

2021-22

# Mechzine 2K21

NEWSLETTER

Volume 5

## Department of Mechanical Engineering



S.V.S.M.D's

Kai. Kalayanrao (Balasaheb) Ingale  
Polytechnic, Akkalkot



# Mechanical Engineering Department

## Welcome



Every long journey begins with a single step. Every year the department consolidates the gain of the previous year & sets new target to accelerate the process of enrichment & enhancement. Now this task has become a routine because of highly qualified-experienced & self-motivated faculty, the pillars of the department. Below mentioned is the mind blowing list of activities under taken by the department & completed successfully, off course with support of Principal and Management. The department works in a cohesive manner. All faculty members are proactive and students are always at the center. The industrial visits & expert lectures are organized for proper exposure by respective teachers.

**Mr. M. B. Mane**  
**Head of Department**

## Vision

To nourish the rural youth by technical education favorable to mechanical industries and social excellence

## Mission

1. To create awareness of technical education & minimizing the gap between industry and rural youth by industrial visits & internship programs
2. To make the students ready with technology in Mechanical Engineering through workshops
3. To enable the students to overcome the challenges in higher studies & industrial profession by Seminars

## Program Educational Objectives (PEOs)

1. To make them eligible for higher education and endless learning
2. To develop employability in technical field.
3. To develop socially responsible professionals.

## Program Outcomes (POs)

1. **Basic and discipline specific knowledge:** Apply the knowledge of basic mathematics, science and engineering fundamental and engineering specialization to solve the engineering problems.
2. **Problem analysis:** Identify and analyze well-defined engineering problems using codified standard methods.
3. **Design / Development of Solution:** Design solutions for well-defined technical problems and assist with the design of system components or process to meet specified needs.
4. **Design / Development of Solution:** Design solutions for well-defined technical problems and assist with the design of system components or process to meet specified needs.
5. **Engineering Practices for Society, Sustainability and Environment:** Apply appropriate technology in context of society, sustainability, environment and ethical practices.
6. **Project Management:** Use engineering management principals individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.
7. **Life-long learning:** Ability to analyze individual needs and engage in updating in context of technological changes.

## Expert Talks

We invited various experts to enhance student's technical knowledge as well as overall personality

1. **“Business oriented communication & interview techniques”** by **Mrs. Birajdar L.S.** Lecturer in A.G. Patil Polytechnic Solapur for first year students on 12-03-2022.
2. **“Stress Management”** by **Dr. Namita Wadapurkar**, for third year students on date-29-03-2022
3. **“Career Guidance”** by **Dr. Metan S. S.** for third year students on date-24-03-2022.
4. **“Advance Manufacturing Processes”** by, **Prof. Bhosale S.B.** SVERI Pandharpur for third year students on date-29-04/2022.
5. **“How to write research paper”** by, **Prof. Jadhav S.V.** SVERI Pandharpur for third year students on date-29-04/2022.
6. 2 Day workshop on **“Auto CAD”** is conducted by **Prof. B.R. Birajdar & Prof. M.B. Awate** N.K. Orchid COE Solapur for second year students dated- from 23-03-2022 to 24-03-2022.



**Experts interacting with student**

## Industrial Visits

We visited various industries to enhance student's technical knowledge as well as overall personality

1. Precision Camshafts Ltd. Solapur on date 26-03-2022.
2. Marval Engg. Pvt.Ltd. Solapur on date 26-03-2022.
3. PM Plastic Industry, Akkalkot on date 23-04-2022.
4. Shri.Sai Jal Water treatment Plant, Akkalkot on date 26-04-2022



Precision Camshafts Ltd. Solapur



Marvel Engineering Pvt. Ltd. Solapur

## Faculty Achievements:

### Workshops/Trainings attended

1. Mr. Bhawthankar A.A. attended AICTE- ISTE approved Orientation/Refresher program on “Assessment Technique in Teaching” Organized by D.K.T.E Society’s Textile & Engineering Institute, Ichalkaranji.
2. Mr. Bhawthankar A.A. attended one week online Induction program on “Research Paper Writing & I. P. Rights” Approved by AICTE- ISTE conducted at A.G.Patil polytechnic Institute, Solapur.
3. Mr. Mane M.B. attended AICTE- ISTE approved Orientation/Refresher program on “ Recent Trends in Optimization Techniques” Organized by Dr. A .D. Shinde Institute of Technology, Kolhapur.
4. Mr. Mane M.B. attended one week National level FDTP on “Renewable Energy For Sustainable Development” conducted at BIGCE, Solapur
5. Mr. Masuti S.B. attended One week National level FDTP on “Renewable Energy For Sustainable Development” conducted at BIGCE, Solapur.
6. Mr. Phopale Y.A. attended Online One week FDP on “ Outcome based Pedagogy for Effective Teaching and Learning in Engineering Education “ Organized by SKN Sinhgad Collage of Engineering, Pandharpur.
7. Mr. Paramashetti S.C. attended One week National level FDTP on “Renewable Energy For Sustainable Development” conducted at BIGCE, Solapur.
8. Mr. Korshetti V.V. One week National level FDTP on “Renewable Energy For Sustainable Development” conducted at BIGCE, Solapur.

9. Mr. Phopale Y.A. attended One week online Induction program on “Research Paper Writing & I. P. Rights” Approved by AICTE- ISTE conducted at A.G. Patil polytechnic Institute, Solapur.
10. Mr. Phopale Y.A. attended ISTE approved One week FDP on “Simulation Tools For Research” Organized by Sharad Institute of Technology, College of Engineering, Yadrav , Ichalkaranji.
11. Mr. Ghurghure K.A. attended AICTE- ISTE approved Orientation/Refresher program on “ Recent Trends in Optimization Techniques” Organized by Dr. A .D. Shinde Institute of Technology, Kolhapur



## Academic Performance:

| YEAR                | 1 <sup>st</sup> RANK  | 2 <sup>nd</sup> RANK   | 3 <sup>rd</sup> RANK   |
|---------------------|---|--|--|
| <b>SUMMER -2022</b> |   |  |  |
| <b>FIRST YEAR</b>   | <br><b>Vishwajeet A. Desai</b><br>(82.67%)   | <br><b>Ganesh S. Sinnur</b><br>(79.47%)      | <br><b>Babusha M. Karajagi</b><br>(75.33%)    |
| <b>SECOND YEAR</b>  | <br><b>Samarth S. Bennisur</b><br>(68.88%)   | <br><b>Chandrakant S. Chalageri</b> (67.37%) | <br><b>Pawan B. Shinde</b><br>(67.25%)        |
| <b>FINAL YEAR</b>   | <br><b>Pranav S. Bagul</b><br>(73.38%)     | <br><b>Shridhar P. Dhadake</b><br>(71.18%) | <br><b>Laxmikant R. Jamadar</b><br>(66.10%) |
| <b>WINTER-2021</b>  |   |  |  |
| <b>FIRST YEAR</b>   | <br><b>Babusha M. Karajagi</b><br>(81.71%) | <br><b>Rutik V. Patil</b><br>(80.86%)      | <br><b>Nagendra R. Teli</b><br>(80.14%)     |



|                                    |   |  |   |
|------------------------------------|---|--|---|
| <b>SECOND YEAR</b>                 |  |  |  |
|                                    | <b>Chandrakant S.<br/>Chalageri<br/>(67.37%)</b>                                  | <b>Vishal J.<br/>Khyale<br/>(82.42%)</b>   | <b>Vishweshwar H.<br/>Vanyalolu<br/>(81.89%)</b>                                    |
|                                    | <b>FINAL YEAR</b>   |   |   |
| <b>Akash P. Udagi<br/>(83.24%)</b> |   | <b>Rahul S. Zalaki<br/>(83.05%)</b>  | <b>Anand A. Birajdar<br/>(81.71%)</b>   |

## Placements

Our students are selected by following industries.

| Sr. No | Name of Students Selected    | Name of Industry Approached for Campus Interview |
|--------|------------------------------|--|
| 1      | Kasar Akash Bapuram          | Bajaj Auto Ltd. Talewadi                         |
| 2      | Arenavaru Datta Chidanad     | John Deere India Ltd.                            |
| 3      | Seema Shivanand Lohar        | TaTa Auto com System, Pune                       |
| 4      | Chadchan Mallikarjun Babusha | Bajaj Auto Ltd. Waluj Aurangabad                 |
| 5      | Dhanagonde Akshay Gurunath   | Bajaj Auto Ltd. Waluj Aurangabad                 |
| 6      | Anagale Ankush Santosh       | Bajaj Auto Ltd. Waluj Aurangabad                 |
| 7      | Patil abhishek laxmiputra    | Bajaj Auto Ltd. Pune                             |
| 8      | Malappa shrimant pujari      | John Deere India Ltd                             |
| 9      | Udagi Akash Pandit           | Bajaj Auto ltd. Pune                             |

|    |                            |                                     |
|----|----------------------------|-------------------------------------|
| 10 | Shinge Pramod bhimrao      | Webasto Roofsystems India Pvt.Ltd.  |
| 11 | Kore Abhishek Ramesh       | John Deere India Ltd                |
| 12 | Zalaki Rahul Shrimant      | Sigma Engineering Solution          |
| 13 | Shankar Siddaram Umarani   | Bajaj Auto Ltd.Pune                 |
| 14 | Bhise Birappa Tammanna     | Webasto Roof systems India Pvt.Ltd. |
| 15 | Ghodake Vitthal Nagendra   | John Deere India Ltd.               |
| 16 | Chikamale Pavan Sharanappa | Bajaj Auto Ltd.Pune                 |
| 17 | Jamadar Laxmikant Ram      | Hidusthan agri tech,Omerga          |
| 18 | Hotage samarth ningappa    | AAM AUTO COMPONENT (PVT) LTD        |
| 19 | Patel Altab Ekabal         | Samson controls pvt. ltd            |

## Extra co-curricular activities

We are celebrated various festivals and days under the Mechanical Engineering Student Association (MESA)

**महाराष्ट्र शासनाच्या उच्च व तंत्र शिक्षण विभाग व आरोग्य विभागांतर्गत**  
 श्री. वटवृक्ष स्वामी महाराज देवस्थान संघलित,  
 कै. कल्याणराव (बाळासाहेब) इंगळे पॉलिटेक्निक,  
 अक्कलकोट

**विद्यार्थ्यांचे कोविड-19 प्रतिबंधक लसीकरण मोहीम**

**मिशन युवा स्वास्थ्य**  
 व्यावसायिक शिक्षण घेणाऱ्या व 18 वर्ष वय पूर्ण झालेल्या साठी भव्य लसीकरण मोहीम

दि २८ ऑक्टोबर २०२१ रोजी सकाळी १०.०० वाजता आयोजित केली आहे.

- पहिला डोस घेण्यासाठी वय 18 वर्ष पूर्ण असणे आवश्यक आहे.
- दुसरा डोस घेण्यासाठी पहिल्या डोसनंतर 84 दिवस पूर्ण झालेले असावेत.
- मास्कचा वापर, सोशल डिस्टेंसिंग, सॅनिटायझेशन बाबतच्या नियमांचे पालन करावे.

टीप :- लसीकरणासाठी येताना सोबत आधार कार्ड व मोबाईल असणे आवश्यक आहे.  
 पत्ता :- ६०४/२, भक्तनिवास जवळ, गाणगापूर रोड, अक्कलकोट जिल्हा- सोलापूर



**Covid-19 Vaccination Drive is organized on 28 oct. 2021 to protect our students and society from covid-19 infection. Students have actively participated in vaccination drive**

## Final Year Student's Projects:

### Fabrication and modification of crop cutter without engine



#### ABSTRACT

*The small scale farmers who have land area of less than 1 to 2 acres this machine will be beneficial for them. This machine is compact and can cut various crops at a time. It has cutting blades which cut the crop in a trimmer type of motion. It runs on electric DC motor of 250 w, this power from engine, is provided through pulley and gear box arrangement to the cutter. A crop collecting mechanism is provided for the collection of crops to one side of it after cutting. The pulley and belt arrangement is to provide power to this mechanism. It is easily reparability as this compact harvester is manufactured using locally available spare parts. This harvester might be the solution to the problems faced by a small scale farmer regarding labor fulfillment and cost. After testing this machine in farm it is found that the cost of harvesting using this harvester is extensively much less as compare to manual harvesting.*

**Implemented by**

**Mr. Udagi Akash P.**

**Mr. Kumbhar Shrishail R.**

**Mr. Chikamale Pavan S.**

**Mr. zalaki Rahul S.**

**Mr. Mitagire Mahadev S.**

**Under the guidance of**

**Prof. M.B. Mane**

**(HOD Mech. Engg. Department)**

# **Fabrication of Water pump to lift water from well**

## **ABSTRACT**

*In rural and undeveloped areas where there is no power grid and more water is needed for agriculture purposes and human uses, the choices for driving water pumps are usually diesel. There are very distinct differences between the two power sources in terms of cost and reliability. This project presents an economic analysis of diesel and PV water pumping systems for irrigation purposes. According to the location parameters, the required water demand, unit cost of different components and fuel cost. The study considered three systems for water pumping; PV only, hybrid PV-Diesel and Diesel only. The study showed the advantages of use photovoltaic energy over that of the diesel generator in terms of the net present cost and the cost of energy. It also concluded that diesel pumps are typically characterized by a lower capital cost but a very high operation and maintenance cost. Solar is the opposite, with a considerably higher capital cost but very low ongoing operation and maintenance costs.*

**Implemented by**

**Mr. A.M. Kalase**

**Mr. S.A. Patil**

**Mr. S.R. KADAM**

**Mr. S.A. Chopdar**

**Mr. Jamadar M.D.**

**Under the guidance of**

**Lect. Y.A. Phopale**

**(Lecturer in Mech. Engg. Dept.)**

## Tech-Art:

### *What is e-vehicle?*

Electric vehicles (or EVs) are vehicles that are either partially or fully powered on electric power. Electric vehicles have low running costs as they have less moving parts for maintaining and also very environmentally friendly as they use little or no fossil fuels (petrol or diesel). While some EVs used lead acid or nickel metal hydride batteries, the standard for modern battery electric vehicles is now considered to be lithium ion batteries as they have a greater longevity and are excellent at retaining energy, with a self-discharge rate of just 5% per month. Despite this improved efficiency, there are still challenges with these batteries as they can experience thermal runaway, which have, for example, caused fires or explosions in the Tesla model S, although efforts have been made to improve the safety of these batteries.

There are **two main types** of electric vehicles (EV); fully electric and plug-in hybrids.

### *Battery Electric Vehicles (BEV)*

Compared to an internal combustion engine, battery powered electric vehicles have approximately 99% fewer moving parts that need maintenance.

### Advantages of a BEV:

- Creates very little noise
- No exhaust, spark plugs, clutch or gears
- Doesn't burn fossil fuels, instead uses rechargeable batteries

BEVs can be charged at home overnight, providing enough range for average journeys. However, longer journeys or those that require a lot of hill climbs may mean that the fuel cells require charging before you reach your destination, although regenerative braking or driving downhill can help militate against this by charging the battery packs. The typical charging time for an electric car can range from 30 minutes and up to more than 12 hours. This all depends on the speed of the charging station and the size of the battery. In the real world, range is one of the biggest concerns for electric vehicles, but is something that is being addressed by industry.

### *Plug-in Hybrid Electric Vehicles (PHEV)*

Rather than relying solely on an electric motor, hybrid electric vehicles offer a mixture of battery and petrol (or diesel) power. This makes them better for travelling long distances as you can switch to traditional fuels rather than having to find charge points to top up the battery.

Of course, the same disadvantages that apply to combustion engine vehicles also

apply to PHEVs, such as the need for more maintenance, engine noise, emissions and the cost of petrol. PHEVs also have smaller battery packs, which mean a reduced range.

TWI has been instrumental in the development of electric vehicles, assisting with light-weighting of the vehicles themselves, helping with joining and welding, mitigating against battery combustion and more.

### ***Benefits of Electric Vehicles***

#### ***➤ Lower running costs***

The running cost of an electric vehicle is much lower than an equivalent petrol or diesel vehicle.

#### ***➤ Low maintenance cost***

Electric vehicles have very low maintenance costs because they don't have as many moving parts as an internal combustion vehicle. The servicing requirements for electric vehicles are lesser than the conventional petrol or diesel vehicles. Therefore, the yearly cost of

running an electric vehicle is significantly low.

#### ***➤ Zero Tailpipe Emissions***

Driving an electric vehicle can help you reduce your carbon footprint because there will be zero tailpipe emissions. You can reduce the environmental impact of charging your vehicle further by choosing renewable energy options for home electricity.

#### ***➤ Tax and financial benefits***

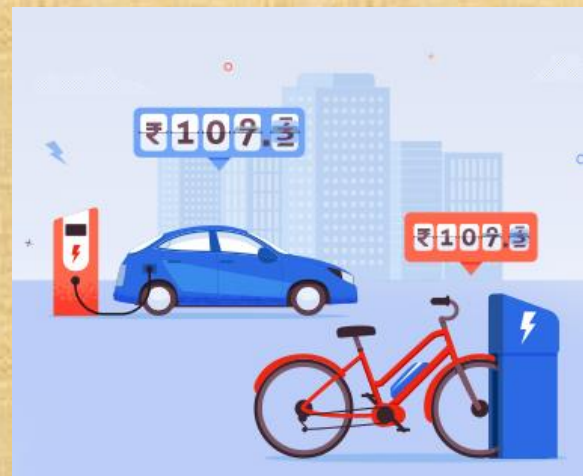
Registration fees and road tax on purchasing electric vehicles are lesser than petrol or diesel vehicles. There are multiple policies and incentives offered by the government depending on which state you are in.

Prepared by;



**Lect. Yogesh Ashok Phopale**

**B.E. (Mechanical)**





S.V.S.M.D's



**Kai. Kalyanrao (Balasaheb) Ingale Polytechnic,  
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**Approved by: All India Council for Technical Education (AICTE), New Delhi**  
**Recognized by: Government of Maharashtra**  
**Approved by: Directorate of Technical Education (DTE), Mumbai**  
**Affiliated to: Maharashtra State Board of Technical Education (MSBTE),  
Mumbai**

**COURSES OFFERED IN DIPLOMA ENGINEERING**

| <b>Discipline</b>                               | <b>Intake Capacity</b> | <b>Duration of Course</b> |
|---|------------------------|---------------------------|
| <b>Mechanical Engineering</b>                   | <b>60</b>              | <b>3 Years</b>            |
| <b>Electronics and Telecom.<br/>Engineering</b> | <b>30</b>              | <b>3 Years</b>            |
| <b>Civil Engineering</b>                        | <b>60</b>              | <b>3 Years</b>            |
| <b>Computer Engineering</b>                     | <b>30</b>              | <b>3 Years</b>            |
| <b>Total Intake</b>                             | <b>180</b>             |                           |