



**LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (Autonomous)**

Accredited NAAC with "A" grade, ISO 9001:2015 Certified Institution,  
 Approved by AICTE New Delhi & Affiliated to JNTUK, Kakinada  
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**DEPARTMENT OF INFORMATION TECHNOLOGY**

**7.1. Actions taken based on the results of evaluation of each of the COs, POs & PSOs**

**POs Attainment Levels and Actions for improvement (2016-2017) 13 batch**

| POs   | Target Level | Attainment Level | Observations   |
|---|--------------|------------------|--|
| PO-1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.  |              |                  |  |
| PO 1  | 70%          | 69%              | <ol style="list-style-type: none"> <li>1. Target was almost reached.</li> <li>2. PO1 still needs improvement.</li> <li>3. After analyzing results and interacting with students, it was attributed that still they need more practice on problem solving with the help of mathematical logic/knowledge.</li> </ol> |
| Action Taken:<br><ol style="list-style-type: none"> <li>1. Tutorials/ Assignments were given.</li> <li>2. Additional classes were conducted to give thorough practice in problem solving.</li> <li>3. Conducted workshop on Problem Solving and Data Structures.</li> </ol> |              |                  |  |

| POs   | Target Level | Attainment Level | Observations  |
|---|--------------|------------------|---|
| PO-2. 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. |              |                  |   |
| PO 2  | 65%          | 69%              | <ol style="list-style-type: none"> <li>1. Target was reached.</li> <li>2. It was observed that few more courses need improvement.</li> <li>3. After analysis of results and interacting with students it is attributed that they need more analytical capabilities in solving Network Security Issues &amp; Software Engineering Concepts.</li> </ol> |
| Action Taken:<br><ol style="list-style-type: none"> <li>1. Assignments / Tutorials / Remedial Classes were conducted for the course which was not attained.i.e., Software engineering.</li> </ol>                                       |              |                  |   |

| POs   | Target Level | Attainment Level | Observations |
|---|--------------|------------------|--------------|
| PO-3. 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.   |     |     |  |
| PO 3  | 65% | 68% | <ol style="list-style-type: none"> <li>1. Target was reached.</li> <li>2. It was observed that few courses need improvement.i.e Information Security, Theory of computation, Human computer Interaction.</li> <li>3. It was also identified the need of additional care to strengthen the design capabilities of students, after analyzed results and interacted with students.</li> </ol> |
| Action Taken:   |     |     |  |
| <ol style="list-style-type: none"> <li>1. Additional classes/tutorials were conducted for the courses which are contributing design &amp;development of solutions.</li> </ol> |     |     |  |

| POs   | Target Level | Attainment Level | Observations  |
|---|--------------|------------------|---|
| PO-4. 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.            |              |                  |   |
| PO 4  | 65%          | 65%              | <ol style="list-style-type: none"> <li>1. Target was exactly reached but needs improvement.</li> <li>2. It was observed that few courses need improvement.i.e Advanced Computer architecture, C programming.</li> <li>3. After analysis of results, it is observed that students are doing laboratory experiments without enough preparation i.e.,in terms of designing experiment, analyzing and interpretation of results.</li> </ol> |
| Action Taken:   |              |                  |   |
| <ol style="list-style-type: none"> <li>1. To improve practical knowledge, Hands-on Sessions/Demonstration classes were conducted before executing the experiment.</li> <li>2. Conducted workshop on Problem Solving and Data Structures.</li> </ol> |              |                  |   |

| POs  | Target Level | Attainment Level | Observations   |
|--|--------------|------------------|--|
| PO-5. 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.                     |              |                  |  |
| PO 5   | 65%          | 65%              | <ol style="list-style-type: none"> <li>1. Target was exactly reached but needs improvement.</li> <li>2. It is observed that few courses need improvement i.e. Data Mining and warehousing, Human Computer interaction.</li> <li>3. It is observed that few courses attained less.</li> </ol> |
| Action Taken:  |              |                  |  |
| <ol style="list-style-type: none"> <li>1. Tutorials were conducted for the courses which contributed less.</li> <li>2. Conducted workshop on Problem Solving and Data Structures.</li> <li>3. Conducted workshop on Ethical hacking and blogging.</li> </ol> |              |                  |  |

| POs   | Target Level | Attainment Level | Observations |
|---|--------------|------------------|--------------|
| PO-6. 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.

|      |     |     |   |
|------|-----|-----|---|
| PO 6 | 60% | 66% | <ol style="list-style-type: none"> <li>1. Target was reached.</li> <li>2. After analyzing results and interacting with students, it is observed that students are still to be motivated.</li> </ol> |
|------|-----|-----|---|

Action Taken:

1. Motivated the students by explaining the importance of doing internship and project work.

| POs | Target Level | Attainment Level | Observations |
|-----|--------------|------------------|--------------|
|-----|--------------|------------------|--------------|

PO-7. 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.

|      |     |     |   |
|------|-----|-----|---|
| PO 7 | 60% | 64% | <ol style="list-style-type: none"> <li>1. Target was reached.</li> <li>2. It was observed that still few courses required improvement.</li> <li>3. After interacting with students, it is found to be due to lack of awareness on environment and sustainable development.</li> </ol> |
|------|-----|-----|---|

Action Taken:

1. Conducted a Lecture on “Environment and sustainability” by senior faculty.

| POs | Target Level | Attainment Level | Observations |
|-----|--------------|------------------|--------------|
|-----|--------------|------------------|--------------|

PO-8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

|      |     |     |  |
|------|-----|-----|--|
| PO 8 | 60% | 67% | <ol style="list-style-type: none"> <li>1. Target was reached</li> <li>2. After analysis of results and interacting with students, additional efforts required to improve knowledge on professional ethics and moral values.</li> </ol> |
|------|-----|-----|--|

Action Taken:

1. Additional classes on professional ethics and norms of the engineering practice were conducted

| POs | Target Level | Attainment Level | Observations |
|-----|--------------|------------------|--------------|
|-----|--------------|------------------|--------------|

PO-9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

|      |     |     |   |
|------|-----|-----|---|
| PO 9 | 60% | 66% | <ol style="list-style-type: none"> <li>1. Target was reached.</li> <li>2. It was observed that few courses need improvement.</li> </ol> |
|------|-----|-----|---|

Action Taken:

1. Awareness on leadership qualities was created by project assessment and evaluation committee.
2. Create awareness on teamwork by preparing the posters.

| POs | Target Level | Attainment Level | Observations |
|-----|--------------|------------------|--------------|
|-----|--------------|------------------|--------------|

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.

|   |     |     |   |
|---|-----|-----|---|
| PO 10   | 60% | 68% | <ol style="list-style-type: none"> <li>1. Target was reached</li> <li>2. After interacting with students, it was identified that additional focus required on development of communication skills.</li> </ol> |
| <b>Action Taken:</b><br><ol style="list-style-type: none"> <li>1.CSS Communication and Soft Skills classes were conducted.</li> <li>2.Student Association activities were carried out.</li> </ol> |     |     |   |

| POs   | Target Level | Attainment Level | Observations   |
|---|--------------|------------------|--|
| <b>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.</b>   |              |                  |  |
| PO 11   | 60%          | 66%              | <ol style="list-style-type: none"> <li>1. Target was reached</li> <li>2. It was observed that still few courses required improvement.</li> <li>3. After interacting with students, it was identified that additional focus required on development of communication skills.</li> </ol> |
| <b>Action Taken:</b><br><ol style="list-style-type: none"> <li>1. Focused on motivating the students by explaining the importance of doing internship and project work.</li> <li>2. Created awareness on project management by project assessment and evaluation committee.</li> <li>3. Conducted workshop on Problem solving and Data structures to improve the programming skills.</li> </ol> |              |                  |  |

| POs  | Target Level | Attainment Level | Observations   |
|--|--------------|------------------|--|
| <b>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.</b>  |              |                  |  |
| PO 12  | 60%          | 66%              | <ol style="list-style-type: none"> <li>1. Target was reached</li> <li>2. It was observed that still few courses required improvement.</li> </ol> |
| <b>Action Taken:</b><br><ol style="list-style-type: none"> <li>1. Encouraged students to participate in workshops/seminars/ symposia</li> <li>2. Provided library hours.</li> <li>3. Conducted association activities.</li> <li>4. Conducted self learning courses.</li> </ol> |              |                  |  |

| PSOs  | Target Level | Attainment Level | Observations   |
|---|--------------|------------------|--|
| <b>PSO1: Organize, Analyze and interpret the data to extract meaningful conclusions.</b>  |              |                  |  |
| PSO 1   | 60%          | 68%              | <ol style="list-style-type: none"> <li>1. Target was reached</li> <li>2. It was observed that still few courses required improvement.</li> </ol> |
| <b>Action Taken:</b><br><ol style="list-style-type: none"> <li>1. More number of classes /tutorials were conducted to strengthen the courses.</li> <li>2. Conducted workshop on Problem Solving and Data Structures to improve Programming Skills&amp; Logical Thinking Ability.</li> </ol> |              |                  |  |

| PSOs | Target | Attainment | Observations |
|------|--------|------------|--------------|
|------|--------|------------|--------------|

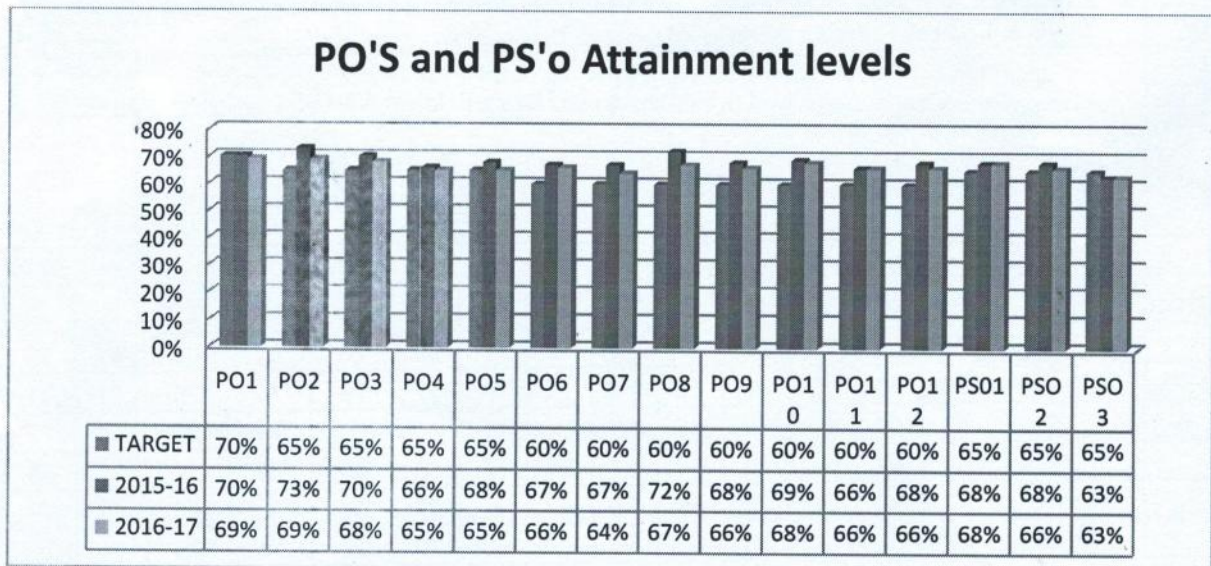
|  | Level | Level |  |
|--|-------|-------|--|
| <b>PSO2: Design, Implement and Evaluate a computer-based system to meet desired needs.</b>   |       |       |  |
| PSO 2  | 60%   | 66%   | 1. Target was reached<br>2. It was observed that still few courses required improvement. |
| Action Taken:<br>1. Conducted workshop on Problem Solving and Data Structures to improve Programming Skills & Logical Thinking Ability.<br>2. More number of classes /Tutorials was conducted to strengthen the Design concepts. |       |       |  |

| PSOs  | Target Level | Attainment Level | Observations   |
|---|--------------|------------------|--|
| <b>PSO3: Develop IT application services with the help of different current engineering tools.</b>  |              |                  |  |
| PSO 3   | 65%          | 63%              | 1. Target was reached<br>2. It was observed that still few courses required improvement. |
| Action Taken:<br>1. More number of classes /tutorials were conducted to strengthen the courses.<br>2. Conducted workshop on Problem Solving and Data Structures to improve Programming Skills & Logical Thinking Ability. |              |                  |  |

#### POs and PSOs Attainment levels :

| sem\pos                            | Pos |    |    |    |    |    |    |    |    |    |    |    | PSOs |    |    |
|------------------------------------|-----|----|----|----|----|----|----|----|----|----|----|----|------|----|----|
|                                    | 1   | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 1    | 2  | 3  |
| I                                  | 70  | 69 | 70 | 60 | 77 | 74 | 58 |    | 69 | 73 |    | 68 | 67   | 65 | 65 |
| II                                 | 72  | 71 | 71 | 66 | 68 | 79 | 71 |    | 77 | 78 | 72 | 75 | 71   | 71 | 69 |
| III                                | 67  | 66 | 66 | 66 | 66 | 68 |    |    |    | 73 | 73 | 70 | 64   | 71 | 66 |
| IV                                 | 69  | 67 | 68 | 69 | 74 | 57 | 55 | 62 | 80 | 80 | 80 | 72 | 71   | 68 | 67 |
| V                                  | 70  | 69 | 71 | 70 | 65 | 66 | 67 |    | 63 | 61 |    | 66 | 68   | 70 | 65 |
| VI                                 | 68  | 68 | 67 | 68 | 68 | 72 |    | 60 | 70 | 71 | 71 | 70 | 71   |    | 64 |
| VII                                | 67  | 70 | 69 | 75 | 69 | 70 | 73 | 72 | 68 | 69 | 62 | 69 | 66   | 68 | 69 |
| VIII                               | 76  | 70 | 67 | 71 | 68 | 69 | 75 | 79 | 70 | 64 | 72 | 70 | 79   | 76 | 71 |
| Direct Attainment(100%)            | 70  | 69 | 69 | 68 | 69 | 69 | 67 | 68 | 71 | 71 | 71 | 70 | 70   | 70 | 67 |
| Indirect -Exit Survey(100%)        | 82  | 82 | 72 | 72 | 68 | 71 | 71 | 73 | 73 | 81 | 81 | 83 | 82   | 72 | 81 |
| Indirect -Employer Survey(100%)    | 53  | 53 | 67 | 53 | 47 | 67 | 67 | 67 | 33 | 60 | 53 | 47 | 53   | 33 | 47 |
| Indirect -Student Portfolio (100%) | 66  | 72 | 66 | 31 | 59 | 54 | 31 | 51 | 60 | 48 | 31 | 48 | 59   | 59 | 31 |
| Direct Attainment(70%)             | 49  | 48 | 48 | 48 | 49 | 48 | 47 | 48 | 50 | 50 | 50 | 49 | 49   | 49 | 47 |
| Indirect Attainment(30%)           | 20  | 21 | 20 | 16 | 17 | 19 | 17 | 19 | 17 | 19 | 17 | 18 | 19   | 16 | 16 |

|                              | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 1  | 2  | 3  |
|------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Final Attainment(BATCH13-17) | 69 | 69 | 68 | 63 | 66 | 68 | 64 | 67 | 66 | 69 | 67 | 67 | 68 | 65 | 63 |
| Final Attainment(BATCH12-16) | 70 | 72 | 70 | 66 | 68 | 65 | 64 | 72 | 68 | 70 | 65 | 67 | 67 | 68 | 63 |
| Final Attainment(BATCH11-12) | 67 | 65 | 67 | 60 | 72 | 64 | 62 | 76 | 71 | 71 | 74 | 71 | 69 | 68 | 64 |
| Target(BATCH 13-17)          | 65 | 60 | 60 | 60 | 60 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 60 | 60 | 60 |



**Observations and Action taken report:**

It is observed that the skills of graduates of 2013 batch were improved compared to 2012 batch except for PO4, PO9 and PO12.

*Anshu*  
**HEAD OF THE DEPARTMENT**