2.6.2 Attainment of programme outcomes and course outcomes are evaluated by the institution.

Response:

The institute evaluates the attainment of COs, POs and PSOs through its evaluation system and through the process is mentioned below.

The artifacts that demonstrate the skills, personal characteristics and accomplishments required for measuring the attainments are collected from:

1.Direct attainment

2.In-Direct attainment

CO Attainment of a Course:

Computation of CO In-Direct Attainment in the course:

Attainment of CO in a course = ((Level1 x No. of Students Attempted) + (Level2 x No. of Students Attempted) + (Level3 x No. of Students Attempted))/ Total No. of Students.

COs INDIRECT ASSESSMENT TOOLS

End of Semester Course Evaluation Form: During the survey, students provide their responses on a given scale to the questions which are the COs of the respective courses. Procedure to measure the Indirect-CO attainment of a course is same as direct attainment method, where the results are student's responses

.

OVERALL CO ATTAINMENT

Computation of Attainment of COs in *a course* = 70% of Direct CO Attainment+ 30% of Indirect CO Attainment

PO and PSO Attainment:

Evaluations of attainment of POs and PSOs based on 70% of direct assessment + 30% of indirect assessment combined to arrive at the Final Evaluation

PO and PSO INDIRECT ASSESSMENT TOOLS

Graduate Exit Survey: At the end of 4 years after graduation, a questionnaire is given to graduates to obtain feedback on Program Outcomes/ Program Specific Outcomes.

Alumni Survey: After completion of graduation, a questionnaire is given to graduates to obtain feedback on Program Outcomes/ Program Specific Outcomes.

Final PO Attainment:

The final attainment of each PO of a program is computed by summing up Direct-PO attainment and Indirect-PO attainment values in the proportion of 70:30. If the achievement level of a PO reached/completed the PO target then that PO is attained, else PO is considered not attained. The procedure for PSOs is similar to POs.

SCIENT INSTITUTE OF TECHNOLOGY

Ibrahimpatnam. R.R Dist - 501506

(Approved by AICTE & Affiliated to JNTUH, Hyderabad)

2.6.2 Attainment of programme outcomes and course outcomes are evaluated by the institution

S. No.	Content	Page No.
1.	Attainment of Course Outcomes	2
2.	Attainment of Program Outcomes and Program Specific Outcomes	8
3.	Sample Attainment sheet	23

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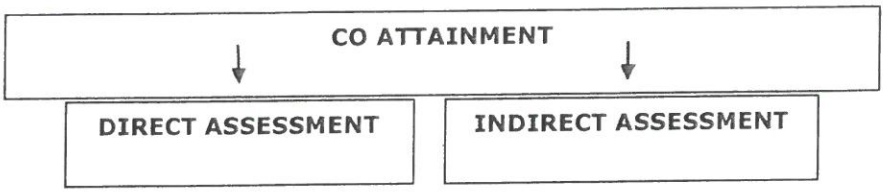
ASSESSMENT PROCESSES OF COURSE OUTCOMES

CO ATTAINMENT

CO Attainment of each course is obtained from 90% of Direct Assessment and 10% of Indirect Assessment.



The course outcomes were prepared by the action verbs of blooms taxonomy. All the course outcomes are prepared in such a way that they are measurable by means of return and oral skills assignments presentations etc. The collection of data for evaluation of course outcomes are as follows:

CO ASSESSMENT METHODOLOGY AND TOOLS (DIRECT ASSESSMENT)	
These rubrics can be used by students in, revising, and judging their own work and progress.	
Internal Mid Examinations and Assignments	**JNTUH R13 & R15 REGULATIONS:** • Two Mid Examinations are conducted for students as prescribed by the university norms. There shall be 2 midterm examinations (each for 25 marks), along with 2 assignments in a similar pattern as above [1st mid shall be from 1-2.5 units, 2nd mid from 2.5-5 units], and the average marks of the two examinations secured (each evaluated for a total of 25 marks) in each subject shall be considered as final marks for the internals. • Each midterm examination consists of one objective paper, one subjective paper and one assignment. • The objective paper is for 10 marks and subjective paper is for 10 marks, with duration of 1 hour 20 minutes (20 minutes for objective and 60 minutes for subjective paper). • Objective paper is set for 20 bits of – multiple choice questions, fill-in the blanks, matching type questions – for the 10 marks. • Subjective paper of each mid contains 4 full questions of which, the student has to answer 2 questions, each carrying 5 marks. Each question in the mid exam is mapped to the course outcomes. • Five marks are allocated for assignments (as specified by the subject teacher concerned). The first assignment should be submitted before the conduct of the first mid-examination, and the second assignment should be submitted before the conduct of the second midexamination. • It is expected that a student should score at least 60% of Maximum marks of the course (15 out of 25) for the attainment.
End Semester Examination	• For theory subjects the distribution shall be 25 marks for Internal Evaluation and 75 marks for the End-Examination.

	• End Exam Question paper contains two parts A and B. Part A is compulsory which carries 25 marks. Part B consists of 5 Units. Internal choice is given from each unit. Student should answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions. It is expected that a student should score **atleast40% of the total to pass the examination and at least 60% of Maximum marks (45 out of 75) of the course for the attainment of course outcomes.** • The marks scored by the students in Internal Examinations, Assignments and End Semester exams are used to assess the attainment level of the whole course and the course outcome attainment level.
Practical Examination	• For Labs there shall be a continuous evaluation during the year for 25 internal marks and 50 end examination marks. • Out of 25 marks for the Internal, day to day work in the Laboratory shall be evaluated for 15 marks and internal examination for practical shall be evaluated for 10 marks conducted by the concerned laboratory Faculty. • The end examination shall be conducted with external examiner and laboratory teacher. • The external examiner shall be appointed from the cluster of colleges as decided by the examination branch.
Project Work	Students have done to the project work in last semester under the guidance of faculty with a team for 4 students (maximum). For Project work literature survey, design, performance, experimental set -up, experimental work, data collections, calculations, results and discussion are to be performed by the student team. This is a very good activity for team building, good team work, leadership quality, management, cost analysis and also character building. Students have to present the work in internal and external examiners. The presentation of work include the performance of models, demonstrating the project before the audience, power point presentation etc. Which increase the self confidence of the students and which can lead to become an entrepreneur? Thus it helps in personal characteristics and will accomplishment for setting a goal in life. By doing the project students can learn professional ethics, Individual and team work, Effective communication, project management, finance and leads to lifelong learning.
Mini Project	There shall be an UG mini-project, in collaboration with an industry of their specialization. Students will register for this immediately after III year II semester examinations and pursue it during summer vacation. The UG mini-project shall be submitted in a report form and presented before the committee in IV year II semester. It shall be evaluated for 50 marks.
Seminar	There shall be a seminar presentation in IV year II semester. For the seminar, the student shall collect the information on a specialized topic, prepare a technical report and submit it to the department. It shall be

	evaluated by the departmental committee consisting of Head of the Department, seminar supervisor and a senior faculty member. The seminar report shall be evaluated for 50 marks. There shall be no semester end examination for the seminar.

INDIRECT ASSESSMENT METHODS	
End of Semester Course Evaluation Form	At the end of each semester a questionnaire is distributed to all the enrolled students and take feedback on effectiveness of the course. The questionnaire is prepared to know the efficiency and utility of the course outcome OF INDIRECT ASSESSMENT.

DIRECT ASSESSMENT: Attainment Levels

S. No.	Assessment Tool	Maximum marks	Threshold level	Attainment level Criteria	Attainment level
1	Mid Exams (Descriptive+Objective+Assignment)	20+5=25	60%	At least 80% of students scoring more than 14 marks (60% of 25 marks is 15) out of the maximum (25) marks.	3
				At least 70% of students scoring more than 14 marks (60% of 25 marks is 15) out of the maximum (25) marks.	2
				At least 60% of students scoring more than 14 marks (60% of 25 marks is 15) out of the maximum (25) marks.	1
2	External Exams	75	60%	At least 60% of students scoring pass marks (26 or >26 out of 75) in the University final examination.	3
				At least 50% of students scoring pass marks (26 or >26 out of 75) in the University final examination.	2
				At least 40% of students scoring pass marks (26 or >26 out of 75) in the University final examination.	1
3	Labs –Internal	25	60%	At least 80% of students scoring more than 14 marks (60% of 25 marks is 15) out of the maximum (25) marks.	3
				At least 70% of students scoring more than 14 marks (60% of 25 marks is 15) out of the maximum (25) marks.	2

S. No.	Assessment Tool	Maximum marks	Threshold level	Attainment level Criteria	Attainment level
				At least 60% of students scoring more than 14 marks (60% of 25 marks is 15) out of the maximum (25) marks.	1
4	Labs - External	50	60%	At least 70% of attempted students exceed threshold level (60%) marks i.e >= 30 marks	3
				At least 60% of attempted students exceed threshold level (60%) marks i.e >= 30 marks	2
				At least 50% of attempted students exceed the threshold level (60%) marks i.e >= 30 marks	1
5	Industry Oriented Mini Project	50	60%	At least 70% of attempted students exceed threshold level (60%) marks i.e >= 30 marks	3
				At least 60% of attempted students exceed threshold level (60%) marks i.e >= 30 marks	2
				At least 50% of attempted students exceed the threshold level (60%) marks i.e >= 30 marks	1
6	Major Project - Internal	50	60%	At least 80% of students scoring more than or equal to 30 marks (60% of 50 marks is 30) out of the maximum (50) marks.	3
				At least 70% of students scoring more than or equal to 30 marks (60% of 50 marks is 30) out of the maximum (50) marks.	2
				At least 60% of students scoring more than or equal to 30 marks (60% of 50 marks is 30) out of the maximum (50) marks.	1
7	Major Project - External	150	60%	At least 70% of attempted students exceed threshold level (60%) marks i.e >= 90 marks	3

S. No.	Assessment Tool	Maximum marks	Threshold level	Attainment level Criteria	Attainment level
				At least 60% of attempted students exceed threshold level (60%) marks i.e >= 90 marks	2
				At least 50% of attempted students exceed the threshold level (60%) marks i.e >= 90 marks	1
8	Technical Seminar	50	60%	At least 80% of students scoring more than or equal to 30 marks (60% of 50 marks is 30) out of the maximum (50) marks.	3
				At least 70% of students scoring more than or equal to 30 marks (60% of 50 marks is 30) out of the maximum (50) marks.	2
				At least 60% of students scoring more than or equal to 30 marks (60% of 50 marks is 30) out of the maximum (50) marks.	1
9	Comprehensive Viva	100	60%	At least 70% of attempted students exceed threshold level (60%) marks i.e >= 60 marks	3
				At least 60% of attempted students exceed threshold level (60%) marks i.e >= 60 marks	2
				At least 50% of attempted students exceed the threshold level (60%) marks i.e >= 60 marks	1

ASSESSMENT OF COURSE OUTCOMES:

As per university guidelines 20% weight age is given to internal assessment and 70% weight age is given to external exam assessment.

Assessment Pattern

Assessment Type	Weightage	Assessment Tool
Direct Attainment	90%	*Mid-1: 25 marks* • Objective(10) + Assignment (05) • Descriptive (10) based on question wise CO mapping
		Mid-2: 25 marks • Objective(10) + Assignment (05) • Descriptive (10) based on question wise CO mapping
		End Semester Examination (75 Marks)
Indirect Attainment	10%	Course End Semester Feedback

CO Attainment

Course Outcome	Course outcome attainment level from Internal Assessment	Course outcome attainment level from University Exams	CO Attainment	Indirect Attainment	Over all Attainment
CO Attainment	a1 (Mid-1+ Mid-2 + Two Assignments)	b1	c1= (0.20 (a1) + 0.80 (b1))	$d1=((1*X)+(2*Y)+(3*Z))/(X+Y+Z)$ X: Number of students Opted for Low Option (1) Y: Number of students Opted for Medium Option (2) Z: Number of students Opted for Substantial High Option (3)	0.9(c1) +0.1(d1)

2. Attainment of Program Outcomes and Program Specific Outcomes

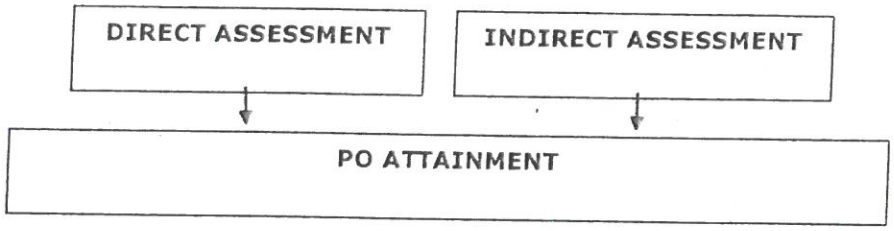
Assessment tools of Program Outcomes and Program Specific Outcomes:

The assessment tools and process used for measuring the attainment of each of the program outcomes and program specific outcomes described below.
The assessment tools are broadly classified in to two types.
i. Direct Assessment tools
ii. Indirect Assessment tools

Assessment Tools	Assessment Frequency	Assessed by	Reviewed by
DIRECT ASSESSMENT TOOLS			
Mid Examinations	Twice in Semester	Course Faculty	HOD
Assignments	Twice in Semester	Course Faculty	Course Faculty
Laboratory Examination	Twice in Semester	Course Faculty	HOD
Semester End Examination	Once in Semester	Institute, Exam Branch, Department Faculty	Institute, Exam Branch
Seminar	Twice in Semester	Seminar Coordinator	HOD
Mini Projects	In Third Year Second Semester	Mini Projects Coordinator	HOD
Major Projects	In Fourth Year Second Semester	Major Projects Coordinator	HOD
INDIRECT ASSESSMENT TOOLS			
Course End Survey	Once in Semester	Coordinators, PAC	PAC, DAC
Exit Survey	At the end of Fourth Year Second Semester	Coordinators, PAC	PAC, DAC
Alumni Survey	Yearly once after graduation	Coordinators, PAC	PAC, DAC

HOD----Head of the Department
PAC ---- Program Assessment Committee
DAC --- Department Advisory Committee

POs and PSOs ATTAINMENT



Evaluations of attainment of POs and PSOs based on 70% of direct assessment + 30% of indirect assessment combined to arrive at the Final Evaluation.

INDIRECT ASSESSMENT TOOLS

Graduate Exit Survey: At the end of 4 years after graduation, a questionnaire is given to graduates to obtain feedback on Program Outcomes/ Program Specific Outcomes.

Alumni Survey: After completion of graduation, a questionnaire is given to graduates to obtain feedback on Program Outcomes/ Program Specific Outcomes.

SAMPLE ATTAINMENT SHEET

3A. Sample Attainment of a Course

Computation of CO-PO / PSO Attainment

Academic Year: 2017-2018 (II Semester)

PROGRAM: Electrical Electronics and Engineering	**DEGREE**: UG (B.Tech.)
COURSE: Switchgear and Protection	**SEMESTER**: III Year II Semester
COURSE CODE: EC502PC	**COURSE TYPE**: CORE
CONTACT HOURS: 4 (Theory) +1 (Tutorial) hours/Week	**CREDITS:** 4
COURSE AREA/DOMAIN: Computational Intelligence	**REGULATION:** JNTUH R-16
CORRESPONDING LAB COURSE CODE (IF ANY): --	**LAB COURSE NAME (IF ANY):**

Program Outcomes (POs)

PO1:	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems related to Computer Science and Engineering.
PO2:	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems related to Computer Science and Engineering and reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3:	**Design/development of solutions**: Design solutions for complex engineering problems related to Computer Science and Engineering 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.
PO4:	**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.
PO5:	**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.
PO6:	**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 Computer Science and Engineering professional engineering practice.
PO7:	**Environment and sustainability**: Understand the impact of the Computer Science and Engineering professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8:	**Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9:	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10:	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11:	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12:	**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 Outcomes (PSOs)

PSO1:	**Foundation of mathematical concepts:** To use mathematical methodologies to crack problem using suitable mathematical analysis, data structure and suitable algorithm.
PSO2:	**Foundation of Computer System:** The ability to interpret the fundamental concepts and methodology of computer systems. Students can understand the functionality of hardware and software aspects of computer systems.
PSO3:	**Foundations of Software development:** The ability to grasp the software development lifecycle and methodologies of software systems. Possess competent skills and knowledge of software design process. Familiarity and practical proficiency with a broad area of programming concepts and provide new ideas and innovations towards research.

Bloom's taxonomy Levels

L1. Remember – recalling relevant terminology, specific facts, or different procedures related to information and/or course topics. At this level, a student can remember something, but may not really understand it.

L2. Understand – the ability to grasp the meaning of information (facts, definitions, concepts, etc.) that has been presented.

L3. Apply – being able to use previously learned information in different situations or in problem solving.

L4. Analyze – the ability to break information down into its component parts. Analysis also refers to the process of examining information in order to make conclusions regarding cause and effect, interpreting motives, making inferences, or finding evidence to support statements/arguments.

L5. Evaluate – being able to judge the value of information and/or sources of information based on personal values or opinions.

L6. Create – the ability to creatively or uniquely apply prior knowledge and/or skills to produce new and original thoughts, ideas, processes, etc. At this level, students are involved in creating their own thoughts and ideas.

COURSEOUTCOMES:

On successful completion of this course, students should be able to:

Course	CO. No.	Course Outcomes (CO)	Knowledge Level (Blooms Level)
04ES -Formal Languages and Automata Theory	O1	***Understand*** the concept of abstract machines and their power to recognize the languages	L2: Understand
	CO2	***Employ*** finite state machines for modeling and solving computing problems.	L3: Apply
	CO3	***Design*** context free grammars for formal languages.	L6: Create
	CO4	***Knowledge*** on converting Context-Free Grammars into pushdown automata to identify the acceptance of a string by the Context Free Language	L1: Remember
	CO5	***Understand*** the power of the Turing Machine, as an abstract automaton, that describes computation, effectively and efficiently	L2: Understand
	CO6	***Distinguish*** between decidability and undecidability	L4: Analyze

COURSE OUTCOME ASSESSMENT

Assessment Pattern

Assessment Type	Weightage	Assessment Tool
Direct Attainment	90%	*Mid-1: 25 marks* • Objective(10) + Assignment (05) • Descriptive (10) based on question wise CO mapping
		Mid-2: 25 marks • Objective(10) + Assignment (05) • Descriptive (10) based on question wise CO mapping
		End Semester Examination (75 Marks)
Indirect Attainment	10%	Course End Semester Feedback

COURSE ASSESSMENT SHEET FOR 2017-2018

Course Outcome Attainment

Assessment Methods	Attainment Levels	
Mid Exam: For Objective(10) + Assignment (5) =15	***Threshold Value: For Objective(10) + Assignment (5), threshold value is 60% of their total, i.e., 0.6*(10+5)> 9 Marks***	
	Level 1	60-79% of students scoring more than 9 marks in Objective+ Assignment
	Level 2	80-89% of students scoring more than 9 marks in Objective+ Assignment
	Level 3	>=90% of students scoring more than 9 marks in Objective+ Assignment
Mid Exam:	**For Descriptive(10), question wise threshold value is 60% of respective**	

Descriptive Test=10	**question marks, i.e., 0.6*5> 3 Marks**	
	Level 1	60-79% of students scoring more than 3 marks question/ CO wise (60% of 5 marks is 3) out of the max.(5) marks.
	Level 2	80-89% of students scoring more than 3 marks question/ CO wise (60% of 5 marks is 3) out of the max.(5) marks.
	Level 3	>=90% of students scoring more than 3 marks question/ CO wise (60% of 5 marks is 3) out of the max.(5) marks.
End Semester Exam(EE)	**Level 1**	50% of students scoring pass marks (26 or >26 out of 75) in the End Semester Examination.
	Level 2	60% of students scoring pass marks (26 or >26 out of 75) in the End Semester Examination.
	Level 3	70% of students scoring pass marks (26 or >26 out of 75) in the End Semester Examination.

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Computation of CO-PO / PSO Attainment

PROGRAM:III B.TECH	**DEGREE**: UG (B.Tech.)
COURSE: ECE	**SEMESTER**: I
COURSE CODE: EC502PC	**COURSE TYPE**: CORE
CONTACT HOURS: 4 (Theory) /Week	**CREDITS**: 4
COURSE AREA/DOMAIN: CORE	**REGULATION**: JNTUH R-16
CORRESPONDING LAB COURSE CODE (IF ANY): EC505PC, EC506PC	**LAB COURSE NAME (IF ANY)**:Linear IC Applications Lab, Digital IC Applications Lab

PROGRAM OUTCOMES	
PO1:	**Engineering knowledge:** Apply the knowledge in mathematics, science, Engineering fundamentals and an Engineering specialization to the solution of complex Engineering problems
PO2:	**Problem analysis:**Identify, formulate, research literature, and analyze complex Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and Engineering sciences.
PO3:	**Design/development of solutions:**Design solution for complex Engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the health and safety, and the cultural, societal, and environmental consideration.
PO4:	**Conduct investigations of complex problems:**Use research-based knowledge and research methods including design of experiments,
PO5:	**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.
PO6:	**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.
PO7:	**Environment and sustainability:** Understand the impact of the professional Engineering solutions in societal and environmental contexts, and demonstrate the knowledge of need for sustainable development.
PO8:	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the Engineering practice.
PO9:	**Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10:	**Communication:**Communicate effectively on complex Engineering activities with the Engineering community and with society at large. Some of them are, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and
PO11:	**Project management and finance:** Demonstrate knowledge and understanding of the Engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12:	**Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)	
PSO1:	**Professional skills**: an ability to understand the basic concepts in electronics and communication engineering and to apply them to various areas, like electronics, communications signal processing, VLSI, embedded system etc, in the design and implementation of complex system
PSO2:	**Problem-Solving Skills**: An ability to solve complex electronics and communication engineering problems, using latest hardware and software tools, along with analytical skills to arrive cost effective and appropriate solutions
PSO3:	**Successful Career and Entrepreneurship**: An understanding of social-awareness and environmental wisdom along with ethical responsibility to have a successful career and to sustain passion and zeal for real-world applications using optimal resources as an Entrepreneur.

Bloom's taxonomy Levels
L1. Remember – recalling relevant terminology, specific facts, or different procedures related to information and/or course topics. At this level, a student can remember something, but may not really understand it.
L2. Understand – the ability to grasp the meaning of information (facts, definitions, concepts, etc.) that has been presented.
L3. Apply – being able to use previously learned information in different situations or in problem solving.
L4. Analyze – the ability to break information down into its component parts. Analysis also refers to the process of examining information in order to make conclusions regarding cause and effect, interpreting motives, making inferences, or finding evidence to support statements/arguments.
L5. Evaluate – being able to judge the value of information and/or sources of information based on personal values or opinions.
L6. Create – the ability to creatively or uniquely apply prior knowledge and/or skills to produce new and original thoughts, ideas, processes, etc. At this level, students are involved in creating their own thoughts and ideas.

COURSEOUTCOMES: On successful completion of this course, students should be able to:

Course	CO. No.	Course Outcomes (CO)	Knowledge Level (Blooms Level)
SWITCH GEAR PROTECTION	CO1	Understand the types of Circuit breakers & appropriate protection of power system	L1 L2 L3
	CO2	Understand the types of Relays & appropriate protection of power system	L2,L3 L4
	CO3	Interpret the existing transmission voltage levels and various means to protect the system against over voltages	L1 L2 L3
	CO4	Understand the importance of Neutral Grounding, Methods & Practices	L5
	CO5	Generation of Over Voltages in Power Systems & Testing	L5 L6

HOW PROGRAM OUTCOMES (POs) ARE ASSESSED:

Program Outcomes (PO)		Level	Proficiency assessed by
PO1	**Engineering knowledge:** Apply the knowledge in mathematics, science, Engineering fundamentals and an Engineering specialization to the solution of complex Engineering problems	2.00	Assignment, Mid Exam, Extrenal exam
PO2	**Problem analysis:**Identify, formulate, research literature, and analyze complex Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and Engineering sciences.	2.40	Assignment, Mid Exam, Extrenal exam
PO3	**Design/development of solutions:**Design solution for complex Engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the health and safety, and the cultural, societal, and environmental consideration.	2.40	Assignment, Mid Exam, Extrenal exam
PO4	**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.	2.20	Assignment, Mid Exam, Extrenal exam
PO5	**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.	2.40	
PO6	**he 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.	1.67	
PO7	**Environment and sustainability:** Understand the impact of the professional Engineering solutions in societal and environmental contexts, and demonstrate the knowledge of need for sustainable development.	2.33	
PO8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the Engineering practice.	1.00	
PO9	**Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	1.00	Assignment, Mid Exam, Extrenal exam
PO10	**Communication:**Communicate effectively on complex Engineering activities with the Engineering community and with society at large. Some of them are, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.	1.00	Assignment, Mid Exam, Extrenal exam
PO11	**Project management and finance:** Demonstrate knowledge and understanding of the Engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	0.00	
PO12	**Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.	0.00	Assignment, Mid Exam, Extrenal exam

1: Slight (Low) **2: Moderate (Medium)** **3: Substantial (High)** **- : None**

HOW PROGRAM SPECIFIC OUTCOMES (PSOs) ARE ASSESSED:

Program Specific Outcomes (PSO)		Level	Proficiency assessed by
PSO1	**Incorporating fundamental concepts of mathematics and science to identify, formulate, design and analyze various issues of renewable energy systems by providing developments in the areas of power electronics, power systems, electromechanical and control aspects**	2.40	Assignment, Mid Exam, Extrenal exam
PSO2	**Motivate for continuous self learning in engineering practice and pursue research in advanced areas of Electrical Engineering in order to offer engineering services to the Nation.**	2.40	Assignment, Projects

PSO3	Demonstrate proficiency in use of modern software tools for design, simulation and analysis of electrical systems to adapt in multidisciplinary environments	2.60	Assignment, Mid Exam, Extrenal exam

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High) - : None

MAPPING COURSE OUTCOMES (COs) LEADING TO THE ACHIEVEMENT OF PROGRAM OUTCOMES (POs):												
Course	CO'S	Program Outcomes (POs)										
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
SWITCH GEAR PROTECTION	CO1	3	2	3	2	2		1			1		
	CO2	2	2	3	2	3	2	3	1	1			
	CO3	2	3	2	3	2	2				1		
	CO4	1	2	3	2	2	1						
	CO5	2	3	1	2	3		3					
Average		2	2.4	2.4	2.2	2.4	1.666666667	2.33	1	1	1		

MAPPING COURSE OUTCOMES (COs) LEADING TO THE ACHIEVEMENT OF PROGRAM SPECIFIC OUTCOMES (PSOs):

Course	CO'S	Program Specific Outcomes (PSOs)		
		PSO1	PSO2	PSO3
SWITCH GEAR PROTECTION	CO1	3	2	3
	CO2	2	2	2
	CO3	2	2	2
	CO4	3	3	3
	CO5	2	3	3
Average		2.4	2.4	2.6

1: Slight (Low) 2: Moderate 3: Substantial - : None

COURSE OUTCOME ASSESSMENT

Assessment Pattern:

Assessment Type	Weightage	Assessment Tool
Direct Attainment	70%	Mid-1: 25 marks • Objective(10) + Assignment (05) • Descriptive (10) based on question wise CO mapping
		Mid-2: 25 marks • Objective(10) + Assignment (05) • Descriptive (10) based on question wise CO mapping
		End Semester Examination (75 Marks)
Indirect Attainment	30%	Course End Semester Feedback

COURSE ASSESSMENT SHEET FOR 2018-2019

Course Outcome Attainment

Assessment Methods	Attainment Levels	
Mid Exam: For Objective(10) + Assignment (5) =15	Threshold Value: For Objective(10) + Assignment (5), threshold value is 60% of their total, i.e., 0.5*(10+5)> 9 Marks	
	Level 1	50-59% of students scoring more than 7 marks in Objective+ Assignment
	Level 2	60-69% of students scoring more than 7 marks in Objective+ Assignment
	Level 3	>=70% of students scoring more than 7 marks in Objective+ Assignment
Mid Exam: Descriptive Test=10	For Descriptive(10), question wise threshold value is 60% of respective question marks, i.e., 0.6*5> 3 Marks	
	Level 1	50-59% of students scoring more than 3 marks question/ CO wise (60% of 5 marks is 3) out of the max.(5) marks.
	Level 2	60-69% of students scoring more than 3 marks question/ CO wise (60% of 5 marks is 3) out of the max.(5) marks.
	Level 3	>=70% of students scoring more than 3 marks question/ CO wise (60% of 5 marks is 3) out of the max.(5) marks.
End Semester Exam(EE)	Level 1	50% of students scoring pass marks (26 or >26 out of 75) in the End Semester Examination.
	Level 2	60% of students scoring pass marks (26 or >26 out of 75) in the End Semester Examination.

	Level 3	70% of students scoring pass marks (26 or >26 out of 75) in the End Semester Examination.

Student's performance:

Mid Exam: For Objective (10) + Assignment (5)

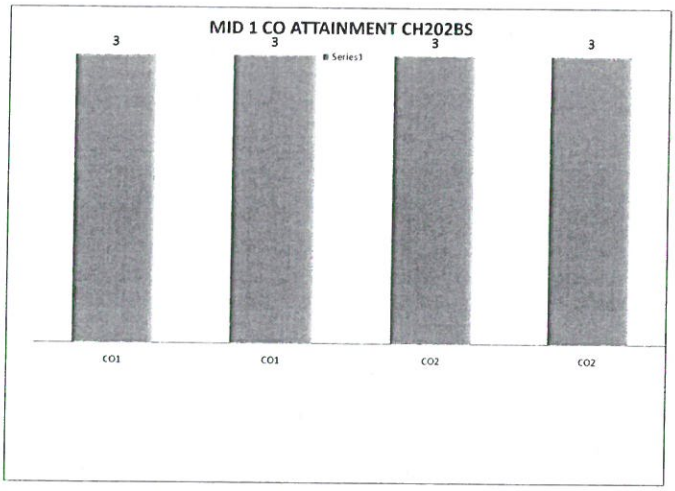
S.No.	Roll. No.	MID-1 Exam				MID-2 Exam				END SEMESTER (Secured Grade (Marks): 75	
			OBJECTIVE+ASSIGNMENT				OBJECTIVE+ASSIGNMENT				
		SUB	OBJ	ASSIG	TOTAL	SUB	OBJ	ASSI	TOTAL	Internal	External
		10	10	5	15	10	10	5	15	25	75
1	16C01A0201	10	8	5	13	10	8	5	13	13	53
2	16C01A0202	10	5	5	10	8	8	5	13	11.5	24
3	16C01A0203	9	7	5	12	10	8	5	13	12.5	45
4	16C01A0206	9	6	5	11	9	7	5	12	11.5	24
5	16C01A0211	9	6	5	11	9	7	5	12	11.5	24
6	16C01A0213	9	5	5	10	8	8	5	13	11.5	45
7	16C01A0214	10	6	5	11	10	8	5	13	12	53
8	16C01A0215	9	5	5	10	10	7	5	12	11	38
9	17C05A0201	8	7	5	12	9	9	5	14	13	45
10	17C05A0202	9	7	5	12	8	7	5	12	12	45
11	17C05A0203	7	7	5	12	9	8	5	13	12.5	24
12	17C05A0205	8	7	5	12	9	8	5	13	12.5	38
13	17C05A0207	10	7	5	12	9	9	5	14	13	24
14	17C05A0208	9	6	5	11	9	8	5	13	12	45
15	17C05A0209	8	7	5	12	9	7	5	12	12	45
No. of Students Attempted			15	15	15	15	15	15	15	15	15
No. of Students secured >Threshold marks					15				15	15	10
% of Students secured >Threshold marks					100.00				100.00	100	66.67
Attainment Level					3				3	3	2
CO AVERAGE					3				3	3	2

Mid Exam-1: Descriptive Test

S.No.	Roll. No.	Set No.\ Related COs	MID-1 Exam				
			Descriptive Test (10) Question wise marks (Best TWO will be considered)				
			Q1 (5)	Q2 (5)	Q3 (5)	Q4 (5)	Total (Best two Score): 10
		SET-1 Cos	CO1	CO1	CO2	CO2	
1	16C01A0201			5	5	5	10
2	16C01A0202		5		5	3	8
3	16C01A0203		4	5	0		9
4	16C01A0206				4	5	9
5	16C01A0211				5	4	9
6	16C01A0213				5	4	9
7	16C01A0214				5	5	10
8	16C01A0215		5			4	9
9	17C05A0201		4	4			8
10	17C05A0202		4		5		9
11	17C05A0203		3		4		7
12	17C05A0205		4	4			8
13	17C05A0207		5			5	10
14	17C05A0208				4	5	9
15	17C05A0209		4		4		8
19	Sum		38	18	46	40	132
No. of Students Attempted			9	4	11	9	
No. of Students secured >Threshold mark			8	4	10	8	
% of Students secured >Threshold marks			88.89	100.00	90.91	88.89	
Attainment Level			3	3	3	3	
CO AVERAGE			3	3	3	3	

FINAL CO ATTAINMENT IN MID-1 EXAM DESCRIPTIVE					
SET WISE CO VALUES	COs	CO1	CO1	CO2	CO2
	SET-1 VALUE	3	3	3	3
OVERALL CO AVERAGE		3	3	3	3

 # Here based on your subject mid 1 question paper change the cos

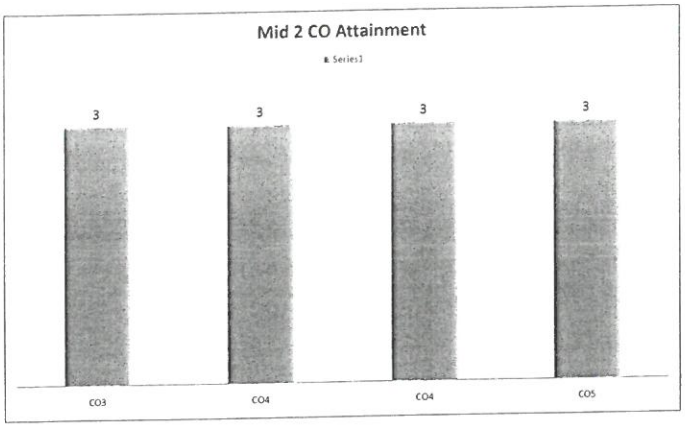


Mid Exam-2: Descriptive Test

S.No.	Roll. No.	Set No.\ Related COs	MID-2 Exam				
			Descriptive Test (10) Question wise marks (Best TWO will be considered)				
			Q1 (5)	Q2 (5)	Q3 (5)	Q4 (5)	Total (Best two Score): 10
		SET-1 Cos	CO3	CO4	CO4	CO5	
1	16C01A0201		5	5			10
2	16C01A0202		4	4			8
3	16C01A0203		5	5			10
4	16C01A0206		4	5			9
5	16C01A0211			4	5		9
6	16C01A0213			4	5	4	9
7	16C01A0214		5	5			10
8	16C01A0215			5	5		10
9	17C05A0201			5	4		9
10	17C05A0202		4	4			8
11	17C05A0203		4			4	8
12	17C05A0205			5		4	9
13	17C05A0207		4		5		9
14	17C05A0208		4	5			9
15	17C05A0209		4	5			9
No. of Students Attempted			10	13	5	3	136
No. of Students secured >Threshold marks			10	13	5	3	
% of Students secured >Threshold marks			100.00	100.00	100.00	100.00	
Attainment Level			3	3	3	3	
CO AVERAGE			3	3	3	3	

FINAL CO ATTAINMENT IN MID-2 EXAM DESCRIPTIVE					
SET WISE CO VALUES	COs	CO3	CO4	CO4	CO5
	SET-1 VALUE	3	3	3	3
OVERALL CO AVERAGE		3	3	3	3

 # Here based on your subject mid 2 question paper change the cos


Mid 2 CO Attainment
Series1
3
3
3
3
CO3
CO4
CO4
CO5

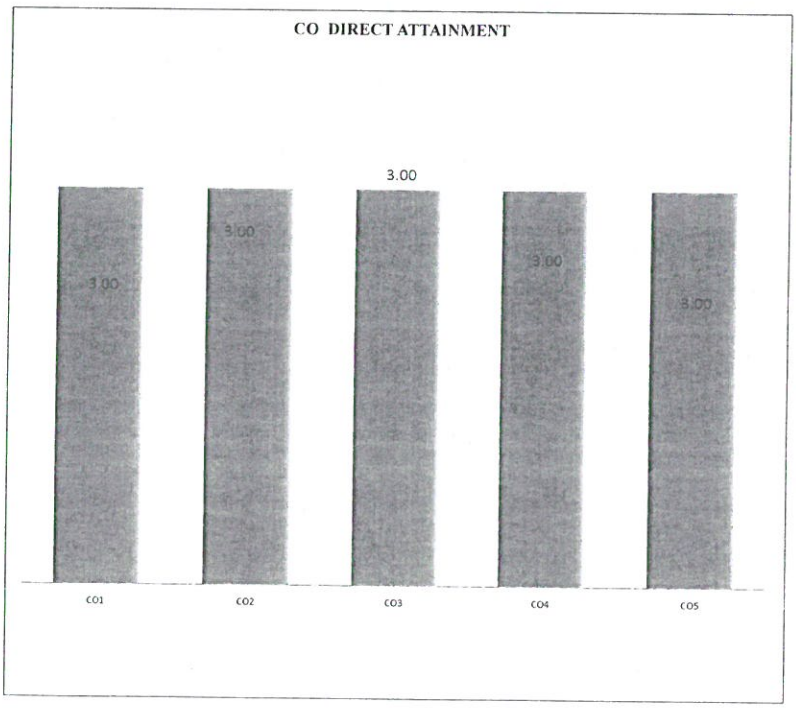
DIRECT ATTAINMENT:

Computation of CO Direct Attainment (DCA) in the Course:

Attainment of CO in a course EE603PC = 25% of INTERNAL EXAM Attainment Level + 75% of EXTERNAL EXAM Attainmer

Direct Attainment						
CO	Assessment Tool (Internal Examination / External Examination)		Internal Examination(IE)		External Exa	Direct Co Attainment= ((0.25*IE Attainment Level)+(0.75*EE Attainment Level)
			Attainment Level	Average Attainment Level	Attainment Leve	
CO1	Mid-I	Objective-1+Assignment-1	3.0	3	3	3.00
		Descriptive-1	3.0			
CO2	Mid-I	Objective-1+Assignment-1	3.0	3	3	3.00
		Descriptive-1	3.0			
CO3	Mid-2	Objective-1+Assignment-1	3.0	3	3	3.00
		Descriptive-1	3.0			
CO4	Mid-2	Objective-2+Assignment-2	3.0	3	3	3.00
		Descriptive-2	3.0			
CO5	Mid-2	Objective-2+Assignment-2	3.0	3	3	3.00
		Descriptive-2	3.0			

COS DIRECT ATTAINMENT					
CO'S	CO1	CO2	CO3	CO4	CO5
Direct Attainment	3.00	3.00	3.00	3.00	3.00



INDIRECT ATTAINMENT:

Computation of CO Indirect Attainment (ICA) in the course:

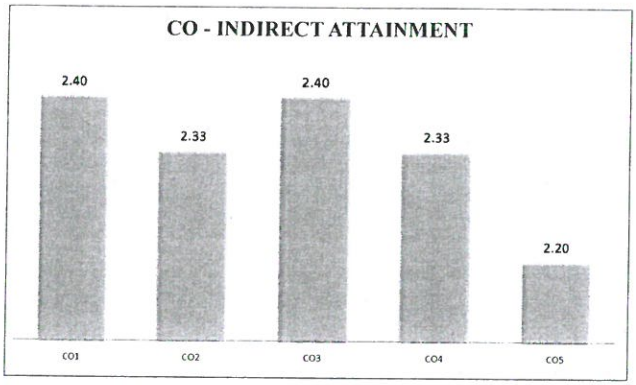
Attainment of CO in a course = ((Level1 x No. of Students Attempted) + (Level2 x No. of Students Attempted) + (Level3 x No. of Students Attempted)) / Total No. of Students

S.No.	Roll. No.	CO1	CO2	CO3	CO4	CO5
1	16C01A0201	3	2	3	1	2
2	16C01A0202	3	2	2	1	3
3	16C01A0203	2	3	3	3	3
4	16C01A0206	3	2	3	2	3
5	16C01A0211	2	3	2	3	1
6	16C01A0213	2	2	2	3	2
7	16C01A0214	3	2	2	2	2
8	16C01A0215	2	2	3	2	1
9	17C05A0201	3	2	2	3	2
10	17C05A0202	2	3	2	2	2
11	17C05A0203	3	2	2	3	2
12	17C05A0205	2	2	3	2	3
13	17C05A0207	1	3	3	3	2
14	17C05A0208	2	2	2	3	3
15	17C05A0209	3	3	2	2	2
Students Answered Level-1		1	0	0	2	2
Students Answered Level-2		7	10	9	6	8
Students Answered Level-3		7	5	6	7	5
Total Students participated		15	15	15	15	15
CO Attainment Level=		2.40	2.33	2.40	2.33	2.20

Computation of CO Indirect Attainment in the course:

COs	CO1	CO2	CO3	CO4	CO5
Students Answered Level-1	1	0	0	2	2
Students Answered Level-2	7	10	9	6	8
Students Answered Level-3	7	5	6	7	5
Total Students participated	15	15	15	15	15
CO Attainment Level=	**2.40**	**2.33**	**2.40**	**2.33**	**2.20**

CO - INDIRECT ATTAINMENT					
COs	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
CO Attainment Level	**2.40**	**2.33**	**2.40**	**2.33**	**2.20**



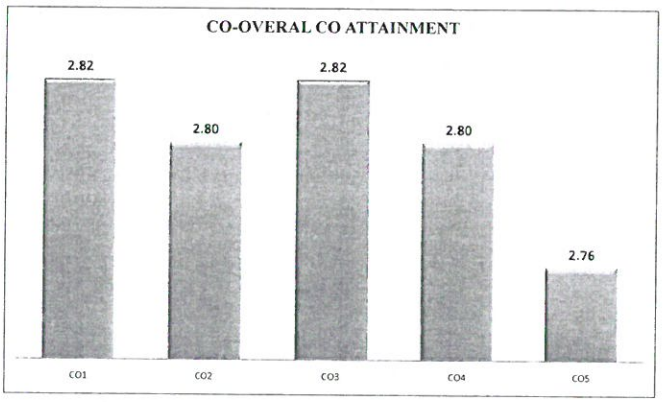
Overall CO Attainment

Computation of Attainment of COs in Course = 70 % of Direct CO Attainment + 30% of Indirect CO Attainment

CO	Direct CO Attainment Level (DA)	Indirect CO Attainment (IDA)	Overall CO Attainment Level
CO1	3.00	2.40	2.82
CO2	3.00	2.33	2.80
CO3	3.00	2.40	2.82
CO4	3.00	2.33	2.80
CO5	3.00	2.20	2.76
Average CO Attainment			**2.80**

CO-OVERAL CO ATTAINMENT

COs	CO1	CO2	CO3	CO4	CO5
Overall CO Attainment	2.82	2.80	2.82	2.80	2.76

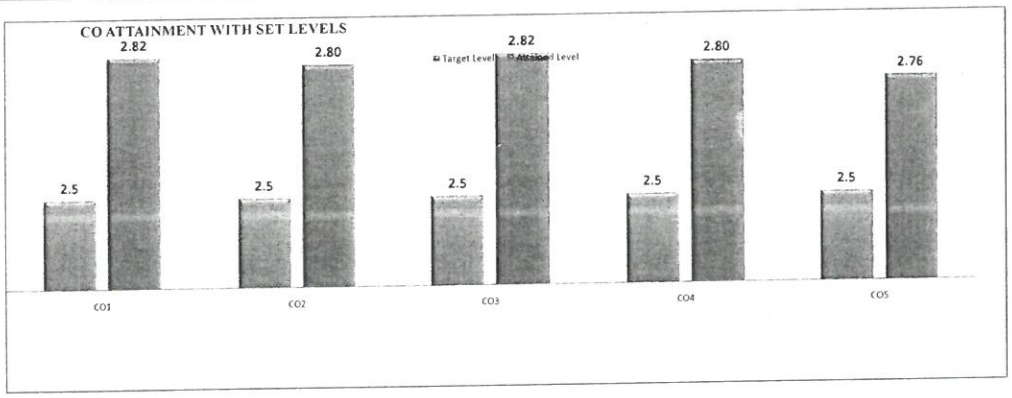


CO Attainment:

CO Attainment	
Level 1	50% of students, performing above threshold (50%) {0-50%: Low}
Level 2	60% & Above, till 69%, students, performing above threshold (50%) {61-69%: Medium}
Level 3	70% & Above students, performing above threshold (50%) {70-100%: High}

CO Action Plan

CO	Target Level	Attained Level	Attainment % ((Attained Level/3)*100)	Action Plan
CO1	2.5	2.82	94.00	
CO2	2.5	2.80	93.33	
CO3	2.5	2.82	94.00	
CO4	2.5	2.80	93.33	
CO5	2.5	2.76	92.00	



Programme Outcomes (POs) Attainment:

PO = (Weighted Average value of PO * CO ATTAINMENT AVERAGE)/3

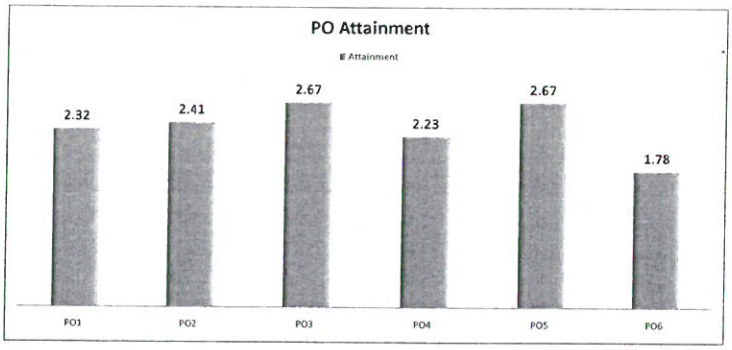
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
LEVEL	2.00	2.40	2.40	2.20	2.40	1.67	2.33	1.00	1.00	1.00	0.00	0.00
Weighted Average	2.00	2.40	2.40	2.20	2.40	1.67	2.33	1.00	1.00	1.00	0.00	0.00

PO Attainment Level:

PO	Attainment Level								
PO1	(	2.00	*	2.80	/	3.00	)	=	1.87
PO2	(	2.40	*	2.80	/	3.00	)	=	2.24
PO3	(	2.40	*	2.80	/	3.00	)	=	2.24
PO4	(	2.20	*	2.80	/	3.00	)	=	2.05
PO5	(	2.40	*	2.80	/	3.00	)	=	2.24
PO6	(	1.67	*	2.80	/	3.00	)	=	1.56
PO7	(	2.33	*	2.80	/	4.00	)	=	1.63
PO8	(	1.00	*	2.80	/	3.00	)	=	0.93
PO9	(	1.00	*	2.80	/	3.00	)	=	0.93
PO10	(	1.00	*	2.80	/	3.00	)	=	0.93
PO11	(	0.00	*	2.80	/	3.00	)	=	0.00
PO12	(	0.00	*	2.80	/	4.00	)	=	0.00

Result of PO Attainment:

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
LEVEL	2.00	2.40	2.40	2.20	2.40	1.67	2.33	1.00	1.00	1.00	0.00	0.00
Attainment	1.87	2.24	2.24	2.05	2.24	1.56	1.63	0.93	0.93	0.93	0.00	0.00



Programme Specific Outcomes (PSO) Attainment:

PSO Attainment = (Weighted Average value PSO * CO ATTAINMENT AVERAGE)/3

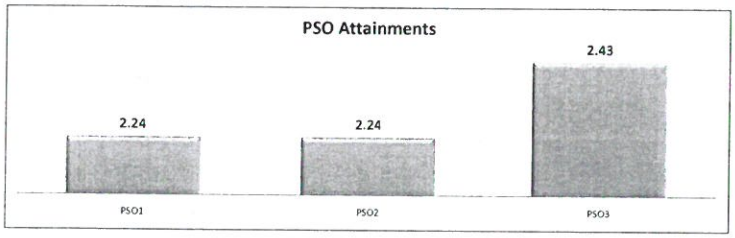
Course	PSO1	PSO2	PSO3
LEVEL	2.40	2.40	2.60
Weighted Average	2.40	2.40	2.60

PSO Attainment

PSO	Attainment Level							
PSO1	(	2.40	*	2.80	/	3.00	)	= 2.24
PSO2	(	2.40	*	2.80	/	3.00	)	= 2.24
PSO3	(	2.60	*	2.80	/	3.00	)	= 2.43

Result of PSO Attainment

Course	PSO1	PSO2	PSO3
LEVEL	3	2	2.6
Weighted	2.24	2.24	2.43



Action Taken Report

PO	Target set by Program Assessment Committee (PAC)	Attained	Action Taken (write an actio taken report based your subject pos attained in the last)
PO1	1.8	1.87	NO REMARKS
PO2	1.8	2.24	NO REMARKS
PO3	1.8	2.24	NO REMARKS
PO4	1.8	2.05	NO REMARKS
PO5	1.8	2.24	NO REMARKS
PO6	1.8	1.56	• More focus to clear basic fundamentals. • More bridge classes
PO7	1.8	1.63	• More focus to clear basic fundamentals. • More bridge classes
PO8	1.8	0.93	• More focus to clear basic fundamentals. • More bridge classes
PO9	1.8	0.93	• More focus to clear basic fundamentals. • More bridge classes
PO10	1.8	0.93	• More focus to clear basic fundamentals. • More bridge classes
PO11	1.8	0.00	

PO12	1.8	0.00	
PSO1	1.8	2.24	NO REMARKS
PSO2	1.8	2.24	NO REMARKS
PSO3	1.8	2.43	NO REMARKS

Signature of Course Instructor

Signature of HOD

Head of the D[illegible] (E E E)
SCIENCE INSTITUTE OF TECHNOLOGY
Ibrahimpatnam [illegible], R.R. Dist.

SCIENT INSTITUTE OF TECHNOLOGY

Ibrahimpatnam. R.R Dist - 501506

(Approved by AICTE & Affiliated to JNTUH, Hyderabad)

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

B.Tech - EEE PO's / PSO's Attainment

PO's / PSO's ATTAINMENT LEVEL 2018-19

Course	Subject	Program Outcomes												Program Specific Outcomes(PSO's)		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
MA101BS	Mathematics -I	0.34	0.85	-	-	-	-	-	-	-	-	-	-	0.68	0.68	0.68
EN105HS	English	0.88	0.88	0.88	-	0.88	1.76	-	1.76	0.88	0.88	1.76	-	1.76	1.06	1.59
CH102BS	Chemistry	1.07	0.71	-	-	-	1.07	0.71	-	-	-	-	-	0.64	0.46	0.79
EE203ES	Basic Electrical Engineering	2.29	1.94	1.76	1.76	1.41	2.06	-	0.88	0.88	0.88	0.88	-	2.47	2.47	0.88
MA201BS	Mathematics -II	0.54	0.57	-	-	-	-	-	-	-	-	-	-	0.34	0.51	0.00
AP202BS	Applied Physics	0.83	0.36	0.72	0.72	1.08	-	0.72	0.72	-	-	0.36	0.54	0.72	0.72	0.90
CS203ES	Programming For Problem Solving	0.91	0.98	0.91	0.91	-	-	-	-	-	-	0.84	-	0.91	0.84	0.91
MA301BS	Mathamatics – IV	0.90	2.26	-	-	-	-	-	-	-	-	-	-	0.90	1.80	2.71
EE302ES	Electromagnetic Fields	2.19	2.01	0.91	1.82	0.91	0.91	-	0.91	-	0.91	-	-	2.10	1.37	0.91
EE303ES	Electrical Machines-I	1.98	2.43	2.34	2.25	1.17	1.35	-	-	0.90	0.90	-	-	2.16	2.25	0.90
EE304ES	Network Theory	1.77	1.47	1.92	1.47	1.18	0.74	-	0.74	0.74	0.74	0.74	-	0.96	1.62	1.10
EE305ES	Electronic Circuits	2.08	2.08	1.81	1.45	1.45	-	0.91	-	-	0.91	0.91	0.91	2.49	2.04	0.91
EC401ES	Switching Theory & Logic Design	1.78	1.78	1.78	2.00	1.78	2.00	-	1.78	2.00	2.37	2.00	-	1.78	2.00	1.78
EE402ES	Power Systems - I	1.78	1.78	2.01	1.78	2.01	2.23	-	1.78	2.01	2.23	1.78	-	1.78	2.01	1.78
EE403ES	Electrical Machines – II	1.81	2.26	1.81	2.03	2.03	1.81	-	2.41	1.81	2.03	1.81	-	1.81	1.81	2.03
EE404ES	Control Systems	2.21	1.99	2.21	1.54	1.76	1.54	-	1.76	1.76	1.47	1.47	-	1.76	1.41	2.21
SM405MS	Business Economics and Financial Analysis	2.21	1.76	1.76	2.21	2.21	2.65	-	2.21	1.76	2.21	1.76	-	1.99	1.76	1.76
EE501PC	Electrical Measurements & Instrumentation	1.56	2.05	2.50	1.96	1.43	0.89	0.67	-	-	0.89	0.89	0.67	2.32	2.01	0.89
EE502PC	Power Systems - II	2.19	2.37	1.83	2.51	1.60	2.28	1.37	0.91	-	0.91	0.91	-	2.37	2.19	2.13
EI503PC	Microprocessors and Microcontrollers	1.87	2.43	1.87	2.57	1.87	2.33	-	-	-	-	-	-	2.43	2.24	2.33
SM504MS	Fundamentals of Management	2.40	2.70	2.70	1.80	2.70	2.70	-	-	-	-	-	-	2.25	2.47	2.10
PE5120E	Renewable Energy Sources	2.40	2.49	2.77	2.30	2.77	1.84	-	-	-	-	-	-	2.77	2.07	1.84
EE601PC	Power Systems Analysis	1.86	2.42	2.05	1.86	2.23	1.63	0.70	-	-	0.93	0.93	-	2.42	1.86	1.30
EE602PC	Power Electronics	1.77	1.94	1.99	1.77	2.12	1.94	0.66	0.88	0.88	-	0.88	-	2.65	2.47	2.47
EE603PC	Switch Gear and Protection	1.87	2.24	2.24	2.05	2.24	1.56	1.63	0.93	0.93	0.93	-	-	2.24	2.24	2.43
MT621OE	Data Structures	1.58	2.11	2.11	1.54	2.11	1.32	-	0.88	0.88	-	-	-	2.28	2.28	1.98
EE614PE	Electrical & Electronics Instrumentation	1.84	1.84	2.21	2.07	1.65	1.61	1.29	-	-	0.92	0.92	-	2.02	1.84	0.92
SUM		44.89	48.70	43.05	40.38	38.57	36.22	8.66	18.56	15.43	20.11	18.85	2.11	48.99	46.48	40.23
PO's ATTAINMENTAVERAGE		1.66	1.80	1.87	1.84	1.75	1.72	0.96	1.33	1.29	1.26	1.18	0.70	1.81	1.72	1.49

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING		
B.TECH - EEE / CO Attainment / Attainment Year 2018-2019		
Code	Subject	Attainment
I Year I Sem		
MA101BS	Mathematics -I	1.02
EN105HS	English	2.65
CH102BS	Chemistry	1.07
EE203ES	Basic Electrical Engineering	2.65
I Year II Sem		
MA201BS	Mathematics -II	1.01
AP202BS	Applied Physics	1.08
CS203ES	Programming For Problem Solving	1.05
ME204ES	Engineering Graphics	
II Year I Sem		
MA301BS	Mathamatics – IV	2.71
EE302ES	Electromagnetic Fields	2.73
EE303ES	Electrical Machines-I	2.7
EE304ES	Network Theory	2.21
EE305ES	Electronic Circuits	2.72
II Year II Sem		
EC401ES	Switching Theory & Logic Design	2.66
EE402ES	Power Systems - I	2.67
EE403ES	Electrical Machines – II	2.71
EE404ES	Control Systems	2.65
SM405MS	Business Economics and Financial Analysis	2.65
III Year I Sem		
EE501PC	Electrical Measurements & Instrumentation	2.68
EE502PC	Power Systems - II	2.74
EI503PC	Microprocessors and Microcontrollers	2.8
SM504MS	Fundamentals of Management	2.7
PE5120E	Renewable Energy Sources	2.77
III Year II Sem		
EE601PC	Power Systems Analysis	2.79
EE602PC	Power Electronics	2.65
EE603PC	Switch Gear and Protection	2.8
MT621OE	Data Structures	2.63
EE614PE	Electrical & Electronics Instrumentation	2.76
Average		2.38

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Department Of Electrical & Electronics Engineering

B.Tech - EEE / CO Attainment / Attainment Year 2018-2019		
Code	Subject	Attainment
I Year I Sem		
MA101BS	Mathematics -I	1.02
CH102BS	Chemistry	2.65
EE103ES	Basic Electrical Engineering	1.07
ME105ES	Engineering Workshop	2.88
EN105HS	English	2.65
CH106BS	Engineering Chemistry Lab	2.75
EN107HS	English Language and Communication Skills Lab	2.88
EE108ES	Basic Electrical Engineering Lab	2.75
I Year II Sem		
MA201BS	Mathematics -II	1.01
AP202BS	Applied Physics	1.08
CS203ES	Programming For Problem Solving	1.05
ME204ES	Engineering Graphics	1
AP205BS	Applied Physics Lab	3
CS206ES	Programming for Problem Solving Lab	3
II Year I Sem		
MA301BS	Mathamatics – IV	2.71
EE302ES	Electromagnetic Fields	2.73
EE303ES	Electrical Machines-I	2.7
EE304ES	Network Theory	2.21
EE305ES	Electronic Circuits	2.72
EE306ES	Electrical Machines Lab - I	3
EC306ES	Electronic Devices & Circuits Lab	3
EE307ES	Networks Lab	3
II Year II Sem		
EC401ES	Switching Theory & Logic Design	2.66
EE402ES	Power Systems - I	2.67
EE403ES	Electrical Machines – II	2.71
EE404ES	Control Systems	2.65
SM405MS	Business Economics and Financial Analysis	2.65
EE406ES	Control Systems Lab	3
EE407ES	Electrical Machines Lab - II	3
EE408ES	Electronic Circuits Lab	3
MC400HS	Gender Sensitization Lab	

III Year I Sem		
EE501PC	Electrical Measurements & Instrumentation	2.68
EE502PC	Power Systems - II	2.74
EI503PC	Microprocessors and Microcontrollers	2.8
SM504MS	Fundamentals of Management	2.7
PE5120E	Renewable Energy Sources	2.77
EE505PC	Electrical Measurements & Instrumentation Lab	3
EE506PC	Basic Electrical simulation Lab	3
EI507PC	Microprocessors and Microcontrollers Lab	3
III Year II Sem		
EE601PC	Power Systems Analysis	2.79
EE602PC	Power Electronics	2.65
EE603PC	Switch Gear and Protection	2.8
MT621OE	Data Structures	2.63
EE614PE	Electrical & Electronics Instrumentation	2.76
EE604PC	Power Systems Lab	3
EE605PC	Power Electronics Lab	3
EN606HS	Advanced English Communication Skills Lab	3
Average		2.5765

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Department Of Electrical & Electronics Engineering

B.Tech - EEE PO's / PSO's Attainment

PO's / PSO's ATTAINMENT LEVEL 2018-2019

Course	Subject	Program Outcomes												Program Specific Outcomes(PSO's)		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
MA101BS	Mathematics -I	0.34	0.85	-	-	-	-	-	-	-	-	-	-	0.68	0.68	0.68
EN105HS	English	0.88	0.88	0.88	-	0.88	1.76	-	1.76	0.88	0.88	1.76	-	1.76	1.06	1.59
CH102BS	Chemistry	1.07	0.71	-	-	-	1.07	0.71	-	-	-	-	-	0.64	0.46	0.79
EE203ES	Basic Electrical Engineering	2.29	1.94	1.76	1.76	1.41	2.06	-	0.88	0.88	0.88	0.88	-	2.47	2.47	0.88
ME105ES	Engineering Workshop	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.75	2.88	2.88	2.88	2.88	-
CH106BS	Engineering Chemistry Lab	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	-
EN107HS	English Language and Communication Skills Lab	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.75	2.88	2.88	2.88	2.88	-
EE108ES	Basic Electrical Engineering Lab	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	-
MA201BS	Mathematics -II	0.54	0.57	-	-	-	-	-	-	-	-	-	-	0.34	0.51	-
AP202BS	Applied Physics	0.83	0.36	0.72	0.72	1.08	-	0.72	0.72	-	-	0.36	0.54	0.72	0.72	0.90
CS203ES	Programming For Problem Solving	0.91	0.98	0.91	0.91	-	-	-	-	-	-	0.84	-	0.91	0.84	0.91
ME204ES	Engineering Graphics	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
AP205BS	Applied Physics Lab	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-
CS206ES	Programming for Problem Solving Lab	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-
MA301BS	Mathamatics – IV	0.90	2.26	-	-	-	-	-	-	-	-	-	-	0.90	1.80	2.71
EE302ES	Electromagnetic Fields	2.19	2.01	0.91	1.82	0.91	0.91	-	0.91	-	0.91	-	-	2.10	1.37	0.91
EE303ES	Electrical Machines-I	1.98	2.43	2.34	2.25	1.17	1.35	-	-	0.90	0.90	-	-	2.16	2.25	0.90
EE304ES	Network Theory	1.77	1.47	1.92	1.47	1.18	0.74	-	0.74	0.74	0.74	0.74	-	0.96	1.62	1.10
EE305ES	Electronic Circuits	2.08	2.08	1.81	1.45	1.45	-	0.91	-	-	0.91	0.91	0.91	2.49	2.04	0.91
EE306ES	Electrical Machines Lab - I	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-
EC306ES	Electronic Devices & Circuits Lab	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-
EE307ES	Networks Lab	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-
EC401ES	Switching Theory & Logic Design	1.78	1.78	1.78	2.00	1.78	2.00	-	1.78	2.00	2.37	2.00	-	1.78	2.00	1.78
EE402ES	Power Systems - I	1.78	1.78	2.01	1.78	2.01	2.23	-	1.78	2.01	2.23	1.78	-	1.78	2.01	1.78
EE403ES	Electrical Machines – II	1.81	2.26	1.81	2.03	2.03	1.81	-	2.41	1.81	2.03	1.81	-	1.81	1.81	2.03
EE404ES	Control Systems	2.21	1.99	2.21	1.54	1.76	1.54	-	1.76	1.76	1.47	1.47	-	1.76	1.41	2.21
SM405MS	Business Economics and Financial Analysis	2.21	1.76	1.76	2.21	2.21	2.65	-	2.21	1.76	2.21	1.76	-	1.99	1.76	1.76
EE406ES	Control Systems Lab	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-
EE407ES	Electrical Machines Lab - II	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-
EE408ES	Electronic Circuits Lab	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-
EE501PC	Electrical Measurements & Instrumentation	1.56	2.05	2.50	1.96	1.43	0.89	0.67	-	-	0.89	0.89	0.67	2.32	2.01	0.89
EE502PC	Power Systems - II	2.19	2.37	1.83	2.51	1.60	2.28	1.37	0.91	-	0.91	0.91	-	2.37	2.19	2.13
EI503PC	Microprocessors and Microcontrollers	1.87	2.43	1.87	2.57	1.87	2.33	-	-	-	-	-	-	2.43	2.24	2.33

SM504MS	Fundamentals of Management	2.40	2.70	2.70	1.80	2.70	2.70	-	-	-	-	-	-	2.25	2.47	2.10
PE5120E	Renewable Energy Sources	2.40	2.49	2.77	2.30	2.77	1.84	-	-	-	-	-	-	2.77	2.07	1.84
EE505PC	Electrical Measurements & Instrumentation Lab	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-
EE506PC	Basic Electrical simulation Lab	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-
EI507PC	Microprocessors and Microcontrollers Lab	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-
EE601PC	Power Systems Analysis	1.86	2.42	2.05	1.86	2.23	1.63	0.70	-	-	0.93	0.93	-	2.42	1.86	1.30
EE602PC	Power Electronics	1.77	1.94	1.99	1.77	2.12	1.94	0.66	0.88	0.88	-	0.88	-	2.65	2.47	2.47
EE603PC	Switch Gear and Protection	1.87	2.24	2.24	2.05	2.24	1.56	1.63	0.93	0.93	0.93	-	-	2.24	2.24	2.43
MT621OE	Data Structures	1.58	2.11	2.11	1.54	2.11	1.32	-	0.88	0.88	-	-	-	2.28	2.28	1.98
EE614PE	Electrical & Electronics Instrumentation	1.84	1.84	2.21	2.07	1.65	1.61	1.29	-	-	0.92	0.92	-	2.02	1.84	0.92
EE604PC	Power Systems Lab	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-
EE605PC	Power Electronics Lab	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-
EN606HS	Advanced English Communication Skills Lab	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-
SUM		99.15	102.96	97.31	94.64	92.83	90.48	62.92	72.82	69.69	65.11	73.11	56.37	103.25	100.74	40.23
PO's ATTAINMENTAVERAGE		2.16	2.24	2.32	2.31	2.26	2.26	2.25	2.21	2.25	2.12	2.09	2.56	2.24	2.19	1.55

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