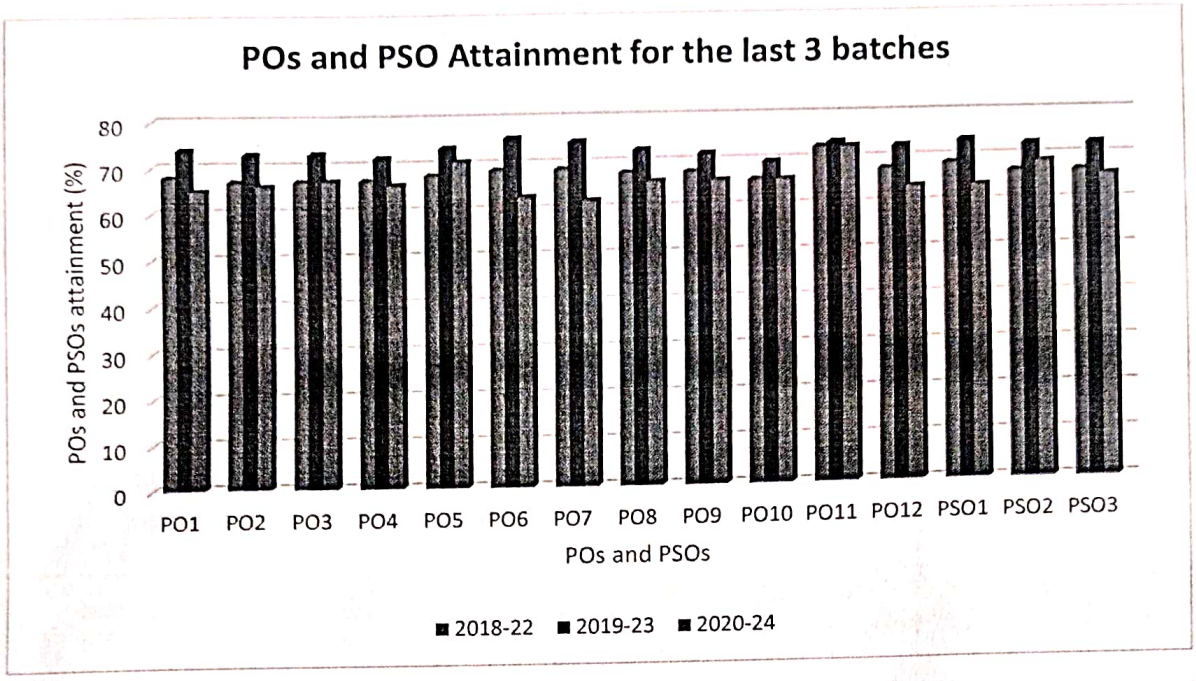
LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(Autonomous)
Approved by AICTE, New Delhi and Permanently Affiliated to JNTUK, Kakinada
Accredited by NAAC with "A" Grade and NBA (CSE, IT, ECE, EEE & ME) under Tier - I

# Attainment of POs, PSOs & ATR

## (Graduated Batch: 2024)

**Department: Mechanical Engineering**

| S.No. | POs/ PSOs | Target (%) | Attainment (%) | ATR proposed to the next batch graduating students |
|---|---|---|---|---|
| 1. | PO1 | 70 | 65.15 | Tutorials are conducted and assignment questions are practiced considering the slow and medium level learners in the class. |
| 2. | PO2 | 70 | 66.29 | Analysis level questions are prepared and highlighted for some courses.<br>Encourage the students in problem solving skills through internships. |
| 3. | PO3 | 70 | 66.70 | Project models are designed and fabricated. Show the designed models and inculcate them to develop new models in their project works.<br>Provide the NPTEL video content resources on design and development of complex problems. |
| 4. | PO4 | 70 | 65.95 | Skill oriented courses on different domains to improve the interpretation of problem-solving skills.<br>Inculcate the importance of data interpretation in laboratories and skill-oriented courses, mini projects, internships and projects are to be highlighted. |
| 5. | PO5 | 70 | 71.44 | Skill oriented course on C-Programming, Java Programming, Python Programming, Artificial Intelligence, Java Programming, CATIA, Unigraphics, Creo and ANSYS workshops are to be improved. |
| 6. | PO6 | 75 | 63.46 | Encourage the students to participate in social service activities, Intercollegiate participation in conferences, sports are to be improved.<br>Quality community service-oriented projects are to be encouraged and participation in NSS activities and sports are to be encouraged. |
| 7. | PO7 | 75 | 62.19 | Encourage the students to develop the project models in the environmental domain.<br>Encourage. the student activity workshops in environmental clubs must be improved. |
| 8. | PO8 | 70 | 66.41 | Ethical and soft skills, professional human values are to be conducted or organized.<br>Data handbook usage importance in solving the engineering problems. |
| 9. | PO9 | 75 | 65.54 | Motivate the students for AICTE quality internships, in-house trainings individual course seminars, association activities are to be assigned to the students.<br>Encourage the students to Cocurricular and Extracurricular activities are to be motivated. |
| 10. | PO10 | 70 | 66.42 | Alumni interactions must be done in classrooms to improve the communication skills. Soft skill, skill-oriented trainings are to be improved. |
| 11. | PO11 | 70 | 72.80 | Cost analysis is included in the project works. Show the video content lectures on Industrial Economics and Management are to be encouraged. |
| 12. | PO12 | 70 | 63.90 | MOOCs, Tutorial and assignment works are to be assigned to the students.<br>Yoga practices are to be encouraged. |
| 13. | PSO1 | 70 | 64.34 | Thermal module workshops like Design of Electric vehicles are be conducted.<br>Prepare the video content lectures in thermal stream module to improve PSO1 attainment. |
| 14. | PSO2 | 70 | 68.62 | Different teaching delivery methods on Industrial and Manufacturing sciences are to be encouraged. |
| 15. | PSO3 | 70 | 66.34 | Workshops/ Guest lectures on Solar, Design and fabrication-oriented model projects are to be conducted. |




Various Programs/Events/workshops organized yearly for the students to strengthen the POs and PSOs to bridge the curriculum gaps

Date
05-11-2024

Name & Signature
HOD

HEAD
Dept. of Mechanical Engineering
LAKIREDDY BALI REDDY COLLEGE OF ENGG.
MYLAVARAM-521 230, KRISHNA DT, A.P

LAKKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
DEPARTMENT OF MECHANICAL ENGINEERING
Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi,
NAAC & NBA Accredited Certified by ISO 9001:2015)

## Program Assessment Committee (PAC)

## Regulation (R20)

**Actions proposed on POs and PSOs attainments of batch 2020-24 to be implemented for the next academic year 2024-25**

A.Y:2023-24

| POs | Target Level (%) | Attainment Level (%) | Observations |
|---|---|---|---|
| **PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering, Fundamentals and an engineering specialization to the solution of complex engineering problems. | | | |
| | 70 | 65.55 | Totally 62 courses are contributing to this PO1. 18 courses are contributing more than the target set value.<br>The following courses are observed short falls in attainment levels.<br>Engineering Graphics, Engineering Physics, Engineering Mechanics, Thermodynamics, Mechanics of solids, Theory of Machines, Design of Machine Elements etc. |
| | **Action 1:** For problematic courses, it is suggested to provide and solve apply level problems more in class hours and tutorial hours.<br>**Action 2:** Assign unit wise assignment questions to the average students and make to them to solve.<br>**Action 3:** Provide video content resource lectures to meet the engineering knowledge. | | |
| **PO2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. | | | |
| | 70 | 66.82 | 61 courses are contributing to this PO2. 20 courses are contributing more than the target set value.<br>The following courses are observed short falls in attainment levels.<br>Thermodynamics, Mechanics of solids, Theory of Machines, Heat Transfer and Design of Machine Elements etc. |
| | **Action 1:** Prepare separate analysis level questions in problematic courses.<br>**Action 2:** Complex problems and its analysis are practiced for few courses in the classroom through the tutorials/Assignment problems. | | |

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| | **Action 3:** Gain the knowledge in problem analysis level by choosing complex engineering problems like community service projects.<br>**Action 4:** Send the students to various industries and encourage them to do industrial internships. | | |
| **PO3: Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. | | | |
| | 70 | 67.09 | 48 courses are contributing to this PO3. 16 courses are contributing more than the target set value.<br>The following courses are observed short falls in attainment levels.<br>Design of Machine Elements -1 and Design of Machine Elements -1 and Skill oriented courses etc. |
| | **Action 1:** Encourage students to use e-content and video lectures available in public domain and improve skill set in design and development of various systems.<br>**Action 2:** Design oriented problems are to be solved in mini projects and internships to develop skills on design/ development solutions.<br>**Action 3:** Encourage students to participate in design contests. | | |
| **PO4: Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. | | | |
| | 70 | 66.11 | 45 courses are contributing to this PO4. 15 courses are contributing more than the target set value.<br>Thermodynamics, Applied Thermodynamics, Theory of Machines and some of the laboratory and skill based problems. |
| | **Action 1:** For the courses with attainments less than the target, the faculty are requested to use appropriate pedagogical techniques and improve the target.<br>**Action 2:** Investigation of complex problems using software tools and the implementation of skill-oriented programs could be improving the skill set of graduates to solve complex design problems.<br>**Action 3:** Technical events are to be organized to improve skills on solving real world problems (Lakshya/ ISHRAE etc are organized)<br>**Action 4:** Lab courses like Metallurgy and Material science and Dassault Systemes and CAD/CAM, Robotic Simulations beyond the syllabus experiments were performed to enhance research-based skills.<br>**Action 5:** Professional student chapter societies like ISHRAE, ISTE, ASME, Automobile, Robotic club activities are encouraged. | | |
| **PO5: Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. | | | |
| | 70 | 70.98 | 23 courses are contributing to this PO5. 12 |

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| | | | courses are contributing more than the target set value. |
| | **Action 1:** Conduct workshop on CFD Modelling & Analysis More Simulations with software tools like CATIA, MATLAB, ANSYS etc and Skill Level experiment, targeting complex Engineering Problems to be introduced in the above said courses.<br>**Action 2:** Some video lectures are to be given based on the criticality of the courses in software tool usage.<br>**Action 3:** Suggested to conduct skills added courses on latest software tools.<br>**Action 4:** Arrange the workshops/guest lectures to encourage the students to use modern tools like Unigraphics, Creo in mini projects, internships and projects. | | |
| **PO6: The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues, and the consequent responsibilities relevant to the professional engineering practice. | | | |
| | 75 | 63.90 | 22 courses are contributing to this PO6. 8 courses are contributing more than the target set value. |
| | **Action 1:** Students are motivated to participate in activity-based programs to acquire and develop skills to solve societal issues.<br>**Action 2:** More number of student participation in attending co-curricular and extracurricular activities.<br>**Action 3:** Suggested to develop the society utility projects.<br>**Action 4:** Motivate the students to participate in societal activities through NSS, Blood Donation Camps and other Student Clubs to understand the problems in the society.<br>**Action 5:** Community service projects are to be strengthened. | | |
| **PO7: Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. | | | |
| | 70 | 62.19 | 18 courses are contributing to this PO7. Only 2 courses are contributing more than the target set value. |
| | **Action 1:** Students are motivated to acquire the knowledge on environment and sustainability issues by attending the various events organized by the inter-institutes.<br>**Action 2:** Students are encouraged to do projects on alternate fuels. Workshops on Renewable Energy, Sustainable Engineering Designs were conducted for inculcating thoughts on Sustainable Development.<br>**Action 3:** Courses like Environmental science are included in curriculum to enrich their understanding of the society.<br>**Action 4:** Solar and Electric work are included in curriculum to enrich sustainability problems. | | |
| **PO 8: Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. | | | |
| | 70 | 67.56 | 13 courses are contributing to this PO8. Only 6 courses are contributing more than the target set value. |
| | **Action 1:** Pedagogical teaching methodologies are implemented in Professional | | |

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| | Ethics and Human Values. Encouraging more students to participate more on sports and cultural activities.<br>**Action 2:** Understanding the code of ethics importance in solving the engineering practice-oriented problems.<br>**Action 3:** Improve the ethical principles and methodology in the contributed courses like main project, mini project, laboratories, and internship. | | |
| **PO 9: Individual and teamwork**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. | | | |
| | 75 | 66.44 | 29 courses are contributing to this PO9. Only 14 courses are contributing more than the target set value. |
| | **Action 1:** Increasing emphasis on seminars/ group discussions and to carry out the lab experiments individually or in some cases as team members.<br>**Action 2:** Provide the video content lab resource works to improve the individual and team work skills.<br>**Action 2:** Students will be encouraged to organize and participate in technical events to improve their leadership personal development.<br>**Action 3:** Encourage students to participate in association, club, Cocurricular and extracurricular activities. | | |
| **PO 10: Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. | | | |
| | 70 | 67.26 | 31 courses are contributing to this PO10. Only 11 courses are contributed more than the target set value. |
| | **Action 1:** Change the delivery content like involving the more students in interaction/group discussion to improve the communication skill of the students.<br>**Action 2:** Soft skill training is imparted to students to enhance various aspects of communication or technical talks by group discussion, presentation, and new learning outcomes.<br>**Action 3:** Continuous assessment of Mini-Projects, Internship Project works given to the students to help them to improve their communication, presentation and report writing skills.<br>**Action 4:** Cocurricular and extracurricular activities and training programs on communication, presentation skills with guest lectures are to be arranged for the students. | | |
| **PO 11: Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. | | | |
| | 70 | 72.80 | 6 courses are contributing to this PO11. Only 2 courses are contributing more than the target set value. |
| | **Action 1:** Impart the knowledge and understanding of the engineering and management principles to work out projects on multidisciplinary environments.<br>**Action 2:** Select internship activities based on the work, as a member and leader in a | | |

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| | team to acquire the knowledge of project management principles and finance.<br>**Action 3:** Use different pedagogical methods in Industrial Engineering and Management.<br>**Action 4:** Students are encouraged to do multidisciplinary projects. | | |
| **PO 12: Life-long learning**: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. | | | |
| | 70 | 64.43 | 60 courses are contributing to this PO12. Only 18 courses are contributing more than the target set value. |
| | **Action 1:** Encourage/Motivate the students about the lifelong learning approach through alumni interactions, invited keynote presentation from the academic experts.<br>**Action 2:** Inculcate the students to develop the habit of self-preparation.<br>**Action 3:** Participation of co-curricular and extra-curricular activities increases the lifelong learning skills.<br>**Action 4:** Association and club activities are to be conducted to develop critical thinking.<br>Self-learning modules through SWAYAM & NPTEL courses are introduced to the students for inculcating the spirit of Continuing education.<br>**Action 5:** Department conducting technical training/GATE classes for the graduates to motivate the students towards higher education and lifelong learning. | | |
| **PSO 1: To apply the principles of thermal sciences to design and develop various thermal systems.** | | | |
| | 70 | 64.35 | 26 courses are contributing to this PSO1. Only 7 courses are contributing more than the target set value.<br>Thermodynamics, Applied Thermodynamics, IC engines and Gas Turbines are the courses having less attainments. Change the teaching delivery methods. |
| | **Action 1:** Prepare the video content lectures in thermal stream module to improve PSO1 attainment.<br>**Action 2:** Motivate the graduates to make design and development of various thermal systems/products by applying the basic principles of thermal sciences. | | |
| **PSO 2: To apply the principles of manufacturing technology, scientific management towards improvement of quality and optimization of engineering systems in the design, analysis, and manufacturability of products.** | | | |
| | 70 | 69.82 | 26 courses are contributing to this PSO2. Only 12 courses are contributing more than the target set value. |
| | **Action 1:** Industrial Engineering and Management courses are encouraged.<br>**Action 2:** Provide some video content lectures to cover the latest trends in manufacturing technology and power point presentations for improving the teaching learning process for the above identified courses to improve its attainment level.<br>**Action 3:** Provide industrial tours related to the **production industries** to improve the practical upstanding level of the identified courses as well as arrange guest lecture from the industry experts. | | |

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| **PSO 3: To apply the basic principles of mechanical engineering design for evaluation of performance of various systems relating to transmission of motion and power, conservation of energy and other process equipment.** | | | |
| | 70 | 67.24 | 37 courses are contributing to this PSO2. Only 13 courses are contributing more than the target set value.<br>The following are the courses found very less attainments in Engineering Graphics, Engineering Mechanics, Thermodynamics, Mechanics of solids, Theory of machines |
| | **Action 1:** Community service-oriented projects are to be strengthened.<br>**Action 2:** Design and fabrication-oriented workshops relating to transmission of motion and power are to be arranged.<br>**Action 3:** Faculty should implement various pedagogical techniques to focus on higher cognitive level problems and its relevant analysis in the classrooms.<br>**Action 4:** Association activities and in clubs, focus on energy conservation and transmission of motion and power | | |

HOD

PAC Signatures

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# LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(An Autonomous Institution since 2010)

Approved by AICTE, New Delhi and Permanently Affiliated to JNTUK, Kakinada

L.B. Reddy Nagar, Mylavaram, NTR District, Andhra Pradesh - 521230

**A.Y: 2023-24**

## DEPARTMENT OF MECHANICAL ENGINEERING

### POs and PSOs Attainments (Regulation R20) - Batch (2020-24)

| S.NO | Course Code | Courses | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20FE01 | Professional Communication-I | - | 43.05 | - | 42.20 | - | 43.05 | - | - | 42.20 | 42.20 | - | 42.20 | - | - | - |
| 2 | 20FE03 | Differential Equations | 50.57 | 50.89 | - | 50.89 | - | - | - | - | - | - | - | 50.00 | - | - | - |
| 3 | 20FE05 | Applied Chemistry | 49.00 | 47.64 | 47.67 | 51.00 | - | 49.11 | 48.50 | - | - | - | - | 49.00 | - | - | - |
| 4 | 20ME01 | Engineering Graphics | 37.99 | 38.98 | 34.70 | 37.02 | 36.48 | 24.00 | - | 38.26 | 38.01 | 38.98 | | 38.98 | 42.81 | 42.81 | 42.81 |
| 5 | 20EE02 | Basic Electrical and Electronics Engineering | 72.50 | 72.50 | - | - | - | - | - | - | - | - | - | 72.50 | - | - | - |
| 6 | 20FE52 | Applied Chemistry Lab | 59.00 | - | 64.00 | 52.00 | - | 52.00 | 52.00 | - | - | - | - | - | - | - | - |
| 7 | 20EE52 | Basic Electrical and Electronics Engineering Lab | 72.50 | 72.50 | - | 73.33 | 72.50 | - | - | 72.50 | 72.50 | 72.50 | - | 72.50 | - | - | - |
| 8 | 20ME51 | Engineering Workshop | 70.00 | 70.00 | 70.00 | 70.14 | - | 70.00 | - | - | 70.00 | 70.00 | - | 70.00 | - | 70.00 | 70.00 |

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| 9 | 20FE02 | Professional Communication-II | - | 79.67 | - | 77.40 | - | 79.67 | - | - | 77.40 | 77.40 | - | 77.40 | - | - | - |
| 10 | 20FE04 | Linear Algebra and Transformation Techniques | 56.94 | 56.98 | - | 56.98 | - | - | - | - | - | - | - | 56.86 | - | - | - |
| 11 | 20FE08 | Engineering Physics | 43.60 | 44.00 | 43.60 | 43.60 | - | - | - | - | - | - | - | 43.60 | - | - | - |
| 12 | 20CS01 | Programming for Problem Solving using C | 57.20 | 57.20 | 57.50 | 52.00 | - | - | - | - | - | 57.20 | - | 57.20 | - | - | - |
| 13 | 20ME02 | Engineering Mechanics | 36.78 | 37.25 | 42.15 | 37.90 | - | - | - | - | - | - | - | 37.50 | 35.75 | 35.75 | 36.64 |
| 14 | 20MC01 | Constitution of India | - | - | - | - | - | 55.00 | 54.98 | 55.00 | - | 55.00 | - | 55.00 | - | - | - |
| 15 | 20FE51 | Professional Communication Skills Lab | - | - | - | - | 63.75 | - | - | - | - | 63.75 | 63.75 | - | - | - | - |
| 16 | 20FE55 | Engineering Physics Lab | 60.94 | 60.94 | 60.94 | 60.94 | - | - | - | - | 60.94 | - | - | 60.94 | - | - | - |
| 17 | 20CS51 | Programming for Problem Solving using C Lab | 55.00 | 55.00 | 55.00 | - | - | - | - | - | 55.00 | 55.00 | - | 55.00 | 53.75 | 55.20 | 55.00 |
| 18 | 20ME52 | Engineering Mechanics and Fuel Testing Lab | 61.83 | 61.50 | - | 61.50 | - | - | - | - | 61.50 | 61.50 | - | - | 59.88 | 64.00 | 63.40 |
| 19 | 20FE10 | Numerical Methods and Integral Calculus | 56.50 | 57.43 | - | - | - | - | - | - | - | - | - | 56.50 | - | - | - |
| 20 | 20ME03 | Fluid Mechanics and Hydraulic Machinery | 69.62 | 69.44 | 70.00 | 70.00 | 70.00 | - | - | - | - | 65.00 | - | 70.00 | 70.45 | - | 70.00 |
| 21 | 20ME04 | Thermodynamics | 44.40 | 44.49 | 48.72 | 41.98 | - | 40.70 | 35.34 | 40.70 | 40.67 | 32.40 | - | 37.64 | 42.15 | - | 35.91 |
| 22 | 20ME05 | Metallurgy and Material Science | 50.26 | 50.15 | - | 50.26 | - | - | - | - | - | - | - | 50.26 | - | 50.26 | - |
| 23 | 20ME06 | Mechanics of Solids | 37.29 | 36.14 | 36.78 | - | - | - | - | - | 40.60 | - | - | 36.78 | - | - | 36.78 |

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| 24 | 20MC02 | Environmental Science | 61.06 | - | - | - | - | - | 61.12 | - | - | - | - | 61.12 | - | - | - |
| 25 | 20ME55 | Fluid Mechanics and Hydraulic Machinery Lab | 72.93 | 72.93 | 72.68 | 72.95 | - | - | - | - | 72.93 | - | - | 72.53 | - | - | 71.00 |
| 26 | 20ME56 | Mechanics of solids and Metallurgy Lab | 70.18 | 69.00 | 69.75 | 69.75 | 71.00 | - | 68.00 | - | - | - | - | 69.43 | - | 71.50 | 68.00 |
| 27 | 20AD53 | Programming Using Python Lab | 68.00 | 69.50 | 69.50 | 69.13 | 69.20 | - | - | 69.00 | 69.00 | 69.00 | - | - | - | - | - |
| 28 | 20MES1 | Technical drawing using drafting package | 76.10 | 76.35 | 74.40 | 76.35 | 74.40 | - | - | 74.40 | 74.40 | - | - | 74.40 | 75.83 | - | 75.83 |
| 29 | 20FE09 | Probability and Statistics | 62.00 | 61.22 | 60.50 | 60.70 | - | - | - | - | - | - | - | 62.00 | - | - | - |
| 30 | 20ME07 | Applied Thermodynamics | 47.20 | 46.86 | 47.20 | 46.50 | - | 48.00 | 49.50 | - | - | - | - | 47.20 | 47.20 | - | - |
| 31 | 20ME08 | Production Technology | 82.29 | 81.80 | 82.00 | - | 82.14 | - | - | - | - | - | - | 82.20 | - | 82.17 | 83.00 |
| 32 | 20ME09 | Theory of Machines | 38.92 | 38.92 | 53.55 | - | - | - | - | - | - | - | - | 38.92 | - | - | 38.92 |
| 33 | 20HS01 | Universal Human Values | 60.15 | 59.88 | 60.07 | - | - | 60.05 | 59.30 | 60.15 | - | - | - | 60.15 | - | - | - |
| 34 | 20ME57 | Production Technology Lab | 70.60 | 70.73 | 70.60 | 71.08 | 73.00 | - | - | - | 70.60 | - | - | 70.60 | - | 70.68 | 71.00 |
| 35 | 20ME58 | Theory of Machines Lab | 70.14 | 70.20 | 69.50 | - | - | - | - | - | 69.50 | 69.50 | - | 69.50 | - | - | 69.50 |
| 36 | 20ME59 | Computer Aided Machine Drawing Lab | 67.00 | 73.00 | 67.00 | - | 67.00 | - | - | - | - | 67.00 | - | 67.00 | - | 67.00 | 67.00 |
| 37 | 20MES2 | Structural and modal analysis using ANYSYS | 58.87 | 59.10 | 58.98 | 56.85 | 64.60 | - | - | - | 58.81 | 58.98 | - | 58.35 | 58.87 | 58.87 | 58.87 |
| 38 | 20ME10 | IC Engines and Gas Turbines | 49.64 | 51.20 | 46.25 | 48.33 | - | - | 46.50 | - | 47.70 | 51.20 | - | 47.62 | 46.95 | 48.77 | 47.80 |

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| 39 | 20ME11 | Machine Tools and Metrology | 78.45 | 77.85 | 77.00 | 79.40 | 79.40 | 74.50 | | | | | | 78.04 | - | 75.66 | 77.00 |
| 40 | 20ME12 | Design of Machine Elements-I | 65.62 | 64.85 | 62.44 | - | - | - | - | - | - | - | - | - | - | - | 64.62 |
| 41 | 20ME14 | Robotics | 71.25 | 68.03 | 66.06 | 70.86 | 71.24 | 77.20 | | | 70.55 | 81.80 | | 70.49 | - | 76.05 | 69.88 |
| 42 | 20AD81 | Introdcution to Artificial Intelligence | 37.48 | 37.48 | 38.17 | 37.83 | 37.48 | - | - | - | - | - | - | 37.48 | - | - | - |
| 43 | 20IT81 | OOPS through JAVA | 48.4 | 49 | - | - | 46.9 | - | - | - | - | - | - | 46.75 | - | - | - |
| 44 | 20ME60 | Thermal Engineering Lab | 56.00 | 55.18 | 54.64 | 56.00 | - | 55.83 | 55.83 | - | - | - | - | 55.86 | 55.60 | - | - |
| 45 | 20ME61 | Machine Tools and Metrology Lab | 78.18 | 83.00 | 79.44 | 77.50 | - | - | - | - | 78.75 | 78.75 | - | 79.71 | - | 83.50 | 74.00 |
| 46 | 20MES3 | Skill Advanced Course/Soft Skills Course | 68.59 | 66.89 | 67.83 | 62.15 | 65.75 | - | - | - | 69.03 | 67.83 | - | 64.27 | 68.59 | 68.59 | 68.59 |
| 47 | 20PI01 | Summer Internship | 85.58 | 86.20 | 85.58 | 85.57 | 86.15 | 83.30 | 84.25 | 80.01 | 73.70 | 81.95 | 68.90 | 81.01 | 85.20 | 85.20 | 85.20 |
| 48 | 20ME17 | Heat Transfer | 59.86 | 60.18 | 60.42 | 60.07 | - | 59.14 | 58.22 | 59.86 | - | 57.30 | - | 60.10 | 61.46 | - | 60.30 |
| 49 | 20ME18 | CAD/CAM | 65.72 | 56.58 | 69.67 | 67.25 | - | - | - | - | - | - | - | 66.24 | - | 66.18 | - |
| 50 | 20ME19 | Design of Machine Elements-II | 49.83 | 50.35 | 40.55 | - | - | - | - | - | - | - | - | - | - | - | 47.22 |
| 51 | 20ME21 | Modern Machining Processes | 79.71 | 78.53 | - | 79.00 | - | - | - | - | - | - | - | 79.66 | 78.25 | 79.66 | - |
| 52 | 20EE84 | Electric Vehicles -OE II | 55.80 | 55.80 | - | - | - | - | - | - | - | - | - | 45.67 | - | - | - |
| 53 | 20ME62 | Heat Transfer Lab | 70.18 | 71.67 | 71.05 | 71.05 | - | - | - | - | 71.05 | 71.05 | - | - | 71.05 | - | - |
| 54 | 20ME63 | CAD/CAM Lab | 68.50 | - | 68.36 | 68.38 | 68.50 | - | - | - | 68.50 | 68.50 | - | 68.50 | - | 68.75 | 68.60 |
| 55 | 20ME64 | Robotics and Simulation Lab | 75.11 | 74.60 | 75.83 | - | 75.50 | 76.40 | - | - | 75.44 | 76.00 | - | 75.50 | - | 77.00 | 75.30 |
| 56 | 20HSS1 | Soft Skills Course | - | 89.00 | - | - | 87.00 | - | - | 87.00 | 87.00 | 86.82 | - | 86.67 | - | - | - |

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| 57 | 20ME24 | Refrigeration and Air Conditioning | 64.25 | 66.96 | 66.28 | 65.73 | - | 73.15 | 66.85 | - | - | - | - | 66.36 | 66.36 | - | - |
| 58 | 20ME27 | Finite Element Methods | 64.33 | 65.83 | 70.90 | 56.25 | - | 68.20 | 56.25 | - | - | - | - | 65.04 | 54.37 | 61.90 | 66.39 |
| 59 | 20ME29 | Automobile Engineering | 62.20 | 69.63 | 81.70 | - | - | 62.23 | 68.27 | 72.00 | - | 72.00 | - | 66.68 | 67.90 | - | 56.20 |
| 60 | 20ME32 | Power Plant Engineering | 66.23 | 68.49 | - | 68.66 | - | - | - | - | - | - | - | 68.73 | 68.74 | - | 68.74 |
| 61 | 20ME35 | Total Quality Management | 73.20 | 72.90 | 73.57 | - | - | 73.50 | 74.60 | - | - | - | 74.90 | 74.90 | 74.14 | 75.04 | 74.67 |
| 62 | 20CE82 | Disaster Management OE-III | 50.50 | - | - | - | - | - | - | - | - | - | - | 50.50 | 50.50 | - | 50.50 |
| 63 | 20EE83 | Utilization of Electrical Energy | 67.06 | 66.71 | - | - | - | - | - | - | - | - | - | 66.39 | 68.01 | - | 65.81 |
| 64 | 20HS03 | Industrial Economics and Management | 67.45 | 70.30 | 68.39 | 70.30 | - | - | 60.50 | - | 68.00 | 68.00 | 67.69 | 67.45 | - | - | - |
| 65 | 20PI02 | Industrial/Research Internship | 79.00 | 86.67 | 84.00 | 80.00 | 90.00 | 60.00 | - | 96.40 | 85.60 | 85.60 | 94.00 | 81.00 | 80.80 | 80.80 | 80.80 |
| 66 | 20MES5 | Skill Advanced Course | 63.05 | 63.67 | 63.33 | 63.08 | 67.15 | - | - | - | 62.89 | 63.33 | - | 63.33 | 63.05 | 63.05 | 63.05 |
| 67 | 20PI03 | Project Work | 69.18 | 68.13 | 70.75 | 67.15 | 67.11 | 66.92 | 68.93 | 69.77 | 70.33 | 69.72 | 69.90 | 68.45 | 69.68 | 69.84 | 70.13 |
| | | **Average attainments of all the courses** | **61.90** | **62.80** | **63.10** | **61.93** | **68.97** | **61.45** | **59.39** | **67.31** | **65.61** | **65.65** | **73.19** | **61.76** | **62.21** | **67.24** | **63.47** |
| | | | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** | **PSO3** |
| | | Total no of contributory courses | 62 | 61 | 48 | 45 | 23 | 22 | 18 | 13 | 29 | 31 | 6 | 60 | 26 | 26 | 37 |
| | | >=70% attainment courses | 18 | 20 | 16 | 15 | 12 | 8 | 2 | 6 | 14 | 11 | 2 | 18 | 7 | 12 | 13 |
| | | >=60% and <70% attained courses | 20 | 17 | 17 | 13 | 8 | 4 | 6 | 3 | 8 | 11 | 4 | 19 | 8 | 8 | 13 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | >=50% and < 60% attained courses | 12 | 13 | 5 | 9 | 0 | 4 | 6 | 2 | 2 | 6 | 0 | 10 | 6 | 3 | 4 |
| | | >=40% and <50% attained courses | 7 | 6 | 7 | 5 | 1 | 4 | 3 | 1 | 4 | 1 | 0 | 7 | 4 | 2 | 3 |
| | | Direct attainment (70%) | 43.33 | 43.96 | 44.17 | 43.35 | 48.28 | 43.02 | 41.57 | 47.12 | 45.92 | 45.96 | 51.23 | 43.23 | 43.54 | 47.07 | 44.43 |
| | | Indirect attainment (30%) | | | | | | | | | | | | | | | |
| | | Program Exit Survey (10%) | 84.05 | 82.43 | 82.97 | 81.35 | 80.81 | 81.08 | 80.81 | 78.38 | 79.19 | 78.92 | 80.81 | 81.89 | 61.82 | 81.35 | 81.89 |
| | | Student Portfolio (20%) | 69.08 | 73.10 | 73.10 | 73.10 | 73.10 | 63.86 | 62.69 | 63.00 | 63.00 | 67.03 | 67.45 | 65.02 | 73.10 | 73.10 | 73.10 |
| | | Indirect attainments | 22.22 | 22.86 | 22.92 | 22.76 | 22.70 | 20.88 | 20.62 | 20.44 | 20.52 | 21.30 | 21.57 | 21.19 | 20.80 | 22.76 | 22.81 |
| | | **POs/PSOs attainment (70% Direct + 30 % Indirect)** | **66** | **67** | **67** | **66** | **71** | **64** | **62** | **68** | **66** | **67** | **73** | **64** | **64** | **70** | **67** |
| | | **Target** | **70** | **70** | **70** | **70** | **70** | **75** | **75** | **70** | **75** | **70** | **70** | **70** | **70** | **70** | **70** |
| | | A: Attained, NA: Not Attained | NA | NA | NA | NA | A | NA | NA | NA | NA | NA | A | NA | NA | A | NA |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | **PAC Members Signatures** | | | | | | | | | | | | **HoD Signature** | | | |

① Dr. P. RAVINDRA KUMAR ① ② ③

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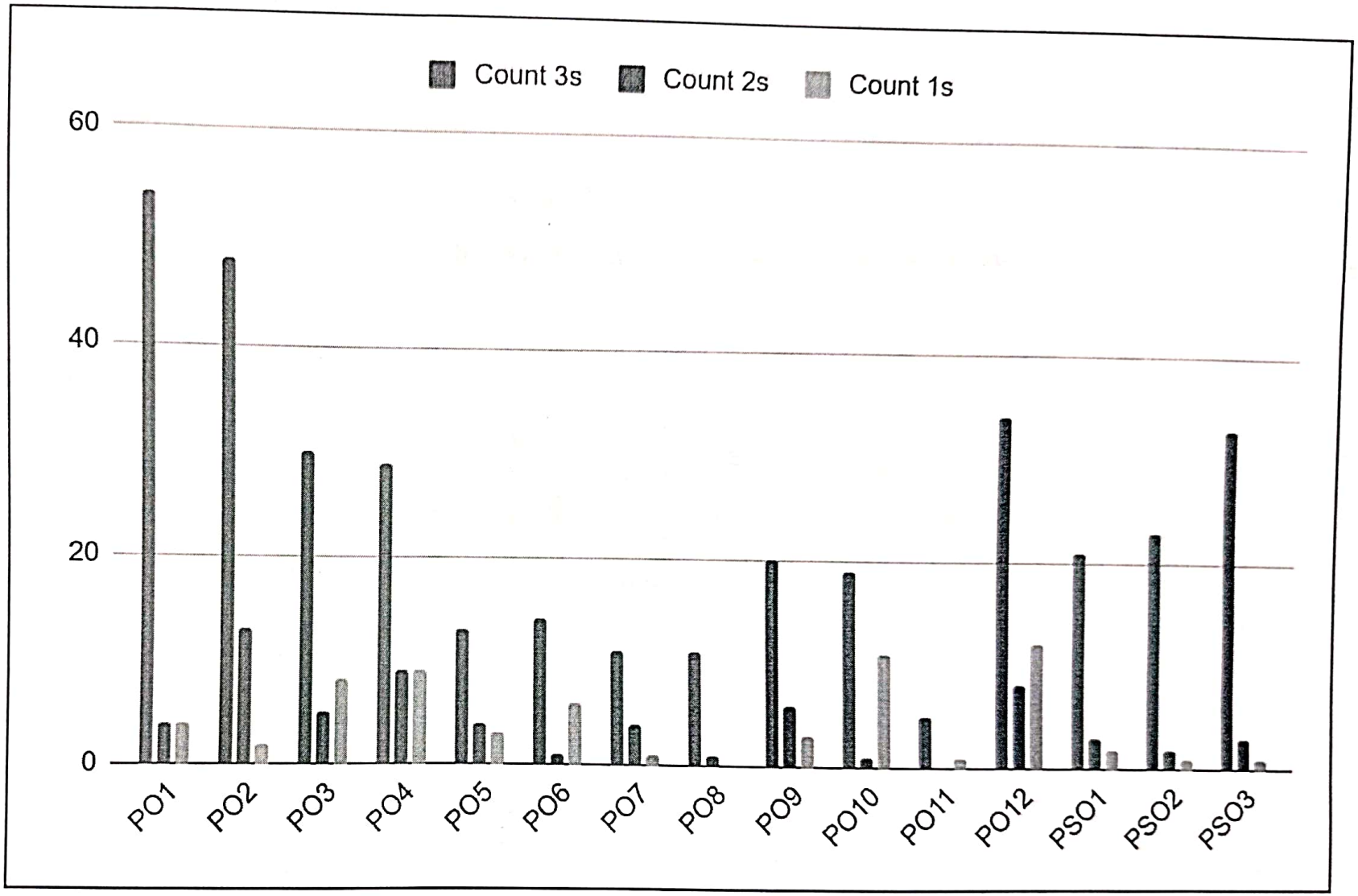


**Figure 1: Representation of correlation of the courses against Program Outcomes (POs) and Program Specific Outcomes (PSOs) for R20 Regulation.**

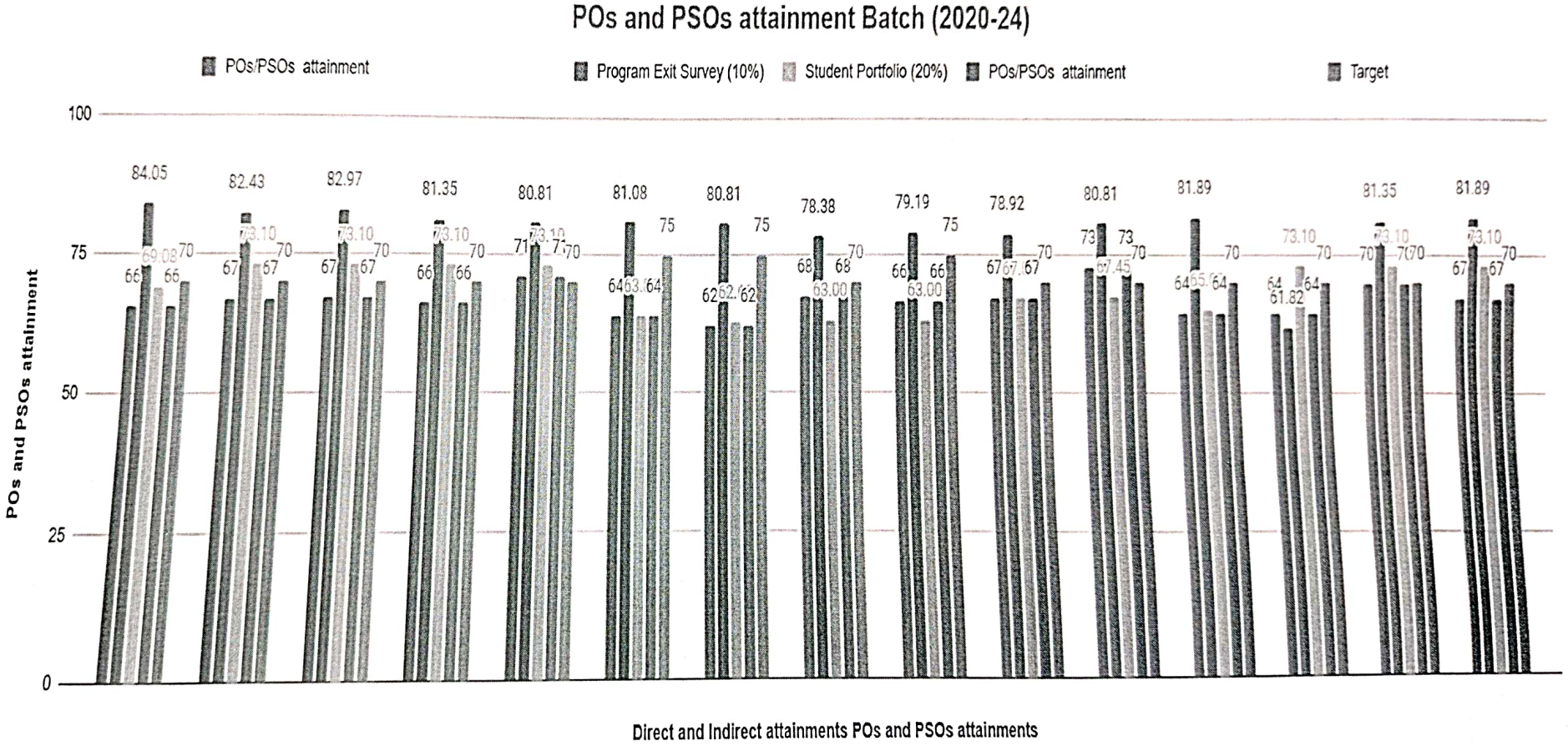


**Figure 2. Representation of Program Outcomes (POs) and Program Specific Outcomes (PSOs) for 2020-24 batch.**