PO Attainment values of all first year courses (A.Y. 2018-19)

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
17CE01	Building Materials and Construction	76	76				78	76					76
17CE02	Applied Mechanics	73	73										73
17CE03	Surveying	75	74	74									72
17CE60	Computer Based Engineering Drawing Lab	76		76		76					76		76
17CE61	Civil Engineering Drafting Techniques Lab	70	70	68		68							70
17CE62	Survey Field Work Lab	76	75		75	75				75	75		
17CI01	Computer Programming	77	77	77									77
17CI02	Digital Logic Design	71	71	71	71								70
17CI05	Data Structures	73	73	73	78								73
17CI60	Computer Programming Lab	70	70	70	70	70			79	79	79		70
17CI61	IT Workshop	73			73	73			92	92	92		73
17CI63	Data Structures Lab	70	70	70	70				82	82	82		70
17CS60	Digital Logic Design Lab	71	73	72	72	72			96	96	96		
17EC01	Electrical Circuits and Networks	74	74	74	75								74
17EC02	Electronic Devices and Circuits	78	79	77									78
17EC03	Analog Electronic Circuits	67	67	67									67
17EC04	Digital Electronic Circuits	67	67	68									67

17EC60	Electrical Circuits and Networks Lab	64	64	64	64	64			97	97	97		97
17EC61	Electronic Devices and Circuits Lab	66	65	67	65	65			92	92	92		92
17EC62	Analog and Digital Electronic Circuits Lab	63	63	63	63	63			83	83	83		83
17EE01	Electronic Circuits and Devices	69				69							70
17EE50	Basic Electrical and Electronics Engineering	74	74			73							74
17EE52	Basic Electrical Engineering	76	77			75							75
17EE60	Electronic Circuits and Devices Lab	68		62		68			68	68	68	68	66
17EE71	Basic Electrical Engineering Lab	64	60		63	61				64	64		64
17EE72	Basic Electrical and Electronics Engineering Lab	75	74		74					74	74		75
17EI01	Material Science and Engineering	74	76	75	72								
17FE01	Professional Communicatio ns – I		85		84		85			84	84		84
17FE02	Professional Communicatio ns – II		83		83		83			83	83		83
17FE04	Differential Equations and Linear Algebra	75	75		75								75
17FE05	Differential Equations and Numerical Applications	77	77		77								77

17FE06	Transformation Techniques and Vector Calculus	72	72		72								72
17FE12	Applied Physics	77	77	77	77								77
17FE13	Engineering Physics	73	73	74	73								73
17FE14	Applied Chemistry	76	76	76			76	77					76
17FE15	Engineering Chemistry	77	77	76			78	77					78
17FE60	English Communicatio n Skills Lab				89					89	89		89
17FE62	Applied Physics Lab	73	73	74	73					73			73
17FE63	Engineering Physics Lab	75	75	75	75					75			75
17FE64	Applied Chemistry Lab	73	73	74	75		74	73	84	84	84		77
17FE65	Engineering Chemistry Lab	77	77	76	75		76	77	85	85	85		80
17ME01	Engineering Graphics	65	66	65		65	61			65	65		65
17ME02	Engineering Mechanics	69		69									69
17ME50	Basic Engineering Mechanics	67	69	69				66			69		69
17ME51	Thermal and Hydro Prime Movers	77	77	78	77	77	78						77
17ME60	Engineering Workshop	72		72	72	72	72			72			72
17ME61	Engineering Mechanics and Fuel Testing Lab									68	68		68
17ME62	Computer Aided Engineering Graphics Lab	68				69	67						69
17ME75	Computer Aided Engineering Drawing Lab	68				69	69						69
17ME76	Thermal and Hydro Prime Movers Lab	62	66	68	64	71	64						

PO attainment	72	73	71	**73**	70	**74**	**74**	86	80	80	68	74
Target(Average of Previous Regulation)	69	69	69	72	68	75	75	73	72	71	67	70

PO Attainment Levels and Actions for improvement: A.Y. (2018 – 19)

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 below table. However overall attainments of POs+PSOs depend on all the remaining courses of study in the specific UG program.

<table>
<tr><td>POs</td><td>Target (%)</td><td>Attainment (%)</td><td>Observations – Target reached</td></tr>
<tr><td colspan="4">PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.</td></tr>
<tr><td rowspan="2">PO1</td><td>Target (%)</td><td>Attainment (%)</td><td rowspan="2">Observations – Target reached
Out of 50 courses, 46 courses are contributing to PO1. Totally 34 courses including theory and laboratory attained the target and of the remaining courses only one is considerably low.</td></tr>
<tr><td>69</td><td>72</td></tr>
<tr><td></td><td colspan="3">Action 1: For the Laboratory courses, videos should be made available to the students on engineering application before coming to the class.
Action 2: Conduct Seminar/workshop to understand the various applications of basic sciences in engineering problems.</td></tr>
<tr><td colspan="4">PO2: 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.</td></tr>
<tr><td rowspan="2">PO2</td><td>Target (%)</td><td>Attainment (%)</td><td rowspan="2">Observations – Target reached
PO2 is mapped with 40 courses. 32 courses reached the target levels and remaining 8 courses attainments are slightly less.</td></tr>
<tr><td>69</td><td>73</td></tr>
<tr><td></td><td colspan="3">Action 1: For the laboratory courses, faculty are advised to demonstrate the laboratory experiments and allot time for repetition.
Action 2: Inclusion of bridge classes for first year students who join the program late is recommended to enhance the analysis in problem solving.</td></tr>
<tr><td colspan="4">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.</td></tr>
<tr><td rowspan="2">PO3</td><td>Target (%)</td><td>Attainment (%)</td><td rowspan="2">Observations – Target reached
The number of courses mapped to this PO3 is 32. The number of courses that reached the target levels is 23. All the remaining courses are laboratory courses.</td></tr>
<tr><td>69</td><td>71</td></tr>
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<tr><td></td><td colspan="3">Action 1: Encourage students to join clubs like Prakruthi club, Saheli club to identify and develop solution for environmental and societal problems.
Action 2: For the laboratory courses the students should be instructed to come with valid conclusions about that particular experiment using video lectures before coming to the laboratory.</td></tr>
<tr><td colspan="4">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.</td></tr>
<tr><td rowspan="2">PO4</td><td>Target (%)</td><td>Attainment (%)</td><td rowspan="2">Observations – Target reached
29 courses are mapped to this PO4. The number of courses that reached the target are 21 and the remaining courses are laboratory courses.</td></tr>
<tr><td>72</td><td>73</td></tr>
<tr><td></td><td colspan="3">Action 1: Faculty are instructed to demonstrate laboratory experiments using video lectures in order to motivate students.
Action 2: For Laboratory courses it is recommended to give additional experiments for practise to enhance the interest of the students.</td></tr>
<tr><td colspan="4">PO5: 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.</td></tr>
<tr><td rowspan="2">PO5</td><td>Target (%)</td><td>Attainment (%)</td><td rowspan="2">Observations – Target reached
The number of courses mapped to PO5 is only 20. The courses that reached the target level are 15 and for 5 laboratory courses attainment levels are slightly less.</td></tr>
<tr><td>68</td><td>70</td></tr>
<tr><td></td><td colspan="3">Action 1: The faculty are instructed to motivate the students to practice beyond the academic hours in laboratory with the help of IT tools.
Action 2: Conduct seminar/workshop on modern tools usage in their relevant engineering fields to create interest on the courses.</td></tr>
<tr><td colspan="4">PO6: 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.</td></tr>
<tr><td rowspan="2">PO6</td><td>Target (%)</td><td>Attainment (%)</td><td rowspan="2">Observations
Of the 50 courses, only 13 courses are mapped to this PO. Only one course reached the target level and for 6 courses the attainment levels are away from the target levels.</td></tr>
<tr><td>75</td><td>74</td></tr>
<tr><td></td><td colspan="3">Action 1: The faculty are instructed to organise expert talks on practical examples relevant to engineering practices to enhance skills to handle problems in the societal context.
Action 2: The faculty are advised to allot a few topics for seminar related to society and the course content to present in the class room.</td></tr>
<tr><td colspan="4">PO7: 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.</td></tr>
<tr><td>PO7</td><td>Target (%)</td><td>Attainment (%)</td><td>Observations
PO7 is mapped with only 6 courses and 4 courses reached the target and for 2 courses attainment levels are</td></tr>
</table>

			marginally less.
	75	**74**	
	Action 1: It is advised to encourage more number of first year students to participate in the Prakruthi club activities**.** **Action 2:** To create awareness on environment and sustainability, involve the students on projects like Azola farming, Mushroom cultivation, etc.		
PO 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	**Target (%)**	**Attainment (%)**	**Observations – Target reached** Only 10 courses are mapped to this PO 8 and except one course, all other courses have reached the target comfortably.
	73	**86**	
	Action 1: Faculty are advised to instruct the first year students about the importance of ethics in the engineering profession. **Action 2:** Faculty are advised to instruct students to follow ethical values while doing the experiments and also while writing records. **Action 3**: Motivate the students on real life case study problems to debate on ethical decision and judgements.		
PO 9: Individual and team work: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.			
PO9	**Target (%)**	**Attainment (%)**	**Observations – Target reached** PO9 is mapped with 21 courses. Among them except for 3 laboratory courses almost all courses reached the target.
	72	**80**	
	Action 1: Students are encouraged to participate in team/group activities in laboratory sessions. **Action 2:** Faculty are instructed to see that the students give individual presentation periodically. **Action 3**: Students are encouraged to participate in individual and team activities in Environmental and literary clubs activities.		
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.			
PO10	**Target (%)**	**Attainment (%)**	**Observations – Target reached** Out of 50 courses 20 courses are mapped to this PO13. Only for 5 courses the attainment levels are away from the targets.
	71	**80**	

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<tr><td></td><td colspan="3">Action 1: 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.
Action 2: More students are encouraged to participate in Group discussion / Role play/ Debate/ Quiz/Essay Writing /Elocution competitions which are conducted at regular intervals by Spoorthi, the Literary club.
Action 3: Regularly organizing the student association activities at the department level.</td></tr>
<tr><td colspan="4">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.</td></tr>
<tr><td rowspan="2">PO11</td><td>Target (%)</td><td>Attainment (%)</td><td rowspan="2">Observations – Target reached
Only 1 course is mapped to this PO11 and course target is attained comfortably. Though the target is reached, identify the students having less interest in engineering and management principles and applications.</td></tr>
<tr><td>67</td><td>68</td></tr>
<tr><td></td><td colspan="3">Action 1: Motivate these students to select the projects on management principles and finance related.
Action 2: Inspire these students to involve themselves in technical fests related to managing the financial issues.</td></tr>
<tr><td colspan="4">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.</td></tr>
<tr><td rowspan="2">PO12</td><td>Target (%)</td><td>Attainment (%)</td><td rowspan="2">Observations – Target reached
In total 46 courses are mapped with PO12. The number of courses that reached the target level is 36 and for the remaining 10 courses attainment levels are marginally less.</td></tr>
<tr><td>70</td><td>74</td></tr>
<tr><td></td><td colspan="3">Action 1: To understand the concept of life-long learning it is instructed to conduct expert lectures/professionals talks.
Action 2: Inculcate the habit of setting short and long term goals in students.
Action 3: Regularly organize the student association activities at the department level.</td></tr>
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