



POORNIMA

COLLEGE OF ENGINEERING

Promoted by Shanti Education Society, Affiliated to Rajasthan Technical University & Approved by AICTE

Department of Electrical Engineering Session 2021-22

CO, PO and PSO Target and Attainment and Observations and Action Taken Report (EE)

1.1 CO-Target and Attainment

S. No.	Course Code	Course Name	Batch	Year	Average Target	Cumulative Attainment
1	1FY2-01	Engineering Mathematics-I	2021-25	I Year	2.10	1.27
2	1FY2-02	Engineering Physics			2.00	0.73
3	1FY1-05	Human Values			2.20	1.50
4	1FY3-06	Programming for Problem Solving			2.00	1.21
5	1FY3-09	Basic Civil Engineering			2.00	1.16
6	1FY2-20	Engineering Physics Lab			1.58	0.39
7	1FY1-23	Human Values Activities and Sports			1.80	0.68
8	1FY3-24	Computer Programming Lab			3.00	1.11
9	1FY3-27	Basic Civil Engineering Lab			1.86	1.05
10	1FY3-28	Computer Aided Engineering Graphics			1.87	1.37
11	2FY2-01	Engineering Mathematics-II			2.00	1.09
12	2FY2-03	Engineering Chemistry			2.00	0.96
13	2FY1-04	Communication Skills			2.00	0.93
14	2FY3-07	Basic Mechanical Engineering			1.75	0.63
15	2FY3-08	Basic Electrical Engineering			2.00	1.25
16	2FY2-21	Engineering Chemistry Lab			1.87	1.85
17	2FY1-22	Language Lab			2.00	1.84
18	2FY3-25	Manufacturing Practices Workshop			1.87	0.65
19	2FY3-26	Basic Electrical Engineering Lab			2.08	0.70
20	2FY3-29	Computer Aided Machine Drawing			1.87	1.82
21	3EE2-01	Advance Mathematics	2020-24	II Year	2.80	2.56
22	3EE1-02	Technical Communication			2.83	2.67
23	3EE3-04	Power Generation Process			2.57	2.06
24	3EE4-05	Electrical circuit analysis			2.52	1.97
25	3EE4-06	Analog Electronics			2.45	1.93
26	3EE4-07	Electrical Machine-I			2.53	1.92
27	3EE4-08	Electromagnetic field			2.25	1.26
28	3EE4-21	Analog Electronics Lab			2.36	1.97
29	3EE4-22	Electrical Machine-I Lab			2.37	1.98
30	3EE4-23	Electrical circuit Design Lab			2.47	2.06
31	3EE7-30	Industrial Training			1.82	2.19

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32	4EE2-01	Biology			2.50	1.72
33	4EE1-03	Managerial Economics and financial Accounting			2.64	1.95
34	4EE3-04	Electronic Measurement & Instrumentation			2.54	1.42
35	4EE4-05	Electrical Machine - II			2.39	1.34
36	4EE4-06	Power Electronics			2.29	1.28
37	4EE4-07	Signals & Systems			2.75	1.58
38	4EE4-08	Digital Electronics			2.66	1.49
39	4EE4-21	Electrical Machine – II Lab			2.57	1.94
40	4EE4-22	Power Electronics Lab			2.33	1.97
41	4EE4-23	Digital Electronics Lab			2.66	2.09
42	4EE4-24	Measurement Lab			2.52	2.28
43	5EE3-01	Electrical Materials	2019-23	III Year	2.52	1.99
44	5EE4-02	Power System - I			2.41	1.77
45	5EE4-03	Control System			2.90	2.23
46	5EE4-04	Microprocessor			2.69	2.20
47	5EE4-05	Electrical Machine Design			2.75	2.31
48	5EE5-11	Restructured Power System			2.35	1.51
49	5EE4-21	Power System - I Lab			2.59	2.13
50	5EE4-22	Control System Lab			2.31	1.80
51	5EE4-23	Microprocessor Lab			2.49	1.90
52	5EE4-24	System Programming Lab			2.40	1.77
53	5EE7-30	Industrial Training			2.70	2.17
54	6EE3-01	Computer Architecture			2.46	1.91
55	6EE4-02	Power System - II			2.53	1.81
56	6EE4-03	Power System Protection			2.40	1.98
57	6EE4-04	Electrical Energy Conversion and Auditing			2.58	2.06
58	6EE4-05	Electric Drives			2.20	2.13
59	6EE5-11	Power System Planning.			2.41	1.83
60	6EE5-13	Electrical and Hybrid Vehicles.			2.85	2.32
61	6EE4-21	Power System - II Lab			2.63	1.95
62	6EE4-22	Electric Drives Lab			2.69	2.34
63	6EE4-23	Power System Protection Lab			2.27	1.65
64	6EE4-24	Modelling and simulation lab			2.67	2.46
65	7EE5-11	Wind and Solar Energy Systems.	2018-22	IV Year	2.47	1.62
66	7EE4-12	Power Quality and Facts			2.62	2.06
67	7EE6-60.1	Electrical Machines and Drives			2.00	1.15
68	7EE6-60.2	Power Generation Sources			2.55	1.79

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69	7EE4-21	Embedded Systems Lab			2.43	1.87
70	7EE4-22	Advance control system lab			2.65	2.02
71	7EE7-30	Industrial Training			2.63	2.07
72	7EE7-40	Seminar			2.76	2.58
73	8EE4-11	HVDC Transmission System.			2.45	1.75
74	8EE4-13	Advanced Electric Drives			2.70	2.20
75	8EE6-60.1	Energy Audit and Demand side Management			2.56	2.13
76	8EE6-60.2	Soft Computing			2.58	2.00
77	8EE4-21	Energy Systems Lab			2.70	2.35
78	8EE7-50	Project			2.86	2.65

1.2 PO and PSO-Target and Attainment

S. No.	PO and PSO	Batch	Year	Average Target	Average Attainment
1	PO1: Engineering knowledge	2021-25	I Year	2.92	1.70
2	PO2: Problem analysis			2.42	1.62
3	PO3: Design/development of solutions			2.22	1.70
4	PO4: Conduct investigations of complex problems.			2.00	1.53
5	PO5: Modern tool usage			2.06	1.40
6	PO6: The engineer and society			2.31	1.82
7	PO7: Environment and sustainability			2.46	1.97
8	PO8: Ethics			2.45	1.74
9	PO9: Individual and team work.			2.37	1.77
10	PO10: Communication			2.50	1.84
11	PO11: Project management and finance			1.64	1.50
12	PO12: Life-long learning			2.39	1.83
13	PSO1: Fundamental knowledge for the society benefit.			1.62	0.89
14	PSO2: Professionally communicate using modern tools.			1.29	0.89
15	PSO3: Specific knowledge of renewable and green energy, EV and smart grids.			1.41	1.03
16	PO1: Engineering knowledge	2020-24	II Year	2.21	2.19
17	PO2: Problem analysis			1.85	1.47
18	PO3: Design/development of solutions			1.68	1.37



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19	PO4: Conduct investigations of complex problems.			1.42	0.97
20	PO5: Modern tool usage			1.59	1.74
21	PO6: The engineer and society			1.41	1.23
22	PO7: Environment and sustainability			1.70	1.20
23	PO8: Ethics			2.37	1.93
24	PO9: Individual and team work.			1.64	1.98
25	PO10: Communication			2.12	1.89
26	PO11: Project management and finance			1.57	1.37
27	PO12: Life-long learning			1.77	1.49
28	PSO1: Fundamental knowledge for the society benefit.			1.72	0.82
29	PSO2: Professionally communicate using modern tools.			1.77	0.65
30	PSO3: Specific knowledge of renewable and green energy, EV and smart grids.			1.47	0.58
31	PO1: Engineering knowledge			2.50	1.99
32	PO2: Problem analysis			2.17	1.56
33	PO3: Design/development of solutions			2.28	1.31
34	PO4: Conduct investigations of complex problems.			2.33	1.09
35	PO5: Modern tool usage			2.48	2.19
36	PO6: The engineer and society			2.32	1.51
37	PO7: Environment and sustainability			2.31	1.81
38	PO8: Ethics			2.46	1.60
39	PO9: Individual and team work.	2019-23	III Year	2.70	2.02
40	PO10: Communication			2.40	1.97
41	PO11: Project management and finance			2.41	1.87
42	PO12: Life-long learning			2.34	1.62
43	PSO1: Fundamental knowledge for the society benefit.			1.68	0.89
44	PSO2: Professionally communicate using modern tools.			1.37	0.70
45	PSO3: Specific knowledge of renewable and green energy, EV and smart grids.			1.23	0.58
46	PO1: Engineering knowledge	2018-22	IV Year	2.82	1.73
47	PO2: Problem analysis			2.42	1.73
48	PO3: Design/development of solutions			2.08	1.14
49	PO4: Conduct investigations of complex problems.			2.20	1.80

Head of Department
Electrical Engineering
Poornima College of Engineering
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50	PO5: Modern tool usage			2.42	2.12
51	PO6: The engineer and society			2.37	2.63
52	PO7: Environment and sustainability			2.50	2.62
53	PO8: Ethics			2.54	2.65
54	PO9: Individual and team work.			2.51	2.62
55	PO10: Communication			2.47	2.39
56	PO11: Project management and finance			2.26	1.66
57	PO12: Life-long learning			2.45	2.57
58	PSO1: Fundamental knowledge for the society benefit.			1.60	0.93
59	PSO2: Professionally communicate using modern tools.			1.46	1.38
60	PSO3: Specific knowledge of renewable and green energy, EV and smart grids.			1.51	1.14

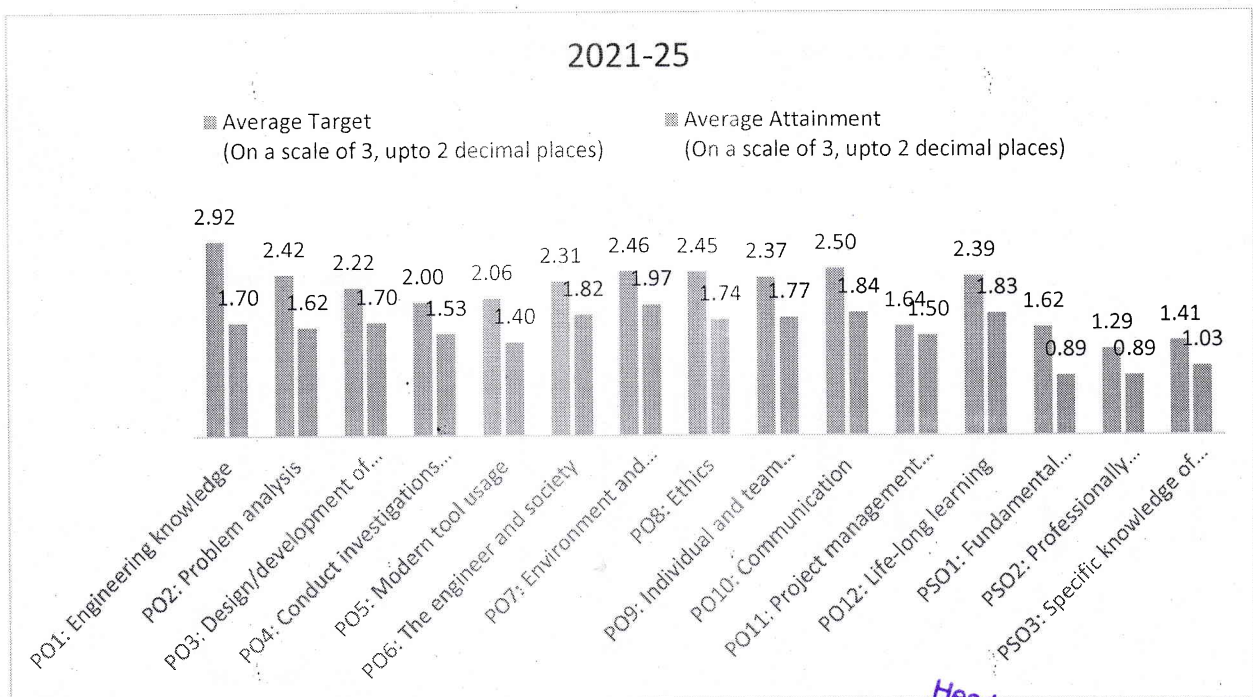


Figure 1.1: PO/PSO Average Target and Attainment Achievement (2021-25)

Head of Department,
Electrical Engineering
Poornima College of Engineering
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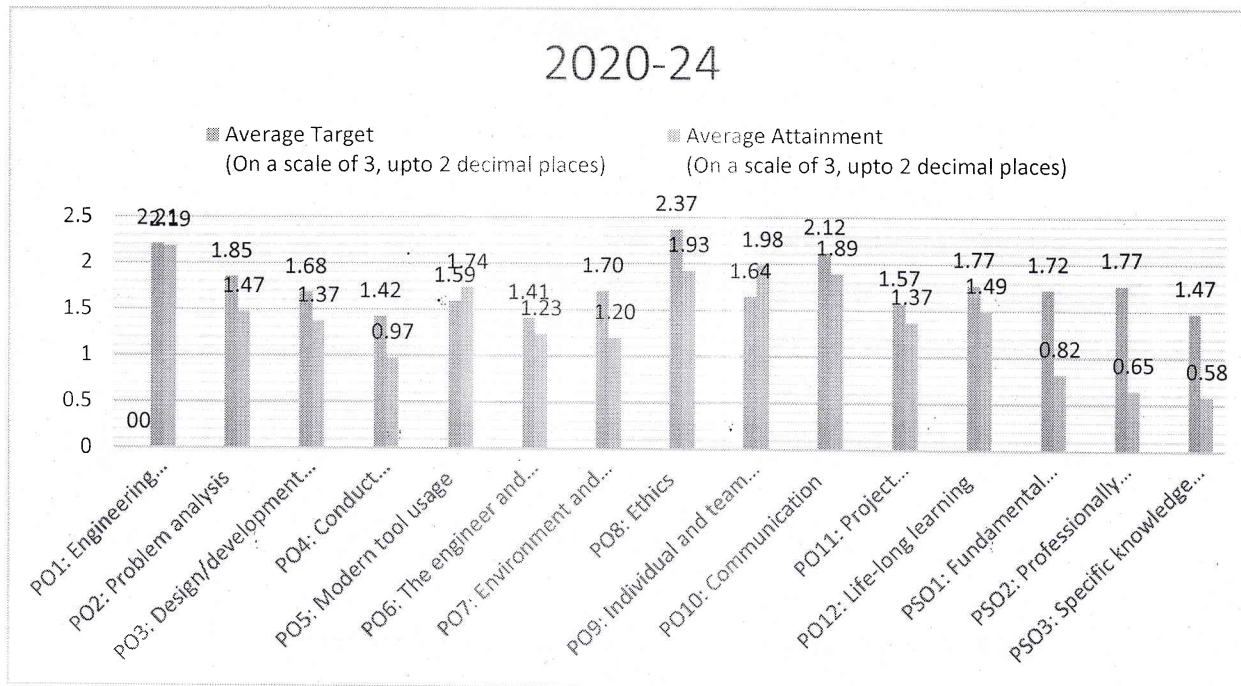


Figure 1.2: PO/PSO Average Target and Attainment Achievement (2020-24)

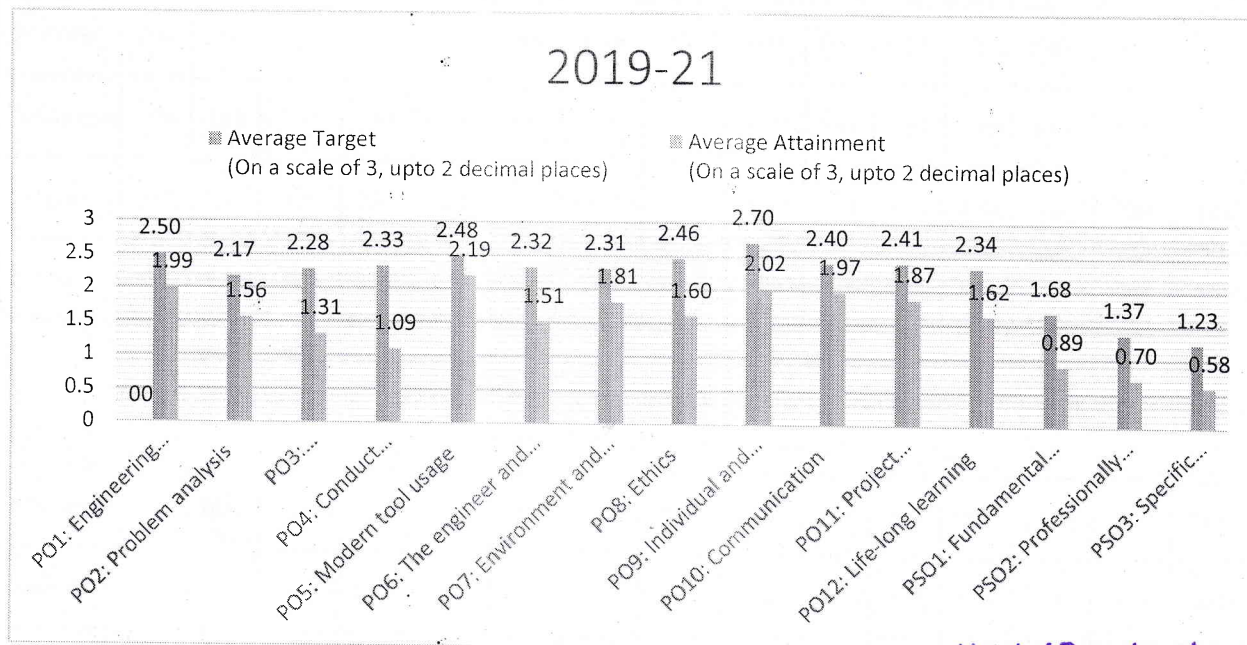


Figure 1.3: PO/PSO Average Target and Attainment Achievement (2019-21)

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Electrical Engineering
Poornima College of Engineering
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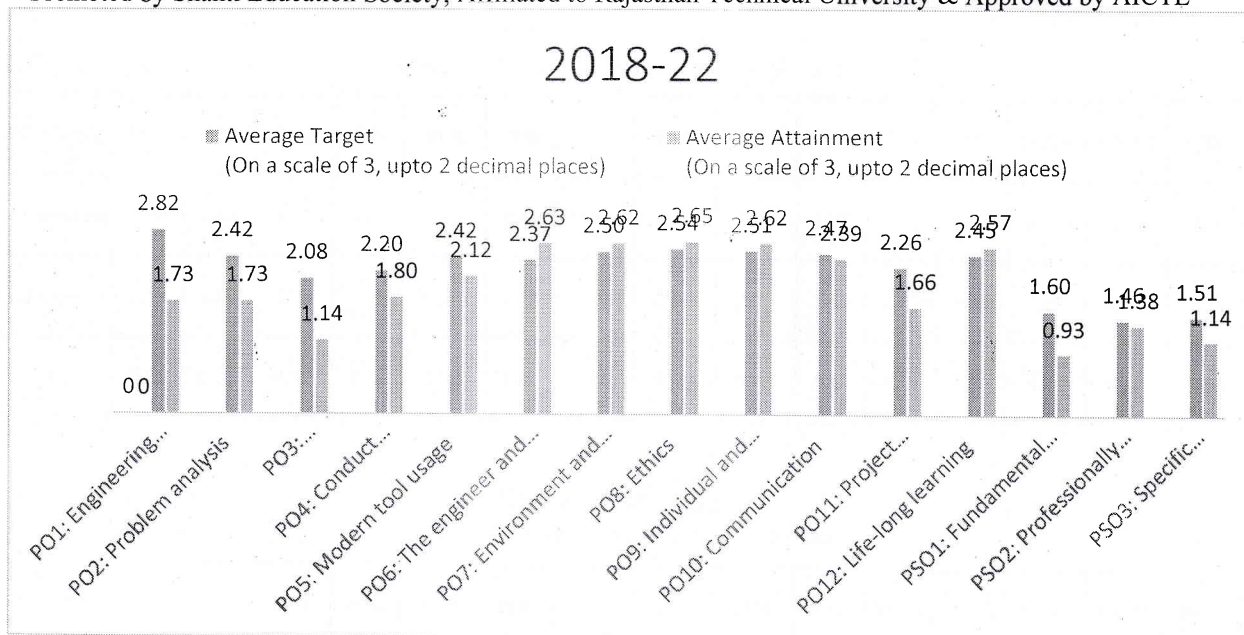


Figure 1.4: PO/PSO Average Target and Attainment Achievement (2018-22)

1.3 Analysis of PO and PSO Attainment

Batch 2021-2025

Table 1.1: PO Attainment, Target and Gaps

POs / PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2	PSO3
Attainment	1.70	1.62	1.70	1.53	1.40	1.82	1.97	1.74	1.77	1.84	1.50	1.83	0.89	0.89	1.03
Target	2.92	2.42	2.22	2.00	2.06	2.31	2.46	2.45	2.37	2.50	1.64	2.39	1.62	1.29	1.41
Gap	1.22	0.80	0.52	0.47	0.66	0.49	0.49	0.71	0.60	0.66	0.14	0.56	0.73	0.40	0.38

Batch 2020-2024

Table 1.2: PO Attainment, Target and Gaps

POs / PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2	PSO3
Attainment	2.19	1.47	1.37	0.97	1.59	1.23	1.20	1.93	1.64	1.89	1.37	1.49	0.82	0.65	0.58
Target	2.21	1.85	1.68	1.42	1.59	1.41	1.70	2.37	1.64	2.12	1.57	1.77	1.72	1.77	1.47
Gap	0.02	0.38	0.31	0.45	0.00	0.18	0.50	0.44	0.00	0.23	0.20	0.28	0.90	1.12	0.89



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Batch 2019-2023

Table 1.3: PO Attainment, Target and Gaps

POs / PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2	PSO3
Attainment	1.99	1.56	1.31	1.09	2.19	1.51	1.81	1.60	2.02	1.97	1.87	1.62	0.89	0.70	0.58
Target	2.50	2.17	2.28	2.33	2.48	2.32	2.31	2.46	2.70	2.40	2.41	2.34	1.68	1.37	1.23
Gap	0.51	0.61	0.97	1.24	0.29	0.81	0.50	0.86	0.68	0.43	0.54	0.72	0.79	0.67	0.65

Batch 2018-2022

Table 1.4: PO Attainment, Target and Gaps

POs / PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2	PSO3
Attainment	1.73	1.73	1.14	1.80	2.12	2.34	2.50	2.52	2.51	2.39	1.66	2.35	0.93	1.38	1.14
Target	2.82	2.42	2.08	2.20	2.42	2.37	2.50	2.54	2.51	2.47	2.26	2.45	1.60	1.46	1.51
Gap	1.09	0.69	0.94	0.40	0.30	0.03	0.00	0.02	0.00	0.08	0.60	0.10	0.67	0.08	0.37

1.4 Observations

Table 1.5: Achieved Level of PO / PSO (Batch 2021-25)

PO / PSO	Achieved Level
-	Below Average (<50%)
PO1, PO2, PO5, PSO1, PSO2	Average (>=50% but <70%)
PO3, PO4, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO3	Above Average (>=70%)

Batch (2021-25): After analysis of the table 1.5 of PO / PSO attainment for batch 2021-25, it has been observed that no attainment are falling below average (<50%). PO1, PO2, PO5, PSO1 and PSO2 are falling below average are attainment on average level (>50% but less than 70%). PO3, PO4, PO6, PO7, PO8, PO9, PO10, PO11, PO12 and PSO3 are above average (>70 %).

Table 1.6: Achieved Level of PO / PSO (Batch 2020-24)

PO / PSO	Achieved Level
PSO1, PSO2, PSO3	Below Average (<50%)
PO4	Average (>=50% but <70%)
PO1, PO2, PO3, PO5, PO6 PO7, PO8, PO9, PO10, PO11, PO12	Above Average (>=70%)

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Batch (2020-24): After analysis of the table 1.6 of PO / PSO attainment for batch 2020-24, it has been observed that attainment PSO1, PSO2 and PSO3 are falling below average (<50%). PO4 is falling below average attainment on average level (>50% but less than 70%). PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO9, PO10, PO11 and PO12 are above average (>70 %).

Table 1.7: Achieved Level of PO / PSO (Batch 2019-23)

PO / PSO	Achieved Level
PO4, PSO3	Below Average (<50%)
PO3, PO6, PO8, PO12, PSO1, PSO2	Average (>=50% but <70%)
PO1, PO2, PO5, PO7, PO9, PO10, PO11	Above Average (>=70%)

Batch (2019-23): After analysis of the table 1.7 of PO / PSO attainment for batch 2019-23, it has been observed that the attainment level of PO4 and PSO3 are falling below average (<50%). PO3, PO6, PO8, PO12, PSO1 and PSO2 are attainment on average level (>50% but less than 70%). The attainment level of PO1, PO2, PO5, PO7, PO9, PO10 and PO11 are above average (>70 %).

Table 1.8: Achieved Level of PO / PSO (Batch 2018-22)

PO / PSO	Achieved Level
-	Below Average (<50%)
PO1, PO3, PSO1	Average (>=50% but <70%)
PO2, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO2, PSO3	Above Average (>=70%)

Batch (2018-22): After analysis of the table 1.8 of PO / PSO attainment for batch 2018-22, it has been observed that the no attainment are falling below average (<50%). PO1, PO3, and PSO1 are attainment on average level (>50% but less than 70%). The attainment level of PO2, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO2 and PSO3 are above average (>70 %).

1.5 Actions Taken

- Industry interactions/Industry sessions are increased for building the problem analysis (PO1) and engineering knowledge (PO2) domain of the students.
- Demonstrations of industry projects are carried out in an interactive sessions with industrial experts to improve the attainment level in PO5.
- Add on courses for hands on in power point presentation, Google meet, and latex are planned for strengthening PSO2.
- Students are encouraged for pursuing the internships in the industries dealing with the renewable energy/smart grids/EV projects for improving the attainment level in PSO3.
- Additional assignments are allotted to students for reporting/tabulating the design and structure of the complex engineering machinery/devices.
- Additional lecture hours are allocated for those courses which are having the lower attainment for PO12.

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