Department of Mechanical Engineering

NEWSLETTER

ISSUE 8: Summer 2022

Shanti Education Society's

A. G. PATIL POLYTECHNIC INSTITUTE, SOLAPUR

Mr. S. K. Mohite
Head (Mech. Engg. Dept.)

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:

It gives me immense pleasure to present before you the annual academic report for academic year 2021-22 of Mechanical Engineering Department.

We are proud that our mechanical program is NBA accredited and also awarded as "Excellent" grade by Maharashtra state Board of Technical Education, Mumbai.

In the A. Y. 2021-22 Mechanical Department arranged different online and offline activities for students, to enhance their skills and performances in academics and co-curricular activities. Department has intake of 60 students.

Total 10 faculties are working in Mechanical department out of them 90% faculties completed their post graduation with different specialization. Overall 15 National and International Papers are Published by Faculties in A. Y. 2021-22.

10 Faculties participated in industrial training or workshop or any short term training program.

Patents:

Mr. Pinjar J. P., Mr. Narote B. E. & Mrs. Jhaveri D. A. filed a patent named Automatic Packing Machine Container Design.

AICTE Quality Improvement Scheme:

Three projects of AICTE quality improvement schemes are running in the Department which are sanctioned & Funded by AICTE. New Delhi.

1. **SPDC- Skill and personality development program centre for SC ST students.**
2. **STTP- Teaching learning Pedagogies.**
3. **MODROB- 3D Printer**

AICTE-ISTE Induction Program:

AICTE-ISTE Induction Program on "Research Paper Writing & I.P. Rights", sponsored by All India Council for Technical Education (AICTE), New Delhi and organized through Indian Society for Technical Education (ISTE), New Delhi.

This Induction program was organized by Mechanical Dept. and 100 Participants were participated from various states across India.

2021-2022

TY

Samarth Kulkarni
91.74%

Nachiket Kulkarni
91.59%

Rohit Karkale
88.46%

SY

Arati Bharle
83.29%

Harshad Ghotane
82.46%

Aman Mulla
82.16%

FY

Pavan Mulade
88.55%

Prathmesh Kadam
81.65%

Aditya Chavan
81.24%

Expert Lectures

1. Emerging trend in Mechanical Product Manufacturing by Mr. Pravin Kumbhar, Director Churning Tech Pvt. Ltd.
2. Industrial Training Program Guidance & New Innovations at Precision CAM shaft Ltd. by Mr. Aditya Gadgil, PRO, Precision CAM shaft Ltd.
3. Alumni Guest Lecture by Mr. Samarth Kulkarni, (MS in CFD at Rostock University, Germany)
4. Industrial Management-Growth till today by Prof. Javed Mujawar, A. G. Patil Institute of Technology, Solapur.
5. Successful Entrepreneur by Mr. Madhav Deshpande, PRO, Precision Camshaft Ltd. Solapur

Industrial Visits

1. Chavan Motors, Hotgi Road, Solapur
2. Shriram Industries, Industrial Estate, Hotgi Road, Solapur
3. Leena Engineering Works, Industrial Estate, Hotgi Road, Solapur
4. Rohit Engineering Works, Industrial Estate, Hotgi Road, Solapur

Second and Third Year Students were jointly visited the Synergy Green Industry Ltd., Kagal MIDC Kolhapur on 20/02/2022

"MANUFACTURING OF SHEET MAKING MACHINE FROM WASTE PET BOTTLE CAPS "

ABSTRACT

Every single second, 1,000 people open a bottle of water in India. Each day, people in the India throw away more than 60 million plastic water bottles, most of which end up in landfills and waterways. Indians throw away 35 billion empty water bottles a year. Of those, only 12 percent are recycled. Out of everything we put in our recycle bins at home, approximately 50 percent of it is never recycled. For this reason the need of recycling arises .

We know that plastic is useful and also harmful for the environment and in the surrounding area. To avoid more pollution of plastics, plastic recycling is very important for our environment. The main purpose of our project is to reuse of plastic bottle caps and to recycle the plastics. This project discovers one of the options for recycling of plastic waste. In future multiple options are needed to save our environment from plastic pollution.

INTRODUCTION

The basic phases in recycling are the collection of waste materials, their processing or manufacture into new products, and the purchase of those products, which may then themselves be recycled. Plastic is a material consisting of any of a wide range of synthetic or semi-synthetic organic compounds that are malleable and therefore can be moulded into solid objects. Plasticity is the general property of all materials that involves permanent deformation without breaking. Polymers' name is derived from their flexible and plastic. Plastics are typically organic polymers of high molecular mass, but they often contain other substances. They are usually synthetic and most commonly derived from petrochemicals. However, today's focus on the environment has led to a growing number of plastics to be derived from renewable materials such as poly lactic acid Plastics have been adopted in a significant and ever-expanding, range of products. Thanks to their relatively low cost, ease of manufacture, versatility, and imperviousness to water. They can be found in products as simple as paper clips or as complex.

Our project is based on plastic waste recycling. Due to lack of knowledge, different types of plastic are often combined in manufacturing processes, which makes recycling them much more difficult. This often leads to plastics being incinerated, which is a major waste of valuable resources. We have the tools and knowledge to create circular

recycling for the plastic.

Our project main purpose is 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 as it plays a vital role. It is not only polluting the soil but also the sources of waters. Plastic waste bottles choke up the pipelines of drain waters and this causes floods.

This project is basically based on Plastic Sheet Making Machine with Recycled Plastic Waste. Hydraulic jack is used for purpose of lifting of metal plate in which the plastic get compressed and the shape of sheet is occurred. Our project plastic sheet making machine is used for controlling of plastic waste and making a useful thing from the plastic waste. We need to do a certain procedure for recycling of plastic waste into sheet there is one oven used for melting of plastic and later the process is done so, in this way plastic waste recycling process is done by using plastic waste.

CONCLUSION

In this project the pet water bottle caps are reused and recycled in to a plastic sheet. This sheet is useful for small cutting boards, stools and small table boards. We know that the pet bottle waste is a major problem all over the world. This is very dangerous to our environment. It is not only polluting the soil but also the sources of waters. Plastic waste bottles choke up the pipelines of drain waters and this causes floods.

There is a need of urgency in this situation. Project like this are helpful in solving problem. But this is not sufficient for the quantity of waste disposed every year. In future there are more advantage of plastic and many types of plastic can be used.

Some of them are:

1. Polyethylene Terephthalate (PET or PETE or Polyester)
2. High-Density Polyethylene (HDPE)
3. Polyvinyl Chloride (PVC)
4. Low-Density Polyethylene (LDPE)
5. Polypropylene (PP)

Final Sheets made using Sheet Making Machine from waste Bottle

SUBMITTED BY

Mr. Angadi P. J.
Mr. Chappalage S. P.
Mr. Patange V. S.
Mr. Mali N. N.

Under The Guidance of

Mr. Dhalait J. G.

"EXPERIMENTAL ANALYSIS OF WATER HAMMER EFFECT"

ABSTRACT

Water hammer is a pressure wave that occurs when there is a sudden momentum change of a fluid within an enclosed space. This may occur in pipelines when a valve is closed suddenly or when a pump is failed suddenly. The created pressure wave and the negative wave will propagate through the pipeline. During the water hammer phenomenon, the high produced pressures can rupture the pipeline and its components, Several strategies have been developed to control the water hammer within the pipelines such as, changes of diameter, profile within the pipeline systems, reducing the wave speed, applying the optimal operational procedures and installation of control devices such as air vessels, surge tanks, air valves and pressure relief valves. A comprehensive experimental, theoretical and investigations focusing on the aspects of water hammer effect.

INTRODUCTION

Here the work is carried out in regard for developing a test rig for the experimental purpose which detects the rise in pressure waves with the operation of valve whether it closed suddenly or gradually. Through this project the test rig is developed which is useful to demonstrate the actual value of pressure when pipe valve is suddenly closed, at this instant the pressure gauge gives the exact reading of generated back pressure waves. Here we are concluded the water hammer effect by measuring the intensity of pressure waves. So through development of such "Lab Enrichment Project" we can develop the Test Rig of special application of our Fluid Mechanics & Machinery Lab which is additional equipment apart from syllabus to study the additional experiment. Designing of this test rig is made by doing following steps.

1. Designing a proper pipe layout.
2. Length of pipe should be optimum.
3. Fabrication of robust frame for fitting pipe layout and water storage tank.
4. Conducting pre-trials for assuring the basic parameters to get proper reading.
5. Collection of test results and analyzing the effect of water hammer.

SUBMITTED BY

Mr. Jagdale S. S.
Mr. Dhavad U. S.
Mr. Burbure V. R.
Mr. Kulkarni N. T.

Under The Guidance of

Mr. Pinjar J. P.

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COURSES OFFERED IN DIPLOMA ENGINEERING

Discipline	Intake Capacity	Duration of Course
Electrical Engineering	60	3 years
Mechanical Engineering	60	3 years
Electronics and Telecom. Engineering	60	3 years
Civil Engineering	60	3 years
Computer Engineering	60	3 years

EDITOR'S TEAM
Mr. Dawankar S. R. (Lecturer)
Mr. Vedant Ganmote & Mr. Soham Jagdale (Third Year)