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 (2017 - 21 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) Student portfolio.

The overall PO & PSO attainments are calculated as follows:

- ✓ 70% for direct assessment tool
- ✓ 30% for indirect assessment through surveys
  - 20% for student portfolio
  - 10% for program exit survey

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 table1 depicts the POs & PSOs Direct Attainment

Direct Attainment Values – 2017 Admitted Batch

Course	COs	CO Attainment Value (%)	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
PCI	CO1	75.60				2					3	3		2			
	CO2	74.73		1		2		1			3	3		2			
	CO3	73.75				2					3	3		2			
	CO4	69.91		1		2		1			3	3		2			
	CO5	66.27				2					3	3		2			
DELA	CO1	81.86	3	2		1								1			
	CO2	75.54	3	2		1								1			
	CO3	77.70	3	2		1								1			
	CO4	76.61	3	2										1			
	CO5	79.85	3	2										1			
EC	CO1	64.26	3	3	3				2					2			
	CO2	54.74	3	2	3			2	1					2			
	CO3	60.52	2	2				2	1					2			
	CO4	63.09	3	3					1					2			
	CO5	57.10	2	3										1			
ECN	CO1	74.80	1	1										1		1	
	CO2	77.90	2	3	1									1		3	
	CO3	78.60	2	3	2									2		2	
	CO4	76.90	2	3	2	1								2		3	
EDC	CO1	77.50	1											1		1	
	CO2	77.80	1	1										1		1	
	CO3	75.80	2	3										2		2	
	CO4	76.20	2	3	3									2		3	
EC Lab	CO1	93.00	3	3		2		2	2								
	CO2	93.00	2	3													
	CO3	93.00	3	2													
	CO4	93.00	2	2													
ECN Lab	CO1	74.00	3	3	1	2	2									2	
	CO2	74.00	2	3	2	2	3									2	
	CO3	73.00	3	2	3	2	3									3	
	CO4	87.50								1	2	3		1			
CAED Lab	CO1	65.00					3	3						2			
	CO2	65.00	3				3	2						2			
	CO3	65.00	3				3							2			
	CO4	68.00	3				3							2			
EDC Lab	CO1	73.00	1			2	1									2	
	CO2	72.00	1	2		2	2									2	
	CO3	64.00	2	2	3	2	2									3	
	CO4	88.07								1	2	3		1			
PCII	CO1	77.30		1		1		1			3	3		2			
	CO2	70.36		1		1		1			3	3		2			
	CO3	81.29		1		1		1			3	3		2			
	CO4	78.99		1		1		1			3	3		2			
	CO5	82.60		1		1		1			3	3		2			

Course	COs	CO Attainment Value (%)	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
TTVC	CO1	74.78	3	2		1								1			
	CO2	77.85	3	2		1								1			
	CO3	76.49	3	2		1								1			
	CO4	78.37	3	2		1								1			
	CO5	70.44	3	2		1								1			
AP	CO1	76.41	3	3	2	2								2			
	CO2	78.54	3	3	3	2								2			
	CO3	80.47	3	3	2	2								2			
	CO4	80.25	3	3	2	2								2			
	CO5	71.94	3	3	3	2								2			
AEC	CO1	72.20	1	1										1		1	
	CO2	75.10	1	2	2									1		2	
	CO3	76.40	3	2	2									2		2	
	CO4	78.10	2	2	3									2		3	
DEC	CO1	75.00	2	1										1		1	
	CO2	64.50	2	3	2									2		2	
	CO3	71.20	3	2	2									2		3	
	CO4	75.60	2	3	3									3		3	
ECS Lab	CO1	90.00				3					3	3		2			
	CO2	90.00				3					3	3		2			
	CO3	90.00				3					3	3		2			
	CO4	90.00				3					3	3		2			
AP Lab	CO1	75.00	3	3	3	2					3			3			
	CO2	76.00	3	3	3	2					3			3			
	CO3	79.00	3	3	2	2					3			3			
	CO4	76.00	3	3	2	2					3			3			
EWS	CO1	71.00	3		2	3	3	3			3			2			
	CO2	68.00	3		2	3	3	3			3			2			
	CO3	74.00	3		2	3	3	3			3			2			
	CO4	70.00	3		2	3	3	3			3			2			
ADEC Lab	CO1	74.00	2	2		1	1									2	
	CO2	75.00	2	2	3	2	1									3	
	CO3	79.00	1	2	3	2	1									3	
	CO4	97.00								1	2	3		1			
NMFA	CO1	78.60	3	2		2								1			
	CO2	80.70	3	2		2								1			
	CO3	78.90	3	2		2								1			
	CO4	79.70	3	2		2								1			
	CO5	75.20	3	2										1			
CP	CO1	70.16	2	3													
	CO2	68.48	2	3													
	CO3	63.82	2	3	2												
	CO4	69.80	2	3	2												
	CO5	54.70	2	3	2												

Course	COs	CO Attainment Value (%)	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
SS	CO1	72.50	3	2	1	1	1							2	2		3
	CO2	73.00	3	3	3	2	2							2	3		3
	CO3	75.10	3	3	2	2	1							2	3		3
	CO4	77.10	3	3	3	2	2							2	3		3
RVSP	CO1	71.00	1	1	1									1	1		
	CO2	73.90	2	3	1									2	2		
	CO3	73.00	2	2	3	2								2	2		
	CO4	74.40	3	3	2	3								2	2		
PSC	CO1	72.70	1	2	3									1	1	3	
	CO2	76.70	2	2	3	2								2		3	
	CO3	80.40	2	2	3	2								2		3	
	CO4	78.20	2	2	1	1								1		2	
PEHV	CO1	73.50								3							
	CO2	68.30			1					3							
	CO3	70.90		1	2					3	2						
	CO4	79.40				1		2		3	1						
	CO5	72.50						1	2	3				1			
AIC	CO1	78.50	1	2										1		1	
	CO2	85.90	2	2										1		1	
	CO3	86.20	2	2	3	2								2		2	
	CO4	85.40	3	2	2	2								2		2	
	CO5	84.20	2	2	3	2								2		3	
CP Lab	CO1	70.16	2	3								2		2	1		
	CO2	68.48	2	3								2		2	1		
	CO3	63.82	2	3								2		2	1		
	CO4	69.80								2	2	2					
PSC Lab	CO1	67.00	2	3	1	2	2									2	
	CO2	68.00	1	2	2	2	2									2	
	CO3	67.00	2	2	3	2	3									3	
	CO4	93.87								1	2	3		1			
AIC Lab	CO1	62.00	2	3		1	1									2	
	CO2	60.00	3	3	3	3	2									3	
	CO3	63.00	3	2	2	2	2									2	
	CO4	73.12								1	2	3		1			
PAL	CO1	66.30					2	1			2		1	2			
	CO2	60.00	2	2	2	2					2			2			
	CO3	69.60									2	3		2			
	CO4	76.89								2	2	3		2			
	CO5	84.44								3	3			3			
ES	CO1	79.20	3	3				3	3	3				3			
	CO2	78.10	3	3				3	3					3			
	CO3	80.50	3		3				2					2			
	CO4	77.90	3					2	3	2				3			
	CO5	79.20	3	3	3	3		3	3	3				3			

Course	COs	CO Attainment Value (%)	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
FCV	CO1	78.40	3	2	1									1			
	CO2	74.50	3	2	1									1			
	CO3	74.80	3	2	1									1			
	CO4	75.80	3	2	1									1			
	CO5	72.50	3	2	1									1			
EMFW	CO1	74.70	1	2	2									1	1		
	CO2	61.50	3	3	2	2								2	2		
	CO3	60.00	2	3	2	1								2	3		
	CO4	58.00	2	3	2	2								3	3		
DSP	CO1	64.40	3	1	1									1	1		1
	CO2	64.60	3	2	2	1								1	1		2
	CO3	64.20	3	3	3	2	1							2	2		3
	CO4	68.90	3	3	3	2	1							2	2		3
	CO5	64.60	3	3	3	3								3			3
DSD	CO1	69.20	1	1	2	1								1		1	
	CO2	72.50	3	2	2	2								2		3	
	CO3	71.80	1	3	2	2	1							2		3	
	CO4	68.60	1	2	3	2	2							2		3	
AC	CO1	69.40	1	1										1	1		
	CO2	65.30	2	2	1									2	3		
	CO3	69.90	3	2	1									2	2		
	CO4	75.80	2	3										2	2		
DSP Lab	CO1	65.00	3	2		3	3										3
	CO2	67.00	3	3		3	3										3
	CO3	67.00	3	3	3	3	3										3
	CO4	86.73								1	2	3		1			
DSD Lab	CO1	65.00	1	2	1	2	2									2	
	CO2	61.00	2	2	3	2	3									3	
	CO3	59.00	2	2	2	2	3									3	
	CO4	89.58								1	2	3		1			
AC Lab	CO1	64.00	1	3	1	2	1								2		
	CO2	60.00		2		3	1								3		
	CO3	61.00	3	2		3	3								2		
	CO4	75.00								1	2	3		1			
PBL	CO1	76.50	2	2	2	2					2			2			
	CO2	72.50	1				2	2			2		2	2			
	CO3	62.60									2	3		2			
	CO4	70.76								2	2	3		2			
	CO5	66.04								3	3			3			
EEA	CO1	78.50	3							3	3	1	2	3			
	CO2	64.80		3							2		2				
	CO3	60.90					3		3		2		2				
	CO4	52.80					3				2		2				
	CO5	44.05					2		3	3	2		2				

Course	COs	CO Attainment Value (%)	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
COA	CO1	68.80	1											1		2	
	CO2	44.10	2	3	3	1								2		2	
	CO3	53.80	3	2	2	2								2		3	
	CO4	37.20	3	3	3	2								3		3	
TLWG	CO1	71.60	1	1										1	1		
	CO2	47.90	2	3	2	1								1	2		
	CO3	47.10	2	2	2	2								1	2		
	CO4	69.40	3	3	2	2								2	3		
DC	CO1	59.90	1	1	1									1	1		
	CO2	55.10	2	3	1									1	2		
	CO3	54.30	3	3	2	2								1	2		
	CO4	61.40	3	2	2	2								1	3		
VLSID	CO1	44.80	1	2	1									1		1	
	CO2	51.60	3	3	2	1								2		3	
	CO3	56.70	2	3	2	2								2		2	
	CO4	44.00	2	3	3	2								2		3	
	CO5	42.80	2	3	3	2								2		3	
MEMS	CO1	79.80	2											1		1	
	CO2	66.30	3	2										2		2	
	CO3	65.80	2											2		2	
	CO4	43.50	2	3	2									2		2	
	CO5	79.00	2	2		2								1		1	
EMI	CO1	73.30	1	1										1		1	
	CO2	56.40	3	3										1		1	
	CO3	51.70	3	3	2									2		2	
	CO4	39.70	3	3	3									2		2	
DC Lab	CO1	63.00	2	2		1	1								2		
	CO2	63.00	3	2	1	1	1								2		
	CO3	59.00	2	3	1	2	1								3		
	CO4	82.00								1	2	3		1			
VLSID Lab	CO1	72.00	3	2	1	2	3									1	
	CO2	65.00	1	3	2	2	3									3	
	CO3	65.00	3	3	3	3	3									3	
	CO4	91.00								1	2	3		1			
Mini Project	CO1	80.50	2	3				3						3	3	3	3
	CO2	83.50	2	3	3	3	3	3	2					3	3	3	3
	CO3	80.00	2	3	3	2	2	3	2				3	3	3	3	3
	CO4	70.00										3		3			
	CO5	89.50								3	3			3			
	CO6	61.50										3		3			

Course	COs	CO Attainment Value (%)	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
EES - I	CO1	58.18	1	1						2	2	3		3			
	CO2	58.18						3		2	2	3		3			
	CO3	58.18								2	2	3		3			
	CO4	58.18	1	1						2	2	3		3			
	CO5	58.18								2	2	3		3			
LCS	CO1	69.60	1	1										1			1
	CO2	72.00	3	3	2	2								2			2
	CO3	64.50	2	3	1	1								2		2	3
	CO4	65.60	3	3	3	3								3			3
OOPJ	CO1	55.40	3	1	2									1			
	CO2	50.00	3	3	2		1							1			
	CO3	61.40	3	2	3		1							1			
	CO4	52.60	3	2	3		1							1			
	CO5	48.90	3	2	2		1							1			
AWP	CO1	71.20	2	2										1	1		
	CO2	51.60	2	3	1	1								1	2		
	CO3	42.60	1	2	3	2								2	3		
	CO4	56.50	1	2	3	2								1	2		
MPMC	CO1	55.60	1											1		1	
	CO2	51.80	3	3	1									2		2	
	CO3	51.70	2	3	2									3		3	
	CO4	39.80	3	3	3									3		3	
CMC	CO1	63.20	1	2	1									1	2		
	CO2	79.80	3	2	2									1	2		
	CO3	58.20	2	2	3									2	3		
	CO4	43.40	1	3	1			1						1	3		
TSSN	CO1	66.00	1											1	1		
	CO2	44.40	2	3										2	2		
	CO3	55.40	3	2										2	2		
	CO4	43.40	2	3										2	2		
IEM	CO1	72.00	2							2	1			2			
	CO2	65.40					2							2			
	CO3	61.20												2			
	CO4	68.50								3	2			2			
	CO5	59.70				2						1		2			
PS Lab	CO1	85.00		1		3		2			3	3		2			
	CO2	85.00		1		3		2			3	3		2			
	CO3	85.00		1		3		2			3	3		2			
	CO4	85.00		1		3		2			3	3		2			
OOPJ Lab	CO1	70.16	2	3	3	1	1							1			
	CO2	68.48	2	3	3	1	1							1			
	CO3	63.82	2	3	3	1	1							1			
	CO4	69.80								2	2	2					

Course	COs	CO Attainment Value (%)	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
MPMC Lab	CO1	69.88	1	2	3	2	2									1	
	CO2	74.04	3	3	2	2	2									2	
	CO3	75.80	2	3	3	3	3									3	
	CO4	91.00								1	2	3		1			
Seminar	CO1	88.00	3	2	1		2	2			2			3	3	3	3
	CO2	71.70	1	2	2	2	3	2			2			3	3	3	3
	CO3	69.50										3		3			
	CO4	71.16										3		3			
EES -II	CO1	49.04	1	1						2	2	3		1			
	CO2	49.04						3		2	2	3		2			
	CO3	49.04								2	2	3		1			
	CO4	49.04	1	1						2	2	3		1			
	CO5	49.04								2	2	3		3			
MWE	CO1	80.70	2	2	1									1	2		
	CO2	66.00	2	3										1	3		
	CO3	57.50	3	3	1									2	3		
	CO4	36.50	2	3	1									2	3		
OC	CO1	75.60	2	1										1	1		
	CO2	73.30	3	3	1									2	3		
	CO3	59.60	2	3	1									2	2		
	CO4	65.60	2	2	1									2	3		
ESD	CO1	66.40	1	2										1		1	
	CO2	72.70	3	2	1									2		2	
	CO3	44.00	2	3	2									2		3	
	CO4	72.10	3	3	3									3		3	
DIP	CO1	69.50	1	1										1			3
	CO2	59.10	2	3	2	1								1			3
	CO3	68.60	3	3	2	2								1	2		3
	CO4	53.00	3	3	3	2		1						1			3
DSPP	CO1	78.70	1	1	1									1			1
	CO2	73.80	3	2	2									2			2
	CO3	65.10	2	3	2	1								2			3
	CO4	80.20	2	2	3	2								3			3
CN	CO1	75.30	1	2										1	1		
	CO2	67.20	2	3	1	1	1							1	3		
	CO3	62.00	3	3	2	1	1							1	3		
	CO4	75.50	2	3	2	1	1							1	3		
IDB	CO1	85.50	1	1	2												
	CO2	59.10	3	3													
	CO3	71.30	3	2													
	CO4	70.00	2	1	2												
	CO5	90.70	2	1	2												

Course	COs	CO Attainment Value (%)	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
MWOC Lab	CO1	73.04	1			1	1								1		
	CO2	71.42	2	2		2	2								2		
	CO3	71.54	2	2		3	2								3		
	CO4	87.80								1	2	3		1			
ESD Lab	CO1	64.00	2	2	3	2	3									3	
	CO2	63.00	2	2	3	2	3									3	
	CO3	80.00								1	2	3		1			
Internship	CO1	90.00	3	3	2	3		2	2		3			3	3	3	3
	CO2	72.20	3	3	3	3	3	2			3			3	3	3	3
	CO3	59.70									3	3		3			
	CO4	88.25					1			3	3	3		3			
Project Work	CO1	97.00	2	3				3						3	3	3	3
	CO2	97.54	2	3	3	3	3	3	2					3	3	3	3
	CO3	62.72	2	3	3	2	2	3	2				3	3	3	3	3
	CO4	69.48										3		3			
	CO5	96.16								3	3			3			
	CO6	73.66										3		3			
CVV	CO1	63.20	3	3	3									2	3	3	3
	CO2	68.75									3	3		2			
Direct Attainment (%)			**68.97**	**68.21**	**67.49**	**71.54**	**68.82**	**76.47**	**76.00**	**72.28**	**75.16**	**74.86**	**71.23**	**70.43**	**67.60**	**69.25**	**73.74**

Indirect Attainment (2017 Batch):

1. Student Portfolios (2017 Batch):

1.1. Co-curricular Details:

Component	No. of students		Total No. of Final Year Students	% of Participation/ Awards	Weightage (%)	Attainment (%)
Workshops	Participated	208	208	100	20	20
Certification Programs	Participated	178	208	85.58	5	4.3
	Certified	178	208	85.58	15	12.9
NPTEL	Successfully Completed	179	208	86.06	10	8.7
	(ELITE+GOLD) + ELITE	104	208	50	5	2.5
Technical Fest (Paper Presentation, Poster Presentation, Quiz, Project Expo, etc.)	Participated	208	208	100	20	20
	Awards	43	208	20.68	10	2.1
Journal Publications	Involved	91	208	43.75	10	4.4
Industrial Visit	Participated	173	208	83.18	5	4.2
Attainment (%)						**79.10**

1.2. Extra-curricular Details (2017 Batch):

Component	No. of students			Total No. of Final Year Students	% of Participation/ Awards	Weightage (%)	Attainment (%)
Sports & Games	Participated	State Level	1	208	0.49	5	0.1
		International/ National Level	0	208	0	10	0
		University & Institute Level	208	208	100	10	10
	Awards	State Level	1	208	0.49	10	0.1
		International/ National Level	0	208	0	20	0
		University & Institute Level	96	208	46.16	5	2.4
Yoga	Participated		29	208	13.95	10	1.4
	Awards		4	208	1.93	10	0.2
Cultural Activities	Participated		35	208	16.83	10	1.7
	Awards		5	208	2.41	10	0.3
Attainment (%)							16.20

1.3. Extension Activities (NSS, NCC) Details (2017 Batch):

Component	No. of students			Total No. of Final Year Students	% of Participation/ Awards	Weightage (%)	Attainment (%)
NSS	Participated	Adopted Villages	29	208	13.95	20	2.8
		Institute Level /Local Community	100	208	48.08	50	24.1
NCC Only Girls	Participated		41	87	47.13	10	4.8
	Awards ('B' & 'C' certificates)		40	87	45.18	20	9.2
Attainment (%)							40.90

1.4. Placements & Higher Studies Details (2017 Batch):

Component	No. of students		Total No. of Final Year Students	% of Participation	Weightage (%)	Attainment (%)
Placement	Placed	128	208	61.54	80	49.3
Higher Studies	Qualified in Competitive Examinations	12	208	5.77	20	1.2
Attainment (%)						50.50

Student Portfolio Attainment:

Component	% Attainment	Program Outcomes (%)												Program Specific Outcomes (%)		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
COCURRICULAR ACTIVITIES	79.10	3	3	3	2	2	2	2	3	3	1	1	3	3	3	3
EXTRA CURRICULAR ACTIVITIES	16.20	-	-	-	-	-	-	-	3	3	-	-	-	-	-	-
NSS and NCC	40.90	-	-	-	-	-	-	3	3	3	-	-	-	-	-	-
PLACEMENT &HIGHER STUDIES	50.50	3	3	3	3	3	-	-	-	3	3	-	3	3	3	3
% Pos and PSOs Attainment		64.80	64.80	64.80	61.94	61.94	79.10	56.18	45.40	46.68	57.65	79.10	64.80	64.80	64.80	64.80

2. Exit Survey (2017 Batch):

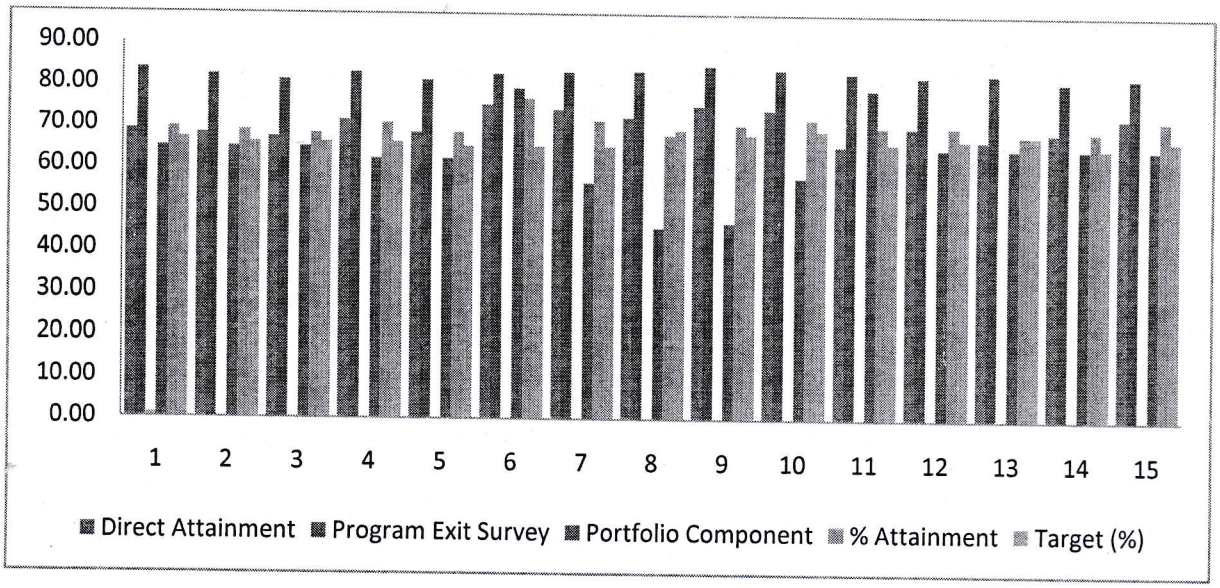
POs/PSOs	Excellent (4)	Very Good (3)	Good (2)	Poor (1)	Total No of Students Participated	Attainment Value (%)
PO1	99	82	27	0	208	83.65
PO2	87	94	27	0	208	82.21
PO3	87	84	37	0	208	81.01
PO4	97	79	32	0	208	82.81
PO5	80	98	30	0	208	81.01
PO6	92	87	29	0	208	82.57
PO7	97	81	30	0	208	83.05
PO8	95	87	26	0	208	83.29
PO9	101	87	20	0	208	84.74
PO10	94	94	20	0	208	83.89
PO11	90	96	21	1	208	83.05
PO12	85	100	22	1	208	82.33
PSO1	91	92	25	0	208	82.93
PSO2	86	88	33	1	208	81.13
PSO3	91	86	31	0	208	82.21

Summary of Direct and Indirect Attainments of 2017-21 Batch

Assessment Tool	Program Outcomes (%)												Program Specific Outcomes (%)		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Direct Attainment (%)	68.97	68.21	67.49	71.54	68.82	76.47	76.00	72.28	75.16	74.86	71.23	70.43	67.60	69.25	73.74
Student Portfolio (%)	64.80	64.80	64.80	61.94	61.94	79.10	56.18	45.40	46.68	57.65	79.10	64.8	64.80	64.80	64.80
Program Exit Survey (%)	83.65	82.21	81.01	82.81	81.01	82.57	83.05	83.29	84.74	83.89	83.05	82.33	82.93	81.13	82.21

The Final Attainment of 2017-21 Batch

Assessment Tool	Program Outcomes (%)												Program Specific Outcomes (%)		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Target (%)	67.00	66.00	66.00	66.00	65.00	65.00	65.00	69.00	68.00	69.00	66.00	67.00	68.00	65.00	67.00
70% of Direct Attainment	48.17	47.59	47.01	49.88	47.81	52.54	51.77	50.44	52.51	51.84	45.75	48.91	46.80	48.06	50.69
20% of Student Portfolio	12.96	12.96	12.96	12.39	12.39	15.82	11.24	9.08	9.34	11.53	15.82	12.96	12.96	12.96	12.96
10% of Program Exit Survey	8.37	8.22	8.10	8.28	8.10	8.26	8.31	8.33	8.47	8.39	8.31	8.23	8.29	8.11	8.22
% of Final Attainments	69.60	68.93	68.30	70.75	68.66	77.61	72.74	68.01	70.42	72.32	73.99	70.49	68.57	69.55	72.80



Date: 29.10.2021

20/10/21

PAC, Coordinator

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Dt:10.11.2021

Department of Electronics & Communication Engineering

POs& PSOs Attainment Levels for 2017 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	67	69.6	**TARGET REACHED** Out of 64 courses, 59 courses are contributing to this PO. Out of these 59 courses, 12 courses are contributing less.
Action 1: The PO attainment can be improved by discussing the topics at the application level of knowledge. **Action 2:** Further strengthen of the PO can be attained by incorporating examples /assignments / practice questions based on the concepts.			
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	66	68.93	**TARGET REACHED** 60 out of 64 courses are contributing to this PO. Lesser values of attainments are observed for 13 courses.
Action1: Attainment of the PO can be further improved by incorporating problems/programs in the assignments with application and analysis level questions. **Action 2:** Complex problems with relevant analysis are to be practiced for few courses in the classroom. **Action 3:** Courses that improve the logical thinking of the students are to be incorporated at possible extent.			
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.	66	68.30	**TARGET REACHED** The number of course mapped to this PO is 48. 12 courses are contributing less.
Action 1: More practice can be laid on design oriented topics in the class room discussions as well as in assignments **Action 2:** Project expos will be conducted through Association activities.			

Action 3: The faculty members are to be suggested to revise the analytical concepts periodically.			
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.	66	70.75	**TARGET REACHED** 44 out of 64 courses that are correlated to this PO. 6 courses are contributing less.
Action1: The students will be further encouraged to refer journal /conference papers to improve innovative skills to execute quality project works. **Action 2:** students are to be encouraged for participating in project expos/design contests.			
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	68.66	**TARGET REACHED** 23 courses that are contributing to this PO5, 2 courses are contributing less.
Action1: It was observed that attainment in OOPJ is less and can be strengthened by enhancing programming skill set of the students by practicing more programs. **Action 2:** The PO can be further strengthened by conducting Simulation based workshops on software tools like HFSS, Labview, Cadence etc **Action 3:** Students are encouraged to participate in national and state level events like ideation fest, and hackthon to know the importance of the programming in the real time applications.			
PO	**Target**	**Attained**	**Observation**
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	65	77.61	**TARGET REACHED** 17 courses that are contributing to this PO, 5 courses are contributing less.
Action1: To strengthen the PO, students are encouraged to do their mini and major projects to solve societal problems. **Action 2:** Motivate the students to actively participate in social services, getting awareness on health, safety, legal by participating in co-curricular and extracurricular activities.			
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	65	72.74	**TARGET REACHED** 7 courses that are contributing to this PO, Contribution by 1

			course is less. Contribution through extension activity is lagging
Action 1: More number of students could be encouraged to participate in activities that contribute to the society like NCC/ NSS. **Action 2:** Student participation in events addressing environmental and sustainability is to be enhanced through various clubs in the institutions.			
PO	**Target**	**Attained**	**Observation**
PO8: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice	69	68.01	**TARGET IS NOT REACHED** 21 courses that are contributing to this PO, 2 courses are contributing less. Contribution through extension and extra-curricular activity is lagging
Action 1: Students are to be encouraged in laboratory and ILP courses to get aware of ethical principles and practices. **Action 2:** Necessary changes in pedagogy techniques are to be made for courses that are contributing to the PO, **Action 3:** Students are to be encouraged to participate in extra-curricular and extension activities from first year onwards.			
PO	**Target**	**Attained**	**Observation**
PO9: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings	68	70.42	**TARGET REACHED** 29 courses that are contributing to this PO, 2 courses are contributing less. Contribution through extension and extra-curricular activity, placement and higher studies is also lagging
Action1: Student should be more encouraged towards participation in extracurricular, co-curricular and extension activities. **Action 2:** Students will be encouraged to organize and participate in technical events to improve their leadership skills and personality development.			
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	69	72.32	**TARGET REACHED** 26 courses that are contributing to this PO,

			Contribution by 3 courses is less. Contribution through placement and higher studies is also lagging .
Action 1: Students are to be educated about the need for enhancing communication skills during instruction period of the ILP courses. **Action 2:** Students are to be encouraged to participate in various technical events to enhance their communication skills. **Action 3:** Students are to be motivated for active participation/involvement in Soft skill training. **Action 4:** Increased number of case studies and in depth discussion on numerous problems can further strengthen the PO.			
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 leader in a team, to manage projects and in multidisciplinary environments.	66	73.99	**TARGET REACHED** 11 courses that are contributing to this PO, all courses contributed moderately.
Action1: This can be further improved by involving the students in real time, societal and multidisciplinary projects.			
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.	67	70.49	**TARGET REACHED** 61 out of 64 courses that are mapped to this PO. Contribution by 12 courses is less.
Action1: Awareness on technological changes can be created by insisting the students to participate in domain specific activities/events/ programs. **Action 2:** Self-learning through SWAYAM & NPTEL certification courses is to be encouraged.			
PSO	**Target**	**Attained**	**Observation**
PSO1: Design and develop modern communication technologies for building the interdisciplinary skills to meet current and future needs of industry.	68	68.57	**TARGET REACHED** Out of 64 courses, 20courses are mapped to this PSO.

			Contribution by 6 courses is less.

Action1: It was observed that attainment values that are less in theory courses corresponds to application oriented courses and thus can be enhanced by organizing guest lectures , symposiums, seminar in the relevant domain, thereby educating the student about the importance of the core courses.
Action 2: The attainment can be enhanced by practicing problems, as well as giving assignments at higher cognitive level.

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	65	69.55	**TARGET REACHED** 26 courses are mapped to this PSO among 64 courses. Contribution by 4 courses is less.

Action1: The PO can be further strengthened by organizing guest lectures, symposiums and seminars, which would educate the student about the importance of the core domain.
Action 2: The attainment can be improved by practicing analytical and design based problems, as well as giving assignments at higher cognitive level.

PSO	Target	Attained	Observation
PSO3: Apply the Signal processing techniques to synthesize and realize the issues related to real time applications.	67	72.80	**TARGET REACHED** 9 courses are mapped to this PSO among 64 courses, all courses contributed moderately.

Action1: Students knowledge in relevant domain can be further enhanced by encouraging the students for participation in workshop/symposium/guest lecture to strengthen the PSO.

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