CRITERION 3	Course Outcomes and Program Outcomes	120

3. COURSE OUTCOMES AND PROGRAM OUTCOMES (120)

Establish the correlation between the Courses and the Program Outcomes (POs) and Program Specific Outcomes (PSOs) (20)

PROGRAM OUTCOMES

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. Modern tool usage: 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.

6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. 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.

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

9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOME

The graduates of Electrical Engineering will:

PSO1: Demonstrate the capability to comprehend the technical advancements related to electric engineering as well as in multidisciplinary areas.

PSO2: Be professional with leadership qualities, good communication skills, and ethical values and excel in finding creative and environment friendly solutions while working as entrepreneurs or employed in manufacturing, research and development and service sectors.

3.1.1. Course Outcomes (COs) (SAR should include course outcomes of One course/Semester (3rd to 8th) of study, however, should be prepared for all courses and made available as evidence, if asked) (05)

Course Name: [EE 341] Network Analysis; Year of study-2014-15

At the end of the course, students will be able:

EE 341.1	Apply appropriate laws of various circuit elements to develop mathematical models, detailing their constructional features and their applications.
EE 341.2	Analyze given electric circuits for their transient response.
EE 341.3	Model given electrical networks using elementary graph theory and matrix representation amenable to various types of network analysis.
EE 341.4	Apply appropriate network theorems and concept of two-port network for evaluating various networks
EE 341.5	Synthesize networks from various admittance and impedance functions.

Course Name: [EE442]: Electrical Machines I, Year of study—2014-15

At the end of the course, students will be able to:

EE 442.1	Apply principles of electromagnetic induction and energy conversion for a given electromagnetic system
EE 442.2	Explain construction of DC machines and analyze their performance
EE 442.3	Predict the performance of DC motors and choose a appropriate one for a given application
EE 442.4	Analyze the performance of single phase and three phase transformers and select a appropriate three phase connection for a given application
EE 442.5	Analyze the characteristics of three phase induction motors and evaluate their performance for a given application

Course Name: [EE541] Digital Systems; Year of study—2015-16

At the end of the course, students will be able to:

EE541.1	Perform conversion of n-bit codes from one form to another form.
EE541.2	Design a logical circuit using the minimum number of gates for a given logical expression.
EE541.3	Use and demonstrate a given digital combinational circuit.
EE541.4	Use different types of flip-flops and design a sequential logic circuit.
EE541.5	Design ROM, RAM and PLA for a given application.

Course Name: [EE 645] Control System II; Year of Study—2015-16

At the end of the course, students will be able to:

EE 645.1	Design an appropriate feedback controller and compensator for a given system.
EE 645.2	Apply the knowledge of state and state variable analysis to a given system.
EE 645.3	Analyze a given linear and non-linear control system.
EE 645.4	Analyze and evaluate the stability of a given discrete control system.
EE 645.5	Evaluate stability of a given linear and non-linear control system

Course Name:[EE741] Computer Aided Power System Analysis; Year of Study-2016-17

At the end of the course, students will be able to:

EE 741.1	Develop an appropriate mathematical model for analysis of an interconnected power system.
EE 741.2	Analyze a given power system for a symmetrical/unsymmetrical faults using symmetrical components.
EE 741.3	Carry out contingency analysis in power system operation and planning.
EE 741.4	Apply and analyze load flow for a given power system operation and planning.
EE 741.5	Evaluate the stability of a power system by using different stability analysis tools

Course Name: [EE 843] Industrial Drives and Control; Year of study—2016-17

At the end of the course, students will be able to:

EE 843.1	Differentiate among various types of electric drives, their dynamics and apply them for industrial applications
EE 843.2	Find an appropriate value of resistance for starting of motors and braking of electric motors
EE 843.3	Apply the relations of heating and rating of a motor for choosing type and size of motor and enclosures suitable for different applications
EE 843.4	Choose an appropriate power electronic convertor for control of dc and ac drives
EE 843.5	Analyse different kind of processes involved in drives used in industries

Table B: 3.1.1 Course Outcomes

CO-PO matrices of courses selected in 3.1.1 (six matrices to be mentioned; one per semester from 3rd to 8th semester) (05)

Course Name: [EE 341] Network Analysis; Year of study-2014-15

	PROGRAM OUTCOME											
CO	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
EE341.1	3	3	--	--	--	--	--	--	--	--	--	--
EE341.2	3	3	--	--	--	--	--	--	--	--	--	--
EE341.3	3	3	--	--	--	--	--	--	--	--	--	--
EE341.4	3	3	--	--	--	--	--	--	--	--	--	--
EE341.5	3	3	--	--	--	--	--	--	--	--	--	--

Course Name: [EE-442]: Electrical Machines I, Year of study—2014-15

	PROGRAM OUTCOME											
CO	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
EE442.1	2	1	2	--	--	--	--	--	--	--	--	--
EE442.2	2	1	2	--	--	--	--	--	--	--	--	--
EE442.3	2	3	2	--	--	--	--	--	--	--	--	--
EE442.4	2	2	2	--	--	--	--	--	--	--	--	--
EE442.5	2	1	2	--	--	--	--	--	--	--	--	--

Course Name: [EE541] Digital Systems; Year of study—2015-16

	PROGRAM OUTCOME											
CO	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
EE541.1	3	3	--	--	--	--	--	--	--	--	--	--
EE541.2	3	3	--	--	--	--	--	--	--	--	--	--
EE541.3	3	3	--	--	--	--	--	--	--	--	--	--
EE541.4	3	3	--	--	--	--	--	--	--	--	--	--
EE541.5	3	3	--	--	--	--	--	--	--	--	--	--

Course Name: [EE 645] Control System II; Year of Study—2015-16

	PROGRAM OUTCOME											
CO	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
EE645.1	3	--	--	--	--	--	--	--	--	--	--	--
EE645.2	3	3	--	--	--	--	--	--	--	--	--	--
EE645.3	3	3	--	--	--	--	--	--	--	--	--	--
EE645.4	3	3	--	--	--	--	--	--	--	--	--	--
EE645.5	3	3	3	--	--	--	--	--	--	--	--	--

Course Name:EE741] Computer Aided Power System Analysis; Year of Study—2016-17

	PROGRAM OUTCOME											
CO	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
EE741.1	3	3	--	--	--	--	--	--	--	--	--	--
EE741.2	3	3	2	--	--	--	--	--	--	--	--	--
EE741.3	3	2	1	--	--	--	--	--	--	--	--	--
EE741.4	3	3	2	--	--	--	--	--	--	--	--	--
EE741.5	2	3	--	--	--	--	--	--	--	--	--	--

Course Name: [EE 843] Industrial Drives and Control; Year of study—2016-17

	PROGRAM OUTCOME											
CO	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
EE843.1	3	2	--	--	--	--	--	--	--	--	--	--
EE843.2	3	3	--	--	--	--	--	--	--	--	--	--
EE843.3	3	3	--	--	--	--	--	--	--	--	--	--
EE843.4	2	2	--	--	--	--	--	--	--	--	--	--
EE843.5	2	2	--	--	--	--	--	--	--	--	--	--

Table B : 3.1.2a CO-PO Matrices

CO-PSO matrices of courses selected in 3.1.1 (six matrices to be mentioned; one per semester from 3rd to 8th semester) (05)

Course Name: [EE 341] **Network Analysis** **Year of study-2014-15**

Course Outcomes	PSO1	PSO2
EE341.1		
EE341.2		
EE341.3	**1**	
EE341.4		
EE341.5	**1**	

Course Name: [EE-442] **Electrical Machines I** **Year of study—2014-15**

Course Outcomes	PSO1	PSO2
EE442.1		
EE442.2		
EE442.3		
EE442.4		
EE442.5	**3**	

Course Name: [EE541] **Digital Systems** **Year of study—2015-16**

Course Outcomes	PSO1	PSO2
EE541.1		
EE541.2	**1**	
EE541.3		
EE541.4		
EE541.5	**1**	

Course Name: [EE 645] **Control System II** **Year of Study—2015-16**

Course Outcomes	PSO1	PSO2
EE645.1		
EE645.2		
EE645.3	**1**	
EE645.4		
EE645.5	**2**	

Course Name: [EE741] Computer Aided Power System Analysis; Year of Study—2016-17

Course Outcomes	PSO1	PSO2
EE741.1		

EE741.2		
EE741.3	**1**	
EE741.4		
EE741.5	**1**	

Course Name: [EE 843] **Industrial Drives and Control** **Year of study—2016-17**

Course Outcomes	PSO1	PSO2
EE843.1		
EE843.2	**1**	
EE843.3		
EE843.4		**2**
EE843.5	**1**	

Table B : 3.1.2b CO-PSO Matrices

Program level Course-PO matrix of all courses INCLUDING first year courses (10)

Course Code		Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1.1 TS	PH101	Physics-I	2.5	2										
1.1 P	PH101L	Physics-I Lab	2											
1.2 TS	CY102	Chemistry-I	2.6	1.6				1	1.5					1
1.2 P	CY102L	Chemistry-I Lab	2.5	1.8		1						1		
1.3 TS	MA103	Mathematics-I	3	3	1.2	1					1			2
1.4 TS	CE104	Elements of Civil Engineering	2.6	2.2	0.2	0.8	0.6							
1.5 TS	HU105	English Communication and Technical Report Writing		1		1		1	1	1.3	3	2.25		3
1.6 TS	CE106	Engineering Graphics-I	3	3	2.4	2.6	2.1	2.6	0.7					
1.7 PS	CS107	Introduction to Computing	2		3	2.7	2							
1.8 S	ME108	Workshop-I	1.8	1.4						1.2	1.8			
2.1 TS	PH201	Physics-II	2.5	2										
2.1 P	PH201L	Physics-II Lab	2											
2.2 TS	CY202	Chemistry-II	2.8	2.2	1.3			1	1		1	1		1
2.2P	CY202L	Chemistry-II Lab	2	2	-	1.3	-	1	1.3	-	-	1	-	-
2.3 TS	MA203	Mathematics-II	3	3	2									2
2.4 TS	ME204 CE205	Engineering Mechnaics and Strength of Materials	3	3	2	1								
2.4 P	ME204L CE205L	Engineering Mechnaics and Strength of Materials Lab	3	2		3	3							
2.5 TS	EE206	Basic Electrical Engg.-I	3	3										

2.5 Lab	EE206L	Basic Electrical Engg.-I Lab				3					2			

2.6 TS	ME207	Engineering Graphics-II	3	3	1.7		2	3						1
2.7 S	ME208	Workshop Practice	1.6	2						1	1.6			
3.1TS	MA301	Mathematics -III	3	3										
3.3TS	EE341	Network Analysis	3	3										1.2
3.6TS	EE342	Electrical Engineering Materials & Devices	2.2	2.4										1.75
3.5TS	EE343	Advanced Computer Programming	2.8	3										2
3.4TS	ME302	Engineering Mechanics -II	3	2										
3.2TS	ME305	Basic Thermodynamics	3	2.8										
3.7P	EE345	Electrical Engineering Drawing	3	1.7										
3.5P	EE343	Advanced Computer Programming				3								
3.4P	ME302	Engineering Mechanics -II				1.8								
3.2P	ME305	Basic Thermodynamics				2								
3.8T	EE344	General Proficiency										3	2	
4.1TS	MA401	Mathematics –IV	3	2.4	1.6	1	1				1			1.4
4.2TS	HU402	Sociology and Accountancy		1				1.3	1	1.3	1.2	1	1	3
4.3TS	HU403	Communication Skill		1.8		1.5		2.2	1.2	1.8	2	3		3
4.7TS	EE441	Analog Electronics	3	3	3									
4.6TS	EE442	Electrical Machines-I	2	1.6	2									
4.4TS	EE443	Electrical Measurements and Measuring Instruments	3	2.8	1									
4.5TS	EE444	Data Structure	2.2	2.2										
4.9T	EE445	General Proficiency										3	2	
4.7P	EE441L	Analog Electronics Lab				2								
4.4P	EE443L	Electrical Measurements and Measuring Instruments Lab												
4.5P	EE444L	Data Structure Lab				3								
5.1TS	HU501	Economics & Principles of Management.		1				2	1	1	2	1	1	2.66
5.2TS	EE541	Digital Systems	3	3										
5.3TS	EE542	Control System-I	3	2.8										
5.4TS	EE543	Power Electronics	2.4	2.6	2.4									
5.5TS	EE544	Electric Power System-I	3	2.7										
5.6TS	EE545	Electrical Machines-II	2.8	2.4	2.2									
5.8T	EE546	General Proficiency										3	2	
5.2P	EE541L	Digital Systems Lab				2								
5.3P	EE542L	Control System-I Lab				2								
5.4P	EE543L	Power Electronics Lab				1								
5.6P	EE547	Electrical Machines-I Lab				2								
6.1T	EE641	Electromagnetic Fields	3	3	1.4									

6.2TS	EE642	Computer Oriented Numerical Methods	2.2	2.2										
6.3TS	EE643	Microprocessors & Applications	2.8	2.8	2.4									
6.4TS	EE644	Electric Power System-II	2.8	2.6	1.2									
6.5TS	EE645	Control System –II	3	3	3									
6.6TS	EE646	Signals and Systems	2.6	2.6										
6.7T	EE647	General Proficiency										3	2	
6.2P	EE642L	Computer Oriented Numerical Methods Lab				2								
6.3P	EE643L	Microprocessors & Applications Lab				2.2								
6.5P	EE645L	Control System –II Lab				3								
6.8P	EE648	Electrical Machines-II Lab				2								
7.1TS	EE741	Computer Aided Power System Analysis	2.8	2.8	1.7									
7.2TS	EE742	Communication Engineering	3	3	1									
7.3TS	EE743	Operations Research	2.8	2.8										
7.4TS	EE744	Instrumentation Engineering	3	1.6	2									
7.5TS	EE745(1)	Elective –I(CN)	3	1.6										
7.5TS	EE745(2)	Elective –I(NCES)	3	2.4										
7.6TS	EE746(1)	Elective-II(MBI)	2.8	3										
7.6TS	EE746(2)	Elective-II(DSD)	3	3										
7.7P	EE747	Training					2.7	1	2	2	2			1.67
7.8P	EE748	Project –I					2	1	1	1	3			3
8.1TS	EE841	Power System Interconnection & Control.	3	3										
8.2TS	EE842	HVE	3	1.8										
8.3TS	EE843	Industrial Drives & Control	2.6	2.4										
8.4TS	EE845(1)	Elective -I(DSP)	2.6	2.6										
8.4TS	EE845(2)	Elective -I(DIP)	1.8	1.2										
8.5TS	EE844(1)	Elective-II(RE)	2.6	2.5										
8.5TS	EE844(2)	Elective-II(UCEE)	2.2	1.6										
8.7P	EE846	Project -II					2	1	1	1.5	3			3
8.6P	EE847	Viva-Voce	3	3							3			3
		Average	2.69	2.4	1.8	1.9	1.9	1.5	1.2	1.4	2	2.02	1.67	2.1

Table B: 3.1.3a Program Level CO-PO Matrix

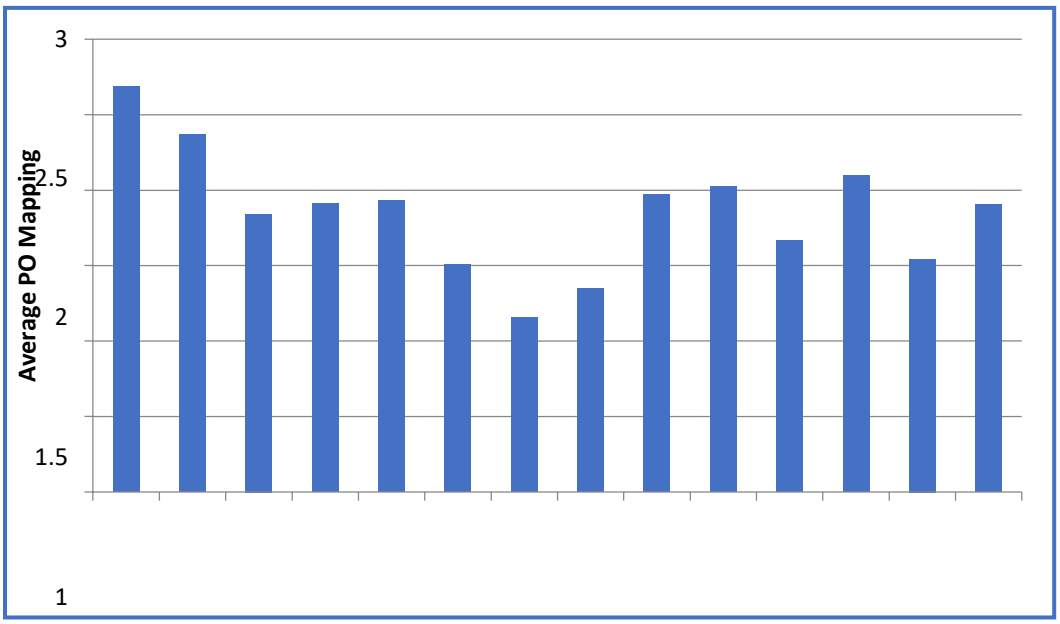

Fig : 3.1.3 Program Level CO-PO Mapping

Program level Course-PSO matrix of all courses INCLUDING first year courses

Course Code		Course	PSO1	PSO2
1.1 TS	PH101	Physics-I		
1.1 P	PH101L	Physics-I Lab		
1.2 TS	CY102	Chemistry-I		
1.2 P	CY102L	Chemistry-I Lab		
1.3 TS	MA103	Mathematics-I		
1.4 TS	CE104	Elements of Civil Engineering		
1.5 TS	HU105	English Communication and Technical Report Writing		
1.6 TS	CE106	Engineering Graphics-I		
1.7 PS	CS107	Introduction to Computing		
1.8 S	ME108	Workshop-I		
2.1 TS	PH201	Physics-II		
2.1 P	PH201L	Physics-II Lab		
2.2 TS	CY202	Chemistry-II		
2.2P	CY202L	Chemistry-II Lab		
2.3 TS	MA203	Mathematics-II		
2.4 TS	ME204 CE205	Engineering Mechanics and Strength of Materials		
2.4 P	ME204L CE205L	Engineering Mechanics and Strength of Materials Lab		
2.5 TS	EE206	Basic Electrical Engg.-I	2	1
2.5 Lab	EE206L	Basic Electrical Engg.-I Lab		
2.6 TS	ME207	Engineering Graphics-II		
2.7 S	ME208	Workshop Practice		
3.1TS	MA301	Mathematics -III	1	
3.3TS	EE341	Network Analysis	1	
3.6TS	EE342	Electrical Engineering Materials & Devices	2	1
3.5TS	EE343	Advanced Computer Programming	1	1
3.4TS	ME302	Engineering Mechanics -II		
3.2TS	ME305	Basic Thermodynamics		

3.7P	EE345	Electrical Engineering Drawing	2	

3.5P	EE343	Advanced Computer Programming		
3.4P	ME302	Engineering Mechanics -II		
3.2P	ME305	Basic Thermodynamics		
3.8T	EE344	General Proficiency		2.5
4.1TS	MA401	Mathematics –IV	1	
4.2TS	HU402	Sociology and Accountancy		2
4.3TS	HU403	Communication Skill		3
4.7TS	EE441	Analog Electronics	2	1
4.6TS	EE442	Electrical Machines-I	3	
4.4TS	EE443	Electrical Measurements and Measuring Instruments	1	1
4.5TS	EE444	Data Structure	1	
4.9T	EE445	General Proficiency		2
4.7P	EE441L	Analog Electronics Lab		
4.4P	EE443L	Electrical Measurements and Measuring Instruments Lab		
4.5P	EE444L	Data Structure Lab		
5.1TS	HU501	Economics & Principles of Management.		2
5.2TS	EE541	Digital Systems	1	
5.3TS	EE542	Control System-I	1.5	
5.4TS	EE543	Power Electronics	2	
5.5TS	EE544	Electric Power System-I	2	
5.6TS	EE545	Electrical Machines-II		
5.8T	EE546	General Proficiency		3
5.2P	EE541L	Digital Systems Lab		
5.3P	EE542L	Control System-I Lab		
5.4P	EE543L	Power Electronics Lab		
5.6P	EE547	Electrical Machines-I Lab		
6.1T	EE641	Electromagnetic Fields	1.5	
6.2TS	EE642	Computer Oriented Numerical Methods	2	
6.3TS	EE643	Microprocessors & Applications	1	2
6.4TS	EE644	Electric Power System-II	2	2
6.5TS	EE645	Control System –II	1.5	
6.6TS	EE646	Signals and Systems	1.5	
6.7T	EE647	General Proficiency		3
6.2P	EE642L	Computer Oriented Numerical Methods Lab		
6.3P	EE643L	Microprocessors & Applications Lab		
6.5P	EE645L	Control System –II Lab		
6.8P	EE648	Electrical Machines-II Lab		
7.1TS	EE741	Computer Aided Power System Analysis	1	
7.2TS	EE742	Communication Engineering	1.5	
7.3TS	EE743	Operations Research	1	
7.4TS	EE744	Instrumentation Engineering	1.5	
7.5TS	EE745(1)	Elective –I(CN)	2	
7.5TS	EE745(2)	Elective –I(NCES)	1	2
7.6TS	EE746(1)	Elective-II(MBI)	2	
7.6TS	EE746(2)	Elective-II(DSD)	1	
7.7P	EE747	Training	1	1
7.8P	EE748	Project –I	3	1
8.1TS	EE841	Power System Interconnection & Control.	2	
8.2TS	EE842	HVE	3	
8.3TS	EE843	Industrial Drives & Control	1	2
8.4TS	EE845(1)	Elective -I(DSP)	1	
8.4TS	EE845(2)	Elective -I(DIP)	2	1
8.5TS	EE844(1)	Elective-II(RE)	1.5	
8.5TS	EE844(2)	Elective-II(UCEE)	1.5	

8.7P	EE846	Project -II	3	1
8.6P	EE847	Viva-Voce		2
		Average	1.62	1.74

Table B: 3.1.3b Program Level CO-PSO Matrix

Attainment of Course Outcomes (50)

Describe the assessment processes used to gather the data upon which the evaluation of Course Outcome is based (10)

Course outcomes are assessed using either direct method or indirect method:

- In direct method, the performance of students are continuously evaluated on the basis of class tests, home works, class room assignments, power-point presentation on selected topics, quiz and finally the end semester examination. It also includes laboratory experiments for which separate tests are conducted for assessment.

  Assam Engineering College is affiliated to Gauhati University. The program adheres to the regulations as laid down by the University. The end semester exam is conducted by the University and the evaluated answer script are returned back to the University. A faculty, taking a particular course, does not necessarily set the question paper or evaluate the answer script. Since the college cannot retain the answer scripts, question wise distribution of marks scored by the candidates are not available. Hence calculation of 'CO Wise attainment' for the end semester examination could not be carried out. Also, evaluated answer scripts of class tests, assignments and other such documents have already been returned to the students till 2017. Hence for the calculation of the course attainment, 50% of the weightage is considered from the continuous assessment (sessional) and 50 % weightage from the end semester university examination.

  For the evaluation of sessional marks, the University Guidelines are as follows:

  Attendance: 30 % of the total marks

  Class Test: 40 % of the total marks

  Assignments: 10 % of the total marks

  Impression: 20 % of the total marks (this includes but not limited to viva-voce, seminar, laboratory performance, skill, creativity, confidence etc. as decided by the concerned faculty).

  From the current assessment year, the individual CO attainment will be carried out based on the assessment methods as given below:

Direct Assessment Methods (CAY)		
Sl.no	**Direct Assessment**	**Method Description**
1.	**Internal Assessment Test**	Three tests will be conducted for every theory subject at during a semester. An additional test may also be conducted for betterment of those students having poor performance. Average of the best two class test Internal Assessment Marks for the relevant subject.
2.	**Lab Assignments**	Laboratory experiments are to be performed by the students to bridge the gap between theory and practical knowledge of a particular subject. The laboratory assignment is one of the measuring criteria to mainly assess students' practical knowledge. The internal marks for practical shall be based on the laboratory records and lab examination either in the form of hand-on experiment or viva-voce at the end of semester.

3.	**End Semester Examination**	Performance in the semester examination (theory or practical) is the main criteria to assess whether the course objectives are met and all the course outcomes are attained. The end semester examinations are more focused on attainment of course outcomes.
4.	**Project**	The internal assessment marks for projects in the final year shall be based on (i) the continuous evaluation of the project by the concerned supervisor/guide and by conducting progress seminars at equal intervals during the semester (ii) the end semester evaluation will be done by a committee consisting of internal experts (faculty from the department) and invited external experts preferably from other reputed academic institutes and industries.
5.	**Grand Viva-voce**	A separate assessment in the form of viva-voce is made at the end of final semester by a panel of examiners consisting of internal experts (faculty from the department) and invited external experts preferably from other reputed academic institutes and industries. This helps to assess the depth of theoretical as well as practical knowledge of the students

Table B: 3.2.1a Direct Assessment Tool

- Indirect method involves all the inputs from the students, alumni and employers. Various methods such as survey, questionnaire and feedback are designed to collect information from the stakeholders and assessments are made to know the satisfaction levels of programmes and adequacy of facilities. The collective opinions or thoughts of all the stakeholders about the graduate's knowledge or skills will immensely help for continual improvement of programmes.

Indirect assessment Methods		
Sl no	**Indirect Assessment Method**	**Method Description**
1.	**ALUMNI SURVEY**	Collect information to know program satisfaction level.
2.	**EXIT FEEDBACK**	Collect information to know program satisfaction level from the final year students.
3.	**EMPLOYER'S FEEDBACK**	Collect information to know the program satisfaction level relating to graduates' skills, capabilities and prospects

Table B: 3.2.1b Indirect Assessment Tool

Record the attainment of Course Outcomes of all courses with respect to set attainment levels:

Measuring Course Outcomes attained through University Examinations Attainment Level 3: Students scoring more than 70 % marks in the final examination.

Attainment Level 2: Students scoring between (50 -70) % marks in the final examination. **Attainment Level 1:** Students scoring between (35-50) % marks in the final examination. **Attainment Level 0:** Students scoring less than 35 % marks in the final examination.

Measuring Course Outcome attained through Internal Assessments: Attainment Level 3: Students scoring more than 70 % marks in the finalexamination.

Attainment Level 2: Students scoring between (50 -70) % marks in the final examination. **Attainment Level 1:** Students scoring between (35-50) % marks in the final examination. **Attainment Level 0:** Students scoring less than 35 % marks in the final examination.

Course Outcome and Program Outcome Attainment for EE341

EE 341	Direct Assessment	Course Outcome and Program Outcome Attainment												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	Total
CO1	Final	76.7	76.7											85
	Internal	93.3	93.3											
CO2	Final	76.7	76.7											85
	Internal	93.3	93.3											
CO3	Final	76.7	76.7											85
	Internal	93.3	93.3											
CO4	Final	76.7	76.7											85
	Internal	93.3	93.3											
CO5	Final	76.7	76.7											85
	Internal	93.3	93.3											

Table B: 3.2.2a Attainment of Course Outcome of NA EE341

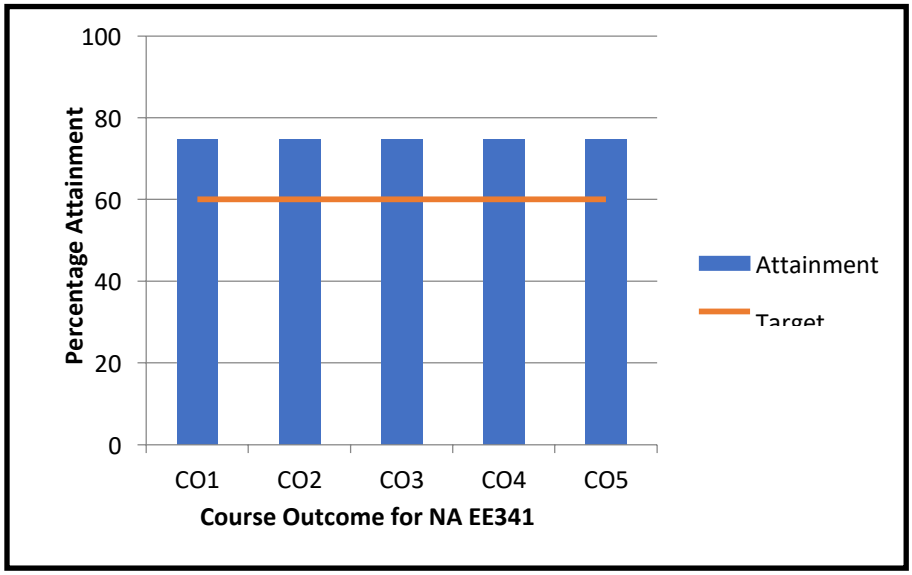

Fig: 3.2.2a Attainment of Course Outcome of NA EE341

Course Outcome and Program Outcome Attainment for EE442

EE 442	Direct Assessment	Course Outcome and Program Outcome Attainment												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	Total
CO1	Final	40	40	40										56
	Internal	71.3	71.3	71.3										
CO2	Final	40	40	40										56
	Internal	71.3	71.3	71.3										
CO3	Final	40	40	40										56
	Internal	71.3	71.3	71.3										
CO4	Final	40	40	40										56
	Internal	71.3	71.3	71.3										
CO5	Final	40	40	40										56
	Internal	71.3	71.3	71.3										

Table B: 3.2.2b Attainment of Course Outcome of EMI EE442

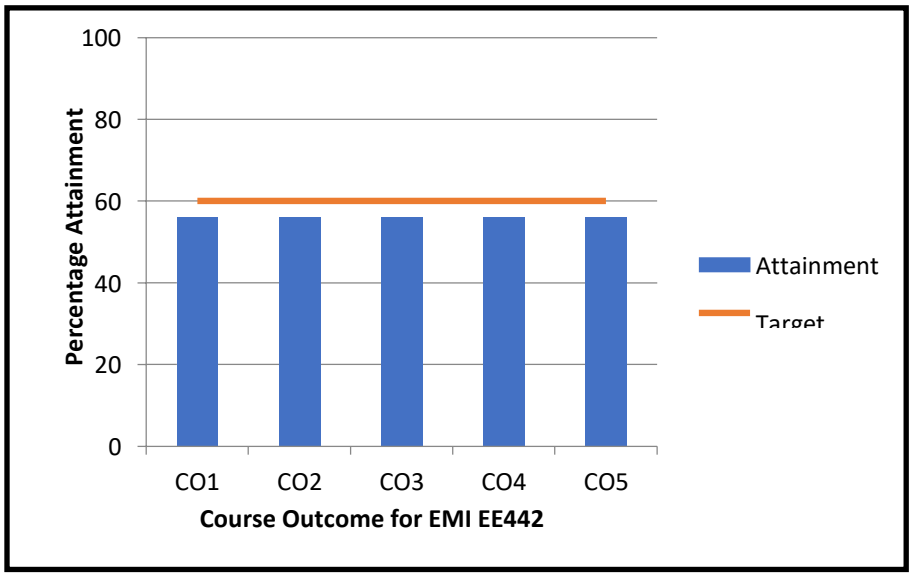

Fig : 3.2.2b Attainment of Course Outcome of EMI EE442

Course Outcome and Program Outcome Attainment for EE541

EE 541	Direct Assessment	Course Outcome and Program Outcome Attainment												
		PO1	PO 2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	Tota l
CO1	Final	69	69											81.5
	Internal	94	94											
CO2	Final	69	69											81.5
	Internal	94	94											
CO3	Final	69	69											81.5
	Internal	94	94											
CO4	Final	69	69											81.5
	Internal	94	94											
CO5	Final	69	69											81.5
	Internal	94	94											

Table B: 3.2.2c Attainment of Course Outcome of DS EE541

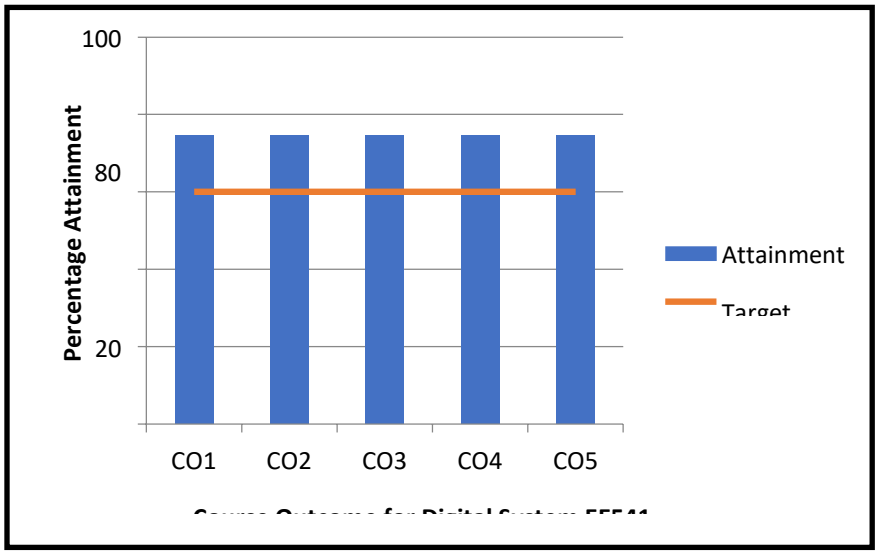

Fig: 3.2.2c Attainment of Course Outcome of DS EE541

Course Outcome and Program Outcome Attainment for EE645

EE 341	Direct Assessment	Course Outcome and Program Outcome Attainment												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	Total
CO1	Final	66.7												71.7
	Internal	76.7												
CO2	Final	66.7	66.7											71.7
	Internal	76.7	76.7											
CO3	Final	66.7	66.7											71.7
	Internal	76.7	76.7											
CO4	Final	66.7	66.7											71.7
	Internal	76.7	76.7											
CO5	Final	66.7	66.7	66.7										71.7
	Internal	76.7	76.7	76.7										

Table B: 3.2.2d Attainment of Course Outcome of CSII EE645

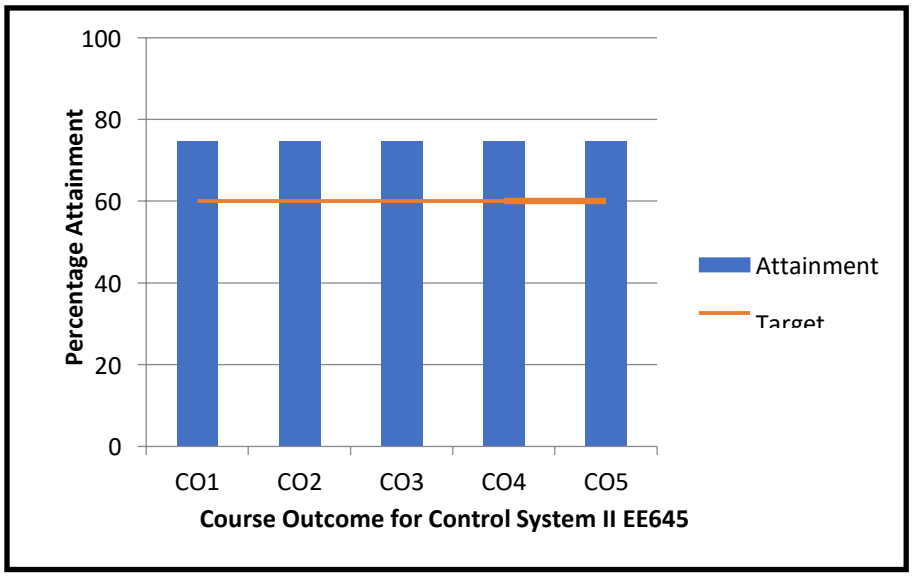

Fig: 3.2.2d Attainment of Course Outcome of CSII EE645

Course Outcome and Program Outcome Attainment for EE741

EE 341	Direct Assessment	Course Outcome and Program Outcome Attainment												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	Total
CO1	Final	64.3	64.3											70.3
	Internal	76.3	76.3											
CO2	Final	64.3	64.3											70.3
	Internal	76.3	76.3											
CO3	Final	64.3	64.3											70.3
	Internal	76.3	76.3											
CO4	Final	64.3	64.3											70.3
	Internal	76.3	76.3											
CO5	Final	64.3	64.3											70.3
	Internal	76.3	76.3											

Table B: 3.2.2e Attainment of Course Outcome of CAPSA EE741

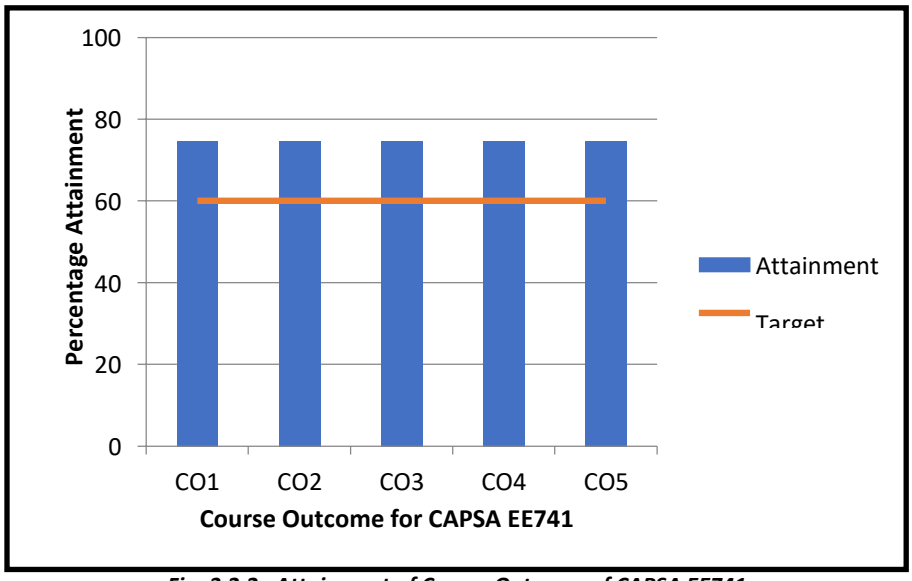

Fig: 3.2.2e Attainment of Course Outcome of CAPSA EE741

Course Outcome and Program Outcome Attainment for EE843

EE 341	Direct Assessment	Course Outcome and Program Outcome Attainment												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	Total
CO1	Final Internal	56.3	56.3											74.6
CO2	Final Internal	93	93											
CO3	Final Internal	56.3	56.3											74.6
	Final Internal	93	93											74.6
CO5	Final	56.3	56.3											74.6

Table B: 3.2.2f Attainment of Course Outcome of IDC EE843

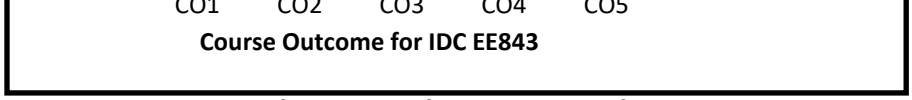

Fig: 3.2.2f Attainment of Course Outcome of IDC EE843

CONSOLIDATED COURSE OUTCOME FOR THE PROGRAM

Course Code	Course	Attainment (2011-2015)	Attainment (2012-2016)	Attainment (2013-2017)	Target Level
3.1TS	Mathematics -III	2.09	1.94	2.11	1.5
3.3TS	Network Analysis	2.46	2.38	2.55	1.5
3.6TS	Electrical Engineering Materials & Devices	2.24	1.82	1.94	1.5
3.5TS	Advanced Computer Programming	2.19	2.17	2.05	1.5
3.4TS	Engineering Mechanics -II	2.26	2.34	2.22	1.5
3.2TS	Basic Thermodynamics	2.34	2.2	2.23	1.5
3.7P	Electrical Engineering Drawing	2.81	2.08	2.57	1.5
3.5P	Advanced Computer Programming	2.44	2.7	2.9	1.5
3.4P	Engineering Mechanics -II	2.99	2.99	2.96	1.5
3.2P	Basic Thermodynamics	2.99	2.96	2.95	1.5
3.8T	General Proficiency	2.64	1.84	2.33	1.5
4.1TS	Mathematics –IV	1.88	1.48	1.86	1.5
4.2TS	Sociology and Accountancy	2.44	2.09	2.13	1.5
4.3TS	Communication Skill	1.71	2.02	1.82	1.5
4.7TS	Analog Electronics	1.64	1.66	2.04	1.5
4.6TS	Electrical Machines-I	1.57	1.28	1.56	1.5
4.4TS	Electrical Measurements and Measuring Instruments	2.26	2.1	1.55	1.5
4.5TS	Data Structure	2.26	2.32	2.29	1.5
4.9T	General Proficiency	2.68	2.32	2.05	1.5
4.7P	Analog Electronics Lab	2.88	2.9	2.91	1.5
4.4P	Electrical Measurements and Measuring Instruments Lab	2.48	2.31	2.57	1.5
4.5P	Data Structure Lab	2.86	2.63	2.19	1.5
5.1TS	Economics & Principles of Management.	2.21	2.22	2.26	1.5
5.2TS	Digital Systems	2.69	2.57	2.45	1.5
5.3TS	Control System-I	2.23	2.41	2.22	1.5
5.4TS	Power Electronics	2.15	2.33	2.3	1.5
5.5TS	Electric Power System-I	2.4	2.07	1.83	1.5
5.6TS	Electrical Machines-II	2.18	2.17	2.04	1.5
5.8T	General Proficiency	2.97	2.95	2.99	1.5
5.2P	Digital Systems Lab	2.99	2.84	2.73	1.5
5.3P	Control System-I Lab	2.95	2.94	2.85	1.5
5.4P	Power Electronics Lab	2.45	2.73	2.68	1.5
5.6P	Electrical Machines-I Lab	2.76	2.57	2.78	1.5
6.1T	Electromagnetic Fields	2.15	2.11	2.02	1.5
6.2TS	Computer Oriented Numerical Methods	2.35	2.31	2.47	1.5

6.3TS	Microprocessors & Applications	2.14	1.89	1.88	1.5
6.4TS	Electric Power System-II	2	2.12	1.88	1.5
6.5TS	Control System –II	1.82	2.29	2.15	1.5
6.6TS	Signals and Systems	2.38	2.14	2.01	1.5
6.7T	General Proficiency	2.95	2.97	2.84	1.5
6.2P	Computer Oriented Numerical Methods Lab	2.88	2.83	2.67	1.5
6.3P	Microprocessors & Applications Lab	2.77	2.92	2.36	1.5
6.5P	Control System –II Lab	2.93	2.73	2.45	1.5
6.8P	Electrical Machines-II Lab	2.52	2.85	2.12	1.5
7.1TS	Computer Aided Power System Analysis	2.35	2.09	2.11	1.5
7.2TS	Communication Engineering	2.74	2.53	2.5	1.5
7.3TS	Operations Research	1.94	1.8	1.76	1.5
7.4TS	Instrumentation Engineering	2.49	2.08	1.79	1.5
7.5TS	Elective –I(NCES)	2.23	2.35	2.12	1.5
7.5TS	Elective –I(CN)	2.26	2.18	2.41	1.5
7.6TS	Elective-II(MBI)	2.25	2.75	2.66	1.5
7.6TS	Elective-II(DSD)	2.56	2.26	2.13	1.5
7.7P	Training	2.94	2.27	2.62	1.5
7.8P	Project –I	2.61	2.78	2.42	1.5
8.1TS	Power System Interconnection & Control.	2.54	2.57	2.54	1.5
8.2TS	HVE	2.47	1.43	2.31	1.5
8.3TS	Industrial Drives & Control	2.4	2.16	2.24	1.5
8.4TS	Elective -I(DSP)	2.45	2.27	2.63	1.5
8.4TS	Elective -I(DIP)	2.73	2.75	2.75	1.5
8.5TS	Elective-II(UCEE)	2.72	2.55	2.66	1.5
8.5TS	Elective-II(RE)	2.7	2.46	2.46	1.5
8.7P	Project -II	2.97	2.89	2.86	1.5
8.6P	Viva-Voce	2.84	2.52	2.76	1.5

Table B: 3.2.2g Consolidated Course Outcome

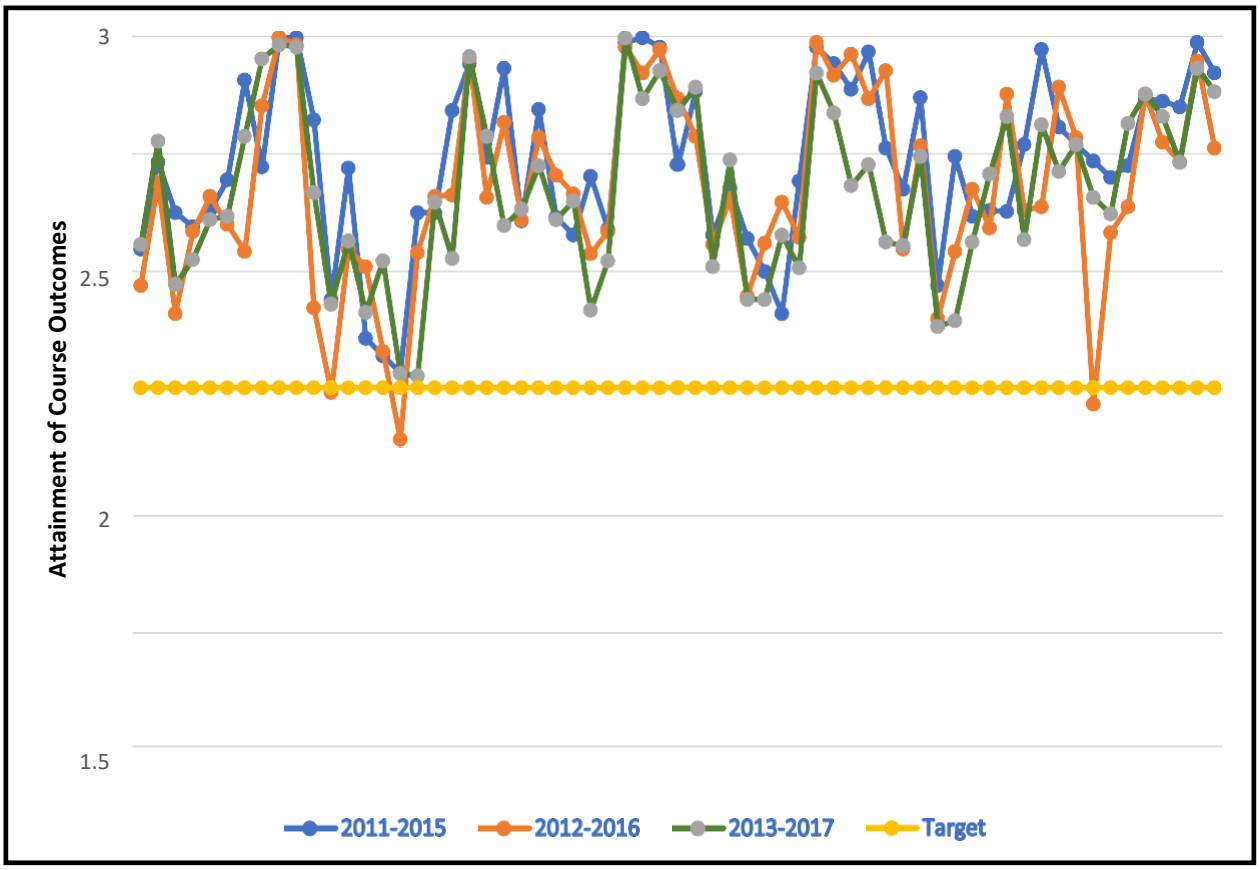

Fig: 3.2.2g Consolidated Course Outcome for the Program

3.3 Attainment of Program Outcomes and Program Specific Outcomes (50)

3.3.1 Describe assessment tools and processes used for measuring the attainment of each of the Program Outcomes and Program Specific Outcomes (10)

The expected level of attainment for each of the Program Outcomes:

The program outcomes are assessed with the help of course outcomes of the relevant Courses through direct and indirect methods. The evaluation PSOs is carried out with respect to student performance and surveys in both the terms of direct and indirect assessment methods for the contributing courses mapped to the PSO.

Direct Assessment Method:

Direct measures are provided through end semester examinations and continuous assessment. This is done by the observations of student knowledge or skills against measureable course outcomes. The course outcomes are mapped to specific problems in internal exams and the students are assessed continuously from exams, assignments, seminars, projects etc.

The contribution of course in attaining a particular PO is calculated using the formula-

$$\frac{\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad}{}$$

Indirect Assessment Method:
Indirect assessment strategies are implemented by embedding them in the course end survey, Exit survey and Alumni Survey (Annexure IV). The methodology of assessment is as given below:

Exit Survey: The exit survey attainment for the students at the end of the program is mapped to different POs as given below:

Attainment Levels:
Attainment Level 3: If 85 % or more students have answered as "Strongly Agree" and "Agree"
Attainment Level 2: 75 % or more students have answered as "Strongly Agree" and "Agree"
Attainment Level 1: If 60% students have answered as "Strongly Agree" and "Agree"
Attainment Level 0: If more than 50 % students have answered as "Disagree"

Alumni Survey: Attainment Levels:

Attainment Level 3: If 85 % or more students have answered as "Completely satisfied" and "Satisfied"
Attainment Level 2: 75 % or more students have answered as "Completely satisfied" and "Satisfied"
Attainment Level 1: If 60% students have answered as "Completely satisfied" and "Satisfied"
Attainment Level 0: If more than 50 % students have answered as "Dissatisfied"

Total Attainment= 80% from direct attainment+ 20% from indirect attainment

The attainment from the surveys is given below:

Program Outcome Attainment from Exit Survey											
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
2	3	2	2	1	2	2	2	3	2	1	2
Program Outcome Attainment from Alumni Survey											
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
3	2	2	2	1	3	3	3	3	3	2	3

Table B: 3.3.1 Attainment through Indirect Assessment

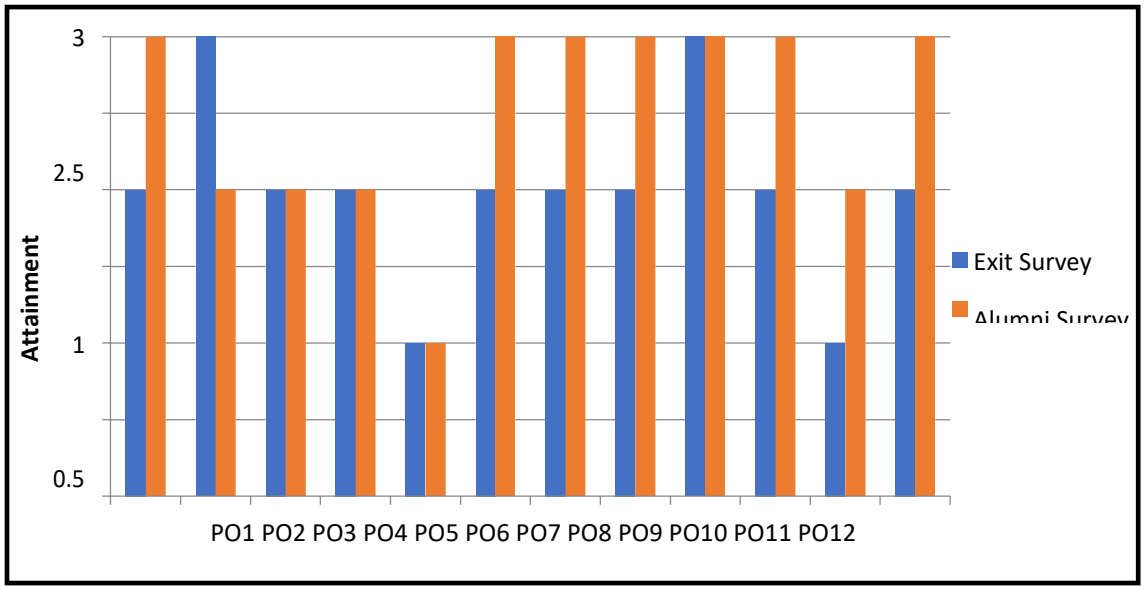

Fig 3.3.1: Attainment through Indirect Assessment

3.3.2. Provide results of evaluation of each PO & PSO (40) Program Outcome

Attainment

Course Code		Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1.1 TS	PH101	Physics-I	1.83											
1.1 P	PH101L	Physics-I Lab	1.12											
1.2 TS	CY102	Chemistry-I	2.12	1.31				0.8	1.23					0.82
1.2 P	CY102L	Chemistry-I Lab	2.45	1.72		0.98						0.98		
1.3 TS	MA103	Mathematics-I	2.18	2.18	0.87	0.73					0.7			1.45
1.4 TS	CE104	Elements of Civil Engineering	1.57	1.33	0.12	0.48	0.4							
1.5 TS	HU105	English Communication and Technical Report Writing		0.33		0.33		0.3	0.33	0.44	1	0.75		1
1.6 TS	CE106	Engineering Graphics-I	1.64	1.64	1.32	1.4	1.2	1.4	0.39					
1.7 PS	CS107	Introduction to Computing	1.17		1.75	1.56	1.2							
1.8 S	ME108	Workshop-I	1.37	1.07						0.92	1.4			
2.1 TS	PH201	Physics-II	1.63	1.3										
2.1 P	PH201L	Physics-II Lab	1.33											
2.2 TS	CY202	Chemistry-II	1.8	1.42	0.86			0.6	0.64		0.6	0.64		0.64
2.2P	CY202L	Chemistry-II Lab	1.78	1.78		1.16		0.9	1.16			0.89		
2.3 TS	MA203	Mathematics-II	1.64	1.64	1.09									1.09
2.4 TS	ME204 CE205	Engineering Mechanics and Strength of Materials	2.15	2.15	1.43	0.72								
2.4 P	ME204L CE205L	Engineering Mechanics and Strength of Materials Lab	2.86	1.91		2.86	2.9							
2.5 TS	EE206	Basic Electrical Engg.-I	2.21	2.21										
2.5 P	EE206L	Basic Electrical Engg.-I Lab				1.73								
2.6 TS	ME207	Engineering Graphics-II	2.39	2.39	1.33		1.6	2.4						0.8
2.7 S	ME208	Workshop Practice	1.16	1.45						0.73	1.2			
3.1TS	MA301	Mathematics -III	2.11	2.11										
3.3TS	EE341	Network Analysis	2.55	2.55										
3.6TS	EE342	Electrical Engineering Materials & Devices	1.42	1.55										
3.5TS	EE343	Advanced Computer Programming	1.91	2.05										
3.4TS	ME302	Engineering Mechanics -II	2.22	1.48										
3.2TS	ME305	Basic Thermodynamics	2.23	2.08										

3.7P	EE345	Electrical Engineering Drawing	2.57	1.43										
3.5P	EE343	Advanced Computer Programming				2.9								
3.4P	ME302	Engineering Mechanics -II				1.73								
3.2P	ME305	Basic Thermodynamics				1.97								
3.8T	EE344	General Proficiency										2.33	1.55	
4.1TS	MA401	Mathematics –IV	1.73	1.73										
4.2TS	HU402	Sociology and Accountancy										0.71		
4.3TS	HU403	Communication Skill										1.7		
4.7TS	EE441	Analog Electronics	2.13	2.13	2.13									
4.6TS	EE442	Electrical Machines-I	1.04	0.83	1.04									
4.4TS	EE443	Electrical Measurements and Measuring Instruments	1.55	1.45	0.52									
4.5TS	EE444	Data Structure	1.68	1.68										
4.9T	EE445	General Proficiency										2.05	1.37	
4.7P	EE441 L	Analog Electronics Lab				1.94								
4.4P	EE443 L	Electrical Measurements and Measuring Instruments Lab				1.71								
4.5P	EE444 L	Data Structure Lab				2.19								
5.1TS	HU501	Economics & Principles of Management.										0.75		
5.2TS	EE541	Digital Systems	2.45	2.45										
5.3TS	EE542	Control System-I	2.22	2.07										
5.4TS	EE543	Power Electronics	1.84	1.99	1.84									
5.5TS	EE544	Electric Power System-I	1.83	1.63										
5.6TS	EE545	Electrical Machines-II	1.9	1.63	1.5									
5.8T	EE546	General Proficiency										2.99	1.99	
5.2P	EE541 L	Digital Systems Lab				1.82								
5.3P	EE542 L	Control System-I Lab				1.9								
5.4P	EE543 L	Power Electronics Lab				0.89								
5.6P	EE547	Electrical Machines-I Lab				1.85								
6.1T	EE641	Electromagnetic Fields	2.02	2.02	0.94									
6.2TS	EE642	Computer Oriented Numerical Methods	1.81	1.81										
6.3TS	EE643	Microprocessors & Applications	1.75	1.75	1.5									
6.4TS	EE644	Electric Power System-II	1.75	1.63	0.75									
6.5TS	EE645	Control System –II	2.15	2.15	2.15									
6.6TS	EE646	Signals and Systems	1.74	1.74										
6.7T	EE647	General Proficiency										2.84	1.89	

6.2P	EE642 L	Computer Oriented Numerical Methods Lab				1.78								
6.3P	EE643 L	Microprocessors & Applications Lab				1.73								
6.5P	EE645 L	Control System –II Lab				2.45								
6.8P	EE648	Electrical Machines-II Lab				1.41								
7.1TS	EE741	Computer Aided Power System Analysis	1.96	1.96	1.17									
7.2TS	EE742	Communication Engineering	2.49	2.49	0.83									
7.3TS	EE743	Operations Research	1.64	1.64										
7.4TS	EE744	Instrumentation Engineering	1.79	0.95	1.19									
7.5TS	EE745 (1)	Elective –I(CN)	2.41	1.29										
7.5TS	EE745 (2)	Elective –I(NCES)	2.12	1.7										
7.6TS	EE746 (1)	Elective-II(MBI)	2.48	2.66										
7.6TS	EE746 (2)	Elective-II(DSD)	2.13	2.13										
7.7P	EE747	Training					2.3	0.9	1.75	1.75	1.8			1.46
7.8P	EE748	Project –I					1.6	0.8	0.81	0.81	2.4			2.42
8.1TS	EE841	Power System Interconnection & Control.	2.54	2.54										
8.2TS	EE842	HVE	2.31	1.39										
8.3TS	EE843	Industrial Drives & Control	1.94	1.79										
8.4TS	EE845 (1)	Elective -I(DSP)	2.28	2.28										
8.4TS	EE845 (2)	Elective -I(DIP)	1.65	1.1										
8.5TS	EE844 (1)	Elective-II(RE)	2.13	2.05										
8.5TS	EE844 (2)	Elective-II(UCEE)	1.94	1.41										
8.7P	EE846	Project -II					1.9	1	0.95	1.43	2.9			2.86
8.6P	EE847	Viva-Voce	2.76	2.76							2.8			2.76
		Direct Attainment	1.96	1.78	1.22	1.59	1.6	1	0.91	1.01	1.6	1.51	1.7	1.53
		Indirect Attainment	2.5	2.5	2	2	1	2.5	2.5	2.5	3	2.5	1.5	2.5
		Total Attainment	2.07	1.92	1.38	1.67	1.48	1.3	1.23	1.31	1.88	1.71	1.66	1.72

Table B: 3.3.2a Attainment of Program Outcome

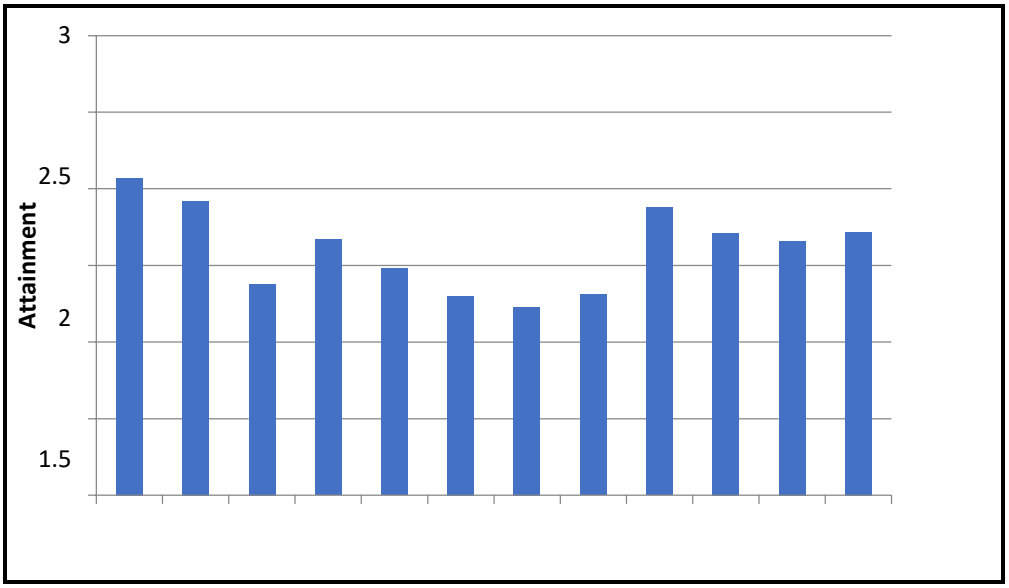

Fig: 3.3.2a Attainment of Program Outcome

Attainment of Program Specific Outcomes (PSO)

Course Code		Course	PSO1	PSO2
1.1 TS	PH101	Physics-I		
1.1 P	PH101L	Physics-I Lab		
1.2 TS	CY102	Chemistry-I		
1.2 P	CY102L	Chemistry-I Lab		
1.3 TS	MA103	Mathematics-I		
1.4 TS	CE104	Elements of Civil Engineering		
1.5 TS	HU105	English Communication and Technical Report Writing		
1.6 TS	CE106	Engineering Graphics-I		
1.7 PS	CS107	Introduction to Computing		
1.8 S	ME108	Workshop-I		
2.1 TS	PH201	Physics-II		
2.1 P	PH201L	Physics-II Lab		
2.2 TS	CY202	Chemistry-II		
2.2P	CY202L	Chemistry-II Lab		
2.3 TS	MA203	Mathematics-II		
2.4 TS	ME204 CE205	Engineering Mechnaics and Strength of Materials		
2.4 P	ME204L CE205L	Engineering Mechnaics and Strength of Materials Lab		

2.5 TS	EE206	Basic Electrical Engg.-I	1.47	0.74

2.5 Lab	EE206L	Basic Electrical Engg.-I Lab		
2.6 TS	ME207	Engineering Graphics-II		
2.7 S	ME208	Workshop Practice		
3.1TS	MA301	Mathematics -III	0.7	
3.3TS	EE341	Network Analysis	0.85	
3.6TS	EE342	Electrical Engineering Materials & Devices	1.29	0.65
3.5TS	EE343	Advanced Computer Programming	0.68	0.68
3.4TS	ME302	Engineering Mechanics -II		
3.2TS	ME305	Basic Thermodynamics		
3.7P	EE345	Electrical Engineering Drawing	1.71	
3.5P	EE343	Advanced Computer Programming		
3.4P	ME302	Engineering Mechanics -II		
3.2P	ME305	Basic Thermodynamics		
3.8T	EE344	General Proficiency		1.94
4.1TS	MA401	Mathematics –IV	0.62	
4.2TS	HU402	Sociology and Accountancy		1.42
4.3TS	HU403	Communication Skill		1.82
4.7TS	EE441	Analog Electronics	1.42	0.71
4.6TS	EE442	Electrical Machines-I	1.56	
4.4TS	EE443	Electrical Measurements and Measuring Instruments	0.52	0.52
4.5TS	EE444	Data Structure	0.76	
4.9T	EE445	General Proficiency		1.37
4.7P	EE441L	Analog Electronics Lab		
4.4P	EE443L	Electrical Measurements and Measuring Instruments Lab		
4.5P	EE444L	Data Structure Lab		
5.1TS	HU501	Economics & Principles of Management.		1.51
5.2TS	EE541	Digital Systems	0.82	
5.3TS	EE542	Control System-I	1.11	
5.4TS	EE543	Power Electronics	1.53	
5.5TS	EE544	Electric Power System-I	1.22	
5.6TS	EE545	Electrical Machines-II	0.68	

5.8T	EE546	General Proficiency		2.99
5.2P	EE541L	Digital Systems Lab		
5.3P	EE542L	Control System-I Lab		
5.4P	EE543L	Power Electronics Lab		
5.6P	EE547	Electrical Machines-I Lab		
6.1T	EE641	Electromagnetic Fields	1.01	
6.2TS	EE642	Computer Oriented Numerical Methods	1.65	
6.3TS	EE643	Microprocessors & Applications	0.62	1.25
6.4TS	EE644	Electric Power System-II	1.25	1.25
6.5TS	EE645	Control System –II	1.08	
6.6TS	EE646	Signals and Systems	1.01	
6.7T	EE647	General Proficiency		2.84
6.2P	EE642L	Computer Oriented Numerical Methods Lab		
6.3P	EE643L	Microprocessors & Applications Lab		
6.5P	EE645L	Control System –II Lab		
6.8P	EE648	Electrical Machines-II Lab		
7.1TS	EE741	Computer Aided Power System Analysis	0.7	
7.2TS	EE742	Communication Engineering	1.24	
7.3TS	EE743	Operations Research	0.59	
7.4TS	EE744	Instrumentation Engineering	0.89	
7.5TS	EE745(1)	Elective –I(CN)	1.61	
7.5TS	EE745(2)	Elective –I(NCES)	0.71	1.41
7.6TS	EE746(1)	Elective-II(MBI)	1.77	
7.6TS	EE746(2)	Elective-II(DSD)	0.71	
7.7P	EE747	Training	0.87	0.87
7.8P	EE748	Project –I	2.42	0.81
8.1TS	EE841	Power System Interconnection & Control.	1.69	
8.2TS	EE842	HVE	2.31	
8.3TS	EE843	Industrial Drives & Control	0.75	1.49
8.4TS	EE845(1)	Elective -I(DSP)	1.75	0.88
8.4TS	EE845(2)	Elective -I(DIP)	1.83	0.92
8.5TS	EE844(1)	Elective-II(RE)	1.23	

8.5TS	EE844(2)	Elective-II(UCEE)	1.33	
8.7P	EE846	Project -II	2.86	0.95
8.6P	EE847	Viva-Voce		1.84
		Average	1.22	1.31

Table B: 3.3.2b Attainment of Program Specific Outcome

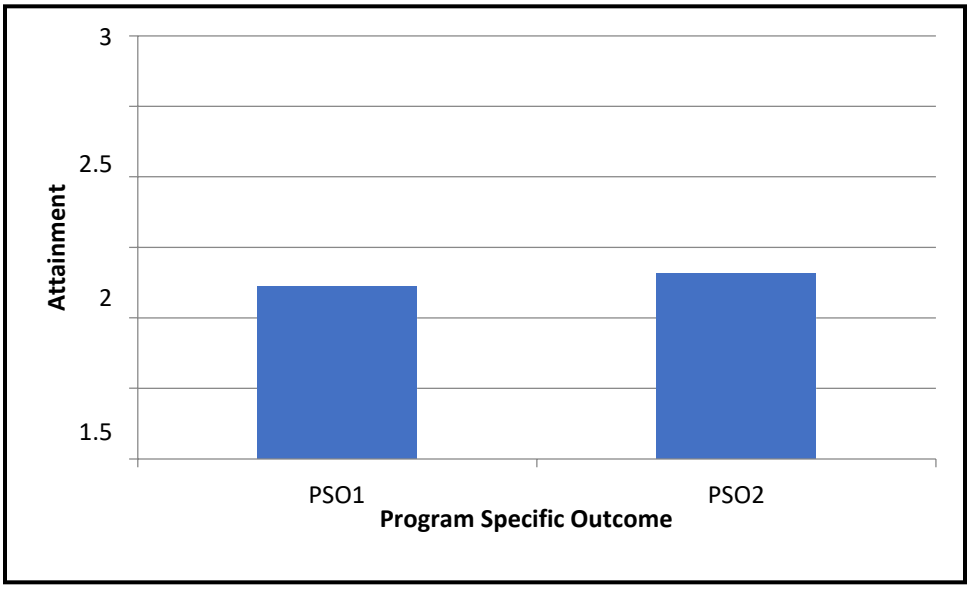

Fig: 3.3.2b Attainment of Program Specific Outcome