Name of the Department: **Electrical and Electronics Engineering**

Academic Year: **2019-20(Batch 2016 - 20 Passed Out)**

UG Program

Program Outcomes	Target Fixed	Target Achieved	Observation (Attained/ Not Attained)	Actions Taken
PO1	1.88	1.89	Attained	After discussing in the CEG and PAQIC /PAC meetings, it is decided to increase the target value by 2%. To reach the new target value the following actions are planned. **Action 1:.** Increased use of ICT tools for teaching-learning and assessment **Action 2:.** To make video lectures available through Learning Management System (LMS) developed by institute **Action 3:.** It is proposed to give assignments which address higher Blooms Taxonomy levels **Action 4:.** To revise the syllabus in the subsequent curriculum revision, so that program specific applications / Contents will be included in the Mathematics and Basic Sciences

HEAD
Dept. of EEE, CBIT (A)
Gandipet, Hyderabad - 75

PO2	**1.61**	**1.56**	**Not Attained**	After discussing in the CEG and PAQIC /PAC meetings, it is decided to continue with the same target as there is a scope for further improvement. To reach this target value the following actions are planned. **Action 1:.** To amend the syllabus in the subsequent curriculum revision, so that program specific applications / Contents will be included in the Mathematics and Basic Sciences **Action 2:.** It is proposed to give assignments which address higher Blooms Taxonomy levels **Action 3:.** In the subsequent curriculum revision, a freshman course (engineering exploration) is introduced so that in the first year itself students can identify an engineering problem and acquire knowledge that can be applied to the identified problem **Action 4:.** Proposed to introduce course end project along with assignments as a part of Continuous internal evaluation (CIE) in core courses, which are analytical in nature **Action 5:.** Provision for industry internship as a part of the curriculum for enhanced learning and better exposure to latest technological trends **Action 6:.** Increased number of lab courses which lay down a foundation to select and carryout project related to complex engineering problems. **Action 7:.** To introduce Open ended experiments in the laboratory courses

HEAD
Dept. of EEE, CBIT (A)
Gandipet, Hyderabad - 75

PO3	**1.48**	**1.50**	**Attained**	After discussing in the CEG and PAQIC /PAC meetings, it is decided to increase the target value by 2%. To reach the new target value the following actions are planned **Action 1:.** To increase the use of ICT tools for teaching-learning so that visualization of concepts related to complex engineering problem can be enhanced and students are motivated to take up mini and major projects to provide the solution to complex engineering problems. **Action 2:.** To encourage students to take part in project exhibition hackathon, MSME projects and similar activities **Action 3:.** To give assignments which address higher Blooms Taxonomy levels **Action 4:.** To introduce course end project along with assignments as a part of Continuous internal evaluation (CIE) in core courses, which increases the student ability to solve complex engineering problem **Action 5:.** To increase the number of lab courses and to design the same, such that solutions of the problem can be viewed also through simulation. **Action 6:.** To make provision for industry internship as a part of the curriculum for enhanced learning and better exposure to latest technological trends
PO4	**1.39**	**1.43**	**Attained**	After discussing in the CEG and PAQIC /PAC meetings, it is decided to increase the target value by 2%. To reach the new target value the following actions are planned **Action 1:.** To introduce high-end experiments in the lab courses such that student can develop an ability to solve open – ended problems **Action 2:.** To make lab experiment's demonstration videos available through Learning Management System (LMS), so that students can understand the concept better and demonstrate well in the subsequent lab classes **Action 3:.** Proposed to introduce course end project along with assignments as a part of Continuous internal evaluation (CIE) in core engineering lab courses **Action 4:.** To enter into more MoUs with industries to establish industry-based labs and activities which facilitate experiential learning to students **Action 5:.**

HEAD
Dept. of EEE, CBIT (A)
Gandipet, Hyderabad - 75

PO5	**1.37**	**1.47**	**Attained**	After discussing in the CEG and PAQIC /PAC meetings, it is decided to increase the target value by 2%. To reach the new target value the following actions are planned. **Action 1:.** Action 1: To increase the use of simulation tool in lab courses (where ever possible) to demonstrate the concept before going to the work bench **Action 2:.** Action 2: To include open ended and structured enquiry type of experiments **Action 3:.** Action 3: To replace conventional method of teaching Engineering graphics with Computer aided drafting tool **Action 4:.** Action 4: To encourage the usage of programme specific simulation tools in the mini and major project
PO6	**1.12**	**1.28**	**Attained**	After discussing in the CEG and PAQIC /PAC meetings, it is decided to increase the target value by 2%. To reach the new target value the following actions are planned. **Action 1:.** Action 1:To introduce more number of professional electives to address the regulations, codes and standards relevant to the electrical and electronics engineering discipline **Action 2:.** Action 2:To encourage the students to actively participate in activities organized by various clubs of the institute like • Energy conservation week and Swachhta Pakhwada 2020 - Energy savers' club • Health camps- NSS • Rural development - Engineers without borders • Webinar -IEEE PES • Webinar for Students on "Popular cultural practices of Telangana - Harayana for healthy and enriching life and life style"- Ek Bharath Sreshtha Bharath (EBSB) **Action 3:.** Action 3: To introduce rural internship in the curriculum **Action 4:.** Action 4: To introduce courses related to Community Engagement

HEAD
Dept. of EEE, CBIT (A)
Gandipet, Hyderabad - 75

PO7	**0.89**	**1.27**	**Attained**	After discussing in the CEG and PAQIC /PAC meetings, it is decided to increase the target value by 2%. To reach the new target value the following actions are planned. **Action 1:.** Action 1: To introduce the mandatory courses which address the management techniques for sustainable development **Action 2:.** Action 2: To encourage the students to participate in social activity related to environment like • "Tree plantation in the campus and nearby villages" as part of the activities of NSS under the new initiative "Haritha Haram" by State government. • Awareness camp to nearby villages to promote energy conservation and alternative energy usage and to introduce energy efficient appliances like DC fans, LED bulbs, pumps etc. • To encourage the students to actively participate in product exhibitions related to environment and sustainable development To encourage the students to take up mini and major projects through which relationship between technical, socio-economic and environmental dimensions of sustainability can be better understood.
PO8	**1.12**	**1.54**	**Attained**	After discussing in the CEG and PAQIC /PAC meetings, it is decided to increase the target value by 2%. To reach the new target value the following actions are planned. **Action 1:.** Action 1: To introduce a new course on ethics titled "UHV-2, Understanding of Harmony" suggested by UGC **Action 2:.** Action 2:It is proposed to give due weightage in the rubrics prepared to evaluate to ethical behavior and practices in the lab and project courses **Action 3:.** Action 3: To train more number of faculty (20:1 student faculty ratio) on UHV through AICTE FDP so that faculty can handle the universal human values -1 during the student induction programme.

HEAD
Dept. of EEE, CBIT (A)
Gandipet, Hyderabad - 75

PO9	**1.32**	**1.53**	**Attained**	After discussing in the CEG and PAQIC /PAC meetings, it is decided to increase the target value by 2%. To reach the new target value the following actions are planned. **Action 1:.** Action 1: To introduce more topics related to these skills in the soft skills course offered. **Action 2:.** Action 2: To introduce activity-based courses like community engagement, engineering exploration in the first-year level itself, so that the spirit of individual and team work can be inculcated better. **Action 3:.** Action 3: To encourage students to work as teams for activities conducted by various clubs of CBIT during Sudhee&Sruthi, which is a "Techno-Sport-Cultural" fest. **Action 4:.** Action 4: To encourage the students to actively participate in activities organized by various clubs of the institute like • Energy conservation week and SwachhtaPakhwada 2020 - Energy savers' club • Health camps- NSS • Rural development - Engineers Without Borders (EWB) • Webinars, Industry tours and other professional activities-IEEE PES **Action 5:.** Action 5: It is proposed to give due weightage in the rubrics prepared to evaluate CIE of laboratory courses, mini projects and major projects **Action 6:.** Action 6: To encourage students to take part in project exhibition hackathon, MSME projects and similar activities Action 7:To motivate students to work with multidisciplinary aspects in industry projects carried out as a part of institute activity

Dept. of EEE, CBIT (A)
Gandipet, Hyderabad - 75

PO10	**1.15**	**1.40**	**Attained**	After discussing in the CEG and PAQIC /PAC meetings, it is decided to increase the target value by 2%. To reach the new target value the following actions are planned. **Action 1:.** Action 1: To introduce more topics related to these skills in the soft skills course offered. **Action 2:.** Action 2: To revise the rubrics used to evaluate the CIE of mini projects, seminars and major projects so that more focus is given to performance indicator related to ability of comprehending (literature review), written communication (report writing), oral communication (presentation skills) and summarization (conclusion)
PO11	**1.04**	**1.33**	**Attained**	After discussing in the CEG and PAQIC /PAC meetings, it is decided to increase the target value by 2%. To reach the new target value the following actions are planned. **Action 1:.** Action 1: To introduce more subjects to address management principles **Action 2:.** Action 2: To introduce freshmen course so that student will be able to describe various economic and financial costs/benefits of an engineering activity and analyze and select the most appropriate proposal based on economic and financial considerations **Action 3:.** Action 3: To encourage the students to present their IDEAS at MSME Incubation Centre of CBIT **Action 4:.** Action 4: To encourage more students to work on the hardware/product-based projects such that student get an ability to prepare budget proposal and submit the same to the institute and other agencies for funding

HEAD
Dept. of EEE, CBIT (A)
Gandipet, Hyderabad - 75

PO12	**1.29**	**1.47**	**Attained**	After discussing in the CEG and PAQIC /PAC meetings, it is decided to increase the target value by 2%. To reach the new target value the following actions are planned. **Action 1:.** Action 1: To introduce the credit transfer to the courses pursued via MOOCs (e.g. Swayam NPTEL, Coursera, MSME etc.) **Action 2:.** Action 2: To introduce internships during every academic year break to enable students to pursue independent projects in an industrial setting with mentorship and prepare them for lifelong learning. **Action 3:.** Action 3: To facilitate the honors and additional minor engineering degrees for the students who can acquire more 20 credits through MOOCs courses **Action 4:.** Action4 : To introduce the e-portfolio to promote students participation in Co- curricular and extra- curricular activities which nurture the key interest towards life long learning **Action 5:.** Action 5: To invite more industry experts to take part in curriculum revision, delivery of lectures, project guidance and assessments and in establishment of laboratories. **Action 6:.** Action 6: To encourage students to carry out projects in emerging areas and their applications to electrical & electronics engineering
PSO1	**1.34**	**1.46**	**Attained**	After discussing in the CEG and PAQIC /PAC meetings, it is decided to increase the target value by 2%. To reach the new target value the following actions are planned. **Action 1:.** Action 1: To increase the number of lab courses and to design the same, such that solutions of the problem can be viewed also through simulation **Action 2:.** Action 2: To encourage the usage of programme specific simulation tools in the mini and major project **Action 3:.** Action 3: To revise the syllabus of laboratory courses (where ever possible) to include the programming / software component so as to improve the coding skills of the students

HEAD
Dept. of EEE, CBIT (A)
Gandipet, Hyderabad - 75

PSO2	**1.55**	**1.59**	**Attained**	After discussing in the CEG and PAQIC /PAC meetings, it is decided to increase the target value by 2%. To reach the new target value the following actions are planned. **Action 1:.** Action 1: To arrange for more interactions to the pre-final students with successful alumni of the department to create awareness about the prospects after pursuing higher studies **Action 2:.** Action 2: To identify tracks in professional electives, so that student can be motivated to pursue higher studies in continuation to any of the tracks of their interest
PSO3	**1.41**	**1.45**	**Attained**	After discussing in the CEG and PAQIC /PAC meetings, it is decided to increase the target value by 2%. To reach the new target value the following actions are planned. **Action 1:.** Action 1: To introduce more subjects to address management principles **Action 2:.** Action 2: To encourage students to work as teams for technical activities conducted by CBIT during Sudhee – Institute level technical symposium. **Action 3:.** Action 3: To encourage more students to work on the hardware/product-based projects such that student get an ability to prepare budget proposal and submit the same to the institute and other agencies for funding **Action 4:.** Action 4: To motivate students to work with multidisciplinary aspects in industry projects carried out as a part of institute activity.

HEAD
Dept. of EEE, CBIT (A)
Gandipet, Hyderabad - 75

3.3. Attainment of Program Outcomes and Program Specific Outcomes **75M**

3.3.2. Provide results of evaluation of each PO & PSO **65M**

The evaluation POs and PSOs is carried out in terms of both direct and indirect assessment methods. Direct method of assessment is based on performance of students in the contributing courses for the corresponding POs and PSOs. Indirect method of assessment is based on the survey from various stakeholders

PO attainment table for Direct Assessment tools:

The evaluation of attainment of POs and PSOs is obtained through the attainment of COs for all the courses. The percentage attainment of COs for each course is multiplied by the weight of correlation of COs with POs and PSOs as specified in the course articulation matrix normalized to 1, to obtain the percentage attainment of POs and PSOs.

The attainment of POs and PSOs through Direct Assessment methods for the **2016-2020** batch is tabulated below:

A. **Verification of documents, results and level of attainment of each PO/PSO (50)**

Table 3.3.2 (i) Direct attainment values of a POs

S.No	Course Code	Couse Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
1	C201	16MTC05 Engineering Mathematics – III	1.84	1.23	0.61		0.41		0.61				0.61	0.61	0.61		0.61
2	C202	16EE C02 Electrical Circuits-I	2.09	1.98	1.86	1.39	2.09								0.81	1.51	
3	C203	16EEC03 Electrical Measurements & Instruments	1.95	1.73	1.3	0.91	1.08								1.3	1.95	1.3
4	C204	16ECC16 Electronics Engineering	1.855	1.04	1.39	1.39	1.53				1.39		0.69	1.50	1.25	0.87	0.69
5	C205	16MEC11 Prime Movers & Pumps	1.22	1.03	0.81	0.41	0.81	0.32		0.09	0.71	0.41	0.41	0.41			
6	C206	16MBC01 Engineering Economics & Accountancy	0.9	1.36	1.09	1.22	1.02	0.68	0.9	0.95	0.68	0.68	1.02	0.68	0.68	0.9	0.85
7	C207	16EE C04 Circuits & Measurements Lab	1.545	1.48	0.74	0.74					0.74	0.74		0.74	0.81	1.55	
8	C208	16ECC17 Electronics Engineering Lab	0.67	0.67	0.67	0.67	0.67	0.67		1.84	1.74	1.34	1.34	1.47		1.34	1.34
9	C209	16MEC12 Prime Movers & Pumps Lab	1.47	1.02	1.13	0.68	1.24			0.68	1.35	1.02		0.68	1.69	1.13	0.68
10	C210	16EE C06 Electrical Circuits -II	1.99	1.99	1.43	1.66	1.21								0.66	1.32	
11	C211	16EE C07 Electrical Machinery - I	1.66	1.66	1.25	1.56			0.62						0.62	1.25	0.62

12	C212	16EE C08 Power Systems - I	2.445	1.76	1.9	1.08	1.62	1.62	1.62						1.62		1.62
13	C213	16EE C09 Electromagnetic Theory	2.08	1.39	1.39	1.39	0.69	0.69	0.69		0.69	0.69		0.69	0.69	1.39	
14	C214	16EE C10 Digital Electronics and Logic Design	1.785	1.86	1.86	1.28	1.28	0.71						0.71	1.14	1.30	1.43
15	C215	16EE C11 Linear Integrated Circuits	2.01	1.79	2.01	2.01	2.01				1.34				2.01	1.79	1.23
16	C216	16EE C12 Electrical Machinery - I Lab	2.56	2.88	0.96	1.76										0.96	2.88
17	C217	16EE C13 Linear Integrated Circuits Lab	2.27	2.41	1.7	2.13	1.98				1.7				2.13	2.55	1.53
18	C218	16EG C03 Soft Skills and Employability Enhancement Lab	0.81	0.81	0.81	0.81	0.81	0.81		2.22	2.1	1.62	1.62	1.78	0	1.62	1.62
19	C301	16EEC15 Power Systems II	1.82	1.52	1.41	1.11	0.60								0.60	1.21	1.21
20	C302	16EEC16 Electrical Machinery II	2.83	2.33	1.67	2.67		2	1						1	2	1
21	C303	16EEC17 Power Electronics	1.76	1.17	0.59	0.98	0.59		0.59		1.07	0.59	0.59	0.98	0.59	1.37	1.17
22	C304	16EE C18 Linear Control Systems	1.99	1.88	1.54	1.54	1.54								1.66	1.99	1.54
23	C305	16EE E01 Non Conventional Energy Sources	1.74	1.08	1.39	1.23	0.99	1.23	1.23	0.62	1.13	0.62	0.62	1.11	0.92	0.99	0.99
24	C306	16MT E01 Statistical & Numerical Methods	2.31	1.85	2.31								1.85	1.85		2	
25	C307	16EEC19 Electrical Machinery Lab -II	1.98	1.74	1.05	1.45	1.19								0.79	1.19	2.24
26	C308	16EEC20 Power Electronics Lab	2.65	1.76	0.88	1.47	0.88		0.88		1.62	0.88	0.88	1.47	0.88	2.06	1.76
27	C309	16EEC21 Linear Control Systems Lab	2.03	1.92	1.58	1.58	1.58								1.7	2	1.58
28	C310	16EEC23 Electrical Machinery III	1.9	0.63	1.27	0.85						0.63		0.63		0.63	0.63
29	C311	16EEC24 Switchgear & protection	2.22	1.48	1.35	1.48	1.48				0.74	0.74		1.48	0.74	1.48	
30	C312	16EEC25 Power Semiconductor Drives	1.46	1.18	1	1.46									0.55	1.18	1.36

31	C313	16EEC26 Microprocessor& Microcontroller	1.65	0.77	1.21	0.77	0.99	1.43	1.1	1.1	1.43	0.66	1.43	1.43	1.38	1.24	1.1
32	C314	16EEE06 Artificial Intelligence Techniques in Elect. Engg.	1.5	1.01	1.04	1.04	1.39				1.16			1.27	1.35	0.72	0.87
33	C315	16EEE08 Optimization Techniques	2.01	1.34		0.78											
34	C316	16EEE09 Advanced Control System	1.99	1.77	1.44	1.33	1.66								1.66	1.99	1.44
35	C317	16EEE11 HVDC Transmission	1.5	0.69								1.27		0.69	2.08	0.69	0.69
36	C318	16EEE12 Simulation Techniques for Electrical Engg.	1.67	0.94	1.25	1.25	1.38				1.25		0.63	1.36	1.25	0.78	0.63
37	C319	16EEC27 Microprocessor & Microcontrollers Lab	1.765	0.88	1.91	1.17	1.17				1.03	0.88		1.91	2.64	1.76	1.76
38	C320	16EEC28 Power Systems Lab	2.68	2.53	2.09	1.79	1.94				0.89		0.89	0.89	2.68	2.68	1.79
39	C321	16EEC29 Mini Project	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
40	C401	16EE C31 Power System Operation and Control	1.9	1.43	1.48	1.4	1.4	0.63	0.63		1.4	1.27	1.4	1.4	1.4	1.52	0.63
41	C402	16EE C32 Utilization of Electrical Energy	1.715	1.22	1.22	0	0.61	1.10	0.73						0.61	1.22	0.66
42	C403	16EE C33 DSP & Embedded Systems	1.83	1.1	0.98	1.53	0.86	0.61			0.61	1.22		1.47	1.83	1.59	1.59
43	C404	16EEE15 Computer Methods in Power Systems	1.72	1.16	1.19	1.19	1.59				1.33			1.46	1.55	0.83	0.99
44	C405	16EEE16 Power Quality Engineering	1.4	0.72	1.35	1.08	1.22	0.54	0.54	1.08	1.08		0.54	1.19	0.9	0.54	0.54
45	C406	16EEE17 Special Electrical Machines	1.55	1.04	1.07	1.07	1.43				1.19			1.31	1.39	0.75	0.9
46	C407	16CE O02 Disaster Mitigation & Management	1.55	1.04	1.07	1.07	1.43				1.19			1.31	1.39	0.75	0.9
47	C408	16CSO10 Machine Learning using Python	2.26	0.87	1.74	1.74	1.96				1.74		0.87	1.92	1.45	0.87	0.87
48	C409	16MEO01 Entrepreneurship	1.72	1.16	1.19	1.19	1.59				1.33			1.46	1.55	0.83	0.99
49	C410	16EE C34 Power Systems Simulation Lab	1.96	1.31	1.83	0.65	1.7	0.65	0.65		1.18	0.65	0.78			1.31	1.31

50	C411	16EE C35 DSP & Embedded Systems Lab	2.275	1.24	1.65	1.55	1.44	0.76			1.07	1.31		1.825	2.275	1.97	1.97
51	C412	16EE C36 Project Seminar	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
52	C413	16EEE19 Flexible AC Transmission Systems	1.45	1.45	0.73	1.82		0.73	0.73	0.73				0.73		1.45	1.45
53	C414	16EEE25 Electrical Estimation and Costing	1.41	1.52	0.94	0.94	0.59	0.59	0.73	0.59				1.06	0.73	1.76	1.17
54	C415	16EGO01 Technical Writing Skills.	1.16	0.58	1.16	0.97	1.16	1.31	0.58	1.16	1.16	1.36	1.05	1.28		1.05	0.82
55	C416	16MEO08 Industrial Administration and Financial Management.	0.68	0.49		0.29					0.1		0.39			1.07	0.88
56	C417	16EEC37 Seminar	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
57	C418	16EEC38 Project	2.39	2.69	2.69	2.47	2.69	1.8		2.24	2.69	2.69	1.97	2.34	1.8	1.8	1.8

Table 3.3.2 (i) Direct Attainment Levels of a POs/PSOs

S. No	Course Code	Couse Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	C201	16MTC05 Engineering Mathematics – III	2	1													
2	C202	16EE C02 Electrical Circuits-I	2	2	2	1	2									2	
3	C203	16EEC03 Electrical Measurements & Instruments	2	2	1										1	2	1
4	C204	16ECC16 Electronics Engineering	2	0	1	1	2				1			2	1		
5	C205	16MEC11 Prime Movers & Pumps	1														

6	C206	16MBC01 Engineering Economics & Accountancy		1		1												
7	C207	16EE C04 Circuits & Measurements Lab	2	1													2	
8	C208	16ECC17 Electronics Engineering Lab								2	2	1	1	1		1	1	
9	C209	16MEC12 Prime Movers & Pumps Lab	1				1				1				2			
10	C210	16EE C06 Electrical Circuits -II	2	2	1	2	1									1		
11	C211	16EE C07 Electrical Machinery - I	2	2	1	2										1		
12	C212	16EE C08 Power Systems - I	3	2	2		2	2	2						2		2	
13	C213	16EE C09 Electromagnetic Theory	2	1	1	1										1		
14	C214	16EE C10 Digital Electronics and Logic Design	2	2	2	1	1									1	1	
15	C215	16EE C11 Linear Integrated Circuits	2	2	2	2	2				1				2	2	1	
16	C216	16EE C12 Electrical Machinery - I Lab	3	3		2	3	3	3	3	3	3	3	3	3		3	
17	C217	16EE C13 Linear Integrated Circuits Lab	3	3	2	3	2				2				3	3	2	
18	C218	16EG C03 Soft Skills and Employability Enhancement Lab								3	3	2	2	2		2	2	
19	C301	16EEC15 Power Systems II	2	2	1											1	1	

20	C302	16EEC16 Electrical Machinery II	3	3	2	3		2								2	
21	C303	16EEC17 Power Electronics	2													1	
22	C304	16EE C18 Linear Control Systems	2	2	2	2	2								2	2	2
23	C305	16EE E01 Non Conventional Energy Sources	2		1	1		1	1								
24	C306	16MT E01 Statistical & Numerical Methods	3	2	3								2	2		2	
25	C307	16EEC19 Electrical Machinery Lab -II	2	2		1		3	3	3	3	3	3	3			3
26	C308	16EEC20 Power Electronics Lab	3	2		1					2			1		2	2
27	C309	16EEC21 Linear Control Systems Lab	2	2	2	2	2								2	2	2
28	C310	16EEC23 Electrical Machinery III	2	0	1												
29	C311	16EEC24 Switchgear & protection	3	1	1	1	1							1		1	
30	C312	16EEC25 Power Semiconductor Drives	1			1											1
31	C313	16EEC26 Microprocessor& Microcontroller	2		1			1			1		1	1	1	1	
32	C314	16EEE06 Artificial Intelligence Techniques in Elect. Engg.	2				1							1	1		
33	C315	16EEE08 Optimization Techniques	2	1													

34	C316	16EEE09 Advanced Control System	2	2	1	1	2								2	2	1
35	C317	16EEE11 HVDC Transmission	2									1			2		
36	C318	16EEE12 Simulation Techniques for Electrical Engg.	2		1	1	1				1			1	1		
37	C319	16EEC27 Microprocessor & Microcontrollers Lab	2		2									2	3	2	2
38	C320	16EEC28 Power Systems Lab	3	3	2	2	2								3	3	2
39	C321	16EEC29 Mini Project	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
40	C401	16EE C31 Power System Operation and Control	2	1	1	1	1				1	1	1	1	1	2	
41	C402	16EE C32 Utilization of Electrical Energy	2	1	1											1	
42	C403	16EE C33 DSP & Embedded Systems	2			2						1		1	2	2	2
43	C404	16EEE15 Computer Methods in Power Systems	2				2				1			1	2		
44	C405	16EEE16 Power Quality Engineering	1		1		1										
45	C406	16EEE17 Special Electrical Machines	2				1							1	1		
46	C407	16CE O02 Disaster Mitigation & Management	2				1							1	1		
47	C408	16CSO10 Machine Learning using Python	3		2	2	2				2			2	1		
48	C409	16MEO01 Entrepreneurship	2				2				1			1	2		

49	C410	16EE C34 Power Systems Simulation Lab	2	1	2		2									1	1		
50	C411	16EE C35 DSP & Embedded Systems Lab	3	1	2	2	1					1		2	3	2	2		
51	C412	16EE C36 Project Seminar	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
52	C413	16EEE19 Flexible AC Transmission Systems	1	1		2										1	1		
53	C414	16EEE25 Electrical Estimation and Costing	1	2												2			
54	C415	16EGO01 Technical Writing Skills.						1				1		1					
55	C416	16MEO08 Industrial Administration and Financial Management.						1											
56	C417	16EEC37 Seminar							2	2	2	2	2	2	2	2	2		
57	C418	16EEC38 Project	3	3	3	3	3	2		3	3	3	2	3	2	2	2		

Table 3.3.2(ii) In-direct attainment level of a POs/PSOs

Survey	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Employer Survey	2.1	2.1	1.58	1.67	1.96	1.88	1.88	2.38	1.81	2.5	1.33	0.96	1.63	1.56	1.3
Alumni Survey	2.28	1.8	2.35	2	2.1	2.45	2.5	2.65	2.9	2.4	2.55	2.8	2.35	2.55	2.6
Program Exit Survey	2.25	2.1	2.1	2	2.09	2.25	2.38	2.56	2.52	2.43	2.21	2.21	2.1	2.3	2.23
Parent Survey	2.45	2.48	2.34	2.45	2.22	2.4	2.75	2.65	2.85	2.4	2.75	2.85	2.3	2.8	2.8

B. **Overall levels of attainment (15)**

Table 3.3.2(iii) Overall attainment level of a POs/PSOs (80% direct and 20% Indirect)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Direct Attainment	1.80	1.41	1.36	1.28	1.32	1.04	0.99	1.29	1.28	1.14	1.11	1.29	1.31	1.41	1.26
Indirect Attainment	2.27	2.12	2.09	2.03	2.09	2.25	2.38	2.56	2.52	2.43	2.21	2.21	2.10	2.30	2.23
PO Attainment	1.89	1.56	1.50	1.43	1.47	1.28	1.27	1.54	1.53	1.40	1.33	1.47	1.46	1.59	1.45

HEAD
Dept. of EEE, CBIT (A)
Gandipet, Hyderabad - 75