1.3.2 ***Number of courses that include experiential learning through project work/field work/internship during the year***

**a) Sample course syllabus those include experiential learning through project work/field work/internship during the year**

**Department of EXTC:**

| Course Code | Course Name | Teaching Scheme (Hrs.) | | | Credits Assigned | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory | Practical | Tutorial | Theory | Practical | Tutorial | Total |
| ECM301 | Mini Project 1A | -- | 04$ | -- | -- | 2 | -- | 2 |

| Course Code | Course Name | Examination Scheme | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory Marks | | | | Term Work | Practical And Oral | Total |
| | | Internal assessment | | | End Sem. Exam | | | |
| | | Test1 | Test2 | Avg. Of Test1 and Test2 | | | | |
| ECM301 | Mini Project 1A | -- | -- | -- | -- | 25 | 25 | 50 |

$ Indicates work load of a learner (Not Faculty) for Mini Project 1A. Faculty Load: 1 hour per week per four groups.

Objectives

1. To acquaint with the process of identifying the needs and converting it into the problem.
2. To familiarize the process of solving the problem in a group.
3. To acquaint with the process of applying basic engineering fundamentals to attempt solutions to the problems.
4. To inculcate the process of self-learning and research.

Outcome: At the end of the course learners will be able to...

1. Identify problems based on societal /research needs.
2. Apply Knowledge and skill to solve societal problems in a group.
3. Develop interpersonal skills to work as member of a group or leader.
4. Draw the proper inferences from available results through theoretical/ experimental/simulations.
5. Analyse the impact of solutions in societal and environmental context for sustainable development.
6. Use standard norms of engineering practices
7. Excel in written and oral communication.
8. Demonstrate capabilities of self-learning in a group, which leads to life long learning.
9. Demonstrate project management principles during project work.

| Course Code | Course Name | Examination Scheme | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory Marks | | | | Term Work | Practical And Oral | Total |
| | | Internal assessment | | | End Sem. Exam | | | |
| | | Test 1 | Test 2 | Avg. Of Test 1 and Test 2 | | | | |
| ECL304 | Skill Lab: C++ and Java Programming | -- | -- | -- | -- | 25 | 25 | 50 |

**Note:** Before performing practical **'Necessary Theory'** will be taught by concern faculty

**Course Pre-requisites:**

1. FEL204 - C-Programming

**Course Objectives:**

1. Describe the principles of Object Oriented Programming (OOP).
2. To understand object-oriented concepts such as data abstraction, encapsulation, inheritance and polymorphism.
3. Utilize the object-oriented paradigm in program design.
4. To lay a foundation for advanced programming.
5. Develop programming insight using OOP constructs.

**Course Outcomes:**

After successful completion of the course student will be able to:

1. Describe the basic principles of OOP.
2. Design and apply OOP principles for effective programming.
3. Develop programming applications using OOP language.
4. Implement different programming applications using packaging.
5. Analyze the strength of OOP.
6. Percept the Utility and applicability of OOP.

| Course Code | Course Name | Teaching Scheme (Hrs.) | | | Credits Assigned | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory | Practical | Tutorial | Theory | Practical | Tutorial | Total |
| ECM401 | Mini Project 1B | -- | 04[$] | -- | -- | 2 | -- | 2 |

| Course Code | Course Name | Examination Scheme | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory Marks | | | | Term Work | Practical And Oral | Total |
| | | Internal assessment | | | End Sem. Exam | | | |
| | | Test1 | Test2 | Avg. Of Test1 and Test2 | | | | |
| ECM401 | Mini Project 1B | -- | -- | -- | -- | 25 | 25 | 50 |

$ Indicates work load of a learner (Not Faculty) for Mini Project 1A. Faculty Load: 1 hour per week per four groups.

**Objectives**

1. To acquaint with the process of identifying the needs and converting it into the problem.
2. To familiarize the process of solving the problem in a group.
3. To acquaint with the process of applying basic engineering fundamentals to attempt solutions to the problems.
4. To inculcate the process of self-learning and research.

**Outcome:** At the end of the course learners will be able to…

1. Identify problems based on societal /research needs.
2. Apply Knowledge and skill to solve societal problems in a group.
3. Develop interpersonal skills to work as member of a group or leader.
4. Draw the proper inferences from available results through theoretical/ experimental/simulations.
5. Analyse the impact of solutions in societal and environmental context for sustainable development.
6. Use standard norms of engineering practices

| Subject Code | Subject Name | Teaching Scheme (Hrs.) | | | Credits Assigned | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory | Practical | Tutorial | Theory | Practical | Tutorial | Total |
| ECL404 | Skill Lab: Python Programming | - | 04 | -- | -- | 02 | -- | 02 |

| Subject Code | Subject Name | Examination Scheme | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory Marks | | | | Term Work | Practical and Oral | Total |
| | | Internal assessment | | | End Sem. Exam | | | |
| | | Test 1 | Test 2 | Avg. of Test 1 and Test 2 | | | | |
| ECL404 | Skill Lab: Python Programming | - | - | - | - | 25 | 25 | 50 |

**NOTE**: Necessary theory part should be taught by the teacher at the beginning of the laboratory session.

**Course pre-requisite:**

1. ECL304 – Skill Lab: C++ and Java Programming.

**Course Objectives:**

1. Describe the core syntax and semantics of Python programming language.
2. Explore file handling in Python
3. Infer the Object-oriented Programming concepts in Python
4. Formulate GUI Programming and Databases operations in Python
5. Develop applications using variety of libraries and functions

**Course Outcomes:**

After successful completion of the course student will be able to:

1. Describe syntax and semantics in Python
2. Illustrate different file handling operations
3. Interpret object oriented programming in Python
4. Design GUI Applications in Python
5. Express proficiency in the handling Python libraries for data science
6. Develop machine learning applications using Python

| Course Code | Course Name | Credits |
|---|---|---|
| **MEC301** | **Engineering Mathematics-III** | **4** |

**Pre-requisite:** Engineering Mathematics-I, Engineering Mathematics-II,

**Course Objectives:**

1. To familiarize with the Laplace Transform, Inverse Laplace Transform of various functions, its applications.
2. To acquaint with the concept of Fourier Series, its complex form and enhancethe problemsolvingskills.
3. To familiarize with the concept of complex variables, C-R equations with applications.
4. To study the application of the knowledge of matrices and numerical methods in complex engineering problems.

**Course Outcomes:** Learner will be able to….

1. Apply the concept of Laplace transform to solve thereal integrals in engineering problems.
2. Apply the concept of inverse Laplace transform of various functions in engineeringproblems.
3. Expand the periodic function by using Fourier series for real life problemsand complex engineeringproblems.
4. Find orthogonal trajectories and analyticfunction by using basic concepts of complex variable theory.
5. Apply Matrix algebra to solve the engineeringproblems.
6. Solve Partial differential equations by applying numerical solution and analytical methods for one dimensional heat and waveequations.

| Module | Detailed Contents | Hrs. |
|---|---|---|
| **01** | **Module: Laplace Transform**<br>1.1 Definition of Laplace transform, Condition of Existence of Laplacetransform, Laplace Transform (L) of Standard Functions like $e^{at}, sin(at), cos(at), sinh(at), cosh(at)$ and $t^n$ , $where\ n \geq 0$.<br><br>1.2 Properties of Laplace Transform: Linearity, First Shifting theorem, Second Shifting Theorem, change of scale Property, multiplication by $t$, Division by *t, 1.3. 1.3* Laplace Transform of derivatives and integrals (Properties without proof). | **06** |
| | 1.4 Evaluation of integrals by using Laplace Transformation.<br><br>**Self-learning topics:** Heaviside's Unit Step function, Laplace Transform. OfPeriodic functions, Dirac Delta Function. | |

**Assessment:**

**Term Work:**

General Instructions:

1. Batch wise tutorials are to be conducted. The number of student'sperbatch should be as per University pattern for practicals.
2. Students must be encouraged to write at least 6 class tutorials on entiresyllabus.
3. A group of 4-6 students should be assigned a self-learning topic. Students should prepare a presentation/problem solving of 10-15 minutes. This should be consideredas mini project in Engineering Mathematics. This project should be graded for 10 marks depending on the performance of thestudents.

The distribution of Term Work marks will be as follows –

| | | |
|---|---|---|
| 1 | Attendance (Theory and Tutorial) | 05 marks |
| 2 | Class Tutorials on entire syllabus | 10 marks |
| 3 | Mini project | 10 marks |

**Internal Assessment for 20 marks:** Consisting Two Compulsory Class Tests First test based on approximately 40% of contents and second test based on remaining contents (approximately 40% but excluding contents covered in Test I). Duration of each test shall be one hour.

**End Semester Examination:** Weightage of each module in end semester examination will be proportional to number of respective lecture hours mentioned in the curriculum.

1. Question paper will comprise of total six questions, each carrying 20 marks
2. Question 1 will be compulsory and should cover maximum contents of the curriculum
3. Remaining questions will be mixed in nature (for example if Q.2 has part (a) from module 3 then part (b) will be from any module other than module 3)
4. Only Four questions need to be solved.

| Course code | Course Name | Credits |
|---|---|---|
| **MEPBL301** | **Mini Project - 1A** | **02** |

### Objectives

1. To acquaint with the process of identifying the needs and converting it into the problem.
2. To familiarize the process of solving the problem in a group.
3. To acquaint with the process of applying basic engineering fundamentalsto attempt solutions to the problems.
4. To inculcate the process of self-learning and research.

**Outcome:** Learner will be able to…

1. Identify problems based on societal /research needs.
2. Apply Knowledge and skill to solve societal problems in a group.
3. Develop interpersonal skills to work as member of a group or leader.
4. Draw the proper inferences from available results through theoretical/experimental/simulations.
5. Analyse the impact of solutions in societal and environmental context for sustainable development.
6. Use standard norms of engineering practices.
7. Excel in written and oral communication.
8. Demonstrate capabilities of self-learning in a group, which leads to life long learning.
9. Demonstrate project management principles during project work.

### Guidelines for Mini Project

- Students shall form a group of 3 to 4 students, while forming a group shall not be allowed less than three or more than four students, as it is a group activity.
- Students should do survey and identify needs, which shall be converted into problem statement for mini project in consultation with faculty supervisor/head of department/internal committee of faculties.
- Students shall submit implementation plan in the form of Gantt/PERT/CPM chart, which will cover weekly activity of mini project.
- A log book to be prepared by each group, wherein group can record weekly work progress, guide/supervisor can verify and record notes/comments.
- Faculty supervisor may give inputs to students during mini project activity; however, focus shall be on self-learning.
- Students in a group shall understand problem effectively, propose multiple solution and select best possible solution in consultation with guide/ supervisor.
- Students shall convert the best solution into working model using various components of their domain areas and demonstrate.
- The solution to be validated with proper justification and report to be compiled in standard format of University of Mumbai.
- With the focus on the self-learning, innovation, addressing societal problems and entrepreneurship quality development within the students through the Mini Projects, it is preferable that a single project of appropriate level and quality to be carried out in two semesters by all the groups of the

| Course Code | Course Name | Credits |
|---|---|---|
| **MEL402** | **Kinematics of Machinery** | **01** |

**Objectives:**

1. To familiarize with various mechanisms and inversions
2. To acquaint with basics of power transmission systems

**Outcomes:** Learner will be able to…

1. Draw velocity diagram usingInstantaneous Centre method
2. Find velocity and acceleration of a point on a four-bar mechanism by using Relative method.
3. Analyze velocity and acceleration of a specific link of a slider-crank mechanism using graphical approach by Relative method.
4. Plot displacement-time, velocity-time, and acceleration-time diagrams of follower motion.
5. Draw cam profile for the specific follower motion.
6. Develop and build mechanisms to provide specific motion.

**Term Work:** Comprises of (a) and (b)

**(a) Laboratory Work**

| Sr. No. | Details | Hours |
|---|---|---|
| 1. | Analysis of velocity of mechanisms by Instantaneous Centre of Rotation method – 3 to 5 problems | **04** |
| 2. | Analysis of velocity of mechanisms by Relative Velocity method – 3 to 5 problems | **04** |
| 3. | Analysis of acceleration of mechanism by Relative method including pairs involving Coriolis acceleration – 3 to 5 problems | **04** |
| 4. | Motion analysis and plotting of displacement–time, velocity-time and acceleration-time, jerk-time, and layout of cam profiles - 2 to 3 problems | **06** |
| 5. | Mini Projection design and fabrication of any one mechanism for a group of maximum 4 students | **08** |

**(b) Assignments:** Minimum two problems on each of the following topics

| Sr. No. | Topic |
|---|---|
| 1. | Belts and Chains |
| 2. | Brakes |
| 3. | Gears and Gear trains |

**Assessment:**

Distribution of marks for Term Work shall be as follows:

1. Laboratory Work : 15marks.
2. Assignments : 05 Marks
3. Attendance : 05 marks.

| Course code | Course Name | Credits |
|---|---|---|
| MEPBL 401 | Mini Project - 1B | 02 |

**Objectives**

1. To acquaint with the process of identifying the needs and converting it into the problem.
2. To familiarize the process of solving the problem in a group.
3. To acquaint with the process of applying basic engineering fundamentalsto attempt solutions to the problems.
4. To inculcate the process of self-learning and research.

**Outcome:** Learner will be able to…

5. Identify problems based on societal /research needs.
6. Apply Knowledge and skill to solve societal problems in a group.
7. Develop interpersonal skills to work as member of a group or leader.
8. Draw the proper inferences from available results through theoretical/ experimental/simulations.
9. Analyse the impact of solutions in societal and environmental context for sustainable development.
10. Use standard norms of engineering practices
11. Excel in written and oral communication.
12. Demonstrate capabilities of self-learning in a group, which leads to life long learning.
13. Demonstrate project management principles during project work.

**Guidelines for Mini Project**

- Students shall form a group of 3 to 4 students, while forming a group shall not be allowed less than three or more than four students, as it is a group activity.
- Students should do survey and identify needs, which shall be converted into problem statement for mini project in consultation with faculty supervisor/head of department/internal committee of faculties.
- Students shall submit implementation plan in the form of Gantt/PERT/CPM chart, which will cover weekly activity of mini project.
- A log book to be prepared by each group, wherein group can record weekly work progress, guide/supervisor can verify and record notes/comments.
- Faculty supervisor may give inputs to students during mini project activity; however, focus shall be on self-learning.
- Students in a group shall understand problem effectively, propose multiple solution and select best possible solution in consultation with guide/ supervisor.
- Students shall convert the best solution into working model using various components of their domain areas and demonstrate.

| Course Code | Course/Subject Name | Credits |
|---|---|---|
| MEL402 | Fluid Mechanics* | 1 |

**Objectives:**

1. To study measurement as well as calibration principles
2. To practically verify the concepts learnt in theory course

**Outcomes:** Learner will be able to…

1. Calibrate different gauges
2. Measure hydrostatic forces
3. Verify the Archimedes Principle
4. Calibrate Venturimeter, Orificemeter and Pitot tube
5. Verify the Bernoulli's Principle
6. Read manometers and maintain them.

**(a) List of Experiments: Any 6 experiments to be performed.**

| Expt no | Experiment | Hrs |
|---|---|---|
| 1 | Calibration of Pressure Gauges | 2 |
| 2 | Measurement of Hydrostatic Pressures | 2 |
| 3 | Verification of Archimedes' Principle | 2 |
| 4 | Calibration of Venturimeter/ Orificemeter/Nozzlemeter/ Pitot tube | 2 |
| 5 | Determine the friction factor for Pipes | 2 |
| 6 | Determination of major and minor losses in Pipe systems | 2 |
| 7 | Verification of Bernoulli's Equation | 2 |
| 8 | Experiment on Laminar flow in pipes | 2 |
| 9 | Calculation of Lift and Drag over an aerofoil | 2 |
| 10 | Determine the pressure profile over an aerofoil | 2 |

(b) Mini Project: A mini project along with a brief report in which a group of students (maximum 4) will design/ fabricate/ assemble a unit or software based simulation to demonstrate any principle in Fluid Mechanics.

**Assessment:**

**Term work Mark distribution will be as follows:**

| | |
|---|---|
| Laboratory work | 15 marks |
| Mini Project | 05 marks |
| Attendance | 05 marks |

**End Semester Practical/Oral Examination:**

1. Pair of Internal and External Examiner should conduct practical/viva based on contents. Distribution of marks for practical/viva examination shall be as follows:

| | |
|---|---|
| Practical performance | 15 marks |
| Viva | 10 marks |

2. Evaluation of practical examination to be done based on the experiment performed and the output of the experiment during practical examination
3. Students work along with evaluation report to be preserved till the next examination

| Course Code | Course Name | Credits |
|---|---|---|
| MEL 404 | **Kinematics of Machinery*** | 01 |

**Objectives:**

1. To familiarise with various mechanisms and inversions
2. To acquaint with basics of power transmission systems

**Outcomes:** Learner will be able to…

1. Draw velocity diagram by instantaneous center method
2. Draw velocity and acceleration diagrams for four bar mechanism by relative method.
3. Draw velocity and acceleration diagrams for Slider crank mechanism by relative method
4. Draw Cam profile for the specific follower motion
5. Plot displacement-time, velocity-time, acceleration-time cam profiles
6. Develop and build mechanisms to provide specific motion

**Term Work:** (Comprises a and b)

**a) List of Experiments**

| Sr No | Details | Lab Session |
|---|---|---|
| 1 | Analysis of velocity of mechanisms by Instantaneous Center of Rotation – 3 to 5 problems | 2 Hrs |
| 2 | Analysis of velocity of mechanism by Relative method – 3 to 5 problems | 4 Hrs |
| 3 | Analysis of Velocity & Acceleration of mechanism by Relative method – 3 to 5 problems | 4 Hrs |
| 4 | Motion analysis and plotting of displacement–time, velocity-time and acceleration-time, jerk-time and layout of cam profiles - 2 to 3 problems | 4 Hrs |
| 5 | Mini project on design and fabrication of any one mechanism for a group of maximum 4 students | 6 Hrs |

**b) Assignments:** Minimum two problems on each of the following topics:

- **i)** Brakes
- **ii)** Chains and belts
- **iii)** Gear and gear trains

Distribution of marks for Term Work shall be as follows:

| | | |
|---|---|---|
| Laboratory work | : | 15marks. |
| Assignments | : | 05 Marks |
| Attendance | : | 05 marks. |



| Course Code | Course Name | Credits |
|---|---|---|
| MEL403 | **Industrial Electronics*** | 01 |

**Objectives**

1. To study operational characteristics of various electrical and electronics components
2. To study microcontroller based applications and its programming

**Outcomes:** Learner will be able to…

1. Demonstrate characteristics of various electrical and electronics components
2. Develop simple applications built around these components
3. Identify use of different basic gates
4. Identify and use digital circuits for industrial applications
5. Built and demonstrate basic parameter measurement using microcontroller
6. Test and Analyse speed-torque characteristics of electrical machines for speed control.

**List of Experiment: Minimum six from 1-9 and four from 10-15, in all minimum ten experiments need to be performed**

| Sr No | Detailed Contents |
|---|---|
| 1 | MOSFET / IGBT as a switch |
| 2 | V-I characteristics of SCR |
| 3 | Triggering circuit of SCR (UJT) |
| 4 | Full wave Rectifier using SCR |
| 5 | Single phase Bridge inverter with rectifier load |
| 6 | OPAMP as integrator |
| 7 | 555 timer as astable multivibrator |
| 8 | Implementing study of gates and Logic Operations like, NOT, AND, OR |
| 9 | Realization of basic gates using universal gates |
| 10 | Light dimmer circuit using Diac-Triac |
| 11 | Speed control of DC motor |
| 12 | Speed control of induction motor |
| 13 | Simple programs using microcontroller |
| 14 | Simple microcontroller based application like Temp Measurement/ Speed Measurement using Proximity Sensor/ Piezoelectric Actuator Drive |
| 15 | Microcontroller based speed control for Induction Motor |

**Learners (in a group) may be encouraged for Project Based Learning. Appropriate Weightage may be given in term work assessment**

**Assessment:**

**Distribution of marks for term work**

| | |
|---|---|
| Laboratory work | 20 Marks |
| Attendance | 05 Marks |

**End Semester Practical/Oral Examination:**

1. Pair of Internal and External Examiner should conduct practical/viva based on contents
2. Distribution of marks for practical/viva examination shall be as follows:

| | |
|---|---|
| Practical performance | 15 marks |
| Viva | 10 marks |

3. Evaluation of practical examination to be done based on the experiment performed and the output of the experiment during practical examination
4. Students work along with evaluation report to be preserved till the next examination

| Course Code | Course/Subject Name | Credits |
|---|---|---|
| **MEL 502** | **Mechanical Measurement and Control** | **1** |

**Objectives**

1. To study calibration of different measuring instruments
2. To study working of mechanical measurement system
3. To familiarise with different types of control systems

**Outcomes:** Learner will be able to…

1. Calibrate displacement sensors
2. Calibrate pressure and vacuum gauges
3. Measure torque using strain gauges
4. Identify system/process characteristics for standard input responses
5. Identify various types of control systems and time domain specifications
6. Analyse the problems associated with stability

**List of Experiments**

| Sr. No. | Topic |
|---|---|
| 1 | Calibration of Displacement sensors like LVDT, Potentiometers etc. |
| 2 | Calibration of Pressure Gauges |
| 3 | Calibration of Vacuum Gauges |
| 4 | Torque measurement using strain gauges |
| 5 | Calibration of tachometers |
| 6 | Vibration Measurement & Calibration of Accelerometers. |
| 7 | Experiments on feedback control systems and servomechanisms |
| 8 | System Identification of any one of the sensor |
| 9 | Experiment on frequency response system identification |
| 10 | Experiment on transient state response of a control system. |
| 11 | Experiment on design of PID controller for a system. |

**(a)** Design based experiments shall be encouraged using standard National Instrument/ texas instrument/ dSPACEGmbh/ Arduino or any other platform).**Learners (in a group) may be encouraged for Project Based Learning. Appropriate weightage may be given in term work assessment**

**Term Work**

Term work shall consist of minimum 8experiments (04 from the measurement group and 4 from the control group).
The distribution of marks for term work shall be as follows:

- Laboratory work (Experiments) : **15 marks**
- Design based experiment: **05 marks**
- Attendance: **05 marks**

**End Semester Practical/Oral Examination:**

1. Pair of Internal and External Examiner should conduct practical/viva based on contents
2. Distribution of marks for practical/viva examination shall be as follows:
   Practical performance 15 marks
   Oral 10 marks
3. Evaluation of practical examination to be done based on the experiment performed and the output of the experiment during practical examination
4. Students work along with evaluation report to be preserved till the next examination

**b) Project Work List**

**(Department of EXTC)**

| Group No | Roll No | Name of Students | Project Title | Guide's Name |
|---|---|---|---|---|
| 1 | 408 | Ghanekar Prathmesh Prakash | Smart Folded Wheelchair | **Mr. Shikalgar I. A.** |
| | 409 | Ghanekar Tejashri Ramchandra | | |
| | 411 | Kadam Pratiksha Shamsundar | | |
| 2 | 402 | Behere Shripad Rajendra | IoT Based Hydroponic Farming | **Ms. Kamble S.B.** |
| | 403 | Burte Shubham Anant | | |
| | 410 | Jadhav Siddhant Sunil | | |
| | 415 | Kudtarkar Harshad Dattaram | | |
| 3 | 419 | Narvekar Rutika Sadanand | Smart Flood Prediction System using IoT and Neural Networks | **Mr. Joshi P.S.** |
| | 423 | Rao Tejal Rajesh | | |
| | 424 | Salvi Namrata Chandrakant | | |
| | 427 | Surve Anjali Ravindra | | |
| 4 | 413 | Karanjavkar Sainath Dilip | Solar Panel Cleaning System | **Mr. S.P. Adure** |
| | 416 | Lingayat Rohan Manoj | | |
| | 422 | Pawar Aditya Dilip | | |
| | 425 | Salvi Swaroop Ramchandra | | |

| | | | | |
|---|---|---|---|---|
| 5 | 401 | Bargode Vedant Rajesh | Human Follower Cart | **Mrs. Kshirsagar P. P.** |
| | 417 | Mahadik Prathamesh Sunil | | |
| | 418 | Mavalankar Viraj Vijay | | |
| | 421 | Patole Raj Uday | | |
| 6 | 404 | Chavan Aniket anil | Automatic Sanitizer Spraying Robot | . **Mr. Tatugade A.A.** |
| | 406 | Gavade Siddhesh Jayvant | | |
| | 412 | Kangutkar Rajat mahesh | | |
| | 414 | Khapare Sanket shivaji | | |
| 7 | 405 | Desai Sameer shivaji | Medical garbage collection robot | **Mr. P. D. Waikar** |
| | 407 | Ghag Ajay Milind | | |
| | 420 | Natuskar Omkar dilip | | |
| | 426 | Sansare Tejas vikas | | |

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