



NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE  
(NAAC 'A' Accredited & ISO 9001:2015 Certified Institution)  
(Approved by AICTE, Affiliated to APJ Abdul Kalam Technological University, Kerala)



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

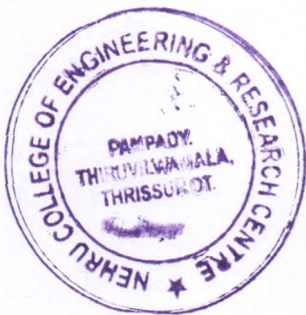
Sl.No	DESCRIPTION	PAGE No
1	CO-PO Mapping and Attainment	02
2	Series Test Question Papers with Bloom Taxonomy	17
3	Assignments	35

**Nehru College of Engineering and Research Centre**  
CO/Course - PO/PSO Mapping

Department:	Department of Electrical Engineering		
Programme:	B-Tech. -Electrical Engineering		
Course:	BASICS OF ELECTRICAL ENGINEERING		
University:	KTU ▼	Course Code:	EST130
Semester:	2 ▼	Course Outcome Code:	EST130
Course Type:	Core Theory ▼	Credits:	2 ▼
Internal Marks:	25	University Marks:	50
Level 3 (% Hours):	40	Lecture Hours (L):	2 ▼
Level 2 (% Hours):	25	Tutorial Hours (T):	0 ▼
Level 1 (% Hours):	5	Practical Hours (P):	0 ▼

**Course Outcomes**

EST130.1	Apply fundamental concepts and circuit laws to solve simple DC electric circuits
EST130.2	Develop and solve models of magnetic circuits
EST130.3	Apply the fundamental laws of electrical engineering to solve simple ac circuits in steady state



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**Nehru College of Engineering and Research Centre**  
**CO/Course - PO/PSO Mapping**

Department:	Department of Electrical Engineering
Programme:	B-Tech. -Electrical Engineering
Course:	BASICS OF ELECTRICAL ENGINEERING

Instructions for CO-PO Mapping

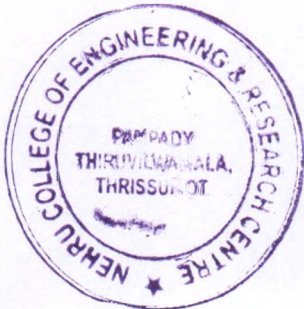
1. All the fields with RED title has to be filled.  
**CO - PO/PSO Mapping table** and **CO PO/PSO Mapping (Hours) table** entries are to be filled
2. Keep the fields BLANK if there is no entry
3. CO - PO/PSO Mapping:
  - a. Enter all the POs and PSOs corresponding to each CO in the CO - PO/PSO Mapping table
  - b. Enter the total number of hours for each CO in the CO - PO/PSO Mapping table
4. CO-PO/PSO Mapping Entry: Choose the Mode of Entry - Hours/ Level
4. CO-PO/PSO Mapping Entry
  - a. Enter the number of hours contributed/ Level to each PO/PSO corresponding to each CO in CO-PO/PSO Mapping Entry table
  - b. If Mode of entry is Hours, the total number of hours corresponding to each PO/PSO of each CO in CO-PO/PSO Mapping Entry table can be ZERO to Maximum No. of Hours for the corresponding CO and if Level is choosen enter 1,2 or 3 in the CO - PO/PSO Mapping table
  - c. Keep the field BLANK if the PO/PSO entry correspond to the CO is not there in CO - PO/PSO Mapping Entry table

**Strength of mapping is defined at three levels:**

Slight or Low (Level 1); Moderate or Medium (Level 2) and Substantial or high (Level 3)

**Mapping Criteria: If Hours for CO-PO/PSO**

> 40% : then PO/PSO is Level 3	25% - 40% : then PO/PSO is Level 2
5% - 25% : then PO/PSO is Level 1	< 5% then PO is considered not-addressed



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### CO/Course - PO/PSO Mapping

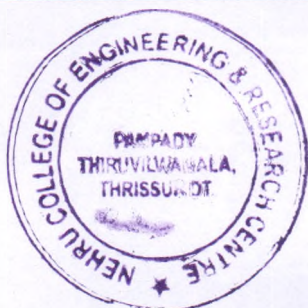
Department:	Department of Electrical Engineering
Programme:	B-Tech. -Electrical Engineering
Course:	BASICS OF ELECTRICAL ENGINEERING

### CO - PO/PSO Mapping

Course Outcome	PO/ PSO Mapping	No of Hours
EST130.1	PO1,PO2,PO12,PSO1,	9
EST130.2	PO1, PO2, PO12,PSO1	8
EST130.3	PO1,PO2, PO12,PSO1	8
<b>Total No. of Hours</b>		25

### Course- PO/PSO Mapping

PO/PSO	No of Hours for PO	% of Hours for PO	LEVEL
PO1	25	100.00	3
PO2	4	16.00	1
PO3			
PO4			
PO5			
PO6			
PO7			
PO8			
PO9			
PO10			
PO11			
PO12	7	28.00	2
PSO1	25	100.00	3
PSO2			
PSO3			



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### CO/Course - PO/PSO Mapping

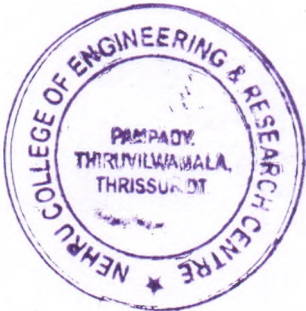
Department:	Department of Electrical Engineering
Programme:	B-Tech. -Electrical Engineering
Course:	BASICS OF ELECTRICAL ENGINEERING

	CO- PO/PSO Mapping Entry (Hours)							Mode of Entry:					Hours ▼		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
EST130.1	9	2										3	9		
EST130.2	8	1										2	8		
EST130.3	8	1										2	8		

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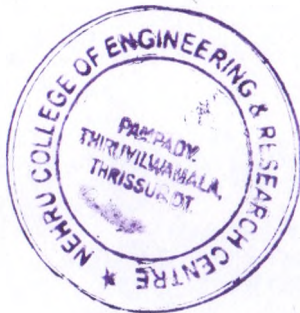
**Nehru College of Engineering and Research Centre**

Course Outcome- Attainment for EST130: Basics of Electrical Engineering, Academic Year: 2019-2020, Semester: 2

**Internal Evaluation-1 ( Test 1 ) Marks and Attainment**

Sl. No.	Roll No.	KTU ID	Student Name	Q1	Q2															Total (25)		
				15	10																	
				CO1	CO2																	
1	1	20192912	ABHIRAM M	13	10															23		
2	2	20203722	AKASH V	14	10															24		
3	3	20193062	ASISH G K	14	10															24		
4	4	20193484	ASWATHY A M	13	10															23		
5	5	20191744	MIDHUN MADHAV	14	9															23		
6	6	20191461	MIDHUN NATARAJAN	15	9															24		
7	7	20193211	MUHAMMED BADHUSHA S	14	10															24		
8	8	20191826	NIBIN R	14	9															23		
9	9	20203930	RIDHUL R	14	10															24		
10	10	20192882	SREERAG A	15	9															24		
11	11	20192087	SREYA P M	13	10															23		
12	12	20192564	S RIDHESH	14	10															24		
13	13	20192963	SUBIN S	11	10															21		

Internal Evaluation-1 ( Test 1 )			
CO	No. of Questions	% Students CO Attainment	Test Wise Attainment Level
EST130.1	1	100.00	3
EST130.2	1	100.00	3
EST130.3	0		
	0		
	0		
	0		



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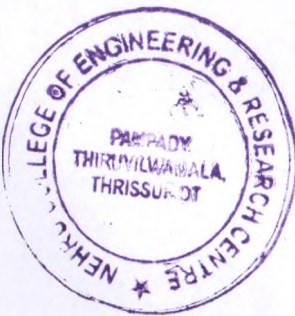
**Department of Electrical Engineering**  
**Nehru College of Engineering and Research Centre**

**Course Outcome- Attainment for EST130: Basics of Electrical Engineering, Academic Year: 2019-2020, Semester: 2**

**Internal Evaluation-2 ( Test 2 ) Marks and Attainment**

Sl. No.	Roll No.	KTU ID	Student Name	Q1	Q2																Total (25)		
				10	15																		
				CO2	CO3																		
1	1	20192912	ABHIRAM M	8	12																20		
2	2	20203722	AKASH V	10	12																22		
3	3	20193062	ASISH G K	4	12																16		
4	4	20193484	ASWATHY A M	10	11																21		
5	5	20191744	MIDHUN MADHAV	7	12																19		
6	6	20191461	MIDHUN NATARAJAN	9	13																22		
7	7	20193211	MUHAMMED BADHUSHA S	8	12																20		
8	8	20191826	NIBIN R	7	14																21		
9	9	20203930	RIDHUL R	7	14																21		
10	10	20192882	SREERAG A	6	10																16		
11	11	20192087	SREYA P M	10	13																23		
12	12	20192564	S RIDHESH	8	14																22		
13	13	20192963	SUBIN S	9	13																22		

Internal Evaluation-2 ( Test 2 )			
CO	No. of Questions	% Students CO Attainment	Test Wise Attainment Level
EST130.1	0		
EST130.2	1	100.00	3
EST130.3	1	100.00	3
	0		
	0		
	0		



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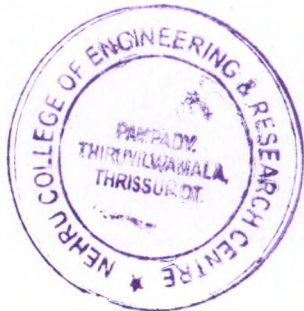
**Department of Electrical Engineering**  
**Nehru College of Engineering and Research Centre**

Course Outcome- Attainment for EST130: Basics of Electrical Engineering, Academic Year: 2019-2020, Semester: 2

**Internal Evaluation-3 ( Assignment 1 ) Marks and Attainment**

Sl. No.	Roll No.	KTU ID	Student Name	Q1	Q2	Q3													Total (10)
				5	3	2													
				CO1	CO1	CO2													
1	1	20192912	ABHIRAM M	4.30	3.00	2.00													9.3
2	2	20203722	AKASH V	4.40	3.00	2.00													9.4
3	3	20193062	ASISH G K	2.00	0.50	0.00													2.5
4	4	20193484	ASWATHY A M	4.80	3.00	2.00													9.8
5	5	20191744	MIDHUN MADHAV	4.70	3.00	2.00													9.7
6	6	20191461	MIDHUN NATARAJAN	1.0	3.00	0.50													4.5
7	7	20193211	MUHAMMED BADHUSHA S	4.20	3.00	2.00													9.2
8	8	20191826	NIBIN R	4.50	3.00	2.00													9.5
9	9	20203930	RIDHUL R	1.00	1.00	0.90													2.9
10	10	20192882	SREERAG A	1.00	1.00	0.80													2.8
11	11	20192087	SREYA P M	4.30	3.00	2.00													9.3
12	12	20192564	S RIDHESH	3.80	3.00	2.00													8.8
13	13	20192963	SUBIN S	4.30	3.00	2.00													9.3

Internal Evaluation-3 ( Assignment 1 )			
CO	No. of Questions	% Students CO Attainment	Test Wise Attainment Level
EST130.1	2	76.92	2
EST130.2	1	84.62	3
EST130.3	0		
	0		
	0		
	0		



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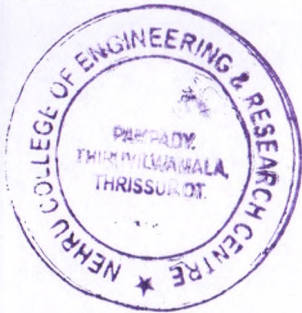
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Course Outcome- Attainment for EST130: Basics of Electrical Engineering, Academic Year: 2019-2020, Semester: 2

Internal Evaluation-4 ( Assignment 2 ) Marks and Attainment

Sl. No.	Roll No.	KTU ID	Student Name	Q1	Q2	Q3															Total (10)
				3	2	5															
				CO2	CO3	CO3															
1	1	20192912	ABHIRAM M	4.00	3.00	2.00															9
2	2	20203722	AKASH V	3.50	3.00	2.00															8.5
3	3	20193062	ASISH G K	3.00	3.00	2.00															8
4	4	20193484	ASWATHY A M	4.00	3.00	2.00															9
5	5	20191744	MIDHUN MADHAV	3.75	3.00	2.00															8.75
6	6	20191461	MIDHUN NATARAJAN	3.0	3.0	2.0															8
7	7	20193211	MUHAMMED BADHUSHA S	3.75	3.00	2.00															8.75
8	8	20191826	NIWIN R	4.00	3.00	2.00															9
9	9	20203930	RIDHUL R	3.75	3.00	2.00															8.75
10	10	20192882	SREERAG A	3.25	3.00	2.00															8.25
11	11	20192087	SREYA P M	4.00	3.00	2.00															9
12	12	20192564	S RIDHESH	4.00	3.00	2.00															9
13	13	20192963	SUBIN S	4.00	3.00	2.00															9

Internal Evaluation-4 ( Assignment 2 )			
CO	No. of Questions	% Students CO Attainment	Test Wise Attainment Level
EST130.1	0		
EST130.2	1	100.00	3
EST130.3	2	100.00	3
	0		
	0		
	0		



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**Department of Electrical Engineering**

**Nehru College of Engineering and Research Centre**

**Course Outcome- Attainment for EST130: Basics of Electrical Engineering, Academic  
Year: 2019-2020, Semester: 2**

**Final Evaluation/ University Examination Marks and Attainment**

Sl. No.	Roll No.	KTU ID	Student Name	Marks Entry	Total Marks (50)
1	1	20192912	ABHIRAM M	A	A
2	2	20203722	AKASH V	C	C
3	3	20193062	ASISH G K	F	25
4	4	20193484	ASWATHY A M	S	95
5	5	20191744	MIDHUN MADHAV	P	43
6	6	20191461	MIDHUN NATARAJAN	A	A
7	7	20193211	MUHAMMED BADHUSHA S	A+	A+
8	8	20191826	NIBIN R	F	25
9	9	20203930	RIDHUL R	P	43
10	10	20192882	SREERAG A	F	25
11	11	20192087	SREYA P M	B	50
12	12	20192564	S RIDHESH	F	25
13	13	20192963	SUBIN S	F	25

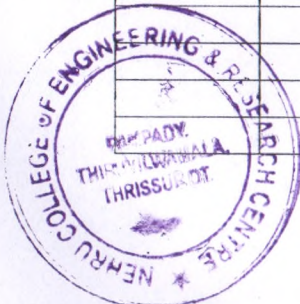
Final Evaluation/ University Examination	
Threshold Marks (%)	40
Number of Students Appeared:	9
Number of Students Achieved the CO Attainment Threshold:	9
% of Students Achieved the CO Attainment Threshold:	100.00
CO Attainment Level:	3

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Department of Electrical Engineering  
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Course Outcome- Attainment for EST130: Basics of Electrical Engineering, Academic Year: 2019-2020, Semester: 2

CO Wise Average Attainment											
Course Outcomes	Internal Attainment - Individual								Overall Internal Attainment Level	Final/ University Attainment Level	Overall CO Attainment Level
	Test 1		Test 2		Assignment 1		Assignment 2				
	(%)	Level	(%)	Level	(%)	Level	(%)	Level			
EST130.1	100.00	3.00			76.92	2.00			2.50	3.00	2.65
EST130.2	100.00	3.00	100.00	3.00	84.62	3.00	100.00	3.00	3.00	3.00	3.00
EST130.3			100.00	3.00			100.00	3.00	3.00	3.00	3.00
									FALSE		
									FALSE		
									FALSE		
Average Attainment:									2.83	3.00	2.88
Course Attainment Level: 2.88											

Dr.Sobha Manakkal

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Nehru College of Engineering and Research Centre

Calculation						
Overall Internal Attainment Level = 0.25 * Test 1 Attainment Level + 0.25 * Test 2 Attainment Level + 0.25 * Assignment 1 Attainment Level + 0.25 * Assignment 2 Attainment Level						
Overall CO Attainment Level = 0.7 * Overall Internal Attainment Level + 0.3 * Final/ University Attainment Level						
Targets for Attainment Calculation (% Marks)				Attainment Levels (% Students)		
EST130.1	EST130.2	EST130.3	Final/University	Level 3	Level 2	Level 1
40	40	40	40	80	70	60

Course Outcomes
EST130.1: Apply fundamental concepts and circuit laws to solve simple DC electric circuits
EST130.2: Develop and solve models of magnetic circuits
EST130.3: Apply the fundamental laws of electrical engineering to solve simple ac circuits in steady state



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## Department of Electrical Engineering

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<b>KTU</b>	<b>Programme: B-Tech. -Electrical Engineering</b>										<b>Semester: 2</b>				
<b>Course Code: EST130</b>	<b>Course Type: Core Theory</b>					<b>Credits: 2</b>					<b>L-T-P: 2-0-0</b>				
<b>Course Title: BASICS OF ELECTRICAL ENGINEERING</b>															
<b>Assessment (Maximum Marks):</b>			<b>Internal: 25</b>			<b>University/Final Evaluation: 50</b>						<b>Total: 75</b>			
<b>Course Outcomes</b>															
EST130.1: Apply fundamental concepts and circuit laws to solve simple DC electric circuits															
EST130.2: Develop and solve models of magnetic circuits															
EST130.3: Apply the fundamental laws of electrical engineering to solve simple ac circuits in steady state															
<b>CO - PO/PSO Mapping (Levels)</b>															
<b>CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>	<b>PO12</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
EST130.1	3	1										2	3		
EST130.2	3	1										2	3		
EST130.3	3	1										2	3		
<b>Course - PO/PSO Mapping (Levels)</b>															
<b>Course</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>	<b>PO12</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
EST130	3	1										2	3		

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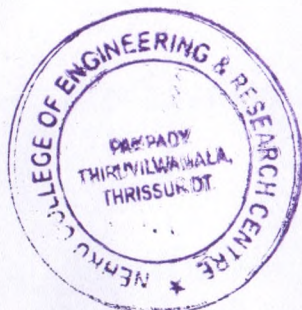
<b>CO/Course - PO/PSO Attainment Level - Academic Year: 2019-2020</b>																
<b>CO</b>	<b>CO Att.</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>	<b>PO12</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
EST130.1	2.65	3	1										2	3		
EST130.2	3	3	1										2	3		
EST130.3	3	3	1										2	3		
<b>Direct CO-PO/PSO Attainment:</b>		2.88	2.88										2.88	2.88		

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1 Programme: COMPUTER SCIENCE ENGINEERING  
Year & Sem IV & S8  
Course Code & Name:CS 472

Sl	Reg No	Name	SERIES TEST1						Total Mark (20)	SERIES TEST2						Total Mark (50)	ASSIGNMENT TEST						Total Mark (60)	UNIV EXAM	UNIV RESULT
			CO1	CO2	CO3	CO4	CO5	CO6		CO1	CO2	CO3	CO4	CO5	CO6		CO1	CO2	CO3	CO4	CO5	CO6			
1	NCE18CS001	ABHIJITH K P	5	3	5				13				5	5	0	10	10	10	10	10	10	10	60		B
2	NCE18CS007	AISWARYA V NAIR	7	4	5				16				5	4	5	14	10	10	10	10	10	10	60	8.5	A
3	NCE18CS008	AJAY K S	5	6	3				14				4	3	7	14	10	10	10	10	10	10	60	8	B+
4	NCE18CS009	AJITH KUMAR R	6	4	5				15				6	4	3	13	10	10	10	10	10	10	60	8	B+
5	NCE18CS011	AKSHAY M	5	5	4				14				3	4	3	10	10	10	10	10	10	10	60	8	B+
6	NCE18CS016	ARYA R	5	5	5				15				3	6	5	14	10	10	10	10	10	10	60	8	B+
7	NCE18CS017	ASHA K	4	5	4				13				3	4	3	10	10	10	10	10	10	10	60	7	B
8	NCE18CS020	ATHUL P	5	3	4				12				5	4	5	14	10	10	10	10	10	10	60	7	B
9	NCE18CS025	JOHNL K BABU	2	2	2				6				2	4	0	6	10	10	10	10	10	10	60	0	F
10	NCE18CS026	KAVYA KALIDAS	2	1	0				3				4	3	3	10	10	10	10	10	10	10	60	0	F
11	NCE18CS027	K PRAVEENA	7	5	4				16				5	6	4	15	10	10	10	10	10	10	60	8	B+
12	NCE18CS028	MAJEED I	0	2	0				2				5	3	3	11	10	10	10	10	10	10	60	0	F
13	NC18CS035	NAVANEETH P	6	3	4				13				5	2	3	10	10	10	10	10	10	10	60.0	8	B+
14	NC18CS037	NITHYA P	4	5	5				14				4	4	4	12	10	10	10	10	10	10	60.0	7	B
15	NC18CS038	RANJITH R	4	4	3				11				5	3	4	12	10	10	10	10	10	10	60.0	7	B
16	NC18CS040	SANAL SALDEEN S	5	3	3				11				3	4	3	10	10	10	10	10	10	10	60.0	0	F
17	NC18CS041	SANDRA N P	5	5	4				14				5	6	3	14	10	10	10	10	10	10	60.0	9	A+
18	NC18CS042	SARANIA N	4	4	2				10				3	3	3	9	10	10	10	10	10	10	60.0	8.5	A
19	NC18CS045	SNEHA V	4	5	5				14				4	3	3	10	10	10	10	10	10	10	60.0	8.5	A
20	NC18CS047	SREEDEVI C	5	5	3				13				4	2	4	10	10	10	10	10	10	10	60.0	8.5	A
21	NC18CS048	SREELAKSHMI A	6	4	2				12				3	4	3	10	10	10	10	10	10	10	60.0	6	C
22	NC18CS049	SREERAM K	1	2	3				6				2	3	2	7							5	P	
23	NC18CS050	SULFI A	5	4	3				12				3	4	3	10	10	10	10	10	10	10	60.0	6	C
24	NC18CS051	SWETHA RAJ P	3	3	4				10				4	2	4	10	10	10	10	10	10	10	60.0	8	B+
25	NC18CS052	THEJUS K J	2	3	2				7				3	2	5	10	10	10	10	10	10	10	60.0	7	B
26	NC18CS053	THRISHAL G	5	4	3				12				4	3	4	11	10	10	10	10	10	10	60.0	8	B+
27	NC18CS054	VARGHESE P G	4	6	5				15				5	4	6	15	10	10	10	10	10	10	60.0	8	B+
28	NC18CS056	VARSHA P K	4	4	5				13				4	5	3	12	10	10	10	10	10	10	60.0	8	B+
29	NC18CS057	VIJITHRA R	5	3	6				14				3	3	3	9	10	10	10	10	10	10	60.0	7	B
30	NC18CS058	VINAY KRISHNA K M	2	3	3				8				3	2	4	9	10	10	10	10	10	10	60.0	7	B
31	NC18CS060	VISHNU MOHANAN	5	3	4				12				3	3	6	12	10	10	10	10	10	10	60.0	8	B+
32	NC18CS061	VISHNU M R	2	1					3				3	4	3	10	10	10	10	10	10	10	60.0	5	P
NO OF STUDENTS ATTEND			32	32	31	0	0	0	32	0	0	0	32	32	32	32	31	31	31	31	31	31	31	31	31
MAX MARK CO WISE			8	8	8	0	0	0	20	0	0	0	8	8	8	20	10	10	10	10	10	10	10	60	10
THRESHOLD			50	4	4	4	0	0	0	10	0	0	0	4	4	4	10	5	5	5	5	5	5	30	6
CO/ No of students above thres			24	18	17	0	0	0	25	0	0	0	18	17	14	27	31	31	31	31	31	31	31	25	25
LEVEL			3	1	1	0	0	0	3	0	0	0	1	1	1	3	3	3	3	3	3	3	3	3	3



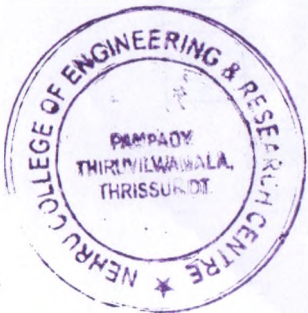
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RUBRICS	
16	50% OF STUDENT ABOVE 60% - 1 (LOW)
19	60% OF STUDENT ABOVE 60% - 2 (MEDIUM)
22	70% OF STUDENT ABOVE 60% - 3 (HIGH)

CI01	TEST1	TEST2	ASSC	INT	UNIV
CO1	3	0	3	3.00	3
CO2	1	0	3	2.00	3
CO3	1	0	3	2.00	3
CO4	0	1	3	2.00	3
CO5	0	3	3	3.00	3
CO6	0	1	3	2.00	3
INTERNAL/UNIV ATTAI				2.33	3.00
WEIGHTAGE				30%	70%
CO ATTAINMENT FOR				0.70	2.10
FINAL CO ATTAINTMN				2.80	

CO Vs PO															
SUBJECT															
COURS E COUT	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C415.1	3	3	3	2	2	2	-	-				2	3	2	2
C415.2	3	3	3	2	2	2	-	-					3	2	
C415.3	2	3	3	2	2	2	-	-					3	2	
C415.4	2	2	2	2	2	2	-	2					3		
C415.5	2	2	2	2	2	2	-	2				3	3		
C415.6	2	2	2	2	2	2	-	2				3	3	2	
C415	2.33	2.5	2.5	2	2	2	0	2	0	0	0	2.66	3	2	2
CO ATTAINN	2.17	2.33	2.33	1.87	1.87	1.87	0	###	0	0	0	2.48	2.80	1.87	1.87

HAVE TO BE ENTERED AS PER KTU NORMS(O=10,A+=9,A=8.5,B+=8,B=7,C=6,P=0), HERE OUR THRESHOLD IS 60% SO HERE ABOVE 7=B ONLY CONSIDER



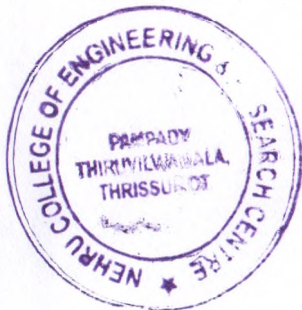
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1 Programme: COMPUTER SCIENCE ENGINEERING  
Year & Sem IV & S7  
Course Code & Name:CS463

Sl	Reg No	Name	SERIES TEST1						Total Mark (20)	SERIES TEST2						Total Mark (20)	ASSIGNMENT TEST						Total Mark (60)	UNIV EXAMINON	UNIV RESULT
			CO1	CO2	CO3	CO4	CO5	CO6		CO1	CO2	CO3	CO4	CO5	CO6		CO1	CO2	CO3	CO4	CO5	CO6			
1	NCE18CS001	ABHIJITH K P	6	4	4.8				14.8			0	6	4.8	10.8	10	10	9	10	9	10	58.0	7	B	
2	NCE18CS002	ABHIJITHLAL C	7.2	6.4	2.4				16			0	7.2	4.8	12	10	9	10	9	9	10	57.0	8	B+	
3	NCE18CS003	ABHINAV C	6	4.8	4.8				15.6			3.2	4	6.4	13.6	8	8	10	8	8	8	50.0	6	C	
4	NCE18CS006	AJSWARYA S M	6	2	4.8				12.8			0.8	6.8	5.2	12.8	9	9	10	10	10	8	56.0	7	B	
5	NCE18CS010	AKSHAYA S	2.8	6	4				12.8			0	4	4	8	10	10	10	9	9	9	57.0	7	B	
6	NCE18CS011	AKSHAY M	4	3.2	2.4				9.6			2	7.6	4	13.6	9	9	10	9	10	10	57.0	8	B+	
7	NCE18CS013	ANJALI E	6	2	2.4				10.4			3.2	6.4	0	9.6	10	10	10	8	9	8	55.0	6	C	
8	NCE18CS014	ANJU ANTO	5.6	4	6				15.6			0	4.8	7.6	12.4	9	10	10	9	9	9	56.0	7	B	
9	NCE18CS020	ATHUL P	6	4	5.2				15.2			5.2	6	2	13.2	10	9	9	10	10	9	57.0	8	B+	
10	NCE18CS021	DURGA RAGHU	3.2	3.6	5.2				12			2.4	4.4	1.6	8.4	10	10	9	8	8	9	54.0	6	C	
11	NCE18CS022	GOPIKA	8	4	4				16			2.8	7.2	5.2	15.2	10	10	10	10	10	10	60.0	8	B+	
12	NCE18CS024	JISNI JOHNSON	6	4	5.2				15.2			0.8	4.8	6.4	12	10	10	9	9	9	10	57.0	8	B+	
13	NCE18CS028	MAJEED I	4	4	4				12			5.2	3.6	4	12.8	10	10	10	10	9	10	59.0	0	F	
14	NCE18CS030	MANASA K S	7.2	4.8	4				16			2	6	6.8	14.8	9	9	10	10	10	10	58.0	8	B+	
15	NCE18CS032	MOHAMMED Y	1.2	0	3.2				4.4			2.8	2	4.4	9.2	10	10	10	10	10	0	50.0	0	F	
16	NCE18CS036	NITHA SHERIN	5.6	3.2	2.8				11.6			6	5.6	4	15.6	9	10	10	9	9	9	56.0	7	B	
17	NCE18CS039	R. ANUSWARIA	8	2	6				16			1.2	3.6	1.2	6	0	0	9	8	8	10	35.0	7	B	
18	NCE18CS040	SANAL SALDE	5.2	4	4.4				13.6			4	0	2.4	6.4	9	10	9	10	9	9	56.0	0	F	
19	NCE18CS042	SARANIA N	6.8	2	5.6				14.4			3.4	4.8	0	8.2	9	10	10	8	9	8	54.0	7	B	
20	NCE18CS044	SNEHA S	7.2	4	4.8				16			2.4	4.8	7.2	14.4	9	10	10	8	8	9	54.0	8	B+	
21	NCE18CS045	SNEHA V	6	4	6				16			5.2	6	6	17.2	10	10	9	8	10	8	55.0	8	B+	
22	NCE18CS050	SULFI A	8	4	2.4				14.4			0.8	5.6	5.2	11.6	10	0	0	10	10	10	40.0	7	B	
23	NCE18CS051	SWETHA RAJ H	8	3.2	3.6				14.8			2.4	6	2.8	11.2	10	10	10	9	9	9	57.0	0	F	
24	NCE18CS052	THEJUS K J	4.8	3.6	3.6				12			0.8	0	3.2	4	10	10	10	9	9	9	57.0	0	F	
25	NCE18CS053	THRISHAL G	6	3.2	6				15.2			4	3.6	3.6	11.2	10	9	10	8	8	7	52.0	7	B	
26	NCE18CS057	VIJITHRA R	4.8	4	4.8				13.6			6	1.6	2.8	10.4	10	10	10	8	10	8	56.0	0	F	
27	NCE18CS058	VINAY KRISHN	3.6	4	2.8				10.4			5.6	0.8	2	8.4	8	10	8	8	8	10	52.0	6	C	
28	NCE18CS063	VISHNU T U	2.4	0	2.4				4.8			4	0	2	6	10	10	10	9	9	9	57.0	5	P	
144	LNCE18CS065	JAYESH K M	1.6	0	1.6							0	6	4.8	10.8	0	0	0	0	0	0	0.0	0	FE	
NO OF STUDENT			29	29	29	0	0	0	28	0	0	0	29	29	29	29	29	29	29	29	29	28.0	28		
MAX MARK CO			8	8	8	0	0	0	20	0	0	0	8	8	8	20	10	10	10	10	10	60	10		
THRESHOLD			50	4	4	4	0	0	0	10	0	0	0	4	4	4	10	5	5	5	5	5	30	6	
CO/No of student			23	16	18	0	0	0	25	0	0	0	9	20	17	19	27	26	27	28	28	27	#REF!	21	
LEVEL			3	1	2	0	0	0	3	0	0	0	1	3	2	2	3	3	3	3	3	3	#REF!	3	



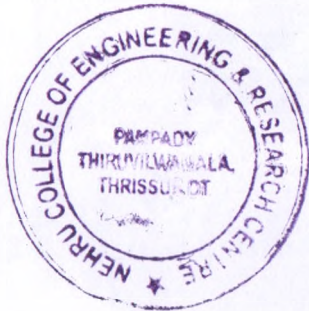
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RUBRICS	
14	50% OF STUDENT ABOVE 60% - 1 (LOW)
17	60% OF STUDENT ABOVE 60% - 2 (MEDIUM)
20	70% OF STUDENT ABOVE 60% - 3 (HIGH)

C101	TEST1	TEST2	SS	INT	UNIV	
CO1	3	0	3	3.00	3	
CO2	1	0	3	2.00	3	
CO3	2	0	3	2.50	3	
CO4	0	1	3	2.00	3	
CO5	0	3	3	3.00	3	
CO6	0	3	3	3.00	3	
INTERNAL/UNIV ATTAINMENT					###	3.00
WEIGHTAGE					###	70%
CO ATTAINMENT FOR THE SU					###	2.10
FINAL CO ATTAINMENT FOR						2.88

COURSE COUTCO ME	CO Vs PO SUBJECT														
	PO1	PO2	P O3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C406.1	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
C406.2	3	-	3	3	2	-	-	-	-	-	-	-	2	2	3
C406.3	3	-	2	3	3	-	-	-	-	-	-	-	3	2	-
C406.4	3	2	3	3	2	-	-	-	-	-	-	-	-	2	3
C406.5	2	3	3	3	3	-	-	-	-	-	2	3	-	3	2
C406.6	2	2	3	3	3	-	-	-	-	-	3	3	-	2	3
C406	2.66	2.25	3	3	2.6						2.5	3	2.333333	2.2	2.6
CO ATTAINM	2.55	2.16	##	###	2.49	0	0	0	0	0	2.40	2.88	2.24	2.11	2.49

MARKS HAVE TO BE ENTERED AS PER KTU NORMS(O=10,A+=9,A=8.5,B+=8,B=7,C=6,P=0), HERE OUR THRESHOLD IS 60% SO HERE ABOVE 7=B ONLY CONSIDERED A



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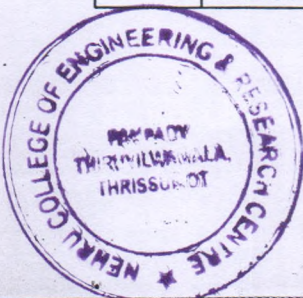




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SERIES TEST - I (2021-22)



Semester: S8	Programme: B. TECH	Max.Mark:50	Date:
Course Code & Name <b>EE474 Energy Management and Auditing</b>		Duration: 2 Hours	SET: One
Knowledge Level (KL)	K1: Remembering	K3: Applying	K5: Evaluation
Course Outcome (COL)	K2: Understanding	K4: Analysing	K6: Creating
<b>Part A</b> <b>Answer ALL questions 4x5=20Marks</b>			
1.	Explain different types of industrial loads and enumerating examples of each?		K2/CO1
2.	What is Optimal Load Scheduling? Explain		K2/CO1
3.	What is meant by loading of motor? Why does the efficiency of motor reduce when it operates at lower loading? List down any 2 steps to improve the operating efficiency of under-loaded motors		K3/CO2
4.	What are the energy management opportunities in lighting?		K1/CO3
<b>Part B</b> <b>Answer ALL Questions 3x10=30Marks</b>			
5	Enumerate the peak demand control methodologies used in energy management planning		K4/CO1
	<b>OR</b>		
6	Define Energy Management. What are the objectives of energy management? Also discuss the steps involved		K2/CO1
7	An energy audit was conducted in the draft fan motor of a boiler system. The motor is rated for 40 kW, 415V, 80A, 0.89pf. Using electrical power analyser, the operating values are found to be 412V, 62A, 0.75 pf The energy audit team proposed to replace the existing motor by a 30kW energy efficient motor with 92% efficiency. a) Determine the rated efficiency and the loading of the existing motor. b) Calculate the loading with energy efficient motor c) Calculate kW saved by replacing the motor with new efficient motor. Consider motor efficiency to		K5/CO2



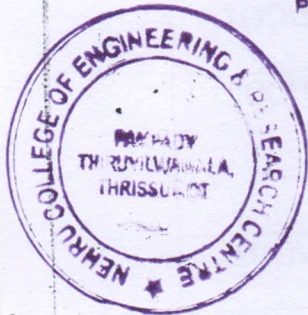
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	remain constant between 52 –100 % loading <b>OR</b>	
8	Explain in detail the losses in induction motors and list any 5 energy management opportunities in electric motors. What are the energy management opportunities in electrolytic processes?	K3/CO2
9	What is a boiler system? What are the major components of a boiler system? <b>OR</b>	K2/CO3
10	What is meant by steam traps? Explain the operation of thermostatic steam trap.	K2/CO3

*Handwritten signature*

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Question paper quality assessment using Blooms taxonomy

RUBRICS

Blooms taxonomy Definitions	Scale
Remembering	1
Understanding	2
Applying	3
Analyzing	4
Evaluating	5
Creating	6

**Questions to Blooms taxonomy mapping**

Question Number	Marks	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
1	5		√				
2	5		√				
3	5			√			
4	5	√					
5	10				√		
6	10		√				
7	10					√	
8	10			√			
9	10		√				
10	10		√				



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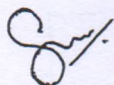
**EVALUATION OF QUALITY OF QUESTION PAPER USING BLOOMS TAXONOMY**

Blooms taxonomy definitions	Scale	Marks	Rating (out of 6)
Remembering	1	5	2.75
Understanding	2	40	
Applying	3	15	
Analyzing	4	10	
Evaluating	5	10	
Creating	6		

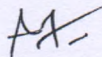
**CO MAPPING WITH QUESTIONS**

COs	T1	T2	T3	A1	A2
C474.1	Q (1), Q (2), Q (5), Q (6)				
C474.2	Q (3), Q (7), Q (8)				
C474.3	Q (4), Q (9), Q (10)				
C474.4					
C474.5					
C474.6					

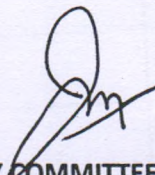
APPROVED BY



HOD



SCRUTINY COMMITTEE MEMBER

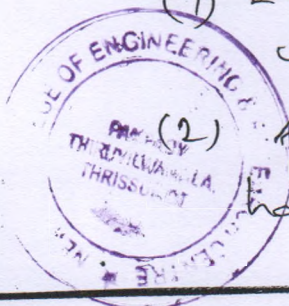


SCRUTINY COMMITTEE CHAIRMAN

REMARKS:

(1) EQUAL WEIGHTAGE FOR ALL MODULES FOUND TO BE UNSATISFIED.

(2) AVOID USING WHAT, WHY, WHEN, WHERE AS WE have to follow BLOOM'S TAXONOMY 13



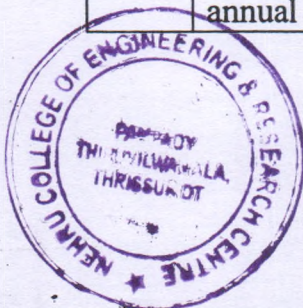
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SERIES TEST - I (2021-22)

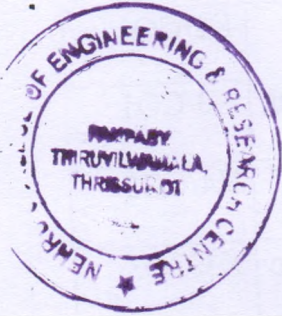


Semester: S8	Programme: B. TECH	Max.Mark:50	Date:
Course Code & Name	EE474 Energy Management and Auditing	Duration: 2 Hours	SET: Two
Knowledge Level (KL)	K1: Remembering	K3: Applying	K5: Evaluation
Course Outcome (COL)	K2: Understanding	K4: Analysing	K6: Creating
<b>Part A</b> <b>Answer ALL questions 4x5=20Marks</b>			
1.	Define Energy Management and list its Objectives	K2/CO1	
2.	Explain different types of industrial loads and enumerating examples of each?	K3/CO1	
3.	Explain in detail the losses in induction motors and list any 5 energy management opportunities in electric motors.	K4/CO2	
4.	List down any five methods of energy conservation opportunities in a furnace and steam system	K3/CO3	
<b>Part B</b> <b>Answer ALL Questions 3x10=30Marks</b>			
5	What are the main steps in the energy management planning? Explain.	K2/CO1	
OR			
6	A paper manufacturing company has a contract demand of 5000 kVA with the power supply company. The average maximum demand of the plant is 3800 kVA/month at a power factor of 0.95. The maximum demand is billed at the rate of Rs.500/kVA/month. The minimum billable maximum demand is 75% of the contract demand. An incentive of 0.5% reduction in energy charges component of electricity bill is provided for every 0.01 increase in power factor over and above 0.95. The average energy charge component of the electricity bill per month for the plant is Rs. 20lakhs. The plant decides to increase the power factor to unity by installing capacitor banks. Find the annual reduction in demand component charges and energy	K5/CO1	



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	component charges? Find the kVAR required to improve the power factor from 0.95 to unity?	
7	Explain the energy management opportunities in electric heating systems.	K2/CO2
	<b>OR</b>	
8	Explain how standards and labelling scheme introduced by BEE is helpful as a demand side management strategy.	K4/CO2
9	What are the two sources of feed water in a boiler system? What is the need for feed water treatment?	K3/CO3
	<b>OR</b>	
10	What is meant by waste heat recovery? What are the direct and indirect benefits of waste heat recovery?	K2/CO3



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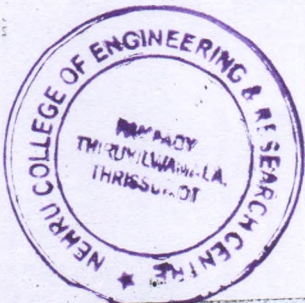
Question paper quality assessment using Blooms taxonomy

RUBRICS

Blooms taxonomy Definitions	Scale
Remembering	1
Understanding	2
Applying	3
Analyzing	4
Evaluating	5
Creating	6

**Questions to Blooms taxonomy mapping**

Question Number	Marks	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
1	5		√				
2	5			√			
3	5				√		
4	5			√			
5	10		√				
6	10					√	
7	10		√				
8	10				√		
9	10			√			
10	10		√				



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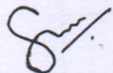
**EVALUATION OF QUALITY OF QUESTION PAPER USING BLOOMS TAXONOMY**

Blooms taxonomy definitions	Scale	Marks	Rating (out of 6)
Remembering	1		3.0
Understanding	2	35	
Applying	3	20	
Analyzing	4	15	
Evaluating	5	10	
Creating	6		

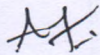
**CO MAPPING WITH QUESTIONS**

COs	T1	T2	T3	A1	A2
C474.1	Q (1), Q (2), Q (5), Q (6)				
C474.2	Q (3), Q (7), Q (8)				
C474.3	Q (4), Q (9), Q (10)				
C474.4					
C474.5					
C474.6					

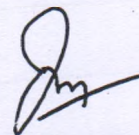
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SCRUTINY COMMITTEE MEMBER

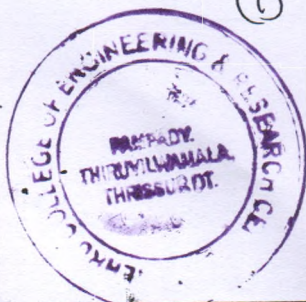


SCRUTINY COMMITTEE CHAIRMAN

REMARKS:

(1) Equal weightage for all modules found to be unsatisfied.

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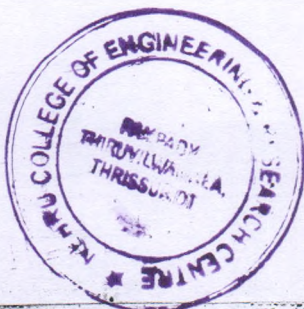
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SERIES TEST - I (2021-22)



Semester: 8	Programe: B.TECH ECE	Max.Mark: 50	Date:
Course Code & Name: EC 402 NANO ELECTRONICS		Duration: 2 Hours	SET : ONE
Knowledge Level (KL)	K1 : Remembering	K3:Applying	K5: Evaluating
Course Outcome Level(COL)	K2: Understanding	K4: Analysing	K6: Creating
<b>PART A</b> (Answer ALL Questions 4 x 5 = 20 Marks)			
Sl.No	Questions	KL/COL	
1	Illustrate the impact of nanotechnology on electronics	K4/CO1	
2	Describe parabolic quantum well.	K2/CO2	
3	Differentiate between evaporation and sputtering	K3/CO2	
4	Compare optical microscope and Electron Microscope	K3/CO2	
<b>PART B</b> (Answer ALL Questions 3 x 10 = 30 Marks)			
5	Explain the different characteristic lengths in mesoscopic systems.	K2/CO1	
OR			
6	Explain the classification of nanostructures according to the dimensionality	K2/CO1	
7	Explain the different phases of Epitaxy. Explain the molecular beam epitaxy	K2/CO2	
OR			
8	List out the methods used for the fabrication of nano particles. Explain any one methods	K2/CO2	
9	Explain with neat diagram different types of specimen interactions taking place in a sample during SEM	K2/CO3	
OR			
10	Explain the working of XRD analyzer and how it can be used to analyze a crystal.	K4/CO3	



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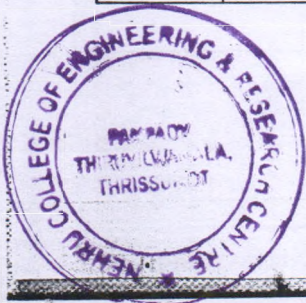
Question paper quality assessment using Blooms taxonomy

RUBRICS

Blooms taxonomy Definitions	Scale
Remembering	1
Understanding	2
Applying	3
Analyzing	4
Evaluating	5
Creating	6

Questions to Blooms taxonomy mapping

Question Number	Marks	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
1	5				✓		
2	5		✓				
3	5			✓			
4	5			✓			
5	10		✓				



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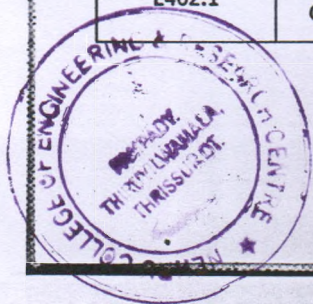
6	10		✓			
7	10		✓			
8	10		✓			
9	10		✓			
10	10				✓	

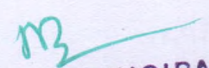
**EVALUATION OF QUALITY OF QUESTION PAPER USING BLOOMS TAXONOMY**

Blooms taxonomy definitions	Scale	Marks	Rating (out of 6)
Remembering	1		2.5
Understanding	2	55	
Applying	3	10	
Analyzing	4	15	
Evaluating	5		
Creating	6		

**CO MAPPING WITH QUESTIONS**

COs	T1	T2	T3	A1	A2
E402.1	Q1 (5), Q2 (5), Q5 (10), Q6 (10)				




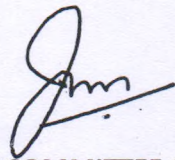
  
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E402.2	Q3 (5), Q2 (5), Q4 (5), Q7 (10), Q8 (10)				
E402.3	Q4 (5), Q9 (10), Q10 (10)				
E402.4					
E402.5					
E402.6					

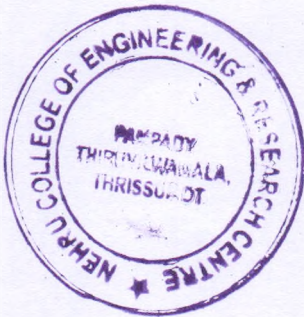
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SCRUTINY COMMITTEE CHAIRMAN

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SERIES TEST - I (2021-22)

ANSWER KEY



Semester: 8	Programme: B.TECH ECE	Max.Mark: 50	Date:
Course Code & Name: EC 402 NANO ELECTRONICS		Duration: 2 Hours	SET : ONE
Knowledge Level (KL)	K1 : Remembering	K3:Applying	K5: Evaluating
Course Outcome Level(COL)	K2: Understanding	K4: Analysing	K6: Creating

PART A

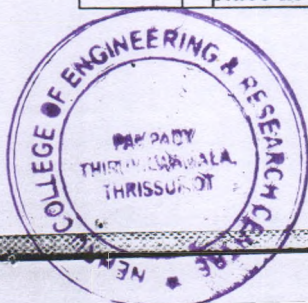
(Answer ALL Questions 4 x 5 = 20 Marks)

Sl.No	Questions	KL/COL
1	Illustrate the impact of nanotechnology on electronics 10 POINTS:5 MARKS	K4/CO1
2	Describe parabolic quantum well. Figure :2 marks,Explanation :3 marks	K2/CO2
3	Differentiate between evaporation and sputtering 8 points:5 marks	K3/CO2
4	Compare optical microscope and Electron Microscope 10 points:5 marks	K3/CO2

PART B

(Answer ALL Questions 3 x 10 = 30 Marks)

5	Explain the different characteristic lengths in mesoscopic systems. 5 mesoscopic system:explanation with equation:10 marks	K2/CO1
	OR	
6	Explain the classification of nanostructures according to the dimensionality Explanation with figure;3+7 marks	K2/CO1
7	Explain the different phases of Epitaxy. Explain the molecular beam epitaxy Epitaxy different methods:with neat figure:3+7marks	K2/CO2
	OR	
8	List out the methods used for the fabrication of nano particles. Explain any one methods 2 methods explain with neat figure:5+5 marks	K2/CO2
9	Explain with neat diagram different types of specimen interactions taking place in a sample during SEM	K2/CO3



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	Specimen interactions :figure with explanation:2+8 marks	
	OR	
10	Explain the working of XRD analyzer and how it can be used to analyze a crystal. Figure:3 marks,explanation:7 marks	K4/CO3



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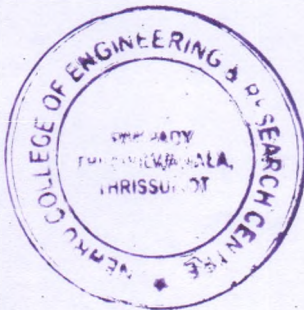
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SERIES TEST - I (2021-22)



Semester: VIII	Programme: BTech ECE	Max.Marks: 50	Date:
Course Code & Name: EC404 ADVANCED COMMUNICATION SYSTEM		Duration: 120 min	SET : 2
Knowledge Level (KL)	K1 : Remembering	K3:Applying	K6:Creating
Course Outcome (COL)	K2: Understanding	K4: Analyzing	K5:Evaluation
Part – A, Answer All Questions. 5X4= 20 Marks			
S.No	Questions	KL/COL	
1	Describe frequency modulated microwave radio system with suitable diagram.	K2/CO1	
2	Give a brief description on free space path loss ,determine the the path loss for 3.5 GHz signal propagating 20,000m.	K2/CO2	
3	Compare hot stand by and diversity protection switching arrangement of a microwave radio system.	K5/CO2	
4	Describe the effect of non spherical shape of earth on a satellite orbit.	K1/CO3	
Part – B, Answer all Questions. 3X10= 30 Marks			
5	Explain FM microwave radio repeater station. OR	K2/CO1	
6	Explain microwave communication system.	K2/CO1	
7	Discuss DCT and JPEG. OR	K2/CO2	
8	Explain compression of moving pictures(MPEG)	K2/CO2	
9	Explain with the block diagram transponder system. OR	K2/CO3	
10	Examine EIRP Required, a satellite TV signal occupies the full transponder bandwidth of 36 MHz and it must provide a C/N ratio at the destination earth station of 22dB .Given that the total transmission loss is 210 db and the destination earth station G/T ratio is 31db/K.GIVEN k=228.6db	K4/CO3	



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Question paper quality assessment using Blooms taxonomy

RUBRICS

Blooms taxonomy Definitions	Scale
Remembering	1
Understanding	2
Applying	3
Analyzing	4
Evaluating	5
Creating	6

Questions to Blooms taxonomy mapping

Question Number	Marks	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
1	5		✓				
2	5		✓				
3	5					✓	
4	5	✓					
5	10		✓				



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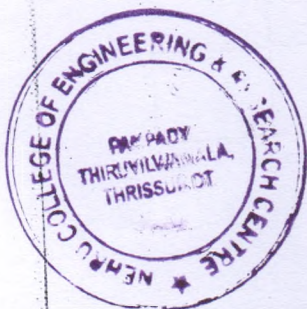


6	10		✓				
7	10		✓				
8	10		✓				
9	10		✓				
10	10				✓		

**EVALUATION OF QUALITY OF QUESTION PAPER USING BLOOMS TAXONOMY**

Blooms taxonomy definitions	Scale	Marks	Rating (out of 6)
Remembering	1	5	2.37
Understanding	2	60	
Applying	3		
Analyzing	4	10	
Evaluating	5	5	
Creating	6		

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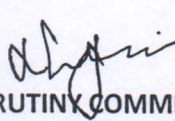
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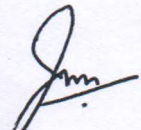
**CO MAPPING WITH QUESTIONS**

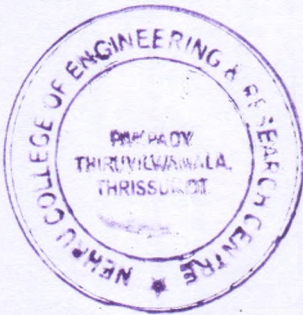
COs	T1	T2	T3	A1	A2
C404.1		Q1(5), Q5(10) Q6(10)			
C404.2		Q2(5) Q3(5) Q7(10) Q8(10)			
C404.3		Q4(5) Q9(10) Q10(10)			
C404.4					
C404.5					
C404.6					


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MODULE CO-ORDINATOR

  
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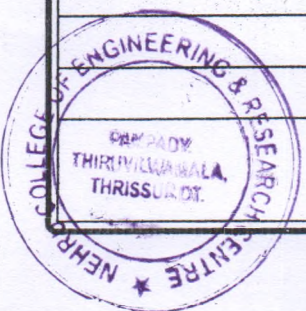
  
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Chairman



  
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ASSIGNMENTS

Reg. No.	Module No.	Group No.	Topic	Assign. Submission		Remarks
				Due Date	Submitted on	
NCE21EE001 - NCE21EE024	I	1.	Explain current division rule & voltage divs rule	9/5	9/5	
		2.	Problem			
NCE21EE001 - NCE21EE024	II	1.	Derive the equation for average value & rms value of sinusoidal wave.	24/5	24/5	
		2.	Derive the average value, rms value, form factor and peak factor of half wave rectified d.c.			



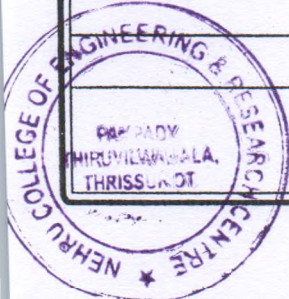
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### ASSIGNMENTS

Reg. No.	Module No.	Group No.	Topic	Assign. Submission		Remarks
				Due Date	Submitted on	
All students	2		JFET, MOSFET	Dec 1	Dec 1	
"	5		Differentiator Integrator	Dec 6	Dec 6	
"	5		IC 555 timer Monostable multivibrator.	Dec 20	Dec 20	



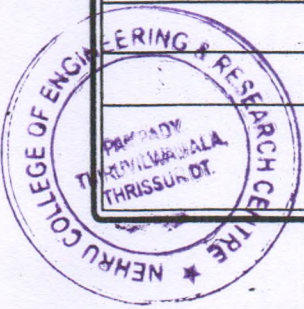
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## ASSIGNMENTS

Reg. No.	Module No.	Group No.	Topic	Assign. Submission		Remarks
				Due Date	Submitted on	
NCE19EE001 - NCE19EE016 }	III		① Design of lag compensator using Root Locus	10/06	10/06	
			② Design of lead compensator using Root Locus			
			③ Sketch using Root Locus			
NCE19EE001 - NCE19EE016 }	IV		① Stability Based on Bode Plot	15/07	15/07	
			② Stability Based on Polar Plot			
			③ Effect of temperature lag			
			④ Apas, minimum phase systems			



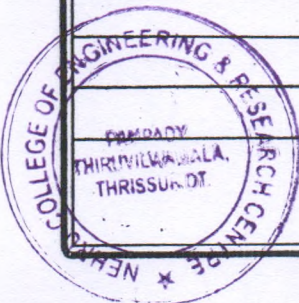
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## ASSIGNMENTS

Reg. No.	Module No.	Group No.	Topic	Assign. Submission		Remarks
				Due Date	Submitted on	
All students	1		Classification of Transducers	March 14 2022	March 22 2022	
			Configuration of measurement instrumentation systems.			
All students	2		Displacement Transducers - Linear & Angular Torque measurement	March 23 2022	March 30, 2022	
All students	3		Dynamometers Absorption type Transmission type	April 4 2022	April 16 2022	
All students	4		High Pressure Measurements Sound Measurements	April 20 2022	April 27 2022	
All students	5		Temperature measurement using Thermocouples Radiation methods	May 03 2022	May 10 2022	



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