



# NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

(Accredited by NAAC)

Pampady, Thiruvilwamala, Thrissur(DT) – 680 588

(Approved by AICTE, Affiliated to A P J Abdul Kalam Technological University, Kerala)

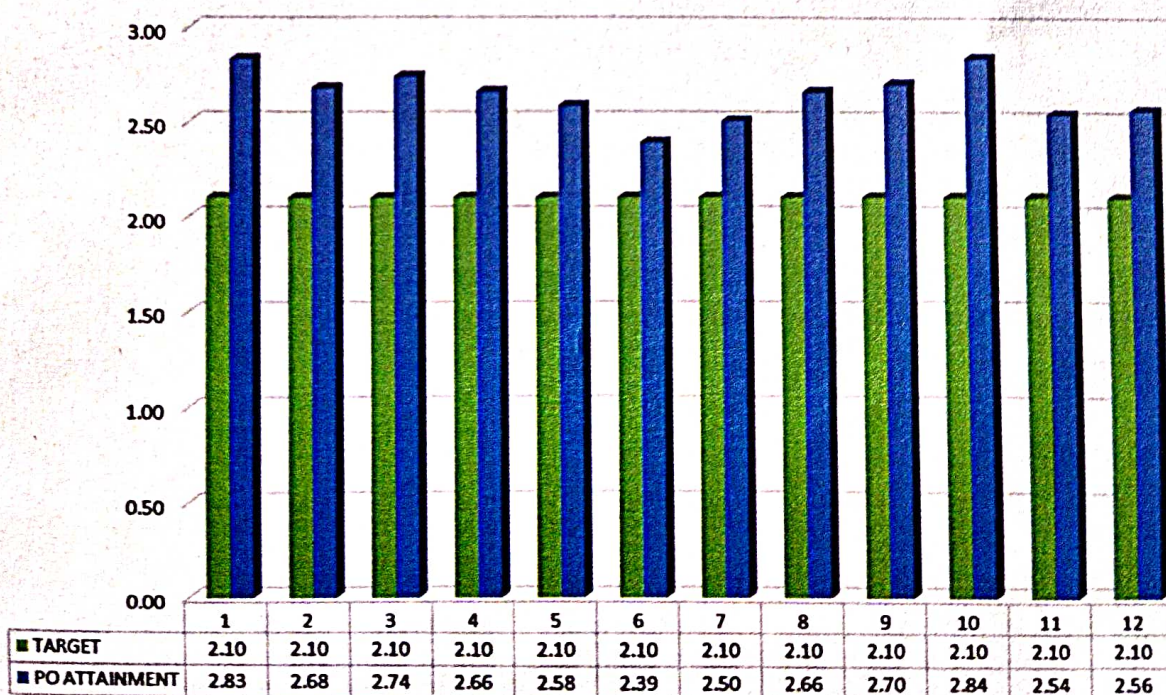


## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

BATCH: 2017-2021

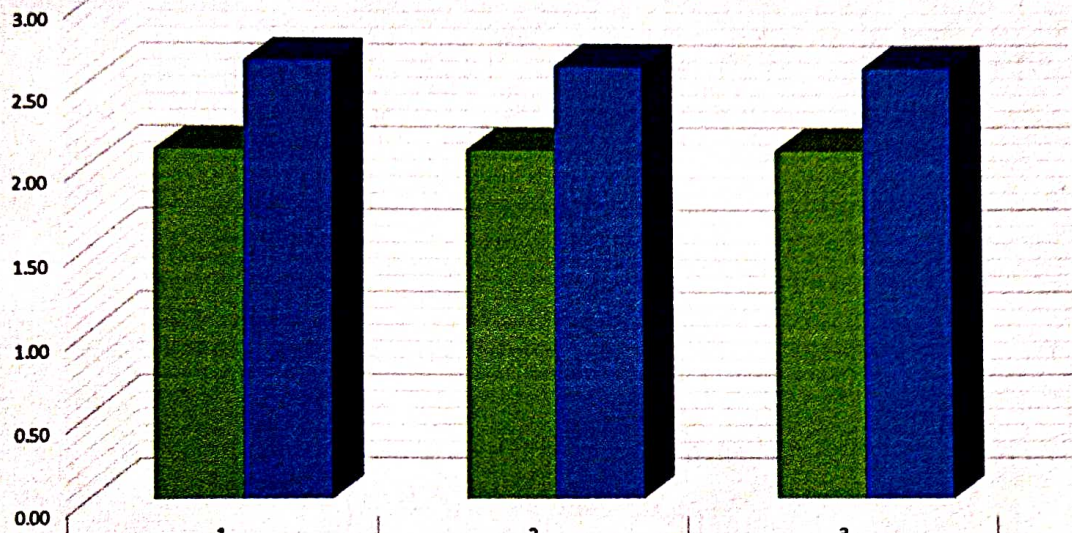
TARGET	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10
DIRECT CO POATTAINMENT	2.81	2.62	2.69	2.60	2.50	2.25	2.41	2.59	2.66	2.82	2.45	2.48	2.56	2.53	2.53
DIRECT CO POATTAINMENT IN 80%	2.25	2.09	2.15	2.08	2.00	1.80	1.93	2.07	2.13	2.25	1.96	1.99	2.05	2.02	2.02
INDIRECT PO ATTAINMENT	2.93	2.92	2.95	2.88	2.94	2.94	2.87	2.915	2.87	2.93	2.895	2.88	2.95	2.95	2.89
INDIRECT PO ATTAINMENT IN 20%	0.586	0.584	0.59	0.576	0.587	0.588	0.574	0.583	0.573	0.586	0.579	0.576	0.589	0.589	0.578
FINAL PO ATTAINMENT	2.83	2.68	2.74	2.66	2.58	2.39	2.50	2.66	2.70	2.84	2.54	2.56	2.64	2.61	2.60

## PO ATTAINMENT





## PSO ATTAINMENT



*[Signature]*  
HoD

*[Signature]*  
PRINCIPAL



**2017-2021**  
**FIRST YEAR ATTAINMENT**



**Programme: B.Tech COMPUTER SCIENCE AND ENGINEERING****Year & Sem: I & S1****Course Code & Name: MA101 CALCULUS**

Reg No	Name	SERIES 1(20)		SERIES 2(20)		ASSIGNMENT(60)		UNIVERSITY GRADE	UNIVERSITY GRADE POINT(10)
		CO1 (10)	CO2 (10)	CO3 (10)	CO4 (10)	CO5 (30)	CO6 (30)		
NCE17CS001	ADITH S	7	6	8	6	27	30	B	7
NCE17CS002	AFSEENA A	7	8	10	10	29	30	B+	8
NCE17CS003	AISWARYA M	8	7	8	9	27	30	B	7
NCE17CS004	AKARSH K MURTHY	9	10	6	8	29	30	B	7
NCE17CS005	AKSHAY SANKER M	6	7	8	7	28	30	B	7
NCE17CS006	AMRUTHA R	8	7	8	7	28	30	B	7
NCE17CS007	ANU P	5	5	2	1	25	30	F	0
NCE17CS008	ANUPAMA V S	6	7	6	6	28	30	C	6
NCE17CS009	C SILPA	11	9	9	8	28	30	A	8.5
NCE17CS010	DEEPIKA R	5	6	8	5	26	29	C	6
NCE17CS011	DEVIKA S NAIR	8	9	8	9	28	30	B+	8
NCE17CS012	DIVYA P	5	5	7	8	27	27	C	6
NCE17CS013	FATHIMA NASREEN K H	6	8	8	10	28	28	B+	8
NCE17CS014	GOUTHAM GOPINATH	7	9	9	7	27	30	F	0
NCE17CS015	LEENU MATHIEW	10	10	10	10	29	30	O	10
NCE17CS016	LIKHA	9	10	9	7	28	28	A	8.5
NCE17CS017	NISHANA N	5	7	8	8	27	27	B	7
NCE17CS018	RISNA C M	6	4	6	4	29	28	C	6
NCE17CS019	ROHIT BHASKAR UDAY	10	8	10	10	28	30	A	8.5
NCE17CS020	SAHLA K	9	8	10	10	29	30	B+	8
NCE17CS021	SANMAYANANDKRISHNA A H	3	4	5	7	29	29	F	0
NCE17CS022	SHIBILA S	7	8	6	7	29	29	F	0
NCE17CS023	SHINU	10	9	10	9	29	27	B+	8
NCE17CS024	SILPA M S	9	10	10	8	29	27	F	0
NCE17CS025	SNEHA A	9	0	5	4	28	27	F	0
NCE17CS026	S SUHAILA	2	10	6	4	28	29	F	0
NCE17CS027	VIPINDAS V R	8	5	9	9	29	30	B	7
NCE17CS028	VISHNU H	3	6	3	6	28	30	F	0
NCE17CS029	VISHNU S	10	5	10	9	29	29	B	7



SLNO.	COURSE CODE	NBA CODE	SUBJECT	COURSE ATTAINMENT
1	MA101	C101	CALCULUS	3.00
2	PH100	C102	ENGINEERING PHYSICS	3.00
3	BE100	C103	ENGINEERING MECHANICS	1.60
4	BE101-05	C104	INTRODUCTION TO COMPUTING AND PROBLEM SOLVING	3.00
5	BE103	C105	INTRODUCTION TO SUSTAINABLE ENGINEERING	3.00
6	EC100	C106	BASICS OF ELECTRONICS ENGINEERING	3.00
7	PH110	C107	ENGINEERING PHYSICS LAB	3.00
8	CS110	C108	COMPUTER SCIENCE WORKSHOP	3.00
9	EC110	C109	ELECTRONICS ENGINEERING WORKSHOP	3.00
10	MA102	C110	DIFFERENTIAL EQUATIONS	3.00
11	CY100	C111	ENGINEERING CHEMISTRY	2.88
12	BE110	C112	ENGINEERING GRAPHICS	2
13	BE102	C113	DESIGN & ENGINEERING	3.00
14	CS100	C114	BASICS OF COMPUTER PROGRAMMING	1.60
15	ME100	C115	BASICS OF MECHANICAL ENGINEERING	3.00
16	CS120	C116	COMPUTER PROGRAMMING LAB	3.00
17	CY110	C117	ENGINEERING CHEMISTRY LAB	3.00
18	ME110	C118	MECHANICAL ENGINEERING WORKSHOP	3.00
19	MA201	C201	LINEAR ALGEBRA & COMPLEX ANALYSIS	3.00
20	CS201	C202	DISCRETE COMPUTATIONAL STRUCTURES	3.00
21	CS203	C203	SWITCHING THEORY AND LOGIC DESIGN	2.64
22	CS205	C204	DATA STRUCTURES	3.00
23	CS207	C205	ELECTRONICS DEVICES & CIRCUITS	3.00
24	HS210	C206	LIFE SKILLS	3.00
25	CS231	C207	DATA STRUCTURES LAB	3.00
26	CS233	C208	ELECTRONICS CIRCUITS CODE	3.00
27	MA202	C209	PROBABILITY DISTRIBUTIONS, TRANSFORMS AND NUMERICAL METHODS	3.00
28	CS202	C210	COMPUTER ORGANIZATION AND ARCHITECTURE	3.00
29	CS204	C211	OPERATING SYSTEMS	3.00
30	CS206	C212	OBJECT ORIENTED DESIGN AND PROGRAMMING	3.00
31	CS208	C213	PRINCIPLES OF DATABASE DESIGN	3.00
32	HS200	C214	BUSINESS ECONOMICS	3.00
33	CS232	C215	FREE AND OPEN SOURCE SOFTWARE LAB	3.00
34	CS234	C216	DIGITAL SYSTEM LAB	3.00
35	CS301	C301	THEORY OF COMPUTATION	3.00
36	CS303	C302	SYSTEM SOFTWARE	3.00
37	CS305	C303	MICROPROCESSOR AND MICROCONTROLLERS	3.00
38	CS307	C304	DATA COMMUNICATION	3.00
39	CS309	C305	GRAPH THEORY AND COMBINATORICS	3.00
40	CS361	C306	SOFT COMPUTING	3.00
41	CS341	C307	DESIGN PROJECT	



42	CS331	C308	SYSTEM SOFTWARE LAB	3.00
43	CS333	C309	APPLICATION SOFTWARE AND DEVELOPMENT LAB	3.00
44	CS302	C310	DESIGN AND ANALYSIS OF ALGORITHMS	2.93
45	CS304	C311	COMPILER DESIGN	2.95
46	CS306	C312	COMPUTER NETWORKS	2.94
47	CS308	C313	SOFTWARE ENGG. & PROJECT MANAGEMENT	2.94
48	HS300	C314	PRINCIPLES OF MANAGEMENT	2.94
49	CS364	C315	MOBILE COMPUTING	2.94
50	CS352	C316	COMPREHENSIVE EXAM	3.00
51	CS332	C317	MICROPROCESSOR LAB	3.00
52	CS334	C318	NETWORK PROGRAMMING LAB	3.00
53	CS401	C401	COMPUTER GRAPHICS	3.00
54	CS403	C402	PROGRAMMING PARADIGM	3.00
55	CS405	C403	COMPUTER SYSTEM ARCHITECTURE	3.00
56	CS407	C404	DISTRIBUTED COMPUTING	2.30
57	CS409	C405	CRYPTOGRAPHY AND NETWORK SECURITY	3.00
58	CS467	C406	MACHINE LEARNING	3.00
59	CS451	C407	SEMINAR AND PROJECT PRILIMINARY	3.00
60	CS431	C408	COMPILER DESIGN LAB	3.00
61	CS402	C409	DATA MINNING AND WAREHOUSING	3.00
62	CS404	C410	EMBEDDED SYSTEMS	3.00
63	CS472	C411	PRINCIPLES OF INFORMATION SECURITY	3.00
64	CS492	C412	PROJECT	3.00

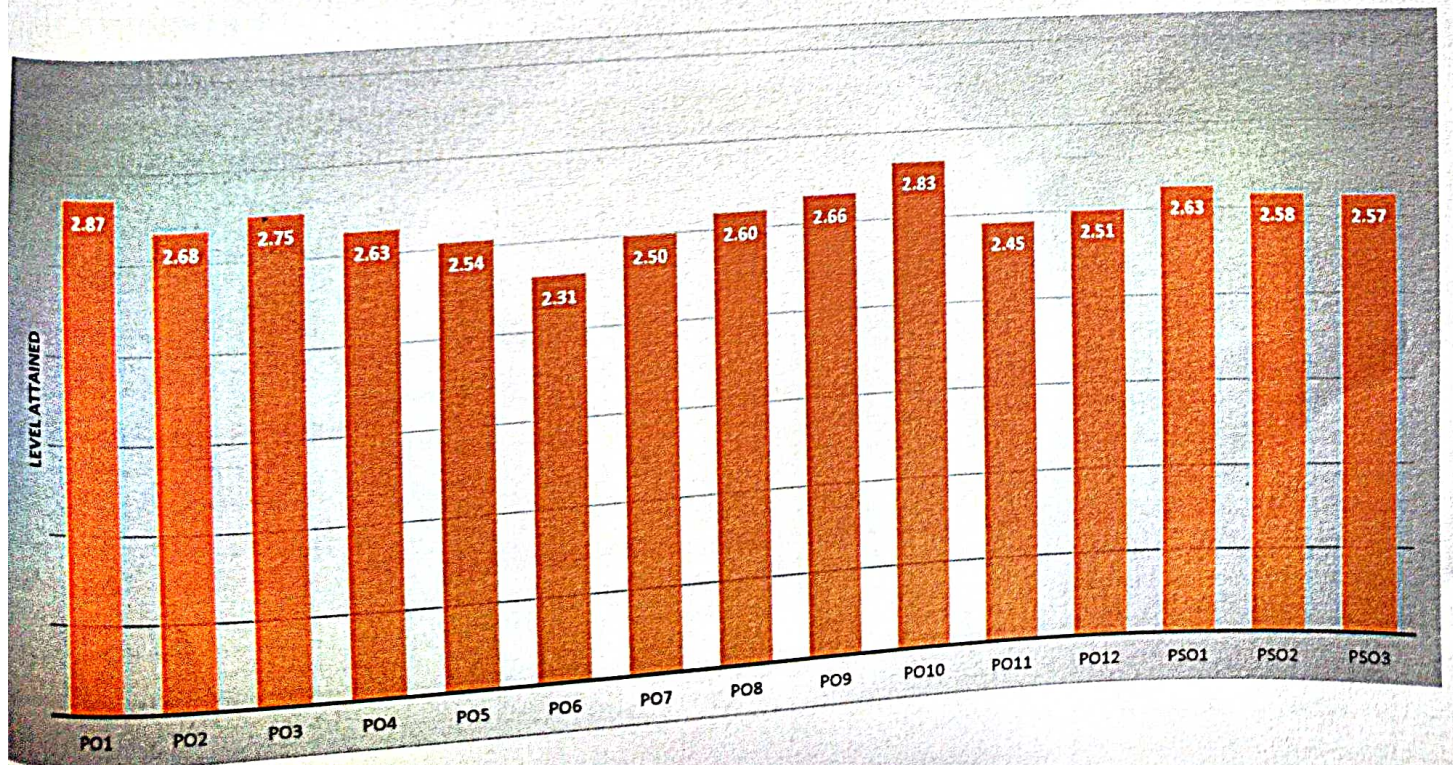


# OVERALL CO PO MAPPING 2017-2021

COURSE CODE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C101	3.00	3.00	3.00	3.00	0	0	0	0	0	0	0	1.00	2.25	2.20	2.00
C102	3.00	3.00	3.00	3.00	0	0	0	0	0	0	0	3.00	2.00	2.00	2.00
C103	3.00	3.00	2.67	0	0	2.20	2.00	0	0	0	0	2.00	2.00	0	0
C104	3.00	3.00	3.00	3.00	3.00	0	0	0	0	0	3.00	2.83	3.00	3.00	2.40
C105	0	0	0	0	0	3.00	3.00	3.00	0	0	0	3.00	0	0	0
C106	3.00	2.00	3.00	3.00	0	0	0	0	0	0	0	2.00	2.00	2.00	2.33
C107	3.00	3.00	0	0	0	0	0	0	3.00	0	0	2.00	0	0	0
C108	3	3	3	3.00	3	0	0	0	0	0	0	3.00	3.00	2.80	3
C109	3	0	2	0	0	0	0	0	3.00	0	0	3	2.00	2	2
C110	2.83	3.00	3.00	3.00	0	0	0	0	0	0	0	2.00	2.00	2.00	2.00
C111	2.67	2.25	2.75	2.75	2.00	2.80	3.00	2.50	0	0	0	2.33	0	0	0
C112	3	2.00	0	3	3.00	0	0	0	3.00	3.00	0	2	2	2	2
C113	2.83	0	3.00	3.00	0	0	0	0	0	0	0	3.00	2.00	2.33	2.00
C114	2.8	2.8	3	3	0	0	0	0	0	0	0	0	3.00	3.00	3
C115	3	2.4	0	0.00	0	2	2	0	0	0	0	3	2.00	2.00	3
C116	3	3.00	3	3.00	0	0	0	0	0	0	0	0	3	3	3
C117	2	2	2	3.00	0	2.00	2.00	0	3	0	0	2	0	0	0
C118	3	2.60	2.6	0	0	0	0	0	3	0	0	3	0	0	0
C201	3	3	3	3	0	0	0	0	0	0	0	3	2	2	2
C202	3.00	3.00	3.00	3.00	0	2.00	0	0	0	0	0	2.00	2.17	2.40	0
C203	3.00	2.00	2.67	0	3.00	0	0	0	0	0	0	0	3.00	2.33	2.33
C204	3.00	2.83	3.00	2.00	2.50	0	0	0	0	0	0	2.00	2.67	3.00	2.33
C205	3	3	3	2.00	2.00	2	0	0	2.00	0	0	0	3	3	2
C206	0	0	2	3.00	0	2	3	3	0	0	2	2	0	0	0
C207	2.67	2.67	3	2.5	2.50	0	0	3	2.60	3.00	0	0	2.50	3.00	2.5
C208	3.00	3.00	3.00	2.00	2.00	2.00	2.00	2.00	2.00	2.40	2.00	2.00	2.00	1.67	2.17
C209	3	3	3	3	0	0	0	0	0	0	0	3	2.5	2.5	3
C210	3.00	2.33	2.33	0	2.00	0	0	0	0	0	0	2.00	2.60	3.00	2.00
C211	3.00	2.20	2.50	2.50	2.25	0	0	3.00	0	0	0	2.50	2.67	3.00	3.00
C212	3.00	3.00	3.00	3.00	3.00	0	0	0	0	0	0	0	2.00	2.00	2.40
C213	3.00	2.67	2.67	2.60	2.60	0	0	0	2.00	0	0	0	3.00	3.00	2.75
C214	0	1	2	0	0	2.00	2.00	2.00	0	2.00	2.00	2	0	0	0
C215	2.67	3.00	2.83	2.00	3.00	0	0	3.00	3.00	3.00	0	3.00	2.67	2.80	3.00
C216	3.00	3.00	3.00	2.00	2.00	0	0	0	0	0	0	0	3.00	2.33	2.33
C301	3	3	3	2.4	2.00	0	0	0	0	0	0	3	3	2.6	0
C302	3	2.8	3	2	0	0	0	0	0	0	0	0	3	2	0
C303	2.00	2.00	3.00	0	0	0	0	0	0	0	0	0	2.20	2.50	2.33
C304	3.00	3.00	2.83	2.50	3.00	2.50	0	0	0	0	0	2.33	3.00	2.67	0
C305	3	3.00	3	3.00	0	0	0	0	0	0	0	0	3	3	3
C306	2.67	2.33	2.00	2.17	2.20	2.00	0	0	2.00	0	2.00	3.00	3.00	2.50	2.75



C307	2.8	2.75	2.75	2.30	2.25	2.00	3.00	3.00	3.00	3.00	3.00	3	3	3	3
C308	2.5	2.67	2.5	2	0	0	0	2	0	0	0	0	2.4	2.75	2
C309	0.00	3.00	3.00	3.00	2.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	3.00	3.00	3.00
C310	3	3	3	2	2.00	0	0	0	0	0	0	0	3	3	0
C311	2.67	3.00	3.00	2.75	3.00	0	0	0	0	0	0	0	3.00	3.00	3.00
C312	2.83	2.67	2.83	2.60	2.75	2.33	0	2.00	0	0	0	2.33	3.00	2.67	0
C313	2.67	3.00	3.00	3.00	3.00	3.00	0	0	2.67	2.50	2.67	3.00	3.00	3.00	3.00
C314	0	3.00	3.00	0	3.00	3	3	2.50	3.00	3.00	3.00	3	3.00	2.00	0
C315	3	2.60	2.75	2.60	2.4	3	0	0	0	0	0	0	2	0	2.5
C316	3.00	2.67	2.83	2.20	2.00	0	3.00	3.00	2.00	3.00	3.00	2.67	3.00	3.00	3.00
C317	3.00	2.33	2.33	2.00	0	0	0	0	0	0	2.00	2.00	2.00	0	3.00
C318	3.00	2.67	2.67	0	0	0	0	0	0	0	0	0	2.33	2.67	2.67
C401	3	2.67	2.67	2.50	2.80	0	0	0	0	0	0	2.6	3	3	3
C402	2.67	2.50	2.67	0	3.00	0	0	0	0	0	0	2.33	3.00	3.00	0
C403	3.00	2.50	2.67	2.83	2.00	0	0	0	0	0	0	0	2.67	2.33	0
C404	2.67	2.67	2.67	0	0	0	0	0	0	0	0	0	2.67	3.00	0
C405	2.67	2.80	2	3	0	0	0	3.00	0	0	0	0	2.67	2	2
C406	3.00	2.25	3.00	3.00	2.83	0	0	0	0	0	0	0	2.60	2.83	3.00
C407	2.50	2.67	2.67	3	2.33	2	2.00	2.25	2.33	3.00	2.5	2.4	3.00	3.00	3
C408	3.00	2.40	2.50	2.5	2.83	0.00	0.00	3	3	3	0	3	3.00	2.00	0.00
C409	3.00	2.83	2.8	3	2.67	0	0	0.00	0	0	0	2.5	3.00	3.00	3
C410	3.00	3.00	2.67	3	3.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	2.60	2.67	3.00
C411	2.33	2.50	2.33	2	2.00	2.00	0.00	2.00	0	0	0	2.67	3.00	2.00	2
C412	2.75	2.60	2.75	2	3.00	2.33	0.00	2.50	3.00	3.00	2.25	2.80	2.75	2.83	2.75
AVG	2.87	2.68	2.75	2.63	2.54	2.31	2.50	2.60	2.66	2.83	2.45	2.51	2.63	2.58	2.57





# STUDENT SURVEY ANALYSIS

## STUDENT EXIT SURVEY PO ANALYSIS

TOTAL STUDENTS=35

PO'S	DEGREE OF RELEVANCE					TOTAL WEIGHTAGE	MAX WEIGHTAGE	WEIGHTAGE BASED ON 3 POINT SCALE
	5	4	3	2	1			
	32	3				172	175	2.95
PO 1	31	3	1			170	175	2.91
PO 2	33	2				173	175	2.97
PO 3	30	4				166	175	2.85
PO 4	29	6				169	175	2.90
PO 5	33	1	1			172	175	2.95
PO 6	30	3	2			168	175	2.88
PO 7	31	2	1	1		168	175	2.88
PO 8	27	6	2			165	175	2.83
PO 9	34	1				174	175	2.98
PO 10	32	2	1	0		171	175	2.93
PO 11	30	4	1			169	175	2.90
PO 12								

## STUDENT EXIT SURVEY PSO ANALYSIS

TOTAL STUDENTS=35

PSO'S	DEGREE OF RELEVANCE					TOTAL WEIGHTAGE	MAX WEIGHTAGE	WEIGHTAGE BASED ON 3 POINT SCALE
	5	4	3	2	1			
PSO 1	33	2				173	175	2.97
PSO 2	34	1				174	175	2.98
PSO 3	30	3	2			168	175	2.88

## STUDENT ALUMNI SURVEY PO ANALYSIS

TOTAL STUDENTS=83

PO'S	DEGREE OF RELEVANCE					TOTAL WEIGHTAGE	MAX WEIGHTAGE	WEIGHTAGE BASED ON 3 POINT SCALE
	5	4	3	2	1			
PO 1	73	8	2			403	415	2.91
PO 2	75	7	1			406	415	2.93
PO 3	76	5	2			406	415	2.93
PO 4	74	6	3			403	415	2.91
PO 5	79	4				411	415	2.97
PO 6	75	6	2			405	415	2.93
PO 7	69	9	4	1		395	415	2.86
PO 8	78	4	1			409	415	2.96
PO 9	72	10		1		402	415	2.91
PO 10	68	13	2			398	415	2.88
PO 11	66	14	3			395	415	2.86
PO 12	69	10	2	2		395	415	2.86



# STUDENT ALUMNI SURVEY PSO ANALYSIS

TOTAL STUDENTS=83

PSO'S	DEGREE OF RELEVANCE					TOTAL WEIGHTAGE	MAX WEIGHTAGE	WEIGHTAGE BASED ON 3 POINT SCALE
	5	4	3	2	1			
PSO 1	73	9	1			404	415	2.92
PSO 2	74	6	3			403	415	2.91
PSO 3	71	10	2			401	415	2.90

## AVERAGE INDIRECT ATTAINMENT 2017-2021

PO'S	ALUMNI SURVEY	EXIT SURVEY	AVERAGE
PO 1	2.91	2.95	2.93
PO 2	2.93	2.91	2.92
PO 3	2.93	2.97	2.95
PO 4	2.91	2.85	2.88
PO 5	2.97	2.90	2.93
PO 6	2.93	2.95	2.94
PO 7	2.86	2.88	2.87
PO 8	2.96	2.88	2.92
PO 9	2.91	2.83	2.87
PO 10	2.88	2.98	2.93
PO 11	2.86	2.93	2.89
PO 12	2.86	2.90	2.88
PSO1	2.92	2.97	2.94
PSO2	2.91	2.98	2.95
PSO3	2.90	2.88	2.89

## OVERALL CO-PO PSO ATTAINMENT 2017-2021

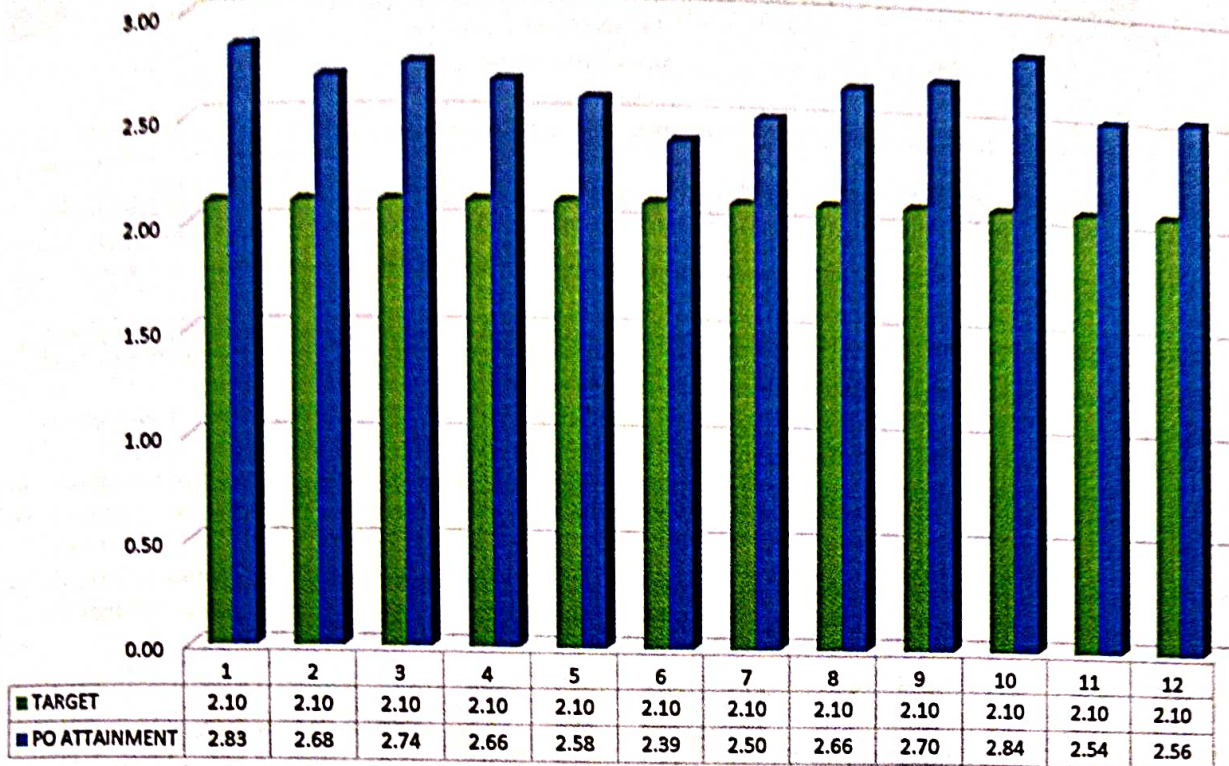
COURSE CODE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C101	3	3	3	3	0	0	0	0	0	0	0	1	2.25	2.2	2
C102	3	3	3	3	0	0	0	0	0	0	0	3	2	2	2
C103	1.6	1.6	1.44	0	0	1.17	1.07	0	0	0	0	1.07	1.07	0	0
C104	3	3	3	3	3	0	0	0	0	0	3	2.83	3	3	2.4
C105	0	0	0	0	0	3	3	3	0	0	0	3	0	0	0
C106	3	2	3	3	0	0	0	0	3	0	0	2	0	0	0
C107	3	3	0	0	0	0	0	0	0	0	0	3	3	2.8	3
C108	3	3	3	3	3	0	0	0	3	0	0	3	2	2	2
C109	3	0	2	0	0	0	0	0	0	0	0	2	2	2	2
C110	2.83	3	3	3	0	0	0	0	0	0	0	2.21	0	0	0
C111	2.59	2.16	2.64	2.64	1.92	2.69	2.88	2.4	0	0	0	1.92	1.92	1.92	1.92
C112	2.88	1.92	0	2.88	2.88	0	0	0	0	0	0	3	2	2.33	2
C113	2.8	0	3	3	0	0	0	0	0	0	0	0	1.6	1.6	1.6
C114	1.49	1.49	1.6	1.6	0	0	2	2	0	0	0	3	2	2	3
C115	3	2.4	0	0	0	0	0	0	0	0	0	0	3	3	3
C116	3	3	3	3	0	2	2	0	3	0	0	2	0	0	0
C117	2	2	2	3	0	0	0	0	3	0	0	3	0	0	0
C118	3	2.6	2.6	0	0	0	0	0	0	0	0	3	2	2	2
C201	3	3	3	3	0	0	0	0	0	0	0	3	2	2	2



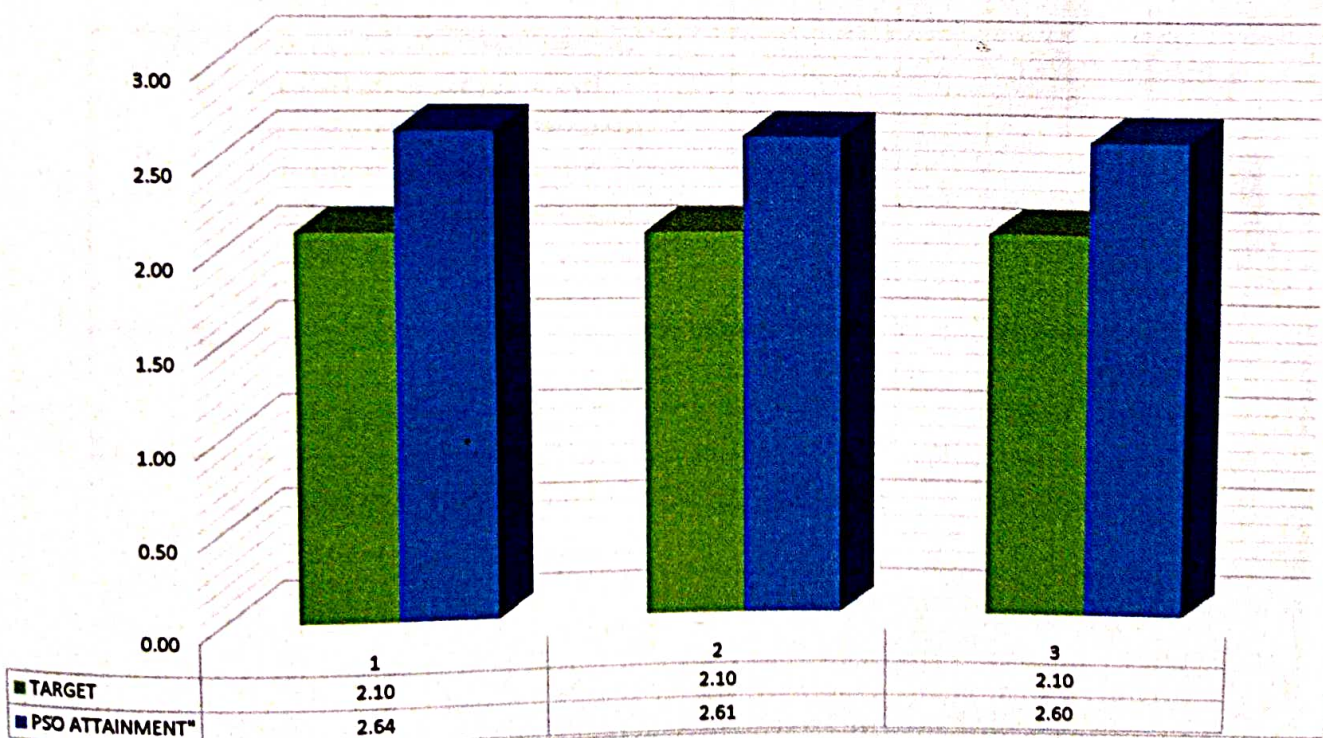
C202	3	3	3	3	0	2	0	0	0	0	0	2	2.17	2.4	0
C203	2.64	1.76	2.35	0	2.64	0	0	0	0	0	0	0	2.64	2.05	2.05
C204	3	2.83	3	2	2.5	0	0	0	0	0	0	2	2.67	3	2.33
C205	3	3	3	2	2	2	0	0	2	0	0	0	3	3	2
C206	0	0	2	3	0	2	3	3	0	0	2	2	0	0	0
C207	2.67	2.67	3	2.5	2.5	0	0	3	2.6	3	0	0	2.5	3	2.5
C208	3	3	3	2	2	2	2	2	2	2.4	2	2	2	1.67	2.17
C209	3	3	3	3	0	0	0	0	0	0	0	3	2.5	2.5	3
C210	3	2.33	2.33	0	2	0	0	0	0	0	0	2	2.6	3	2
C211	3	2.2	2.5	2.5	2.25	0	0	3	0	0	0	2.5	2.67	3	3
C212	3	3	3	3	3	0	0	0	0	0	0	0	2	2	2.4
C213	3	2.67	2.67	2.6	2.6	0	0	0	2	0	0	0	3	3	2.75
C214	0	1	2	0	0	2	2	2	0	2	2	2	0	0	0
C215	2.67	3	2.83	2	3	0	0	3	3	3	0	3	2.67	2.8	3
C216	3	3	3	2	2	0	0	0	0	0	0	0	3	2.33	2.33
C301	3	3	3	2.4	2	0	0	0	0	0	0	3	3	2.6	0
C302	3	2.8	3	2	0	0	0	0	0	0	0	0	3	2	0
C303	2	2	3	0	0	0	0	0	0	0	0	0	2.2	2.5	2.33
C304	3	3	2.83	2.5	3	2.5	0	0	0	0	0	2.33	3	2.67	0
C305	3	3	3	3	0	0	0	0	0	0	0	0	3	3	3
C306	2.67	2.33	2	2.17	2.2	2	0	0	2	0	2	3	3	2.5	2.75
C307	2.8	2.75	2.75	2.33	2.25	2	3	3	3	3	3	3	3	3	3
C308	2.5	2.67	2.5	2	0	0	0	2	0	0	0	0	2.4	2.75	2
C309	0	3	3	3	2	0	0	0	3	0	0	0	3	3	3
C310	3	3	3	2	2	0	0	0	0	0	0	0	3	3	0
C311	2.67	3	3	2.75	3	0	0	0	0	0	0	0	3	3	3
C312	2.83	2.67	2.83	2.6	2.75	2.33	0	2	0	0	0	2.33	3	2.67	0
C313	2.67	3	3	3	3	3	0	0	2.67	2.5	2.67	3	3	3	3
C314	0	3	3	0	3	3	3	2.5	3	3	3	3	3	2	0
C315	3	2.6	2.75	2.6	2.4	3	0	0	0	0	0	0	2	0	2.5
C316	3	2.67	2.83	2.2	2	0	3	3	2	3	3	2.67	3	3	3
C317	3	2.33	2.33	2	0	0	0	0	0	0	2	2	2	0	3
C318	3	2.67	2.67	0	0	0	0	0	0	0	0	0	2.33	2.67	2.67
C401	3	2.67	2.67	2.5	2.8	0	0	0	0	0	0	2.6	3	3	3
C402	3	2.5	2.67	2.83	2	0	0	0	0	0	0	0	2.67	2.3	0
C403	3	2.67	2.67	2.67	2	0	0	0	0	0	0	0	2.67	2.5	0
C404	2.05	2.05	2.05	0	0	0	0	0	0	0	0	0	2.05	2.3	0
C405	2.67	2.8	2	3	0	0	0	3	0	0	0	0	2.67	2	2
C406	3	2.25	3	3	2.83	0	0	0	0	0	0	0	2.6	2.83	3
C407	2.5	2.67	2.67	3	2.33	2	2	2.25	2.33	3	2.5	2.4	3	3	3
C408	3	2.4	2.5	2.5	2.83	0	0	3	3	3	0	3	3	2	0
C409	3	2.83	2.8	3	2.67	0	0	0	0	0	0	2.5	3	3	3
C410	3	3	2.67	3	3	0	0	0	0	0	0	2.5	2.6	2.67	3
C411	2.33	2.5	2.33	2	2	2	0	2	0	0	0	2.67	3	2	2
C412	2.75	2.6	2.75	2	3	2.33	0	2.5	3	3	2.25	2.8	2.75	2.83	2.75
TARGET	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10
DIRECT CO POATTAINMENT	2.81	2.62	2.69	2.60	2.50	2.25	2.41	2.59	2.66	2.82	2.45	2.48	2.56	2.53	2.53
DIRECT CO POATTAINMENT IN 80%	2.25	2.09	2.15	2.08	2.00	1.80	1.93	2.07	2.13	2.25	1.96	1.99	2.05	2.02	2.02
INDIRECT PO ATTAINMENT	2.93	2.92	2.95	2.88	2.94	2.94	2.87	2.915	2.87	2.93	2.895	2.88	2.95	2.95	2.89
INDIRECT PO ATTAINMENT IN 20%	0.586	0.584	0.59	0.576	0.587	0.588	0.574	0.583	0.573	0.586	0.579	0.576	0.589	0.589	0.578
FINAL PO ATTAINMENT	2.83	2.68	2.74	2.66	2.58	2.39	2.50	2.66	2.70	2.84	2.54	2.56	2.64	2.61	2.60



## PO ATTAINMENT



## PSO ATTAINMENT





<b>Criterion 7</b>	<b>Continuous Improvement</b>	<b>Marks Claimed :50</b>
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**7.1 Actions taken based on the results of evaluation of each of the POs & PSOs (30) POs (20)**

Action has been initiated in respect of POs and PSOs, where the CO attainment levels are low and the same are presented in Table .7.1 for the last academic years.

Courses where CO attainment level is low have been identified and the analysis and plan of action has been drafted and implemented. The details are given in Table B 7.1.a & Table B 7.1.b

**POs Attainment Levels and Actions for Improvement – CAY (2020-21)**
**Table 7.1 a: POs Attainment Levels and action for Improvement- CAY (2020-21)**

POs	Target Level	Attainment Level	Observations
<b>PO1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.</b>			
<b>PO1</b>	<b>2.10</b>	<b>2.83</b>	<b>Target level achieved and increased the level;</b> <ol style="list-style-type: none"> <li>1. Students find it interesting to solve Engineering Problems</li> <li>2. Students have been introduced to core subjects and they find it easy to understand and analyze engineering complex problems.</li> <li>3. Interpretation of concepts in mathematical based engineering courses found to be good.</li> </ol>



**Action:**

1. Additional tutorials and remedial classes are conducted in analytic subjects for the improved learning
2. Practical sessions were conducted for familiarizing the concepts more clearly.

**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.

Pos	Target Level	Attainment Level	Observations
PO2	2.10	2.68	<p><b>Target level achieved and increased the level;</b></p> <ol style="list-style-type: none"> <li>1. Students are having a good idea on formulation and implementation of concepts.</li> <li>2. Students find it interesting to solve Engineering Problems</li> <li>3. Students find it interesting to apply theoretical concepts to practical ideas</li> </ol>

**Action:**

1. Students were provided Questions Banks for more practice in analytic subjects like mathematics.
2. More classes on analysis to be taught in tutorial classes and remedial classes for the slow learners in all problematic subjects.

**PO3: Design/Development of Solution:** 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.



POs	Target Level	Attainment Level	Observations
PO3	2.10	2.74	<p><b>Target level achieved and increased the level;</b></p> <ol style="list-style-type: none"> <li>1. Adequate knowledge on design and development-oriented problems found to be good for the students.</li> <li>2. Some Students find it interesting to correlate the effect of the design solutions on public health, safety and environment.</li> </ol>
<p><b>Action:</b></p> <ol style="list-style-type: none"> <li>1. Students are advised to participate in technical symposiums and tech fests to gather the new innovative projects and products knowledge</li> <li>2. Industrial visits were arranged for get exposure in design and development of new complex engineering problems as per the social needs.</li> <li>3. Advised to go of industrial in plant training in the summer vacations to get the exposure to design and develop new ideas.</li> </ol>			
<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>			
POs	Target Level	Attainment Level	Observations



PO4	2.10	2.66	<p><b>Target level achieved and increased the level;</b></p> <ol style="list-style-type: none"> <li>1. Students found it interested to interpret the required data from the given problem</li> <li>2. The students were encouraged to focus not only on the specified experiments in the syllabus but also for designing of additional experiments.</li> </ol>
<p><b>Action:</b></p> <ol style="list-style-type: none"> <li>1. Faculties are advised to provide more number of problems is being practiced in the class.</li> <li>2. Additional experiments are taken up to enhance sense of design and development of students.</li> <li>3. Illustrative approach of teaching to be adopted using smart board and ICT</li> </ol>			
<p><b>PO5: Modern Tool Usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.</p>			
POs	Target Level	Attainment Level	Observations
PO5	2.10	2.58	<p><b>Target level achieved and increased the level;</b></p> <ol style="list-style-type: none"> <li>1. Students learnt proper awareness in importance of Design and Analysis tools.</li> <li>2. Students were motivated to learn appropriate and recent techniques in complex engineering problems using various trending concepts in blockchain, AI etc.</li> </ol>



**Action:**

1. ADD ON Courses, Seminars, Workshops and programs are conducted to discuss the latest concepts in python, Internet technologies, 3D Animation etc.
2. Industrial visits are conducted for exposure to the usage of modern equipment's and software.
3. Students are motivated to use the latest software tools in IoT and concepts in new programming languages for prediction and condition monitoring applications in their project work.

**PO6: The Engineering 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.

POs	Target Level	Attainment Level	Observations
PO6	2.10	2.39	<p><b>Target level achieved and increased the level;</b></p> <ol style="list-style-type: none"> <li>1. Students have an interest on impact of engineering solutions on environment and society</li> <li>2. Students have an interest on exposure to the real time societal problems</li> <li>3. Students learnt knowledge about how engineering is related to society and how it could serve as a main tool to develop the society.</li> </ol>

**Action:**

1. Case studies representing the impact of certain engineering solutions adopted during challenging projects are discussed during the sustainable engineering classes.
2. To understand the safety concerns and social aspects, students are motivated to visit industries to act practical knowledge of engineering practices.
3. Motivate students to participate in NSS and NCC activities to serve the society.



**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.

POs	Target Level	Attainment Level	Observations
PO7	2.10	2.50	<b>Target level achieved and increased the level;</b> 1. Students are interested in taking projects based on the environmental issues and provide sustainable solutions.

**Action :**

1. Various Case studies with impact on environment have been discussed in the sustainable engineering course.
2. Students are encouraged to involve more in green environment and sustainability related activities through NSS and NCC.

**PO8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

POs	Target Level	Attainment Level	Observations
PO8	2.10	2.66	<b>Target level achieved</b> 1. Students learnt ethical principles and practiced.

**Action:**

1. Motivation towards usage of resources for the needs of future society by applying the ethical values.
2. Students are encouraged to follow the professionalism in their behavior through the proper code of ethics.



**PO9: Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

POs	Target Level	Attainment Level	Observations
PO9	2.10	2.70	<b>Target level achieved and increased the level;</b> 1. Students are able to work as individual as well as in team in many activities.

**Action:**

1. Soft skills training are provided to equip the students with skills necessary to perform better both as individual and team player.
2. Labs and project works are done by the students as a group for developing the team work capability.

**PO10: 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.

POs	Target Level	Attainment Level	Observations
PO10	2.10	2.84	<b>Target level achieved and increased the level;</b> 1. Students are interested to present their ideas and communicate to the society through the various mini projects, main projects, tech fests, and seminar presentation. 2. Report writing and presentation skills were improved by repeated evaluation in the life skill course.



**Action:**

1. Soft skills training and presentation sessions are given to students periodically by the placement cell and from the external agencies to enhance their communication skills.
2. Provided more language and communication labs interactive sessions in life skills course to improve the student's communication skills.
3. Students are motivated to publish journals, by making use of paraphrasing and plagiarism tools.

**PO11: 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.

POs	Target Level	Attainment Level	Observations
PO11	2.10	2.54	<b>Target level achieved and increased the level;</b> 1. Students were given practice to improve their ability to plan and execute projects with cost effective management.

**Action:**

1. Students are encouraged to attend the activities of IEDC cell and NGI TBI to learn about project management and financial skills.
2. Students were included in various association activities and college level technical and non-technical activities for improving their project management and finance management capabilities.

**PO12: Life Long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

POs	Target Level	Attainment Level	Observations
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PO12	2.10	2.56	<p><b>Target level achieved and increased the level;</b></p> <ol style="list-style-type: none"> <li>1. Students found interested to get acquainted with the recent updates.</li> <li>2. Students have exposure to the real time societal problems and recent updates in technologies</li> </ol>
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**Action :**

1. Students are encouraged to participate in technical symposiums and seminars/conferences.
2. Students are encouraged to do coaching on GATE, IELTS, and TOEFL for pursuing the higher studies and research.
3. Students are encouraged to become a life member in professional bodies to continue their learning.

### PO ATTAINMENT

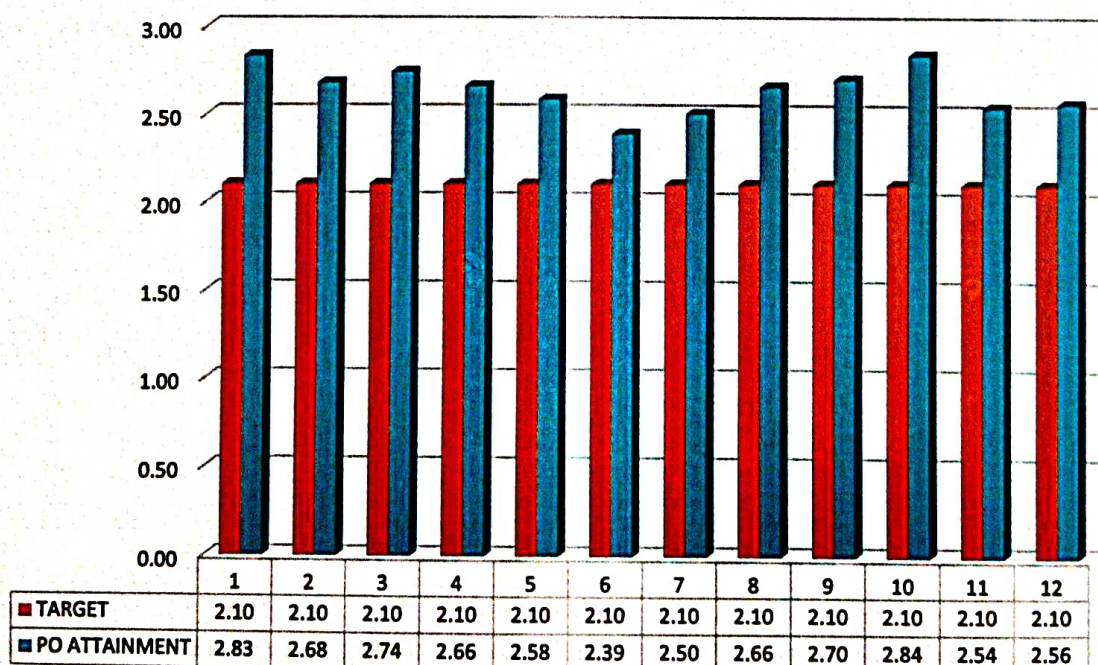




Fig 7.1 a POs attainment level

## PSOs Attainment Levels and Actions for Improvement – CAY (2020-21)

Table 7.1 b PSOs Attainment Levels and Actions for Improvement – CAY (2020-21)

PSO1: Ability to Formulate and Simulate Innovative Ideas to provide software solutions for Real-time Problems and to investigate for its future scope			
PSOs	Target Level	Attainment Level	Observations
PSO 1	2.10	2.64	<p><b>Target level achieved and increased the level;</b></p> <ol style="list-style-type: none"> <li>1. Students learnt adequate knowledge which would solve various complex engineering problems in different domains</li> </ol>
<p><b>Action:</b></p> <ol style="list-style-type: none"> <li>1. Invited talks, Experience sharing by experts and industrial visits are conducted for getting the good technological exposure.</li> <li>2. Tutorials are to be conducted focusing engineering fundamentals.</li> <li>3. More number of practice problems is to be practiced.</li> </ol>			
PSO2: Ability to learn and apply various methodologies for facilitating development of high-quality System Software Tools and Efficient Web Design Models with a focus on performance optimization			
PSOs	Target Level	Attainment Level	Observations
PSO 2	2.10	2.61	<p><b>Target level achieved and increased the level;</b></p> <ol style="list-style-type: none"> <li>1. Students learnt adequate knowledge in various software tools and web designing and development which would solve various complex engineering problems in different domains.</li> </ol>



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**Action:**

1. Conduct workshops, seminars and webinars in the field of AI, Blockchain etc for acquiring the updated knowledge in the relevant areas.
2. Students are motivated to choose thrust areas like IoT, Embedded systems etc for doing their projects.

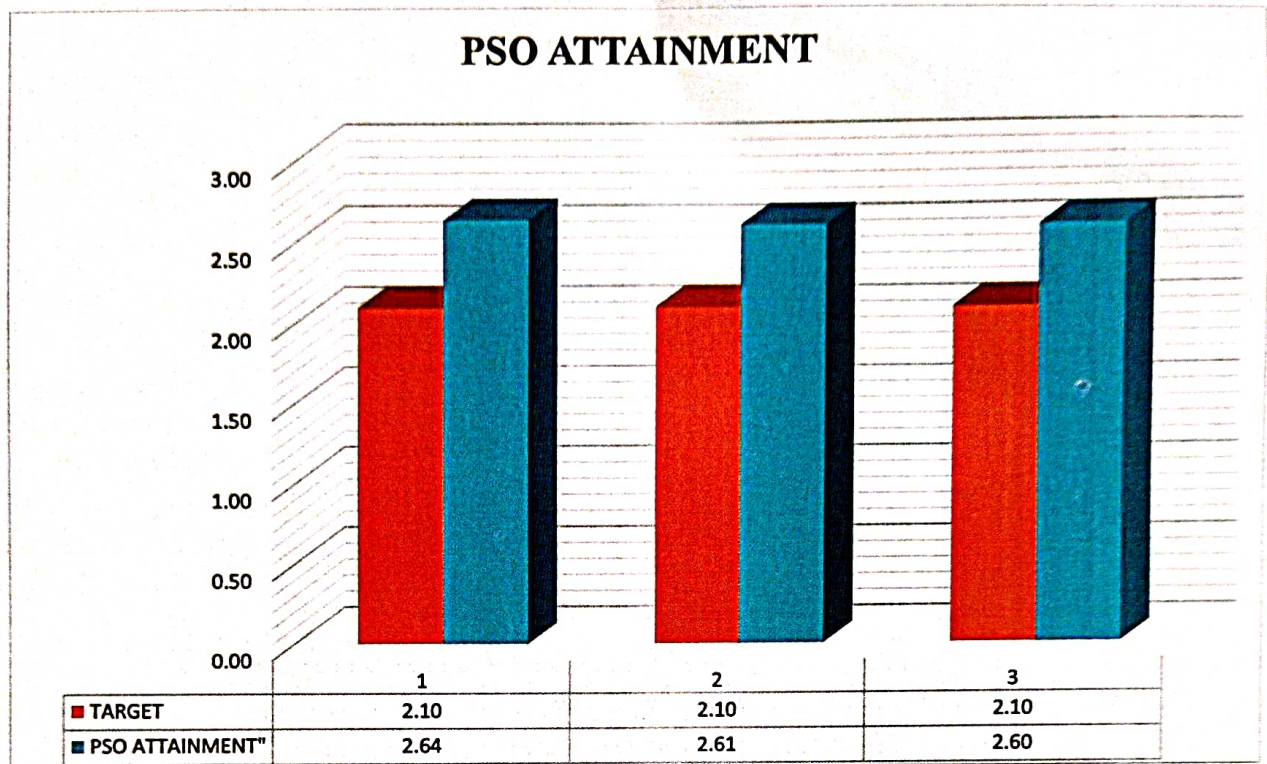
**PSO3: Ability to Inculcate the Knowledge for developing Codes and integrating hardware/software products in the domains of Big Data Analytics, Web Applications and Mobile Apps to create innovative career path and for the socially relevant issues.**

PSOs	Target Level	Attainment Level	Observations
PSO 3	2.10	2.60	<b>Target level achieved and increased the level;</b> <ol style="list-style-type: none"> <li>1. Students are interested to get acquainted with the recent updates.</li> <li>2. Students have exposure to the real time societal problems and recent updates in technologies</li> </ol>

**Action:**

1. Invited talks, Experience sharing by experts and industrial visits are conducted for getting the good technological exposure.
2. Hands on/ Practical sessions are to be conducted in latest software tools.





**Fig 7.1 b POs and PSOs attainment level**





**NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE**  
(Accredited by NAAC)

Pampady, Thiruvilwamala, Thrissur(DT) – 680 588  
(Approved by AICTE, Affiliated to A P J Abdul Kalam Technological University, Kerala)



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**DEPARTMENT ASSESMENT COMMITTEE**

**Agenda: Discussion on CO PO Attainment**

**MINUTES OF MEETING – 17/04/2022**

The Department Assessment Committee of the Computer Science and Engineering Program was established on July 5, 2016, with the goal of regularly reviewing the program outcomes in all academic, non-academic, and accreditation processes. The meeting was held on 17/04/22 in Room number 333, Arybatta Block. The meeting had started by 02.00 PM and the following faculty representatives had attended the meeting:

Head of the Department	Dr. U Vijay Shanker, Professor CSE	
NBA Coordinator	Ms. Silja Varghese, Asst. Professor, CSE	
Department IQAC Coordinator	Mr. Vipin K M, Asst. Professor, CSE	
Faculty Member of the Department	Dr. P Sampath, Professor CSE	
Faculty Member of the Department	Ms. Baby V, Asst. Professor, CSE	

Started the session with a silent prayer in honour of our beloved Founder Chairman, Late Sri.P.K.Das. The following points were discussed;

HoD addressed the meeting by making awareness of Vision, Mission and PEO of the department to the gatherings.

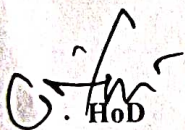
**POINTS DISCUSSED**

1. The committee reviewed the PO and PSO attainment process.
2. While uploading the SAR it was came to know that our students are not able to attain the target for the last two batches.
3. It was found target level is too high due to while considering the target as the average knowledge levels of each POs and PSOs.
4. The committee decided to set the target for PO and PSO attainment.



## ACTION TAKEN

1. Department Assessment Committee had a detailed discussion over the setting of target level and it was decided to set a target of 70 % (2.10/3.00) as common for all courses.
2. Department Assessment Committee advised the department to prepare the PO and PSO attainment as per the new target applicable from 2017-21 batches onwards.
3. Department Assessment Committee also recommends the improvement in target by 2 % in every academic year.
4. Department Assessment Committee also suggested providing remedial actions for the continuous improvement of PO and PSO attainment for the upcoming batches.

  
HOD

  
Principal