



# LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

Accredited by NAAC with 'A' Grade, ISO 9001:2015 Certified Institution

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

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

## FRESHMAN ENGINEERING DEPARTMENT

PO Attainment for the (Batch 2016-17) A.Y. 2016-17:

Total number of First year Courses under R14 regulation are 42

COURSE CODE	COURSE NAME	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
S132	Applied Mathematics - I	74	74	74									74
S133	Applied Mathematics - II	72	72	72									72
S135	Applied Mechanics	62	62					62					62
S143	Basic Electrical Engineering	66	66	65	68	69							66
S145	Basic Electronics Engineering	65	65	66									65
S146	Basic Engineering Mechanics	60	60		60	60							
S147	Basic Mechanical Engineering	64	64	67	61		63	62	67			61	61
S150	Building Materials and Construction	66					66	66	66	66			66
S156	Circuit Theory	77	77										
S170	Computer Programming	62	62	61									62
S178	Data Structures	68	68	68	73								70
S191	Digital Logic Design	68	67	67	67								70
S209	Electrical Circuits - I	63	62										63
S211	Electrical Circuits and Networks – I	52	52	52									52
S212	Electrical Circuits and Networks – II	66	67	66									66
S224	Electronics Devices and Circuits	65	65	62									65
S232	Engineering Chemistry	67	67	67			66	66					67
S235	Engineering Graphics					51				51		51	51

S237	Engineering Mechanics	74	74	74									74
S238	Engineering Physics	62	62	64	62	63							62
S239	English - I						68			68	68		68
S240	English - II						72			72	72		72
S282	Introduction to Engineering Mechanics	47	47	47	47					47	48	47	48
S288	Mathematics I	72	72	72									72
S299	Mathematics II	73	73	73									73
L113	Basic Mechanical Engineering Lab	75	73	76	74		77	77	81				77
L114	Basic Simulation Lab	78	78			78							78
L115	Building Planning and Computer Aided Drawing					70	70	70					70
L122	Basic Electronics Lab.	58	58	58	58					58	58		58
L123	Computer Aided Engineering Drawing Lab					73				73		73	73
L124	Computer Aided Engineering Graphics Lab					67				67		67	67
L126	Computer Programming Lab	69	69	69	69	69			69		69		69
L128	Data Structures Lab	75	75	75	75				75	75	75		75
L131	Digital Electronics Lab	85	85	85	85	85			85	85	85		
L135	Electrical Circuits and Networks lab	59	59		59	59							
L139	Electronics Devices and Circuits Lab	69	69	70	69	69							
L140	Engineering Chemistry Lab	90	90		90		90	90					
L142	Engineering Physics Lab	86	86	86	86					86			86
L143	Engineering Workshop	77		77	77	77	77			77			77
L144	English Communication skills lab				90					90	90		90
L154	IT Workshop	76			76	73							76

L175	Raptor and Office Suite Lab		70	70	70			80		70		70	70
Average PO		69	68	69	71	69	72	72	74	70	71	62	68
Target		64	64	63	63	62	61	63	64	64	67	63	63

### Actions taken based on the results of evaluation of relevant POs

#### PO Attainment Levels and Actions for improvement: (Batch 2016-17) A.Y. 2016 – 17

The contribution of PO attainments to all POs from all first year courses are analysed and compared with target levels and the actions taken correspondingly are tabulated in table below.

POs	Target Level	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.			
<b>PO1</b>	<b>Target Level</b> 64	<b>Attainment Level</b> 69	<b>Observations on attainments</b> Out of 42 courses 34 courses are mapped with this PO1. The number of courses that attained the target is 26. Courses like ECN I and Engineering Mechanics have marginally low attainment values.
<b>Action 1:</b> For the theory courses the faculty are instructed to give more assignments for the students. <b>Action 2:</b> The faculty handling laboratory courses were advised to conduct more demonstration classes.			
<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.			
<b>PO2</b>	<b>Target Level</b> 64	<b>Attainment Level</b> 68	<b>Observations on attainments</b> 32 courses are mapped to this PO2 and out of these 12 courses reached the targets comfortably. Of the remaining courses Basic Electronics Lab, Engineering Mechanics theory, ECN I attainment values are considerably low.
<b>Action 1:</b> The faculty are suggested to conduct more tutorials to improve the student performance. <b>Action 2:</b> For the laboratory course, faculty are advised to demonstrate the laboratory experiments and allot time for repetition.			
<b>PO3: Design/development of solutions:</b> 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>PO3</b>	<b>Target Level</b> 63	<b>Attainment Level</b> 69	<b>Observations on attainments</b> The number of courses mapped to this PO3 is 26. The courses that reached the target are 21. The remaining courses are marginally less except Basic

			Electronics Lab, ECN I, Engineering Mechanics theory.
	<p><b>Action 1:</b> The attainments of the courses with complex engineering problems are to be improved by giving more assignments with follow up action.</p> <p><b>Action 2:</b> Students should be made to be more attentive while conducting experiments.</p>		
<p><b>PO4: Conduct investigations of complex problems:</b> 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.</p>			
<b>PO4</b>	<p><b>Target Level</b> 63</p>	<p><b>Attainment Level</b> 71</p>	<p><b>Observations on attainments</b> PO4 is mapped with 20 theory as well as laboratory courses. 14 courses reached the target comfortably. Only Basic Electronics Lab and Engineering Mechanics lab are low compared to the other courses.</p>
	<p><b>Action 1:</b> The faculty of theory courses are suggested to conduct more tutorials and inspire students to analyse complex problems.</p> <p><b>Action 2:</b> For Laboratory course it is recommended to give additional experiments for practise.</p>		
<p><b>PO5: Modern tool usage:</b> 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.</p>			
<b>PO5</b>	<p><b>Target Level</b> 62</p>	<p><b>Attainment Level</b> 69</p>	<p><b>Observations on attainments</b> 14 courses are mapped with PO5 and out of these 11 courses reached the targets comfortably. Of the remaining courses Engineering Graphics, Basic Engineering Mechanics and ECN Lab are considerably low.</p>
	<p><b>Action 1:</b> The faculty are instructed to motivate the students to practice beyond the academic hours in laboratory.</p> <p><b>Action 2:</b> The concerned faculty are advised to allot relevant additional problems for practise.</p>		
<p><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.</p>			
<b>PO6</b>	<p><b>Target Level</b> 61</p>	<p><b>Attainment Level</b> 72</p>	<p><b>Observations on attainments</b> 9 courses are mapped to this PO6 and all the courses reached the target including theory and laboratory.</p>
	<p><b>Action 1:</b> The faculty are appreciated for working towards the target attainment of the course and instructed to maintain the same.</p>		
<p><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.</p>			
<b>PO7</b>	<p><b>Target Level</b> 63</p>	<p><b>Attainment Level</b> 72</p>	<p><b>Observations on attainments</b> The number of courses mapped to this PO7 is 8. The courses that reached the target are 6. The remaining two theory courses that are slightly less are Applied Mechanics, Basic Mechanical Engineering.</p>
	<p><b>Action 1:</b> The faculty are instructed to teach and give practical approach of the topics in view of long term goals like environment and sustainability.</p>		

	<b>Action 2:</b> It is advised to form a club based on environmental activities and the first year students should be involved in the club activities.		
<b>PO 8: Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
<b>PO8</b>	<b>Target Level</b> 64	<b>Attainment Level</b> 74	<b>Observations on attainments</b> 6 courses are mapped to this PO8 and all the courses reached the target including theory and laboratory courses.
<b>Action 1:</b> Faculty are advised to instruct the first year students about the importance of ethics in the engineering profession. <b>Action 2:</b> Faculty are advised to instruct students to follow ethical values while doing the experiments and also while writing records.			
<b>PO 9: Individual and team work:</b> Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.			
<b>PO9</b>	<b>Target Level</b> 64	<b>Attainment Level</b> 70	<b>Observations on attainments</b> PO9 is mapped with 14 theory as well as laboratory courses. 12 courses reached the target comfortably. Only Engineering Graphics and Introduction to Engineering Mechanics are low compared to the other courses.
<b>Action 1:</b> Students are encouraged to participate in team/group activities in laboratory sessions. <b>Action 2:</b> The concerned faculty are advised to allot relevant projects to work in team to improve the student performance. <b>Action 3:</b> It is advised to form Environmental and Literary club for the students to encourage and develop individual and team activities.			
<b>PO 10: 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>PO10</b>	<b>Target Level</b> 67	<b>Attainment Level</b> 71	<b>Observations on attainments</b> The number of courses mapped to this PO10 is 8. The courses that reached the target are 6. The remaining two theory courses that are slightly less are Introduction to Engineering Mechanics, Basic Electronics Lab.
<b>Action 1:</b> Classes on communication and soft skills, analytical aptitude, and technical skills are arranged by the college every year apart from regular classes as per schedule. <b>Action 2:</b> Group discussion / Role play/ Debate/ Quiz/Essay Writing /Elocution competitions are encouraged at regular intervals.			
<b>PO 11: 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>PO11</b>	<b>Target Level</b> 63	<b>Attainment Level</b> 62	<b>Observations on attainments</b> Only 6 courses are mapped with PO11. 4 courses reached the target comfortably. Only Engineering Graphics and Introduction to Engineering Mechanics attainment values are low compared to

			the other courses.
	<p><b>Action 1:</b> Motivate the students to select the projects on management principles and finance related.</p> <p><b>Action 2:</b> Inspire the students to involve themselves in technical fests related to managing the financial issues.</p> <p><b>Action 3:</b> Instructed students to give more number of problems for practise.</p>		
<b>PO 12: 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.			
PO12	<p><b>Target Level</b> 63</p>	<p><b>Attainment Level</b> 68</p>	<p><b>Observations on attainments</b></p> <p>36 courses are mapped to this PO12 and out of these 29 courses attained the target comfortably. The remaining courses are marginally less and only ECN-I, Engineering Graphics, Introduction to Engineering Mechanics courses are low</p>
	<p><b>Action 1:</b> Students are encouraged to understand the concept of life-long learning by conducting expert lectures/professionals talks.</p> <p><b>Action 2:</b> Inculcate the habit of setting short and long term goals in students.</p>		