



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

## Department of Civil Engineering

### Attainment of Program Outcomes (POs) and Program Specific Outcomes (PSOs) of 2021 - 2025 batch (IARE -UG20)

| Course Code | Subject Code | Course Title   | PO1  | PO2  | PO3  | PO4  | PO5  | PO6  | PO7  | PO8  | PO9  | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|-------------|--------------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| C101        | AHSC01       | English  |      |      |      |      |      |      |      |      |      | 2.20 |      |      |      |      |      |
| C102        | AHSC02       | Linear Algebra and Calculus                          | 1.10 | 1.10 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| C103        | AHSC03       | Engineering Physics                                  | 1.50 | 1.70 |      | 1.20 |      |      |      |      |      |      |      |      |      |      | 2.30 |
| C104        | ACSC01       | Python Programming                                   | 1.10 | 0.70 | 1.00 |      | 1.10 |      |      |      |      | 0.70 |      | 0.70 | 1.10 |      | 1.00 |
| C105        | AHSC04       | English Language and Communication Skills Laboratory |      |      |      |      |      |      |      |      | 3.00 | 3.00 |      |      |      |      |      |
| C106        | AHSC05       | Physics Laboratory                                   | 1.70 | 1.70 |      | 1.70 |      |      |      |      |      |      |      |      |      |      | 1.70 |
| C107        | ACSC02       | Python Programming Laboratory                        | 1.60 | 1.60 | 1.60 | 1.60 | 1.60 | 1.60 | 1.60 | 1.60 | 1.60 | 1.60 |      | 1.60 | 1.60 |      |      |
| C108        | AHSC06       | Chemistry  | 1.20 | 1.30 |      |      |      |      | 1.40 |      |      |      |      |      |      |      |      |
| C109        | AHSC07       | Mathematical Transform Techniques                    | 1.20 | 1.20 |      | 1.20 |      |      |      |      |      |      |      |      | 1.20 |      |      |
| C110        | AMEC01       | Engineering Mechanics                                | 1.10 | 1.10 | 1.00 | 1.10 |      | 0.90 |      |      |      |      |      |      |      |      | 0.90 |
| C111        | AEEC01       | Basic Electrical Engineering                         | 1.20 | 1.10 |      |      |      |      |      |      |      |      |      |      | 1.10 |      |      |
| C112        | ACSC06       | ExEEEd – Academic Success                            | 3.00 |      | 3.00 | 3.00 |      | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |      | 3.00 | 3.00 |      |
| C113        | AMEC02       | Manufacturing Practice                               | 3.00 |      | 3.00 |      |      | 3.00 | 3.00 |      | 3.00 |      |      |      | 3.00 |      |      |
| C114        | AMEC03       | Computer Aided Engineering Drawing                   | 2.70 |      | 2.70 |      | 2.70 |      |      |      | 2.70 | 2.70 |      | 2.70 |      |      | 2.70 |
| C115        | ACSC03       | Programming for Problem Solving Laboratory           | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| C201        | ACEC01       | Surveying and Geomatics                              | 1.60 | 1.60 |      |      | 2.30 |      |      |      |      |      |      |      | 1.90 |      |      |
| C202        | ACEC02       | Strength of Materials                                | 1.00 | 0.80 |      |      |      |      |      |      |      |      |      |      | 1.00 | 0.90 |      |
| C203        | ACEC03       | Fluid Mechanics                                      | 1.20 | 1.30 | 1.10 | 1.40 |      |      |      |      |      | 1.10 |      |      | 1.30 | 1.20 |      |

|      |        |   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|--------|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| C204 | ACEC04 | Engineering Geology                               | 2.00 |      | 1.70 | 1.40 |      |      | 1.80 |      |      |      |      | 1.70 | 2.30 |      |      |
| C205 | ACSC08 | Data Structures                                   | 2.10 | 2.20 | 2.10 | 2.20 | 2.00 |      |      |      |      | 2.00 |      | 2.20 |      |      |      |
| C206 | ACSC09 | ExEEd – Prototype / Design Building               | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |      |      |      | 0.90 | 0.90 |      | 0.90 | 0.90 | 0.90 |      |
| C207 | ACEC05 | Surveying and Geomatics Laboratory                | 3.00 | 3.00 |      |      | 3.00 |      |      |      |      |      |      | 3.00 |      |      |      |
| C208 | ACEC06 | Engineering Geology Laboratory                    | 1.60 | 1.60 |      | 1.60 |      |      |      |      |      |      |      |      | 1.60 |      |      |
| C209 | ACSC10 | Data Structures Laboratory                        | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |      |      |      |      | 3.00 |      | 3.00 |      |      |      |
| C210 | ACEC07 | Theory of Structures                              | 1.10 | 1.10 |      | 1.10 |      |      |      |      |      | 1.10 |      | 1.10 | 1.10 |      |      |
| C211 | AHSC08 | Probability and Statistics                        | 2.60 | 2.20 |      | 2.70 | 2.90 |      |      |      |      |      |      |      |      |      |      |
| C212 | ACEC08 | Hydraulics and Hydraulic Machinery                | 2.50 | 2.40 | 2.60 | 2.70 |      |      |      |      |      | 2.60 |      |      | 2.80 |      |      |
| C213 | ACEC09 | Building Materials – Planning and Construction    | 1.50 | 1.20 | 1.20 |      |      |      |      |      |      |      |      |      | 1.20 |      |      |
| C214 | ACEC10 | Concrete Technology                               | 1.20 | 1.10 | 1.00 |      | 1.20 |      | 1.40 |      |      |      |      |      | 1.20 | 1.50 |      |
| C215 | ACSC14 | ExEEd – Fabrication / Model Development           | 3.00 |      | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |      | 3.00 | 3.00 |      |      | 3.00 | 3.00 | 3.00 |
| C216 | ACEC11 | Concrete Technology Laboratory                    | 3.00 |      | 3.00 |      | 3.00 |      | 3.00 |      |      |      |      |      | 3.00 |      |      |
| C217 | ACEC12 | Hydraulics and Hydraulic Machinery Laboratory     | 3.00 |      | 3.00 | 3.00 |      |      | 3.00 |      |      |      |      |      | 3.00 |      | 3.00 |
| C218 | ACEC13 | Strength of Materials Laboratory                  | 3.00 | 3.00 |      |      | 3.00 |      |      |      |      |      |      |      |      | 3.00 |      |
| C301 | ACEC14 | Analysis of Structures                            | 1.60 | 1.60 |      |      |      |      |      | 1.40 | 1.40 |      | 1.40 |      |      |      |      |
| C302 | ACEC15 | Hydrology and Water Resources Engineering         | 1.70 |      |      | 1.50 |      |      | 1.20 |      |      |      |      |      | 1.50 |      |      |
| C303 | ACEC16 | Reinforced Concrete Structures Design and Drawing | 1.40 | 1.30 | 0.70 |      |      |      |      |      |      | 0.50 |      | 0.50 | 1.40 |      |      |
| C304 | AHSC13 | Business Economics and Financial Analysis         | 1.70 | 1.10 | 1.10 | 2.00 |      |      | 1.90 |      |      |      |      |      | 1.10 | 1.10 |      |
| C305 | ACEC17 | Remote Sensing and GIS                            | 2.10 | 2.20 | 2.20 |      | 2.20 |      |      |      |      |      |      |      | 2.10 |      |      |
| C306 | ACSC20 | ExEEd – Project Based Learning                    | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |      |      |      |      | 3.00 | 3.00 |      | 3.00 | 3.00 | 3.00 |
| C307 | ACEC21 | Advanced Surveying Laboratory                     | 3.00 | 3.00 |      |      | 3.00 |      |      |      |      | 3.00 |      |      | 3.00 |      |      |
| C308 | ACEC22 | Advanced Material Testing Laboratory              | 3.00 |      | 3.00 |      | 3.00 |      | 3.00 |      |      |      |      |      | 3.00 |      |      |
| C309 | ACEC23 | Steel Structures Design and Drawing               | 2.50 | 2.40 | 2.40 | 2.40 |      |      |      |      |      |      |      |      | 2.40 |      |      |
| C310 | ACEC24 | Geotechnical Engineering                          | 2.80 | 2.70 | 2.80 | 2.60 |      |      |      |      |      |      |      |      | 2.80 | 2.80 | 2.80 |

|                                |        |   |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |
|--------------------------------|--------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| C311                           | ACEC25 | Transportation Engineering                            | 2.90       |            | 2.90       | 2.90       |            |            |            |            |            |            |            | 2.90       | 2.90       |            |            |
| C312                           | ACEC26 | Estimation, Costing and Valuation                     | 2.50       | 2.40       |            |            | 2.60       | 2.30       |            |            |            |            |            | 2.90       | 2.40       |            | 2.90       |
| C313                           | AMEC34 | Industrial Management                                 | 1.80       | 1.80       |            | 1.80       |            |            |            |            |            |            | 1.80       | 1.80       |            |            | 1.80       |
| C314                           | ACSC27 | ExEEEd – Research Based Learning                      | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       |            |            |            | 3.00       | 3.00       |            | 3.00       | 3.00       | 3.00       | 3.00       |
| C315                           | ACEC32 | Geotechnical Engineering Laboratory                   | 3.00       | 3.00       | 3.00       | 3.00       |            | 3.00       |            |            |            |            |            |            | 3.00       | 3.00       |            |
| C316                           | ACEC33 | Transportation Engineering Laboratory                 | 3.00       | 3.00       |            |            | 3.00       |            |            |            | 3.00       |            |            |            | 3.00       |            |            |
| C401                           | ACEC34 | Environmental Engineering                             | 2.80       | 2.80       | 2.80       | 2.80       |            |            |            |            |            |            |            |            | 2.80       | 2.80       |            |
| C402                           | ACEC35 | Foundation Engineering                                | 1.10       | 1.20       | 1.20       | 1.10       | 1.10       |            |            |            |            |            |            |            | 1.10       |            |            |
| C403                           | ACEC36 | Construction Engineering and Management               | 2.80       | 2.80       | 2.80       |            | 2.80       |            | 2.80       |            |            |            |            |            | 2.80       | 2.80       |            |
| C404                           | ACEC40 | Prestressed Concrete Structures                       | 1.30       | 1.40       | 1.30       | 1.30       |            |            |            |            |            |            |            |            | 1.40       |            |            |
| C405                           | AITC19 | Cyber Crime and Computer Forensics                    | 1.10       | 1.40       | 1.10       | 1.30       | 1.60       |            |            |            |            |            |            |            |            |            | 1.20       |
| C406                           | ACEC44 | Advanced Structural Design Laboratory                 | 3.00       |            | 3.00       |            | 3.00       |            |            |            |            |            |            |            | 3.00       |            |            |
| C407                           | ACEC45 | Project Planning Laboratory                           | 3.00       |            | 3.00       |            | 3.00       |            |            |            | 3.00       |            |            | 3.00       | 3.00       | 3.00       | 3.00       |
| C408                           | ACEC46 | Project Work (Phase – I)                              | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       |            | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       |
| C409                           | ACEC47 | Ground Improvement Techniques                         | 1.20       | 1.20       |            | 1.20       |            |            |            |            |            |            |            |            | 1.20       | 1.20       |            |
| C410                           | ACEC51 | Repair, Rehabilitation and Retrofitting of Structures | 1.20       | 1.20       | 1.20       | 1.20       | 1.20       |            |            |            |            |            |            |            | 1.20       | 1.20       |            |
| C411                           | AHSC15 | Soft Skills and Interpersonal Communication           |            |            |            |            |            |            |            | 2.50       |            | 2.60       |            |            |            |            |            |
| C412                           | ACEC55 | Project Work (Phase - II)                             | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       | 3.00       |
| <b>Direct Attainment Value</b> |        |   | <b>2.1</b> | <b>1.9</b> | <b>2.2</b> | <b>2.0</b> | <b>2.4</b> | <b>2.3</b> | <b>2.2</b> | <b>2.2</b> | <b>2.5</b> | <b>2.1</b> | <b>2.1</b> | <b>2.1</b> | <b>2.1</b> | <b>2.2</b> | <b>2.2</b> |

## Overall Attainment

| S No.   | Assessment Component (Direct + Indirect)              | Program Outcomes (POs) |            |            |            |            |            |            |            |            |            |            |            | PSOs       |            |            |
|---|---|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
|   |   | PO1                    | PO2        | PO3        | PO4        | PO5        | PO6        | PO7        | PO8        | PO9        | PO10       | PO11       | PO12       | PSO1       | PSO2       | PSO3       |
| 1.  | Direct Assessment (CIA + SEE + Course End Survey) (a) | 2.1                    | 1.9        | 2.2        | 2          | 2.4        | 2.3        | 2.2        | 2.2        | 2.5        | 2.1        | 2.1        | 2.1        | 2.1        | 2.2        | 2.2        |
| 2.  | Program exit surveys (b)                              | 2.3                    | 2.4        | 2.3        | 2.5        | 2.4        | 2.3        | 2.2        | 2.4        | 2.4        | 2.4        | 2.5        | 2.4        | 2.3        | 2.3        | 2.4        |
| 3.  | Employer surveys (c)                                  | 2.0                    | 2.0        | 2.1        | 2.2        | 2.2        | 2.1        | 2.1        | 2.1        | 2.1        | 2.0        | 2.1        | 2.0        | 2.1        | 2.1        | 2.1        |
| 4.  | Alumni Survey (d)                                     | 2.5                    | 2.4        | 2.3        | 2.5        | 2.5        | 2.3        | 2.5        | 2.5        | 2.3        | 2.5        | 2.4        | 2.3        | 2.5        | 2.4        | 2.3        |
| <b>Overall attainment = a*0.8 + b*0.1 + c*0.05 + d*0.05</b> |   | <b>2.1</b>             | <b>2.0</b> | <b>2.2</b> | <b>2.1</b> | <b>2.4</b> | <b>2.3</b> | <b>2.2</b> | <b>2.2</b> | <b>2.5</b> | <b>2.1</b> | <b>2.2</b> | <b>2.1</b> | <b>2.1</b> | <b>2.2</b> | <b>2.2</b> |

**Action taken to improve the attainment of POs and PSOs:**

| POs   | Target value | Attainment Level | Observations  |
|---|--------------|------------------|---|
| <b>PO1: Engineering Knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.  |              |                  |   |
| PO1   | 1.8          | 2.1              | Target is achieved. This can be improved further in courses like Survey and Geomatics [ACEC01], Strength of Materials [ACEC02] and Fluid Mechanics [ACEC03] |
| <b>Action:</b> <ol style="list-style-type: none"> <li>1. Additional theory classes are conducted beyond regular hours to enhance students’ understanding on problems related to Strength of Materials.</li> <li>2. An expert lecture was conducted to provide students with insights into real-world applications relevant to the core course Fluid Mechanics, titled “Computational Fluid Dynamics (CFD) Applications in Hydraulic and Water Resources Engineering.”</li> </ol>  |              |                  |   |
| <b>PO2: Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.   |              |                  |   |
| PO 2  | 1.8          | 2.0              | Target is achieved. This can be improved further in courses like Analysis of structures [ACEC14] and Theory of structures [ACEC07].                         |
| <b>Action:</b> <ol style="list-style-type: none"> <li>1. Additional classes have been conducted to provide an in-depth understanding of slope deflection and moment distribution methods, with emphasis on their application in the analysis and design of continuous beams, as well as single-bay, single-storey portal frames including side sway etc.</li> <li>2. Field application–oriented problems are systematically assigned to students to facilitate the analysis of civil engineering structures, incorporating the application of relevant theoretical concepts and theorems to develop practical problem-solving skills.</li> <li>3. An expert lecture on “Engineering Design Challenge: Solving Real-World Problems” enhanced students’ ability to prepare and present structured technical reports.</li> </ol> |              |                  |   |

**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.

|             |            |            |   |
|-------------|------------|------------|---|
| <b>PO 3</b> | <b>1.8</b> | <b>2.2</b> | Target is achieved. This can be improved further in courses like Hydrology and Water Resources Engineering [ACEC15] and Environmental Engineering [ACEC34]. |
|-------------|------------|------------|---|

**Action:**

1. Conducted special session on canals designs, design of channels by Kennedy’s and Lacey’s theory of regime channels.
2. An expert lecture has been arranged on “Lean Construction: Strategies for Improving Efficiency and Reducing Waste” which has highlighted about importance of debris management and reuse of construction waste.
3. Additional sessions have been arranged primarily focusing on steps involved in Primary, Secondary, and Tertiary treatment of waste water, sludge digestion tanks, factors effecting design of sludge digestion tank, sludge disposal by drying.

**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.

|             |            |            |   |
|-------------|------------|------------|---|
| <b>PO 4</b> | <b>1.8</b> | <b>2.1</b> | Target is achieved. Attainment can be increased further in these courses like Analysis of structures [ACEC14], and Steel Structure Design and Drawing [ACEC23]. |
|-------------|------------|------------|---|

**Action:**

1. A training program on “*Earthquake Resistant Design and Detailing of Steel Buildings*” enhanced students’ ability to investigate complex structural problems using research-based analysis and design approaches.
2. Special session had been arranged on Concept of limit state design – different limit states as per IS 800:2007. Design strengths deflection limits, serviceability, bolted and welded connections, efficiency of joint, prying action.
3. In addition, workshop has been arranged for 5 days on Certification on Revit Architecture for Sustainable Design.
4. Additional classes will be organized beyond the regular schedule to provide students with extra practice through problems and assignments.

**PO5: Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

|             |            |            |  |
|-------------|------------|------------|--|
| <b>PO 5</b> | <b>1.8</b> | <b>2.4</b> | Target is achieved. This can be improved further in courses like Ground Improvement Techniques [ACEC47] and Repair Rehabilitation and Retrofitting of Structures [ACEC51]. |
|-------------|------------|------------|--|

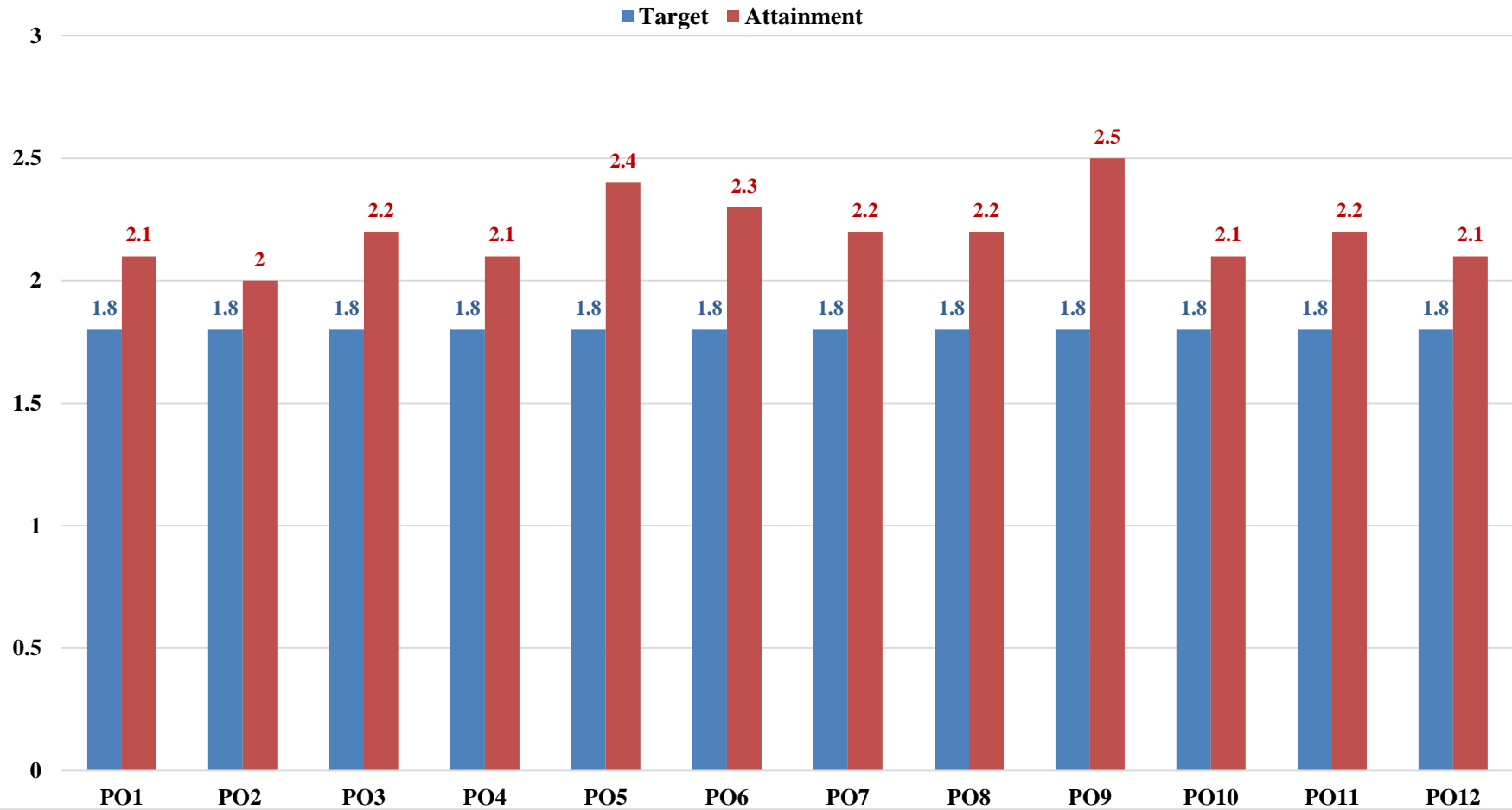
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|---|------------|------------|--|
| <b>Action:</b>  |            |            |  |
| <ol style="list-style-type: none"> <li>1. A seminar on “Concrete Repair and Retrofitting Technology for Buildings” and “Applications of Automatic Weather Stations in Modern Environmental Monitoring” enhanced students’ ability to apply modern engineering tools and techniques for analysis, monitoring, and prediction in complex engineering activities.</li> <li>2. An expert lecture on “Smart City Development through Geospatial Technologies” enhanced students’ ability to utilize modern geospatial and IT tools for modeling and planning of complex engineering systems.</li> </ol>  |            |            |  |
| <b>PO6: The Engineer and Society:</b> 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.   |            |            |  |
| <b>PO 6</b>   | <b>1.8</b> | <b>2.3</b> | Target is achieved. Hence the same practice will be continued for the next year.   |
| <b>Action:</b>  |            |            |  |
| <ol style="list-style-type: none"> <li>1. The target will be retained and its progress will be monitored in the next academic year.</li> </ol>  |            |            |  |
| <b>PO7: Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.   |            |            |  |
| <b>PO 7</b>   | <b>1.8</b> | <b>2.2</b> | Target is achieved. Attainment can be improved in the courses Remote Sensing and GIS [ACEC17].                                   |
| <b>Action:</b>  |            |            |  |
| <ol style="list-style-type: none"> <li>1. To enhance understanding of the societal and environmental impacts of professional engineering solutions, as well as the importance of sustainability in overall development, relevant courses and expert lectures focusing on environmental and sustainability issues have been delivered.</li> <li>2. A seminar on “Digital Twin–Enabled Resilient and Sustainable Infrastructure” provided insights into sustainable development and the environmental impact of engineering solutions.</li> <li>3. A 2-day workshop on “Sustainable Construction Practices: Green Building Design” promoted awareness of sustainable development principles and the environmental impact of engineering practices.</li> </ol> |            |            |  |
| <b>PO8: Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.  |            |            |  |
| <b>PO 8</b>   | <b>1.8</b> | <b>2.2</b> | Target is achieved. Along with technical knowledge, ethical knowledge should be included while teaching the programming courses. |
| <b>Action:</b>  |            |            |  |
| <ol style="list-style-type: none"> <li>1. To inculcate professional ethics, students are guided to adhere to ethical practices during laboratory sessions and to apply ethical principles consistently in their lifelong professional practice.</li> </ol>  |            |            |  |

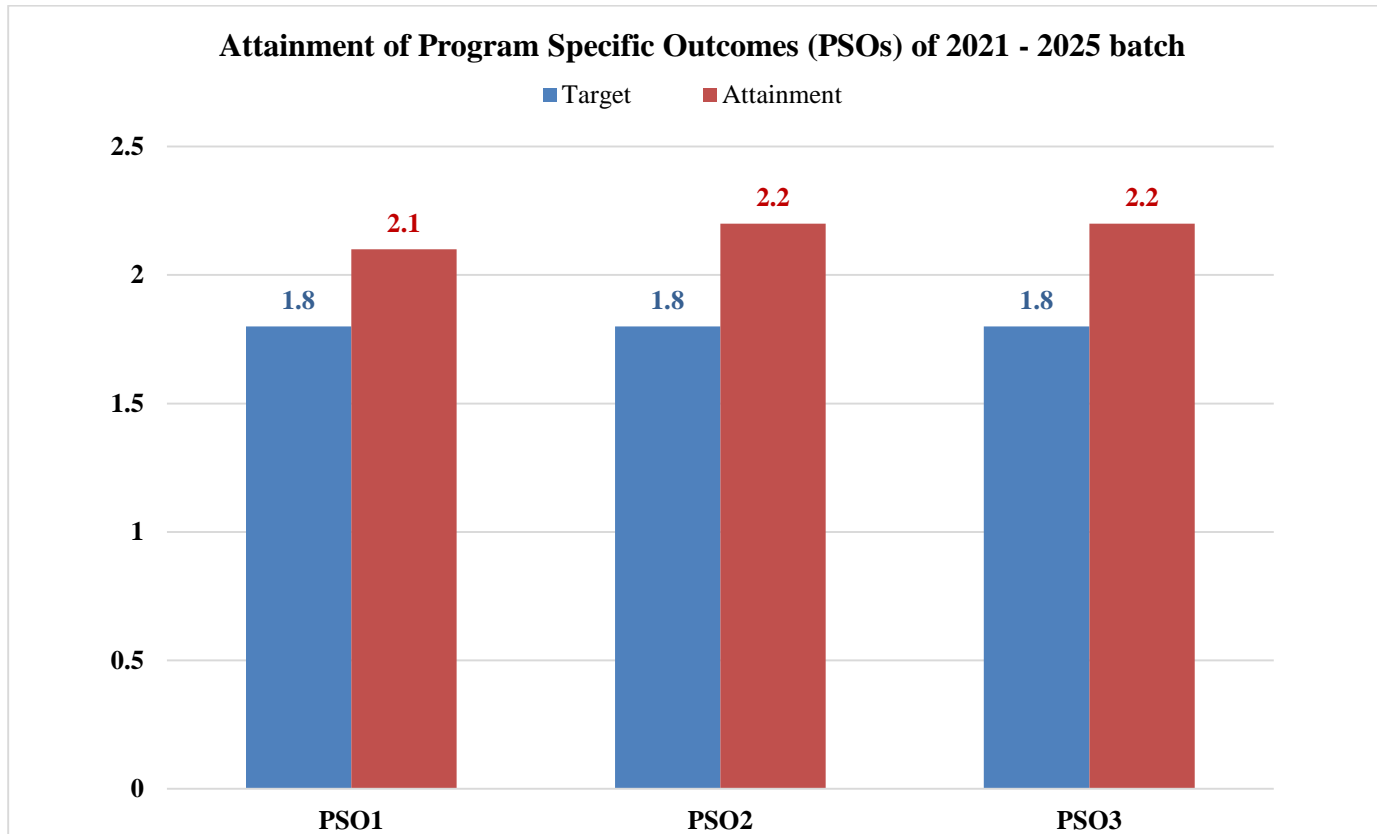
|  |            |            |   |
|--|------------|------------|---|
| <b>PO9: Individual and teamwork:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.   |            |            |   |
| <b>PO 9</b>  | <b>1.8</b> | <b>2.5</b> | Target is achieved.   |
| <b>Action:</b>   |            |            |   |
| 1. The students are allowed to work in groups on co- and extra-curricular activities, which are conducted through the department association, inter college activities.  |            |            |   |
| <b>PO10: Communication:</b> 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.   |            |            |   |
| <b>PO 10</b>   | <b>1.8</b> | <b>2.1</b> | Target is achieved.   |
| <b>Action:</b>   |            |            |   |
| 1. Students identified with deficiencies in communication skills are encouraged to enroll in relevant courses and are referred to the language laboratory to enhance their communication proficiency.  |            |            |   |
| 2. In project-based and research-based learning, it is ensured that students deliver reviews and project presentations exclusively in the English language.  |            |            |   |
| <b>P11: Project management and finance:</b> 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.  |            |            |   |
| <b>PO 11</b>   | <b>1.8</b> | <b>2.2</b> | Target is achieved. Multidisciplinary projects are observed as a gap. |
| <b>Action:</b>   |            |            |   |
| 1. Opportunities are provided for students to organize departmental association activities, fostering leadership, teamwork, and managerial skills. In addition, students are motivated to undertake full-semester internships in reputed organizations, enabling them to apply engineering and management principles in project settings, function effectively as team members or leaders, and gain exposure to multidisciplinary and industry-oriented work environments. |            |            |   |


|   |            |            |                     |
|---|------------|------------|---------------------|
| <b>P12: Life-long learning:</b> 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.   |            |            |                     |
| <b>PO 12</b>  | <b>1.8</b> | <b>2.1</b> | Target is achieved. |
| <b>Action:</b>  |            |            |                     |
| <ol style="list-style-type: none"> <li>1. Students are actively encouraged to pursue online learning through MOOCs, specialized skill enhancement programs in Civil Engineering, and design-oriented courses to strengthen their competencies in emerging and advanced technologies.</li> <li>2. Industrial visits will be systematically organized to provide students with practical exposure to real-world engineering practices, thereby fostering independent learning, enhancing technical understanding, and promoting a culture of lifelong learning.</li> </ol>  |            |            |                     |
| <b>PSO 1</b> Design and Supervise Sub-Structures and Super Structures for Residential and Public Buildings, Industrial Structures, Irrigation Structures, Power Houses, Highways, Railways, Airways, Docs and Harbors.  |            |            |                     |
| <b>PSO 1</b>  | <b>1.8</b> | <b>2.1</b> | Target is achieved. |
| <b>Action:</b>  |            |            |                     |
| <ol style="list-style-type: none"> <li>1. Exposure to contemporary technologies is enhanced by encouraging students to undertake real-world problems in their project work, enabling them to design, analyze, and develop effective engineering solutions.</li> <li>2. A two-day workshop titled “Future Scope: Exploring Emerging Technologies” were organized to familiarize students with current trends and advancements in Civil Engineering.</li> <li>3. For the course Construction Engineering and Management (ACEC36), supplementary classes are conducted to strengthen students’ understanding of advanced topics such as Earned Value Management and Risk Quantification and Management.</li> </ol> |            |            |                     |
| <b>PSO 2:</b> Focus on Improving Performance of Structures with reference to Safety, Serviceability and Sustainable Green Building Technology.  |            |            |                     |
| <b>PSO 2</b>  | <b>1.8</b> | <b>2.2</b> | Target is achieved. |
| <b>Action:</b>  |            |            |                     |
| <ol style="list-style-type: none"> <li>1. A three-day workshop titled “Sustainable Construction Practices: Green Building Design” was organized to familiarize students with improving the performance of structures with reference to safety, serviceability, and sustainable green building technologies.</li> </ol>  |            |            |                     |

|   |            |            |  |
|---|------------|------------|--|
| <b>PSO 3:</b> Make use of Advanced Structural Analysis and Project Management Software for creating Modern Avenues to succeed as an Entrepreneur, Pursue Higher Studies and Career Paths.   |            |            |  |
| <b>PSO 3</b>  | <b>1.8</b> | <b>2.2</b> | Target is achieved. Attainment can be improved in the courses like Industrial Management (AMEC34) and Repair Rehabilitation and Retrofitting of Structures [ACEC51]. |
| <p><b>Action:</b></p> <ol style="list-style-type: none"> <li>1. In the course Industrial Management (AMEC34), additional classes will be conducted on topics such as Operations Scheduling and Sequencing, and Inventory Management and Control, to enhance students' understanding of these concepts.</li> </ol> |            |            |  |

### Attainment of Program Outcomes (POs) of 2021 - 2025 batch





  
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