



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

Accredited by NAAC & NBA (CSE, IT, ECE, EEE & ME)

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

L.B.Reddy Nagar, Mylavaram-521230, Krishna Dist, Andhra Pradesh, India

Department of ECE

Attainment of Program Outcomes and Program Specific Outcomes (2015 - 19 Batch)

a) Direct assessment tools and attainment process:

- The performance of the students in the examinations during the semester in each course is used to compute the level of attainment of the POs and PSOs through the mapping of questions to COs & COs to POs and PSOs.
- CO-PO & PSO mapping for all the courses in the program is prepared by The program coordinator.
- An MS - Excel sheet is used to compute the level of attainment of the POs and PSOs
- The attainment of the POs & PSOs is computed as a weighted average of attainment of the COs that are mapped to the given POs & PSOs.

b) Indirect assessment tools and attainment process:

The following indirect assessment tools are used for calculating PO & PSO attainments.

- (i) Program Exit survey
- (ii) Employer survey
- (iii) Student portfolio.

The overall PO & PSO attainments are calculated as follows:

- ✓ 70% for direct assessment tool
- ✓ 30% for indirect assessment through surveys
 - 10% for program exit survey
 - 10% for employer survey
 - 10% for student portfolio

Results of evaluation of each PO & PSO.

- The attainment of POs and PSOs are compared with the expected level and the process is carried out to continuously improve the attainment level.
- In addition to the above, an internal academic audit is being carried out to observe and realize how direct and indirect assessment tools can be improved to ensure that all course outcomes are realized and aligned with POs & PSOs.
- Every year Action Taken Report(ATR) is to be prepared to attain expected levels of POs and PSOs

The Following Table depicts the POs & PSOs Indirect Attainment.

Assessment Tool	Program Outcomes (%)												Program Specific Outcomes (%)		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Program Exit Survey (%)	79.55	79.92	79.55	77.15	76.39	77.90	78.41	75.63	75.25	75.13	78.41	80.56	80.18	77.78	77.93
Employer Survey (%)	65.00	62.50	60.00	57.50	62.50	57.50	65.00	67.50	65.00	65.00	57.50	65.00	70.00	67.50	65.00
Portfolio Component (%)	62.65	62.65	62.65	63.04	63.04	60.7	34.18	33.03	40.93	63.63	60.7	62.65	62.65	62.65	62.65
Indirect Attainment (%)	69.07	68.36	67.40	65.90	67.31	65.37	59.20	58.72	60.39	67.92	65.54	69.40	70.94	69.31	68.53

The overall attainment of the 2015-19 batch is depicted in the following table.

Overall Attainment of POs and PSOs = 0.7 X Direct Attainment + 0.3 X Indirect Attainment:

Assessment Tool	Program Outcomes (%)												Program Specific Outcomes (%)		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Target (%)	70.00	70.00	60.00	65.00	65.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	70.00	70.00	70.00
Direct Attainment (%)	71.77	72.57	71.30	70.44	67.27	71.73	79.30	81.19	74.74	75.60	68.74	72.81	75.81	70.69	75.53
Indirect Attainment (%)	69.07	68.36	67.40	65.90	67.31	65.37	59.20	58.72	60.39	67.92	65.54	69.40	70.94	69.31	68.53
PO Attainment (%)	70.96	71.31	70.13	69.08	67.28	69.82	73.27	74.45	70.44	73.3	67.78	71.79	74.35	70.28	73.43

Date: 11.09.2019

G. Suresh Kumar
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 L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

Department of Electronics & Communication Engineering

POs& PSOs Attainment Levels for 2015 Admitted Batch and Actions Taken for improvement

PO	Target	Attained	Observation
PO1: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems	70	70.96	1. Out of 75 courses, 69 courses are contributing to PO1. Among these 69 courses, contribution by 26 courses is slightly less. 2. Contribution through indirect attainment is bit lagging
<p>Action1: Strengthening of knowledge level of students can be carried out by revising the syllabus of specific courses that contributed less.</p> <p>Action2: Strengthening of knowledge level of students can be improved by incorporating problems with application of the knowledge.</p> <p>Action3: The fundamental and application oriented concepts of the course can be emphasized more through either examples or ICT tools.</p> <p>Action4: The faculty of the laboratory courses was advised to conduct more demonstration classes.</p> <p>Action5: Students will be encouraged to participate in co curricular activities.</p> <p>Action6: To strengthen the portfolio components, students will be encouraged to undergo certification programs, participate in workshops, etc.</p> <p>Action7: The attainment levels through contribution of placements and higher studies can be further improved by introducing courses that enhance the employability skills.</p>			
PO	Target	Attained	Observation
PO2: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences	70	71.31	1.69 out of 75 courses are contributing for PO2. Lesser values of CO attainments are observed for 25 courses. 2. Contribution through indirect attainment is slightly low.
<p>Action1: Enhancement of the problem analysis skills of the students can be carried out by revising the syllabus of specific courses.</p> <p>Action2: The faculty of the laboratory courses was advised to conduct more demonstration classes.</p> <p>Action3: Students will be encouraged to participate in co curricular activities that contribute to the PO as student port folio contributed less.</p>			

Action4: To strengthen the portfolio components students will be encouraged to undergo certification programs, participate in workshops, etc.
Action5: The attainment levels through contribution of placements and higher studies can be further improved by introducing courses that enhance the employability skills.

PO	Target	Attained	Observation
PO3: 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.	60	70.13	1. The number of course mapped to this PO is 58. Seven courses have not reached the desired attainment level.

Action1: It can be improved by introducing the programming/ Design concept in the syllabus of relevant courses.
Action2: The attainments of the courses with complex engineering problems are to be improved by giving more design based assignments with follow up action.

PO	Target	Attained	Observation
PO4: 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.	65	69.08	1. Five out of 27 courses that are correlated to this PO have not got significant attainment values.

Action1: Strengthening of attainment of Laboratory courses can be achieved by upgrading Laboratory infrastructure.
Action2: The knowledge applying level at interpretation of data in the lab courses can be further improved by incorporating application based viva questions.
Action3: The students will be further encouraged to refer journal/Conference papers to improve innovative skills in specific courses.
Action4: The faculty of the laboratory courses was advised to conduct more demonstration classes.

PO	Target	Attained	Observation
PO5: 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.	65	67.28	1. Out of 20 courses that are contributing to PO5, eight got less attainment.

Action1: As this PO is marginally attained, further improvement can be achieved by upgrading the students knowledge in advanced programming.
Action2: The faculty is suggested to motivate the students to practice beyond the academic hours in laboratory with the help of ICT tools.
Action 3: The concerned faculty is advised to allot relevant additional problems for practice.
Action4: Students will be encouraged to participate in multiple number of online courses.

PO	Target	Attained	Observation
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PO6: 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	60	69.82	Out of 14 courses that are contributing to PO5, two got less attainment.
Action1: Participation in self learning courses will be further improved.			
Action2: Introducing of courses that improves skills can be incorporated in the curriculum.			
PO	Target	Attained	Observation
PO7: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development	60	73.27	Contribution through extension activity is lagging
Action1: The students will be encouraged to participate in activities that contribute to the society like NCC and NSS.			
PO	Target	Attained	Observation
PO8: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice	60	74.45	Contribution through extension activity is lagging
Action1: To further strengthen the attainment, participation in extracurricular and co curricular activities is made mandatory in revised regulations , students will be encouraged to participate in various activities to enhance their skills.			
Action2: Student should be more encouraged towards participation in portfolio components.			
PO	Target	Attained	Observation
PO9: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings	60	70.44	Contribution as an individual in the courses like laboratories is slightly low.
Action1: students are to encouraged do laboratory experiment and participate in seminars independently; instructed to do projects as a team work.			
Action2: Participation of extracurricular and co curricular activities is made mandatory in revised regulations within which students will be encouraged to participate in various activities to enhance their skills.			
Action3: Leadership qualities can be further improved by increasing the student participation in various events.			
PO	Target	Attained	Observation
PO10: 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	60	73.3	Contribution as an individual in the courses like laboratories is slightly low.
Action1: Further improvement can be achieved by upgrading the students knowledge in advanced programming			
PO	Target	Attained	Observation
PO11: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one own work, as a member and	60	67.78	Contribution as an individual in the courses like laboratories is

leader in a team, to manage projects and in multidisciplinary environments.			slightly low.
Action1: The faculty of the laboratory courses was advised to conduct more demonstration classes.			
PO	Target	Attained	Observation
PO12: 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.	60	71.79	1. 55 out of 64 courses that are mapped to this PO have attained the target comfortably. 8 courses bit lagging in the attainment level.
Action1: The awareness on technological changes can be created by insisting the students to participate in all possible number of domain specific activities/events/ programs.			
Action2: The faculty of the laboratory courses was advised to conduct more demonstration classes.			
PSO	Target	Attained	Observation
PSO1: Design and develop modern communication technologies for building the inter disciplinary skills to meet current and future needs of industry.	70	74.35	1.Out of 75 courses, 25courses are mapped to this PSO. Only for 6 courses the attainment levels are away from the targets.
Action1: The course instructors are advised to make the students to practice the concepts taught in the class in laboratory using relevant tools.			
Action2: The course instructors are instructed to make the students to practice the advanced concepts in communication laboratory, and, so that they can get knowledge in Implementation of real time applications.			
Action3: Course outcomes can be refined and can be made design/development specific.			
Action4: To strengthen the portfolio components students can be trained on numerous value added courses.			
PSO	Target	Attained	Observation
PSO2: Design and Analyze Analog and Digital Electronic Circuits or systems and Implement real time applications in the field of VLSI and Embedded Systems using relevant tools	70	70.28	1. 31courses are mapped to this PO among 75 courses. Only for 14 courses the attainment levels are away from the targets 2. Contribution by indirect attainment is slightly low.

Action1: Design and analysis portion of the relevant core courses can be further improved by revising the syllabus to the possible extent.
Action2: Workshops on latest technologies are being arranged to make the students to get more exposure to real time applications and challenges.
Action3: Student will be encouraged to actively participate in solving real time applications via mini project and main projects.
Action4: In addition to existing regular courses, students are encouraged to participate in add on courses in specific domain.

PSO	Target	Attained	Observation
PSO3: Apply the Signal processing techniques to synthesize and realize the issues related to real time applications.	70	73.43	1. 13 courses are mapped to this PO among 75 courses. Only for 4 courses the attainment levels are away from the targets. 2. Contribution by indirect attainment is slightly low.

Action1: The knowledge applying level of students in the core courses can be further improved by incorporating application based questions.
Action2: Improvement of the domain specific development skills of the students can be strengthened by incorporating design oriented experiments/programs
Action3: Students will be motivated to undergo certification programs in relevant domain.

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