



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad -500 043

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### Attainment of Program Outcomes (POs) of 2022 - 2024 batch (IARE – PG21)

Sustained efforts are made to ensure continuous attainment by monitoring the resources and processes. The following actions were taken to enhance the target level. The attainment of POs and action taken for improvements in attainments for 2020-2022 is illustrated in table

| POs   | Target Level | Attainment Level | Observations  |
|---|--------------|------------------|---|
| <b>PO1: Independently carry out research/investigation and development work to solve practical problems</b>   |              |                  |   |
| <b>PO1</b>  | <b>2.25</b>  | <b>2.4</b>       | Overall attainment of PO1 Target is Achieved. Computer Science and Engineering curriculum has a strong foundation of practical and theoretical knowledge of own engineering principles. However, students need to know in correlating the theoretical concepts with practical applications of courses Mathematical Foundations of Computer Science, Advanced data structures, Wireless Sensor networks, and Energy from Waste are required. The following actions were taken to enhance the target level. |
| <b>Action 1:</b><br>Faculty research with PG students has improved overall PO1 attainment<br><b>Action 2:</b><br>Introduction of research labs for recent trend of CSE includes Advanced data structures Laboratory and Advanced algorithms Laboratory which impacts the curriculum and also research.                        |              |                  |   |
| <b>PO2: Write and present a substantial technical report/document</b>   |              |                  |   |
| <b>PO2</b>  | <b>2.25</b>  | <b>2.8</b>       | Overall attainment of PO2 reached to the target level. The communication, presentation, and report writing skills need to be more focused on respective theory and laboratory tasks. The following actions were taken to enhance the target level.  |
| <b>Action 1:</b><br>More assessment methods are incorporated to enhance oral communication in theory courses through seminars and Project Review Meetings.<br><b>Action 2:</b><br>Soft skills training is imparted to enhance various aspects of communication by group discussions, presentations and new learning outcomes. |              |                  |   |

|  |             |            |  |
|--|-------------|------------|--|
| <b>PO3: Demonstrate a degree of mastery in computer science and engineering emerging areas such as data science, cyber security, and application development.</b>  |             |            |  |
| <b>PO3</b>   | <b>2.25</b> | <b>2.7</b> | Overall attainment of PO3 reached to the target level in most of the core courses. Students are encouraged to learn, practice and make use of appropriate modern tools in emerging areas of Computer Science and Engineering through trainings, workshops and internships. More focus on data science course is required. The following actions were taken to enhance the target level.  |
| <b>Action 1:</b><br>Students are instructed to learn and use the open source and modern tools of emerging areas of CSE in implementation of projects and participation in hackathons.<br><b>Action 2:</b><br>Faculty are encouraged to identify course specific modern tools and encouraged to use in their regular course work of Blockchain Technology and cyber security.   |             |            |  |
| <b>PO4: Apply advanced-level knowledge, techniques, skills, and modern tools in the field of computer science and engineering and its allied areas for solving real-time problems.</b>   |             |            |  |
| <b>PO4</b>   | <b>2.25</b> | <b>2.5</b> | Overall attainment of PO4 reached to the target level in most of the core courses. The focus on usage of research-based methods in solution for complex engineering problems with innovations are required in the courses like Mathematical Foundations of Computer Science, Advanced data structures and Wireless Sensor networks. The following actions were taken to enhance the target level.  |
| <b>Action 1:</b><br>Critical thinking problems/ query exercises are incorporated in the courses includes Mathematical Foundations of Computer Science, Advanced data structures and Wireless Sensor networks.<br><b>Action 2:</b><br>Students are encouraged to participate in coding challenges, Hackathons and various online coding contests.<br><b>Action 3:</b><br>Students are motivated to participate actively in research-based learning activities, ideation and product development to nurture their ideas along with complex problem-solving skills. |             |            |  |
| <b>PO5: Function effectively in multidisciplinary environments with the knowledge of frontier technologies by working cooperatively, creatively, and responsively as a member or leader in diverse teams.</b>  |             |            |  |
| <b>PO5</b>   | <b>2.25</b> | <b>2.5</b> | Overall attainment of PO5 reached to the target level in all the courses. Few courses like Seminars and Project work inculcate the habit of individual and team contribution towards the development of the multi-disciplinary projects. More focus required on the courses like Mathematical Foundations of Computer Science, Advanced data structures, Wireless Sensor networks and Energy from Waste. The following actions were taken to enhance the target level. |

**Action 1:**

Students are advised to form multidisciplinary groups in participations of hackathons and project expos related to courses like Mathematical Foundations of Computer Science, Advanced data structures, Wireless Sensor networks and Energy from Waste.

**Action 2:**

Students are encouraged to develop projects, in which global and environmental issues are addressed.

**PO6: Engage in life-long learning for continuing education in doctoral-level studies and professional development.**

|            |             |            |   |
|------------|-------------|------------|---|
| <b>PO6</b> | <b>2.25</b> | <b>2.6</b> | Overall attainment of PO6 reached to the target level. More focus required on the courses like Mathematical Foundations of Computer Science, Advanced data structures and Wireless Sensor networks. The following actions were taken to enhance the target level. |
|------------|-------------|------------|---|

**Action 1:**

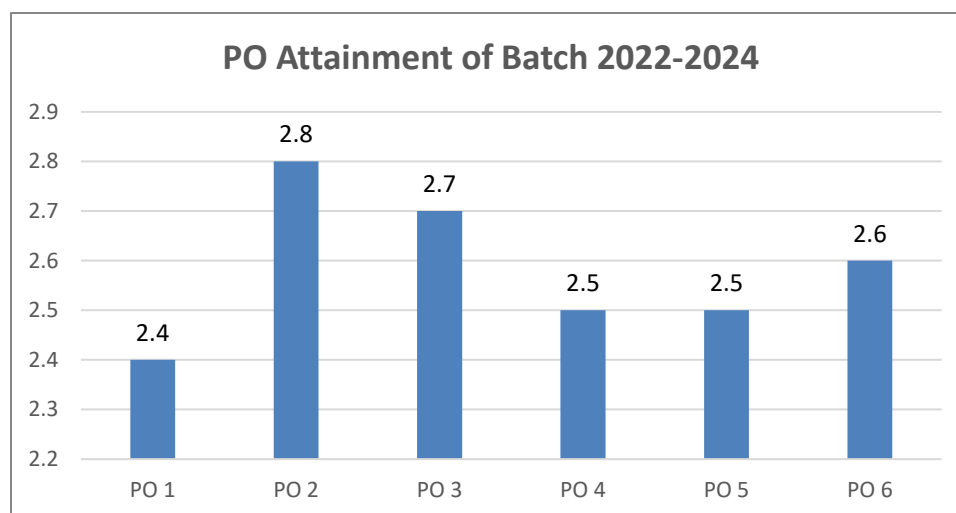
Students are recognized the importance of self-learning and completed certifications and MOOC courses (NPTEL, CISCO, Udemy etc.) on the latest technologies and the courses like Mathematical Foundations of Computer Science, Advanced data structures and Wireless Sensor networks.

**Action 2:**

Faculty are utilizing the available digital learning facilities in the form of videos (NPTEL, ELRV, Coursera etc.), software tools, to be on par with the recent trends.

**Action 3:**

Students are encouraged to take topics from magazines and journals for seminar and video topics, research-oriented projects, refer research literature and present or publish their work.



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## COMPUTER SCIENCE AND ENGINEERING

### Program Outcomes (POs) Attainment (Direct) Summary

|            |                                  |
|------------|----------------------------------|
| Regulation | PG21                             |
| Branch     | Computer Science and Engineering |
| Batch      | 2022-2024                        |

| Course Code      | Course                        | Program Outcomes (POs) |      |      |      |      |      |
|------------------|-------------------------------|------------------------|------|------|------|------|------|
|                  |                               | PO1                    | PO2  | PO3  | PO4  | PO5  | PO6  |
| BCSC01           | Mathematical Foundations of   | 2.80                   |      |      | 2.80 | 2.80 | 2.80 |
| BCSC02           | Advanced Data Structures      | 2.70                   |      |      | 2.70 | 2.70 | 2.60 |
| BCSC11           | Advanced Data Structures      | 3.00                   |      | 3.00 | 3.00 | 3.00 |      |
| BCSC12           | Data Science Laboratory       | 3.00                   |      | 3.00 | 3.00 | 3.00 | 3.00 |
| BCSC13           | Cyber Security                | 2.00                   |      | 2.00 | 2.00 | 2.00 | 2.00 |
| BCSC14           | Soft Computing                | 2.90                   |      |      | 2.90 | 2.90 |      |
| BCSC15           | Data Preparation and Analysis | 1.90                   |      |      | 1.90 | 1.90 |      |
| BCSC19           | Internet of Things and        | 2.10                   |      |      | 2.10 | 2.10 |      |
| BCSC23           | Soft Computing Laboratory     | 3.00                   | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| BCSC24           | Cyber Security Laboratory     | 3.00                   | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| BCSC25           | Mini Project with Seminar     | 3.00                   | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| BHSC11           | Research Methodology and IPR  | 1.50                   |      | 2.90 | 1.50 | 1.50 |      |
| BPSC30           | Waste to Energy               | 1.80                   |      |      |      | 1.80 |      |
| BCSC31           | Phase - I Dissertation        | 3.00                   | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| BCSC05           | Deep Learning                 | 2.50                   |      |      | 2.50 | 2.50 | 2.50 |
| BCSC09           | Mining Massive Datasets       | 2.30                   |      |      | 2.30 | 2.30 |      |
| BCSC32           | PHASE - II DISSERTATION       | 3.00                   | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| Attainment Value |                               | 2.6                    | 3    | 2.9  | 2.6  | 2.6  | 2.8  |

  
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## COMPUTER SCIENCE AND ENGINEERING

### Program Outcomes (POs) Attainment (Indirect) Summary

|            |                                  |
|------------|----------------------------------|
| Regulation | PG21                             |
| Branch     | Computer Science and Engineering |
| Batch      | 2022-2024                        |

| S.No | Indirect Assessment Components | Program Outcomes (POs) |     |     |     |     |     |
|------|--------------------------------|------------------------|-----|-----|-----|-----|-----|
|      |                                | PO1                    | PO2 | PO3 | PO4 | PO5 | PO6 |
| 1    | Program Exit Survey            | 2.4                    | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 2    | Alumni Survey                  | 0.8                    | 1.3 | 1.1 | 1.5 | 1.5 | 0.9 |
| 3    | Employer Survey                | 0.8                    | 1.3 | 1.1 | 1.5 | 1.5 | 0.9 |

  
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## COMPUTER SCIENCE AND ENGINEERING

### Program Outcomes (POs) Attainment Summary

|            |                                  |
|------------|----------------------------------|
| Regulation | PG21                             |
| Branch     | Computer Science and Engineering |
| Batch      | 2022-2024                        |

| S.No  | Assessment Components<br>(Direct + Indirect)             | Program Outcomes (POs) |     |     |     |     |     |
|---|--|------------------------|-----|-----|-----|-----|-----|
|   |  | PO1                    | PO2 | PO3 | PO4 | PO5 | PO6 |
| 1   | Direct Assessment (a)<br>(CIA + SEE + Course End Survey) | 2.6                    | 3   | 2.9 | 2.6 | 2.6 | 2.8 |
| 2   | Program Exit Survey (b)                                  | 2.4                    | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 3   | Alumni Survey (c)  | 0.8                    | 1.3 | 1.1 | 1.5 | 1.5 | 0.9 |
| 4   | Employer Survey (d)                                      | 0.8                    | 1.3 | 1.1 | 1.5 | 1.5 | 0.9 |
| Final attainment =<br>$a*0.8 + b*0.1 + c*0.05 + d*0.05$ |  | 2.4                    | 2.8 | 2.7 | 2.5 | 2.5 | 2.6 |

  
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### Validation of POs Attainment for the Batch 2022-2024

| S No. | POs  | Target value for 2020-2021 PO Attainment | Overall PO Attainment Value from Direct and Indirect Assessment | Status   |
|-------|------|--|---|----------|
| 1     | PO 1 | 2.25                                     | 2.4   | Attained |
| 2     | PO 2 | 2.25                                     | 2.8   | Attained |
| 3     | PO 3 | 2.25                                     | 2.7   | Attained |
| 4     | PO 4 | 2.25                                     | 2.5   | Attained |
| 5     | PO 5 | 2.25                                     | 2.5   | Attained |
| 6     | PO 6 | 2.25                                     | 2.6   | Attained |

  
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