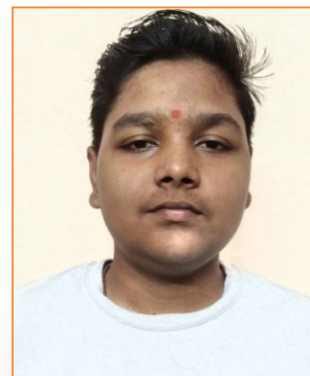
Mr. Satyendra Kumar

87.05%



Mr. Basant Kumar

86.31%



Mr. Kumbhar Parth

82.42%

SECOND YEAR



Gudda Trupti Somanath

78.34%



Pujari Sailaxmi

76.80%



Chavare Rajani

75.66%

THIRD YEAR



Ms. Balingal Bhavana

89.79%



Mr. Gautam Kumar

88.97%



Bangar Aditya

88.97%



Chavan Aditya

88.51%

RANKER

2024



Industrial Visits & Expert Lectures



Industrial Visit for Third Year Students at Enrich Solar Energy, Mandrup (17.02.2024)



Industrial Visit for Second and Third year Mechanical Engineering students at LADA foundry, Kolhapur (07.10.2023)



Industrial Visit for First Year Students at Leena Engineering works, Solapur (20.01.2024)



Industrial Visit for Third Year Students at Leena Engineering works, Solapur (09.09.2023)



Industrial Visit for Third Year Students at Precision Camshafts Ltd., Solapur (30.09.2023)



Industrial Visit for Third Year Students at Shree Venkateshwara Polymers, Solapur (30.09.2023)



Industrial Visit for Second Year Students at Rohit Engineering works, Solapur (20.01.2024)



Visit for First & Second Year Students at Shriram Industries, Solapur (20.01.2024)



Industrial Visits & Expert Lectures



Visit for Third & Second Year Students at Siddhnath Sugars, Solapur (02.08.2023)



Expert lecture on "Skill Development and Career Opportunities in Steam Boiler Industry" for Third & Second Year Students. (02.08.2023)



Expert lecture on "E-Waste Recycling" for Third & Second Year Students. (09.02.2024)



Expert lecture on "UPSC Preparation" for Third Year Students. (09.01.2024)



Expert lecture on "Opportunities to Mechanical Engineers in Manufacturing" for Third & Second Year Students. (10.01.2024)



Expert lecture on "Application of Mechanical Engineering in Medical Field" for Third & Second Year Students. (03.02.2024)



Alumni Lecture of Mr. S. M. Kulkarni (M.S. in Computational Science, University of Rostock, Germany) 14.10.2023

STUDENTS PROJECTS

Project Title: 3D Printing Filament Making Machine for Recycling of Waste Plastic Water Bottle

Mr. Piyush Gaikwad, Mr. Hamid Patil
Mr. Prathmesh Kadam, Mr. Samrudha Bagale
Mr. R. Gaduadre, **Guide:-** Mr. J. G. Dhalait

Plastic products have become an integral part of our daily life as a result of which the polymer is produced at a massive scale worldwide. On an average, production of plastic globally crosses 150 Million tons per year. Its broad range of application is in packaging films, wrapping materials, shopping and garbage bags, fluid containers, clothing, toys, household and industrial products, and building materials.

Plastic waste which is either landfilled or ends up polluting streams or groundwater resources. While some kinds of plastic do not decompose at all, others could take up to 450 years to break down.

- More than 1 million plastic bottles are purchased every minute worldwide.
- Almost 91% of all plastic water bottles are not recycled.
- Approximately 64% of bottled water comes from municipal tap water sources.
- Water bottle manufacturing uses 1.39 liters of water for every 1 liter of water bottled.
- In 2022, the global water bottle market is expected to reach \$280.3 billion in value.
- 8 out of 10 plastic water bottles end up in a landfill or the ocean.

Need of Recycling : There is ongoing concern as to the use of plastics bottles in consumer food packaging solutions, environmental impact of the disposal of these products, as well as concerns regarding consumer safety. Karin Michaels, Associate Professor at Harvard Medical School, suggests that toxins leaching from plastics might be related to disorders in humans such as infertility and cancer.

FDM 3d Printing & 3d Printer Filament

Fused Deposition Modeling (FDM) is a popular 3D printing technology that uses a thermoplastic filament to create three-dimensional objects layer by layer. Here is an overview of FDM 3D printing

Materials Used: FDM 3D printers can use a variety of thermoplastic materials, including PLA (Polylactic Acid), ABS (Acrylonitrile Butadiene Styrene), PETG (Polyethylene Terephthalate Glycol), TPU (Thermoplastic Polyurethane), and more. Each material has its own properties, such as strength, flexibility, heat resistance, and ease of use, making them suitable for different applications.

What is filament used in 3d printing:

Filament is the material used in 3D printing to create physical objects layer by layer. Different types of filaments are available, each with its own characteristics and properties. Here are some common filaments used in



3D printing:

Outline of project

In this project we are going to use waste plastic bottles as raw material and it will be recycled into 3D Printer filament. For this purpose we need different components to be used in Filament making machine. As you can see we are using Extruder for converting the plastic bottle strips into 3d printer filament. The cooling fan is installed for quick cooling down of filament, a 12V DC motor is connected to the disk on which the filament will be wrapped. Our project main purpose is that to reduce plastic pollution which is adversely affecting human being and overall society which it is causing harmful and health issues to human beings and there is effect on environment as well it plays a vital role.

Key Differences:

3D printer filaments are designed for general 3D printing applications, while plastic bottle filament offers a sustainable option for environmentally conscious printing projects.

Overall, the difference between 3D printer filament and plastic bottle filament lies in their origin, properties, and sustainability aspects, catering to different needs and preferences in the 3D printing industry.

Advantage of Reusing Plastic bottle to 3d printer filament Reduces Plastic Waste: By reusing plastic bottles as a raw material for 3D printer filament, the amount of plastic waste that ends up in landfills or oceans is reduced, contributing to waste reduction and environmental conservation.

Energy Savings: Recycling plastic bottles into filament consumes less energy compared to producing new plastic from raw materials, leading to lower energy consumption and reduced carbon emissions.

Lower Production Costs: Recycling plastic bottles into filament can be a cost-effective alternative to purchasing new filament, especially when considering the savings on raw material acquisition and processing.

Savings on Disposal Costs: Companies or individuals can save on disposal costs associated with plastic waste by repurposing plastic bottles into usable filament for 3D printing.



Filament of plastic bottle



Filament making machine

Solar Powered Tri-Cycle

Mr. Bangar Aditya Rahul
Miss. Balingal Bhavana Ramesh
Guide - Kulkarni G. M.

Mr. Chavan Aditya Vikas
Mr. Ganbote Ravishankar

This project introduces a ground breaking design innovation in the area of cargo transportation with the development of a tricycle featuring a pivoted handle system instead of the conventional steering mechanism. The tricycle is engineered to carry a substantial load of up to 100 kg while maintaining a maximum speed of 20 km/hr, catering to the specific needs identified through comprehensive surveys conducted among farmers and vendors.

Through meticulous research and analysis of the challenges faced by these key stakeholders, the project team identified the necessity for a versatile, efficient, and user-friendly cargo transport solution. The conventional steering system was re-imagined, leading to the incorporation of a pivoted handle design, which offers enhanced maneuverability and control, particularly in narrow and congested pathways prevalent in agricultural and market environments.

The development process involved iterative prototyping, rigorous testing, and feedback integration from end-users to ensure optimal performance, durability, and safety. The final product represents a symbiosis of cutting-edge engineering principles and user-centric design, tailored to address the specific requirements of farmers and vendors alike.

This tricycle not only revolutionizes cargo transportation by significantly enhancing efficiency and productivity but also underscores the importance of proactive engagement with end-users in the innovation process. The project contributes to the advancement of sustainable and inclusive mobility solutions, with far-reaching implications for agricultural communities and market vendors.

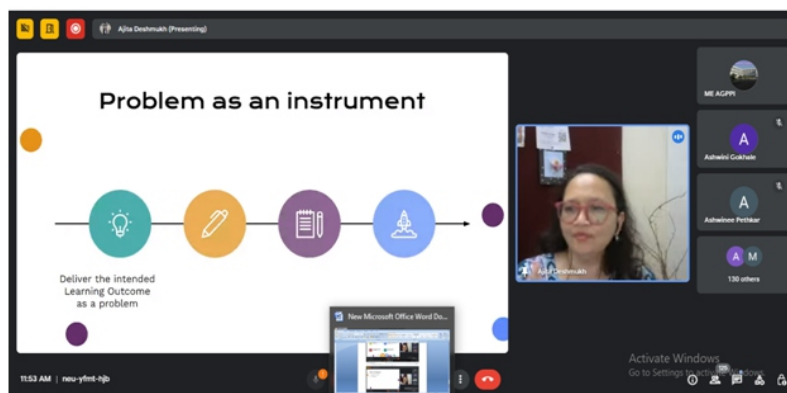
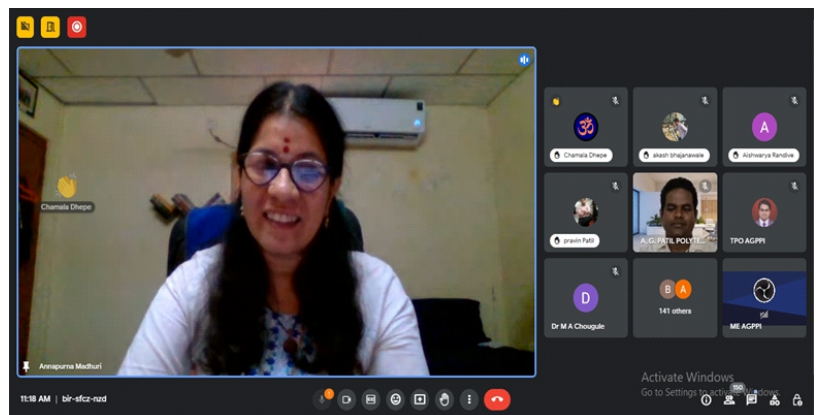


Cycle Before Modification



Cycle After Modification

Two days Online FDP on "
Teacher & Learner Engagement in
Project Based and Problem
Based Learning"



FDP conducted from
28.11.2023 to 29.11.2023

EVENTS



Traditional Day 2024



Engineers Day Celebration



Send-off of Third year Students

Technical Competitions



State level CAD expert competition Accretion 2k24 & National level paper presentation Annum 2k24

TRAINING & PLACEMENT



Campus Placement Drivers of Various Industries

Last Editor Team : Mr. J.G. Dhalait, Mr. Hamid Patil (TY), Mrs. Gayatri Billa (SY)