



ESTD : 2007

# Sri Indu Institute of Engineering and Technology (Autonomous)

(Formerly RVR Institute of Engineering & Technology )

**An Autonomous Institution Under UGC**

NAAC Accredited. Recognized Under 2(f) of UGC Act 1956

EAMCET CODE: INDI

Approved by AICTE, New Delhi, & Affiliated to JNTUH, Hyderabad.

JNTUH CODE: X3



## COURSE FILE

ON

## BASIC ELECTRICAL ENGINEERING

**Course Code – EE101ES**

**I B. Tech Semester-I  
A.Y. 2022-2023**

**Prepared by  
S.NISCHALA  
Asst. Professor**

Head of the Department  
Department of H&S  
SRI INDU INSTITUTE OF ENGG & TECH  
Sheriguda(VIII) Ibrahimpatnam (M) R.R. Dist-501 510

PRINCIPAL  
Sri Indu Institute of Engineering & Tech,  
Sheriguda(VIII), Ibrahimpatnam  
R.R. Dist. Telangana-501 510.



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<b>Academic Year</b>	2022-2023
<b>Course Title</b>	Basic Electrical Engineering
<b>Course Code</b>	EE101ES
<b>Programme</b>	B.Tech
<b>Year &amp; Semester</b>	I & I
<b>Branch &amp; Section</b>	CSE (CYBER SECURITY)
<b>Regulation</b>	BR22
<b>Course Faculty</b>	S.NISCHALA

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2	Programme outcomes
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## INSTITUTE VISION & MISSION

### Vision:

To become a premier institute of academic excellence by providing the world class education that transforms individuals into high intellectuals, by evolving them as empathetic and responsible citizens through continuous improvement.

### Mission:

- **IM1:** To offer outcome-based education and enhancement of technical and practical skills.
- **IM2:** To Continuous assess of teaching-learning process through institute-industry collaboration.
- **IM3:** To be a centre of excellence for innovative and emerging fields in technology development with state-of-art facilities to faculty and students' fraternity.
- **IM4:** To Create an enterprising environment to ensure culture, ethics and social responsibility among the stakeholders.

  
Head of the Department  
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# SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

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(Approved by AICTE, New Delhi and Affiliated to JNTUH, Hyderabad)

Khalsa Ibrahimpatnam, Sheriguda (V), Ibrahimpatnam (M), Ranga Reddy Dist., Telangana – 501 510

Website: <https://siiet.ac.in/>

## PROGRAMME OUTCOMES

**PO1: ENGINEERING KNOWLEDGE:** Apply the knowledge of 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 solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

**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 & 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 & SUSTAINABILITY:** Understand the impact of the 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 & 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, give and receive clear instructions.

**PO11: PROJECT MANAGEMENT & 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.

  
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## B.Tech. in COMPUTER SCIENCE AND ENGINEERING (CYBER SECURITY) COURSE STRUCTURE, I YEAR SYLLABUS (BR22 Regulations) Applicable from Academic Year: 2022-23 Batch

### I Year I Semester

S. No.	Course Code	Course Title	L	T	P	Credits
1.	MA101BS	Matrices and Calculus	3	1	0	4
2.	CH103BS	Engineering Chemistry	3	1	0	4
3.	CS103ES	Programming for Problem Solving	3	0	0	3
4.	EE101ES	Basic Electrical Engineering	2	0	0	2
5.	ME101ES	Computer Aided Engineering Graphics	1	0	4	3
6.	CS106ES	Elements of Computer Science & Engineering	0	0	2	1
7.	CH106BS	Engineering Chemistry Laboratory	0	0	2	1
8.	CS107ES	Programming for Problem Solving Laboratory	0	0	2	1
9.	EE102ES	Basic Electrical Engineering Laboratory	0	0	2	1
		Induction Program				
		<b>Total</b>	<b>12</b>	<b>2</b>	<b>12</b>	<b>20</b>

### I Year II Semester

S. No.	Course Code	Course	L	T	P	Credits
1.	MA201BS	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2.	AP202BS	Applied Physics	3	1	0	4
3.	ME202ES	Engineering Workshop	0	1	3	2.5
4.	EN204HS	English for Skill Enhancement	2	0	0	2
5.	EC201ES	Electronic Devices and Circuits	2	0	0	2
6.	AP205BS	Applied Physics Laboratory	0	0	3	1.5
7.	CS201ES	Python Programming Laboratory	0	1	2	2
8.	EN207HS	English Language and Communication Skills Laboratory	0	0	2	1
9.	CS203ES	IT Workshop	0	0	2	1
10.	*MC201ES	Environmental Science	3	0	0	0
		<b>Total</b>	<b>13</b>	<b>4</b>	<b>12</b>	<b>20</b>



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## BASIC ELECTRICAL ENGINEERING

(Course Code: EE101ES)

(Common to CSE, CSE (CS), CSE (DS))

B.Tech. I Year I Sem.

L T P C  
2 0 0 2

**Prerequisites:** Mathematics

### Course Objectives:

- To understand DC and Single & Three phase AC circuits
- To study and understand the different types of DC, AC machines and Transformers.
- To import the knowledge of various electrical installations and the concept of power, power factor and its improvement.

**Course Outcomes:** After learning the contents of this paper the student must be able to

- Understand and analyze basic Electrical circuits
- Study the working principles of Electrical Machines and Transformers
- Introduce components of Low Voltage Electrical Installations.

### UNIT-I:

**D.C. Circuits:** Electrical circuit elements (R, L and C), voltage and current sources, KVL&KCL, analysis of simple circuits with dc excitation. Superposition, Thevenin and Norton Theorems. Time-domain analysis of first-order RL and RC circuits.

### UNIT-II:

**A.C. Circuits:** Representation of sinusoidal waveforms, peak and rms values, phasor representation, real power, reactive power, apparent power, power factor, Analysis of single-phase ac circuits consisting of R, L, C, RL, RC, RLC combinations (series and parallel), resonance in series R-L-C circuit. Three-phase balanced circuits, voltage and current relations in star and delta connections.

### UNIT-III:

**Transformers:** Ideal and practical transformer, equivalent circuit, losses in transformers, regulation and efficiency. Auto-transformer and three-phase



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transformer connections.

## **UNIT-IV:**

**Electrical Machines:** Construction and working principle of dc machine, performance characteristics of dc shunt machine. Generation of rotating magnetic field, Construction and working of a three-phase induction motor, Significance of torque-slip characteristics. Single-phase induction motor, Construction and working. Construction and working of synchronous generator.

## **UNIT-V:**

**Electrical Installations:** Components of LT Switchgear: Switch Fuse Unit (SFU), MCB, ELCB, MCCB, Types of Wires and Cables, Earthing. Types of Batteries, Important Characteristics for Batteries. Elementary calculations for energy consumption, power factor improvement and battery backup.

## **TEXT BOOKS:**

1. D.P. Kothari and I. J. Nagrath, “Basic Electrical Engineering”, Tata McGraw Hill, 4<sup>th</sup> Edition, 2019.
2. MS Naidu and S Kamakshaiah, “Basic Electrical Engineering”, Tata McGraw Hill, 2<sup>nd</sup> Edition, 2008.

## **REFERENCE BOOKS:**

1. P. Ramana, M. Suryakalavathi, G.T. Chandrasheker, “Basic Electrical Engineering”, S. Chand, 2<sup>nd</sup> Edition, 2019.
2. D. C. Kulshreshtha, “Basic Electrical Engineering”, McGraw Hill, 2009.
3. M. S. Sukhija, T. K. Nagsarkar, “Basic Electrical and Electronics Engineering”, Oxford, 1<sup>st</sup> Edition, 2012.
4. Abhijit Chakrabarthy, Sudipta Debnath, Chandan Kumar Chanda, “Basic Electrical Engineering”, 2<sup>nd</sup> Edition, McGraw Hill, 2021.
5. L. S. Bobrow, “Fundamentals of Electrical Engineering”, Oxford University Press, 2011.
6. E. Hughes, “Electrical and Electronics Technology”, Pearson, 2010.
7. V. D. Toro, “Electrical Engineering Fundamentals”, Prentice Hall India, 1989



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## COURSE OUTCOMES

### Course Name: Basic Electrical Engineering (C114)

At the End of the course, student will be able to

CO No	DESCRIPTION
C114.1	Understanding basic concepts of electrical components, network analysis and transient analysis of DC circuits. (Understanding)
C114.2	Acknowledge of AC quantities, sinusoidal analysis of single phase and three phase circuits.(Understanding)
C114.3	Analysis of phasors for a single-phase transformer, recognize energy transfer in electromagnetic circuits, and calculate its efficiency (Analysis)
C114.4	Gains the knowledge about auto transformer and 3- transformer connections (Understanding)
C114.5	Study the working principles of Electrical Machines(Understanding)
C114.6	Application of different devices used in electrical installation (fuse, MCB, MCCB, ELCB, Earthing. etc) and power factor improvement. (Application)





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## COs and POs Mapping

Course outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
C114.1	3	2	1	2	1	1	-	-	-	-	-	-	-	-
C114.2	3	3	1	-	-	-	-	-	-	-	-	-	-	-
C114.3	3	2	-	-	-	1	1	-	-	-	-	2	-	-
C114.4	3	1	-	-	-	-	-	-	-	-	-	2	-	-
C114.5	3	1	-	-	-	-	-	-	-	-	-	2	-	-
C114.6	3	-	-	-	-	2	-	-	-	-	-	2	-	-
<b>PO Average</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>					<b>2</b>		

## CO PO MAPPING AND JUSTIFICATION

### COURSE NAME: Basic Electrical Engineering (C114)

**C114.1:** Understanding basic concepts of electrical components, network analysis and transient analysis of DC circuits. (Understanding)

Mapped POs/PSOs: PO1, PO2, PO3, PO4, PO5, and PO6

PO	JUSTIFICATION/EXPLANATION
PO1	Gains knowledge on electrical engineering and network analysis
PO2	Reducing the complexity of the problems
PO3	Develop a solution by using mesh and nodal analysis
PO4	Student can solve the complicated network problems to simple network problems.
PO5	Develop a solution to complex circuit by using network theorems.
PO6	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues

**C114.2:** Acknowledge of AC quantities, sinusoidal analysis of single phase and three phase circuits. (Understanding)

Mapped POs/PSOs: PO1, PO2 and PO3.

PO	JUSTIFICATION/EXPLANATION
PO1	Gains knowledge about AC quantities
PO2	Analysing the phasor representation
PO3	Developing the AC circuits with single basic network elements



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**C114.3:** Analysis of phasors for a single-phase transformer, recognize energy transfer in electromagnetic circuits, and calculate its efficiency (Analysis)

Mapped POs/PSOs: PO1,PO2,PO6,PO7,PO12

PO	JUSTIFICATION/EXPLANATION
PO1	The device transformer is used to transfer electrical energy in electrical system
PO2	Gains knowledge on basic electrical circuits with which students can apply to real world electrical and electronics problems and applications
PO6	This device is used to reduce the wastage of power
PO7	It is lifelong usage with minimum loss
PO12	The device transformer placed in society for day to day usage

**C114.4:** Gains the knowledge about auto transformer and 3- transformer connections. (Understanding)

Mapped POs: PO1, PO2 and PO12.

PO	JUSTIFICATION/EXPLANATION
PO1	Gains the knowledge about regulation ,auto transformer and 3 phase transformer
PO2	Phasor analysis is used in determination of regulation
PO12	This devices has lifelong usage

**C114.5:** Study the working principles of Electrical Machines. (Understanding)

Mapped POs/PSOs: PO1, PO2 and PO12

PO	JUSTIFICATION/EXPLANATION
PO1	Gains the knowledge about electrical motors and generators
PO2	Determination of emf and torque with help of first principles of engineering sciences
PO12	This devices has lifelong usage

**C114.6:** Application of different devices used in electrical installation(fuse, MCB, MCCB, ELCB, Earthing.. etc) and power factor improvement. (Application)

Mapped POs: PO1, PO6 and PO12

PO	JUSTIFICATION/EXPLANATION
PO1	Gains knowledge about basic installation of electrical systems and power factor improvement
PO6	MCB, MCCB, ELCBs used for safety of electrical equipments.
PO12	It is lifelong usage.



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## Academic calendar



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Lr. No. SIET/BR22/Academic Calendar/2022/02

Date: 15.12.2022

### REVISED ACADEMIC CALENDAR I B.TECH FOR THE ACADEMIC YEAR 2022-23 (BR22-REGULATIONS)

Dr. I. Satyanarayana,  
Principal.

**X3**

To,  
All the HOD's  
Sir,

Sub: SIET (Autonomous)–Academic & Evaluation–Revised Academic Calendar for **I B.Tech - I & II Semesters** for the academic year 2022-2023-Reg.

\*\*\*\*\*

The approved Academic Calendar for **I B.Tech – I & II Semesters** for the academic year 2022-23 is given below.

#### **I-SEMESTER**

S. NO	Description	Period		Duration
		From	To	
1.	Commencement of I Semester class work (including Induction programme)	03.11.2022		
2.	1 <sup>st</sup> Spell of Instructions	03.11.2022	28.12.2022	8 Weeks
3.	I Mid Examinations	29.12.2022	04.01.2023	1 Week
4.	Submission of First Mid Term Exam Marks to the Autonomous Section on or before	10.01.2023		
5.	2 <sup>nd</sup> Spell of Instructions	05.01.2023	02.03.2023	8 Weeks
6.	Second Mid Term Examinations	03.03.2023	09.03.2023	1 Week
7.	Preparation & Practical Examinations	10.03.2023	16.03.2023	1 Week
8.	Submission of Second Mid Term Exam Marks to the Autonomous Section on or before	16.03.2023		
9.	I Semester End Examinations	17.03.2023	01.04.2023	2 Weeks

#### **II-SEMESTER**

S. NO	Description	Period		Duration
		From	To	
1.	Commencement of II Semester class work	03.04.2023		
2.	1 <sup>st</sup> Spell of Instructions (including Summer Vacation)	03.04.2023	10.06.2023	10 Weeks
	Summer Vacation	15.05.2023	27.05.2023	2 Weeks
3.	I Mid Examinations	12.06.2023	17.06.2023	1 Week
4.	Submission of First Mid Term Exam Marks to the Autonomous Section on or before	23.06.2023		
5.	2 <sup>nd</sup> Spell of Instructions	19.06.2023	12.08.2023	8 Weeks
6.	II Mid Term Examinations	14.08.2023	19.08.2023	1 Week
7.	Preparation & Practical Examinations	21.08.2023	26.08.2023	1 Week
8.	Submission of Second Mid Term Exam Marks to the Autonomous Section on or before	26.08.2023		
9.	II Semester End Examinations	28.08.2023	09.09.2023	2 Weeks

**Commencement of Class Work for II B.Tech I Semester – 11.09.2023**

**HEAD OF EXAMINATIONS**  
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**Class:** CYBER SECURITY

**Semester:** I

**W.E.F:** 14-11-2022

**LH:-** D-207

	I 9:40- 10:30	II 10:30 - 11:20	III 11:20- 12:10	12:10- 12:45	IV 12.45- 1.35	V 1.35- 2.25	VI 2.25- 3.15	VII 3.15-4.00
MON	PPS	BEE	EC	L U N C H	M&C	PPS	EC	BEE(T)/M&C(T)
TUE	EG PRACTICE				BEE	ECSE	PPS	EC(T)/PPS(T)
WED	BEE	M&C	PPS		BEE/EC LAB			PPS(T)/EC(T)
THU	M&C	BEE	M&C		PPS LAB			M&C(T) BEE(T)
FRI	BEE/EC LAB				ECSE	PPS	EC	EG(T)
SAT	EC	M&C	BEE		EG PRACTICE			LIB

Course Code	Course Name	Name of the Faculty	Course Code	Course Name	Name of the Faculty
MA101BS	Matrices and Calculus	CH.SARITHA	ME101ES	ComputerAided Engineering Graphics	M.V.B.KALYAN
CH103BS	Engineering Chemistry	K.MOUNIKA	CH106BS	Engineering Chemistry Lab	K.MOUNIKA/V.MOUNIKA
CS103ES	Programming for Problem Solving	U.NARESH	CS107ES	Programming for Problem Solving Lab	U.NARESH/G.KALYANI
EE101ES	Basic Electrical Engineering	S.NISCHALA	EE102ES	Basic Electrical Engineering Lab	S.NISCHALA/G.BHARGAVI
CS106ES	Elements of Computer Science & Engineering	D.UMA			

*K. Mounika*  
Class In-Charge

*Ch. Saritha*  
Time Table Coordinator



*[Signature]*  
Head of The Department  
Dr. R. YADAGIRI RAO

M.Sc., B.Ed., M.Tech(CSE), Ph.D.  
Head of the Department  
Department of H&S  
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## LESSON PLAN

S.NO	Unit	TOPIC	Number of Sessions Planned	Teaching method/Aids	Reference
1	<b>I</b>	<b>Introduction</b> -Basic circuit components, Ohms law, Kirchhoff's law-	1	Black Board	T1
2		Kirchhoff's current law, Kirchhoff's voltage law and problems	1	Black Board	T1
3		Basic definitions, types of elements, Types of sources	1	Black Board	R1
4		RLC series and parallel, Problems on RLC series and parallel	1	Black Board	T1
5		Node analysis, problems on node analysis	1	Black Board	T2
6		Mesh analysis, problems on mesh analysis	1	Black Board	T1
7		Star-delta and delta-star transformation	1	Black Board	R1
8		network theorems: Superposition	1	Black Board	T1
9		Thevenin's and Norton's theorem	1	Black Board	T2
10		Simple problems on theorems	2	Black Board	T1
11		Time domain analysis of RL and RC circuits	2	Black Board	T1
12	<b>II</b>	<b>Introduction</b> Basic definitions, Principle of AC voltage and waveforms	1	Black Board, PPT	T1
13		Average value, Root mean square value, Form factor and Peak factors of alternating currents and voltage	1	Black Board	R1
14		phasor representation of alternating quantities, J operator and phasor algebra	1	Black Board	T1
15		1- $\phi$ series circuit (RL,RC,RLC)	2	Black Board	T1
16		1- $\phi$ parallel circuit (RL,RC,RLC)	2	Black Board	T1,T2
17		series resonance in RLC circuit	2	Black Board	R1
18		three phase circuits	2	Black Board	T1



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Khalsa Ibrahimpatnam, Sheriguda (V), Ibrahimpatnam (M), Ranga Reddy Dist., Telangana – 501 510

Website: <https://siiet.ac.in/>

20	<b>III</b>	Principle & operation of transformer	1	Nptel video	W2,W4
21		Construction details of transformer	2	Nptel video	W2,W4
22		Ideal and Practical Transformer, Losses,	1	Black Board	T1
23		Efficiency of transformer, maximum efficiency condition, problems	2	Black Board	T2
24		Regulation of transformer, simple problems	2	Black Board	T1
25		auto transformer and 3 phase transformer connections	2	Black Board	T1
26	<b>IV</b>	<b>Introduction</b> to electrical machines, Generation of rotating magnetic fields	1	Black Board	T1
27		Construction and working of a three-phase induction motor	2	PPT,Black board	R1
28		Significance of torque-slip characteristic.	2	Black board	T1
29		Loss components and efficiency	1	Black board	T1,W3
30		slip and torque characteristics	2	Black board	T1
31		starting and speed control of induction motor	2	Black board	T2
32		Single-phase induction motor	1	Black board	T1
33		Construction of separately excited dc motor	1	Black board	T1
34		working & torque-speed characteristic of separately excited dc motor	2	Black board	R1
35		speed control of separately excited dc motor	1	Black board	T2
36	Construction and working of synchronous generators.	2	Black board	T1	
37	<b>V</b>	<b>Electrical Installation::</b> switch fuse unit MCB,ELCB,MCCB	2	Black Board	T1
38		Types of wires, cables, Earthling.	2	Black Board	T1
39		Types of Batteries, important characteristics for batteries	2	Black Board	T1
40		Elementary calculations for energy consumption	2	Black Board	T1
41		Power factor improvement and battery backup.	2	Black Board	R1



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## **TEXT BOOKS:**

1. D.P. Kothari and I. J. Nagrath, “Basic Electrical Engineering”, Tata McGraw Hill, 4<sup>th</sup> Edition, 2019.
2. MS Naidu and S Kamakshaiah, “Basic Electrical Engineering”, Tata McGraw Hill, 2<sup>nd</sup> Edition, 2008.

## **REFERENCE BOOKS:**

1. P. Ramana, M. Suryakalavathi, G.T. Chandrasheker, “Basic Electrical Engineering”, S. Chand, 2<sup>nd</sup> Edition, 2019.
2. D. C. Kulshreshtha, “Basic Electrical Engineering”, McGraw Hill, 2009.
3. M. S. Sukhija, T. K. Nagsarkar, “Basic Electrical and Electronics Engineering”, Oxford, 1<sup>st</sup> Edition, 2012.
4. Abhijit Chakrabarthi, Sudipta Debnath, Chandan Kumar Chanda, “Basic Electrical Engineering”, 2<sup>nd</sup> Edition, McGraw Hill, 2021.



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## WEB REFERENCES & E-BOOKS :

1	<a href="https://archive.nptel.ac.in/courses/108/104/108104139/">https://archive.nptel.ac.in/courses/108/104/108104139/</a>
2	<a href="https://archive.nptel.ac.in/courses/108/102/108102146/">https://archive.nptel.ac.in/courses/108/102/108102146/</a>
3	<a href="https://archive.nptel.ac.in/courses/108/105/108105053/">https://archive.nptel.ac.in/courses/108/105/108105053/</a>
4	<a href="https://archive.nptel.ac.in/courses/108/108/108108076/">https://archive.nptel.ac.in/courses/108/108/108108076/</a>
5	<a href="https://ocw.mit.edu/courses/6-002-circuits-and-electronics-spring-2007/resources/lecture-22/">https://ocw.mit.edu/courses/6-002-circuits-and-electronics-spring-2007/resources/lecture-22/</a>
6	<a href="https://www.electrical4u.com/">https://www.electrical4u.com/</a>
7	<a href="https://ocw.mit.edu/courses/6-01sc-introduction-to-electrical-engineering-and-computer-science-i-spring-2011/pages/unit-3-circuits/circuits/">https://ocw.mit.edu/courses/6-01sc-introduction-to-electrical-engineering-and-computer-science-i-spring-2011/pages/unit-3-circuits/circuits/</a>
8	<a href="https://www.youtube.com/watch?v=mq2zjmS8UMI">https://www.youtube.com/watch?v=mq2zjmS8UMI</a>
9	<a href="https://nptel.ac.in/courses/108105112">https://nptel.ac.in/courses/108105112</a>
10	<a href="https://archive.nptel.ac.in/courses/108/105/108105112/">https://archive.nptel.ac.in/courses/108/105/108105112/</a>
11	<a href="https://youtu.be/hRYEJNJNYsg?si=EaevkijP9karBbm7">https://youtu.be/hRYEJNJNYsg?si=EaevkijP9karBbm7</a>
12	<a href="https://youtu.be/YBJLaEqIjOI?si=wfQAW6pwmOHec6k2">https://youtu.be/YBJLaEqIjOI?si=wfQAW6pwmOHec6k2</a>
13	<a href="https://youtu.be/c76CnTH8_y4?si=UtHhUNzWxxnHR-Y3">https://youtu.be/c76CnTH8_y4?si=UtHhUNzWxxnHR-Y3</a>





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Khalsa Ibrahimpatnam, Sheriguda (V), Ibrahimpatnam (M), Ranga Reddy Dist., Telangana – 501 510

Website: <https://siiet.ac.in/>

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## Lecture notes

**Unit 1 link:**

<https://drive.google.com/file/d/1OF6Ik2zVV7BST8h35eEbdLKBbYtmSvX1/view?usp=sharing>

**Unit 2 link:**

<https://drive.google.com/file/d/1PsvygXzVh9nMU1ul8CscxdCLB5ex9tKS/view?usp=sharing>

**Unit 3 link:** [https://drive.google.com/file/d/16O-](https://drive.google.com/file/d/16O-ukzS5_DdRY4_vquNX7qsgVxFBT2Oo/view?usp=sharing)

[ukzS5\\_DdRY4\\_vquNX7qsgVxFBT2Oo/view?usp=sharing](https://drive.google.com/file/d/16O-ukzS5_DdRY4_vquNX7qsgVxFBT2Oo/view?usp=sharing)

**Unit 4 link:**

<https://drive.google.com/file/d/1BatVxO3gsXIuWEKjD--trkwsM9vckyw8/view?usp=sharing>

**Unit 5 link:**

<https://drive.google.com/file/d/1A7v58LXuprWBhGZUiDprQqbDiPKzAopU/view?usp=sharing>



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Website: <https://siiet.ac.in/>

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## List of PPTs

**PPT-1 link:**

<https://docs.google.com/presentation/d/10ZK2e36rOll6qAiVma0WkZGEjMxM46GK/edit#slide=id.p1>

**PPT-2 link:**

[https://docs.google.com/presentation/d/1bQviA16dpExn8pe6m\\_rqRgDv74zNTCJO/edit#slide=id.p1](https://docs.google.com/presentation/d/1bQviA16dpExn8pe6m_rqRgDv74zNTCJO/edit#slide=id.p1)

Course Code: EE101ES

BR22

**SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY**

UGC Autonomous Institution and Affiliated to JNTUH, Hyderabad

B .Tech I Year I Semester Regular Examinations, March-2023

X3

**BASIC ELECTRICAL ENGINEERING**

(Common to CSE, CSE (CS), CSE (DS))

Time: 3 Hours

Max. Marks: 60

**Note:** This question paper contains two parts A and B.  
Part A is compulsory which carries 10 marks. All Questions Carry Equal Marks in Part A.  
Part B consists of 5 Units. Answer any one full question from each unit.  
Each question carries 10 marks and may have a, b, c as sub questions.

**PART-A**

10x1=10 Marks

1. Define current and voltage
2. State Kirchhoff's voltage law?
3. State Super position Theorem
4. What is meant by Reactive power?
5. Define transformer.
6. What is meant by equivalent resistance of single phase transformer referred to primary?
7. Define slip
8. What are the different types of generators?
9. List out the types of wires.
10. What are the different types of secondary Batteries?

**PART-B**

5x10=50 Marks

11. Explain superposition theorem with one example? [10]  
(or)
12. Explain in detail the volt-ampere relationship of R, L and C elements with neat diagrams. [10]
13. A coil having a resistance of 10ohms and an inductance of 0.2H is connected in series with 100  $\mu$ F capacitor across a 230v, 50hz supply. find: [10]
  - i) impedance
  - ii) current
  - iii) Apprent Power, real power, reactive power.
  - iv) power factor.(or)
14. Define the following terms: [10]
  - i) Frequency
  - ii) Peak factor
  - iii) Form factor
  - iv) Peak value of an alternating quantity.
  - v) RMS value of an alternating quantity.

15. Explain single phase transformer on no load and full load conditions. [10]  
(or)
16. a) Determine the condition for maximum efficiency in a single phase transformer.  
b) What is a transformer? How does it transfer electrical energy from one circuit to another? [5+5]
17. a) Derive the torque equation of a DC motor.  
b) Explain the constructional details of DC generator. [5+5]  
(or)
18. Explain the working principle of synchronous generator. [10]
19. a) What is the difference between MCB and MCCB, describe their schematic diagrams?  
b) What are the drawbacks of low power factor, describe how it is improved? [5+5]  
(or)
20. What are the types of batteries? Explain [10]

\*\*\*\*\*

Code No: 152AC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year II Semester Examinations, June - 2022

BASIC ELECTRICAL ENGINEERING

(Common to ECE, EIE, ECM, CSBS, CSE(AI&amp;ML), CSE(IOT))

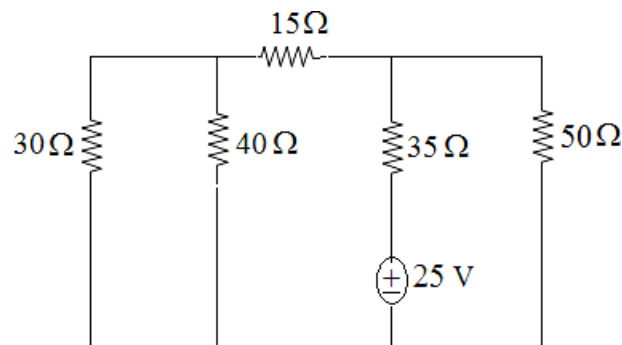
Time: 3 Hours

Max. Marks: 75

**Answer any five questions**  
**All questions carry equal marks**

- - -

- 1.a) Two resistances when they are in series have an equivalent resistance of 9 ohms and when connected in parallel have an equivalent resistance of 2 ohms. Find the two resistances?
- b) State and explain Kirchoff's laws using an example. [7+8]
- 2.a) State and explain Thevenin's theorem.
- b) Find the current 'i' in the circuit below shown in figure using Norton's theorem. [7+8]



- 3.a) Explain about Series Resonance in a series RLC circuit and derive an expression for resonance frequency and quality factor.
- b) Each phase of a balanced three phase delta connected load has an impedance of  $(4-j3) \Omega$ . If a 3-phase voltage of 220 V supply is applied to this load, find the line and phase currents in the delta-connected load and the power delivered to the load. [7+8]
- 4.a) Define RMS value, Average value. Find Average value and RMS value of sinusoidal wave.
- b) A Resistor of  $100\Omega$  in series with a capacitance of  $50\mu\text{F}$  is connected to a supply of 200V, 50Hz. Find: (i) impedance (ii) current (iii) phase angle (iv) voltage across resistance and capacitance. [7+8]
- 5.a) What is voltage regulation of a transformer and develop an expression for calculating the voltage regulation in the transformer.
- b) Calculate efficiency at half and full load of a 100 kVA transformer for power factor of (i) unity (ii) 0.8. The copper loss is 1000 W at full load and the iron loss is 1000 W. [8+7]
- 6.a) With neat constructional details, explain principle and operation of a synchronous generators.
- b) A 3-phase delta connected 440 V, 3-phase 50 Hz, 4-pole induction motor has a rotor standstill e.m.f per phase of 150 V. If the motor is running at 1450 rpm, determine for this speed (i) the slip (ii) the frequency of rotor induced e.m.f (iii) the rotor induced e.m.f per phase. [8+7]

- 7.a) Briefly describe the construction and principal of operation of single-phase induction motor.
- b) Describe briefly torque-slip characteristics of induction motor. Based on characteristics what are its applications? [8+7]
- 8.a) With the help of schematic diagram, explain the working principle of ELCB (Earth-Leakage Circuit Breaker). Discuss applications of ELCB.
- b) Write short note on Switch Fuse Unit (SFU). [10+5]

--ooOoo--

**Code No: 151AG**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B.Tech I Year I Semester Examinations, June - 2022**

**BASIC ELECTRICAL ENGINEERING**

**(Common to EEE, CSE, IT, CSIT, ITE, CE(SE), CSE(CS), CSE(DS), CSE(Networks), CSED)**

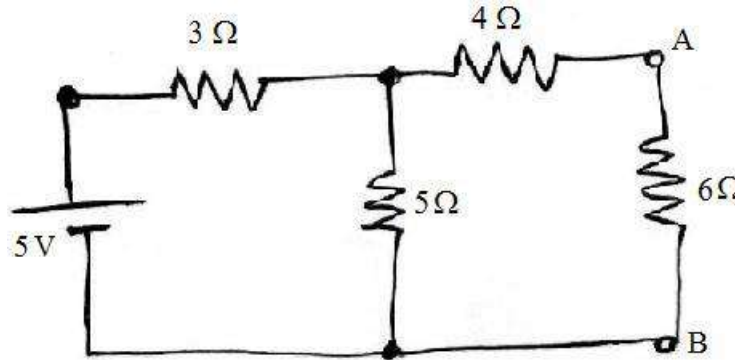
**Time: 3 Hours**

**Max. Marks: 75**

**Answer any five questions  
All questions carry equal marks**

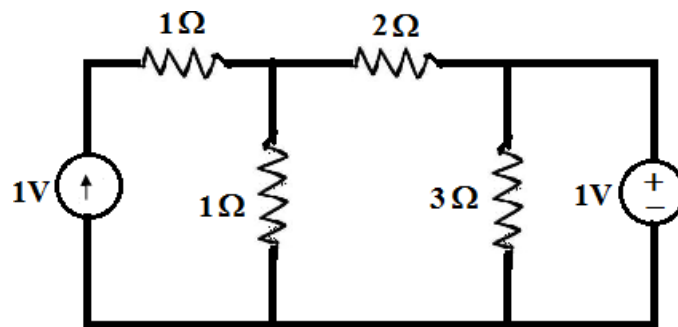
- - -

- 1.a) Explain in detail the passive elements and active elements.  
 b) By using Thevenin's theorem shown in figure 1, find the current in  $6\Omega$  resistor. [8+7]



**Figure 1**

- 2.a) State Kirchhoff's voltage and current laws, Explain in detail.  
 b) By using superposition theorem, find the current flowing through  $2\ \text{ohms}$  resistor. (Figure 2) [8+7]



**Figure 2**

Explain the following terms of AC circuits

- |                 |                    |                       |
|-----------------|--------------------|-----------------------|
| (i) rms value   | (ii) average value | (iii) peak value      |
| (iv) formfactor | (v) phasor         | (vi) phase difference |

- b) Analyze the series RL circuit with a neat sketch and also draw the phasor diagram. [8+7]

- 4.a) Derive the relation between phase voltage and line voltage of a balanced three phase star connected system.

- b) A circuit consisting of three branches,  $Z_2$  is in parallel with  $Z_3$  the combination is in series with  $Z_1$  having the values  $Z_1=5+j15$ ,  $Z_2 =2.5+j5$  and  $Z_3=2-j8$  connected across single phase, 100 V, 50 Hz supply. Find i)  $I_1$ ,  $I_2$  and  $I_3$  ii)  $V_1$  and  $V_2$ . [8+7]

The emf per turn of a 1- $\phi$ , 2200/220 V, 50 Hz transformer is approximately 12V.

Calculate

- i) The number of primary and secondary turns, and
  - ii) The net cross-sectional area of core for a maximum flux density of 1.5 T?
- b) Explain the losses in a Transformer; also derive the maximum efficiency condition of a transformer. [8+7]
- 6.a) Explain the significance of torque-slip and characteristics of 3-phase induction motor.
- b) Why three phase induction motor not rotating at synchronous speed, explain. [8+7]
- 7.a) Explain the types of batteries and its important characteristics.
- b) Define earthing also explain the purpose of earthing. [7+8]
- 8.a) Explain the constructional details of synchronous generators.
- b) Why single phase induction motors are not self starting motors? Explain. [7+8]

--ooOoo--



Code No: 152AC

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B.Tech I Year II Semester Examinations, September/October - 2021**

**BASIC ELECTRICAL ENGINEERING**

**(Common to ECE, EIE, ECM, CSBS, CSE(AI&ML), CSE(IOT))**

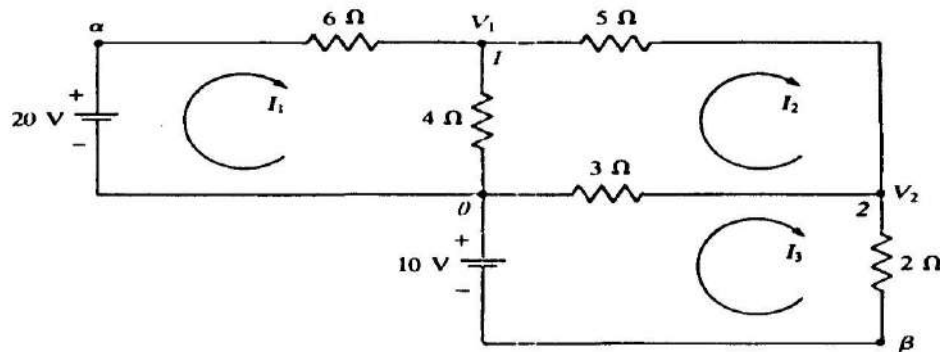
**Time: 3 Hours**

**Max. Marks: 75**

**Answer any five questions  
All questions carry equal marks**

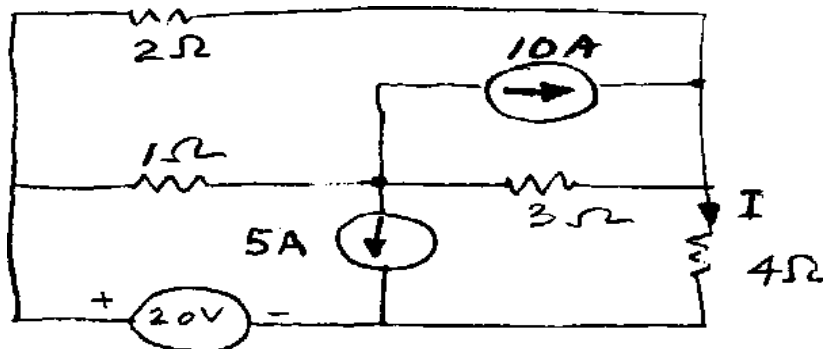
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- 1.a) Explain the V-I relation of circuit elements R, L and C.  
 b) Find the value of current  $I_1$ ,  $I_2$  and  $I_3$  from the circuit given below figure 1. [6+9]



**Figure: 1**

- 2.a) Obtain an expression for transient current flowing through R-C series circuit excited by D.C source at  $t=0^+$ .  
 b) Find the current flowing through 4 ohm resistance shown in figure 2 below using superposition theorem. [7+8]



**Figure: 2**

- 3.a) Obtain an expression for active power in a single phase R-L circuit excited by sinusoidal voltage.  
 b) Determine the power factor and the input power for a circuit with  $v = 50 \sin(\omega t + 10^\circ)$  and  $I = 2 \sin(\omega t + 20^\circ)$  A. [8+7]
- 4.a) A coil with inductance and resistance of 1 mH and 2 Ω respectively, is connected in series with a capacitor and this whole arrangement is connected across 120 V, 5 kHz A.C supply. Determine the value of capacitance that will cause the system to be in resonance.  
 b) A star connected load has  $5 \angle 30^\circ \Omega$  impedance per phase and is connected across 400 V three phase balanced source. Calculate the line current and the phase current. [8+7]

- 5.a) Give the applications of auto transformer.
- b) Calculate the values of  $R_0$ ,  $X_0$ ,  $R_{01}$  and  $X_{01}$  for the equivalent circuit of a single phase, 4 KVA, 200/400 V, 50 Hz transformer of which the following are the test results:  
O.C. test: 200V, 0.7A, 70W  
S.C. test: 15V, 10A, 80W [6+9]
- 6.a) State the advantages of 3-phase transformers.
- b) The iron and full load copper losses in a 80KVA single phase transformer are 500 and 1000W respectively. Calculate the efficiency at half full load, 0.8 p.f. lag. Find, also the load at which the efficiency is maximum? [6+9]
- 7.a) Explain why the rotor is forced to rotate in the direction of rotating magnetic field in a 3 phase Induction motor?
- b) A 3 phase, 50 Hz induction motor has a full load speed of 970 rpm. Calculate (i) number of the poles (ii) slip frequency. [9+6]
8. What is the need for earthing? Explain different types of earthing. [15]

---ooOoo---

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Sheriguda(V), Ibrahimpatnam(M), R.R Dist., Telangana – 501 510

I B.Tech I - Mid Examinations, Dec-2022/Jan-2023

X3

BR22

Set – II

Branch: CSE,CSE (CS), CSE(DS)

Date: 02-01-2023 (FN)

Subject: BASIC ELECTRICAL ENGINEERING Marks: 20

Time: 2 Hours

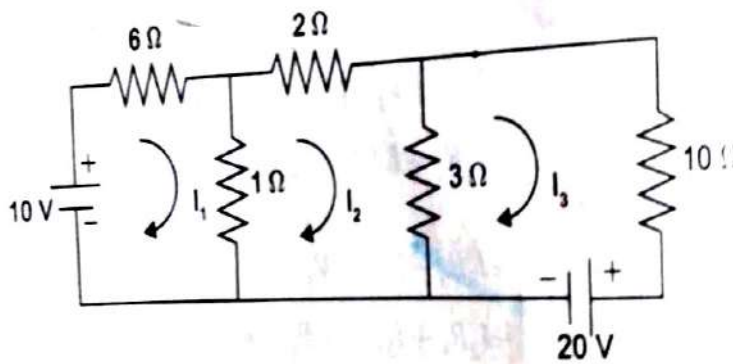
## Part-B

Answer any **FOUR** Questions. All Question Carry Equal Marks

4\*5=20 Marks

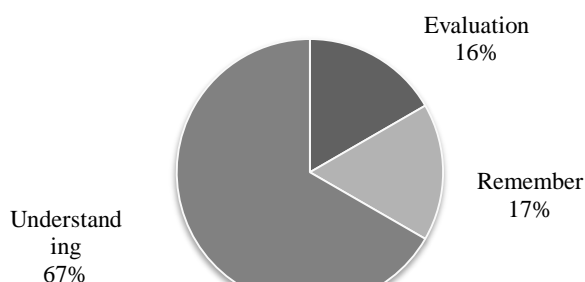
1. Find the mesh currents for the circuit Shown in below. [C114.1]

Remembering(L1)

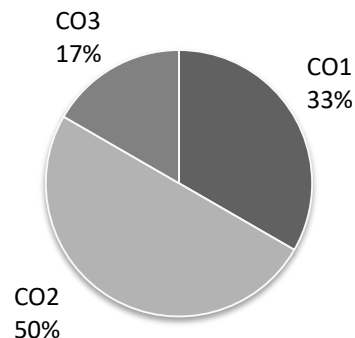


2. Explain KCL and KVL in detail. [C114.1] Understanding(L2)
3. Explain the Phasors for pure R, L and C. [C114.2] Understanding(L2)
4. Explain Resonance of Series RLC circuit. [C114.2] Understanding(L2)
5. A Voltage of 120v at 50Hz is applied to a Resistance in series with capacitance C. The current drawn is 2A, and the power loss in the resistance is 100W. Find  
a) Resistance b) capacitance c) power factor. [C114.2] Evaluation(L4)
6. Explain EMF equation of a transformer. [C114.3] Understanding(L2)

### BT Mapping



### CO Mapping



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Sheriguda(V), Ibrahimpatnam(M), R.R Dist., Telangana – 501 510

**I B.Tech I - Mid Examinations, Dec-2022/Jan-2023**

**X3**

**BR22**

Branch: CSE, CSE (CS), CSE (DS)

Date: 02-01-2023 (FN)

Subject: BASIC ELECTRICAL ENGINEERING

Marks: 10

Student Name: ..... H.T.No.:

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## Part-A

### Objective/Quiz Paper

The objective/quiz paper is set with multiple choice, fill-in the blanks and match the following type of questions for a total of 10 marks.

#### **Multiple choices:**

1. Nodal Analysis Mainly Depends on [ ]  
a) KVL                      b) KCL                      c) KCL&KVL                      d)none.
2. Identify Passive Element among the following. [ ]  
a) voltage source                      b)current source                      c)inductor                      d)transistor
3. How many minimum storage elements are required to apply resonance condition [ ]  
a) 1                      b )2                      c) 3                      d) none
4. A Transformer works for [ ]  
a)DC                      b) AC                      c)AC & Dc                      d)Neither AC nor Dc

#### **Fill in the blanks:**

5. Three resistors are connected in series  $R_{eq} = \underline{\hspace{2cm}}$
6. The Voltage across inductor is  $\underline{\hspace{2cm}}$
7. The impedance for RL circuit  $\underline{\hspace{2cm}}$ .
8. The resonant frequency  $f_r = \underline{\hspace{2cm}}$ .

#### **Match the following:**

- |                    |     |   |
|--------------------|-----|---|
| 9. I. Band –Width  | ( ) | a) inductive reactive power/average power |
| II. Quality Factor | ( ) | b) Conservation of charge                 |
| III. KCL           | ( ) | C) $f_2 - f_1$                            |
| IV. KVL            | ( ) | d) Conservation of energy                 |

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Sheriguda(V), Ibrahimpatnam(M), R.R Dist., Telangana – 501 510

**I B.Tech I - Mid Examinations, Dec-2022/Jan-2023**

**X3**

**BR22**

**Answer key**

## Descriptive paper key link:

<https://drive.google.com/file/d/1kEjAxLnMxEb8kKk2KrnuY08Hxb2GjzFo/view?usp=sharing>

## Objective/Quiz Key Paper

### Multiple choices:

1. b
2. c
3. b
4. b

### Fill in the blanks:

5.  $r_1+r_2+r_3$
6.  $v=Ldi/dt$
7.  $\sqrt{R^2 + X^2}$
8.  $1/2\pi\sqrt{LC}$

### Match the following:

9. I-c
- II-a
- III-b
- IV-d

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Sheriguda(V), Ibrahimpatnam(M), R.R Dist., Telangana – 501 510

X3

I B.Tech II - Mid Examinations, March-2023

BR22

Set - I

Branch: CSE, CSE (CS) & CSE (DS)

Date: 08-03-2023 (FN)

Subject: BASIC ELECTRICAL ENGINEERING Marks: 20

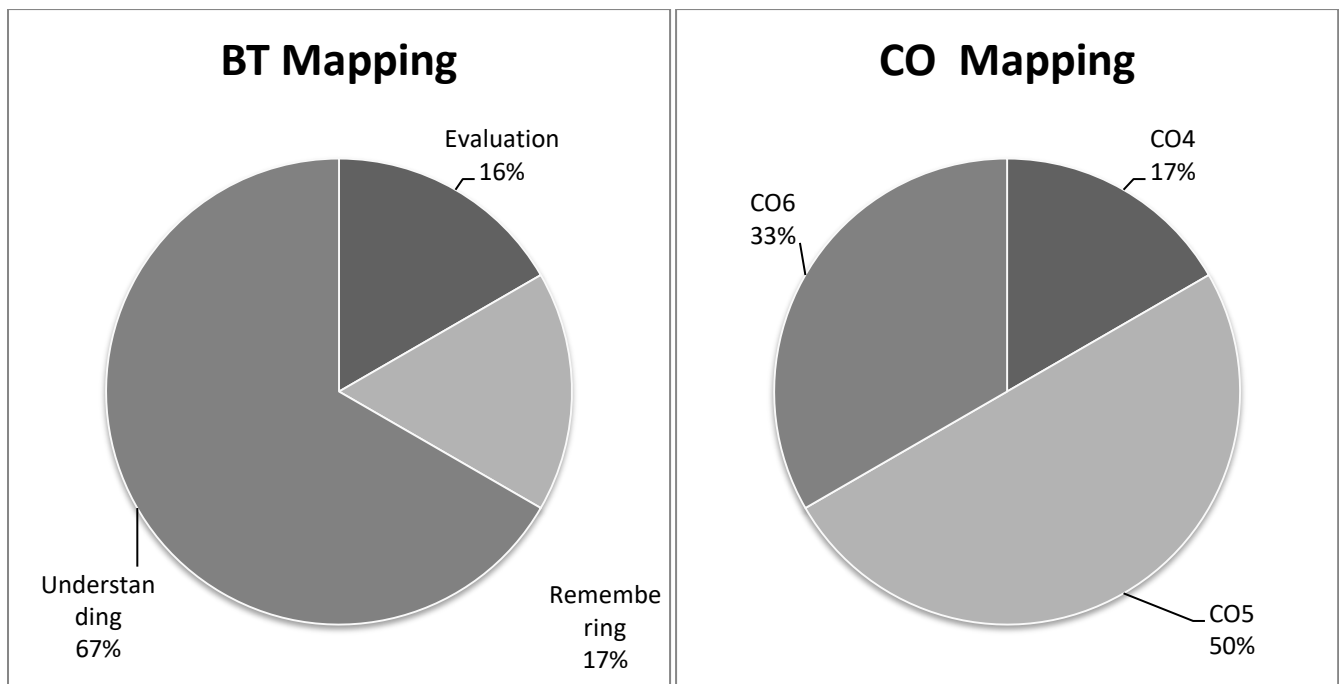
Time: 2 Hours

## Part-B

Answer any **FOUR** Questions. All Question Carry Equal Marks

4\*5=20 Marks

1. Derive the condition for maximum efficiency in a single phase transformer? [C114.4]  
(Evaluation L5)
2. A six pole induction motor is fed by three phase 50 Hz supply and running with a full load slip of 3%. Find the full load speed of induction motor and also the frequency of rotor EMF? [C114.5] Remembering(L1)
3. Explain the concept rotating magnetic field and hence explain the operation of the three phase induction motor? [C114.5] Understanding L2)
4. Explain working of alternator with neat diagram? [C114.5] Understanding L2)
5. What is ELCB? Explain the working principle of ELCB? [C114.6] Understanding L2)
6. Explain power factor improving methods? [C114.6] Understanding L2)



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Sheriguda(V), Ibrahimpatnam(M), R.R Dist., Telangana – 501 510

**I B.Tech II - Mid Examinations, March-2023**

**X3**

**BR22**

Branch: CSE, CSE (CS) & CSE (DS)

Date: 08-03-2023 (FN)

Subject: BASIC ELECTRICAL ENGINEERING

Marks: 10

Student Name: ..... H.T.No.:

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## Part-A

### Objective/Quiz Paper

The objective/quiz paper is set with multiple choice, fill-in the blanks and match the following type of questions for a total of 10 marks.

#### Multiple choices:

- The rating of transformer is in \_\_\_\_ [ ]  
a)KW      b)KVAR      c)KVA      d)HP
- Commutator in a DC machine can be convert [ ]  
a) AC to DC      b) AC to AC  
c) DC to AC      d) DC to DC
- Difference in speed between stator field and rotor in induction motor is [ ]  
a)Full load speed    b)No load speed    c) Slip    d)Regulation
- The most economical power factor for a consumer is generally ---- [ ]  
a) 0.5 lagging      b) 0.8 lagging      c) unity      d) 0.95 lagging

#### Fill in the blanks:

- Condition for maximum efficiency in transformer is\_\_\_\_\_
- Synchronous speed  $N_s$ =\_\_\_\_\_
- Strip or Wire earthing is used in \_\_\_\_\_areas.
- Battery capacity measured in \_\_\_\_\_.

#### Match the following:

- No of parallel paths  $A=P$  ( )      a) 0.5 to 5 ohms
  - No of parallel paths  $A=2$  ( )      b)Lap winding
  - Earth resistance ( )      c) MCB
  - Short circuit protection ( )      d) Wave winding

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X3

**I B.Tech II - Mid Examinations, March-2023**

BR22

**Answer key**

## Descriptive key link:

<https://drive.google.com/file/d/1I47XJ2l6TQpp7fS0T3jh9iLgZ31V58vj/view?usp=sharing>

## Objective/Quiz Paper

### Multiple choices:

1. c
2. a
3. c
4. d

### Fill in the blanks:

5. Iron losses=copper losses
6.  $120f/P$
7. Hilly
8. mAh

### Match the following:

9. I-b
- II-d
- III-a
- IV-c



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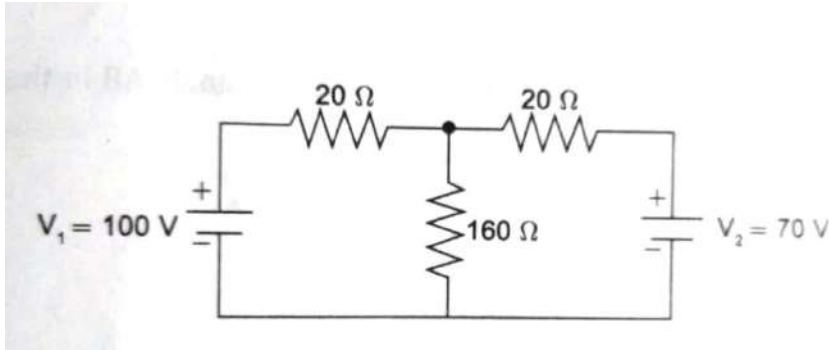
X3

BR22

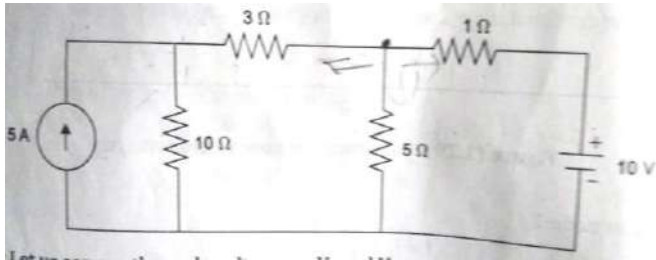
## Assignment questions

### Mid-1

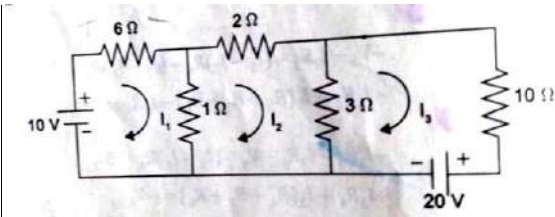
1. Apply Superposition Theorem for circuit given below . [C114.1] Applying(L3)



2. Find the node voltages equations . [C114.1] Remembering(L1)



3. Find the mesh currents for the circuit. [C114.1] Remembering(L1)



4. Explain KCL and KVL in detail. [C114.1] Understanding(L2)

5. Define

a) Active element b) Linear element c) Passive Element d) Bilateral Element.

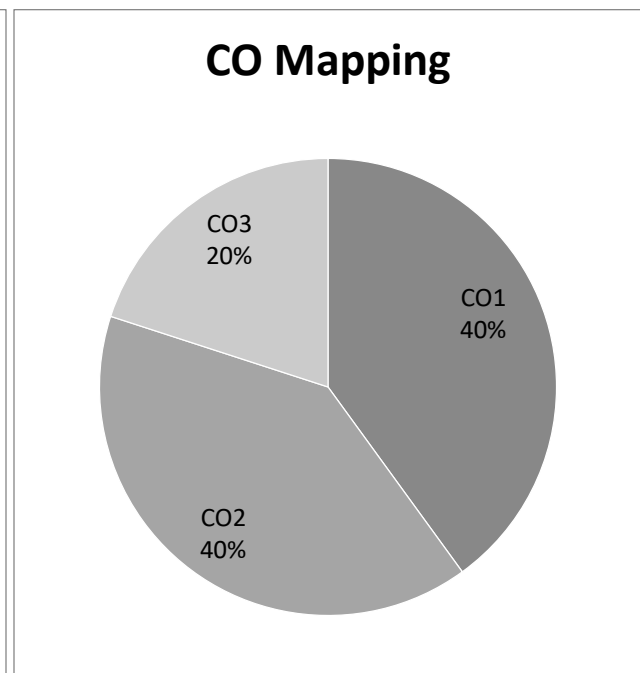
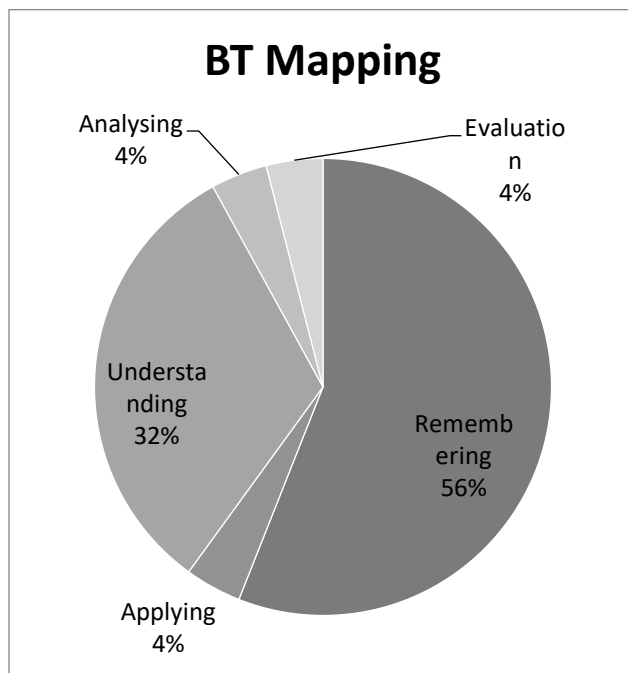
[C114.1] Remembering(L1)

6. Define First order RL series Circuit. [C114.1] Remembering(L1)

7. Explain in detail about energy sources. [C114.1] Understanding(L2)

1 . Distinguish Between AC and DC. [C114.2] Analyzing(L4)

2. For a sine waveform find form factor , peak factor , rms value. [C114.2] Remembering(L1)
3. Explain the Phasors for pure R,L,C. . [C114.2] Understanding(L2)
5. Define the following operation . [C114.2] Remembering(L1)  
 a)A+B b)A-B c)A\*B d)A/B  
 A=6+j8 B=3-j4
6. Explain Resonance of Series RLC circuit . [C114.2] Understanding(L2)
7. A Voltage of 120v at 50hz is applied to a resistance ,R in series with capacitance C . The current drawn is 2A ,and the power loss in the resistance is 100W. Find a) resistance b)capacitance c)power factor. [C114.2] Remembering(L1)
8. A capacitor having capacitance of 79.5 $\mu$ F is connected in series with resistance of 30ohm across 100v, 50Hz Find a)impedance b)phase angle c)current [C114.2] Remembering(L1)
9. Define a)Band-Width b)Selectivity c)Quality factor. [C114.2] Remembering(L1)
10. Explain Working of a transformer. . [C114.3] Understanding(L2)
- 11.The maximum flux density in the core of a 250/3000v,50Hz transformer is 1.2wb/m<sup>2</sup> if emf per turn is 8v, determine a)primary and secondary turns b)area of core. [C114.3] Evaluating(L5)



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X3

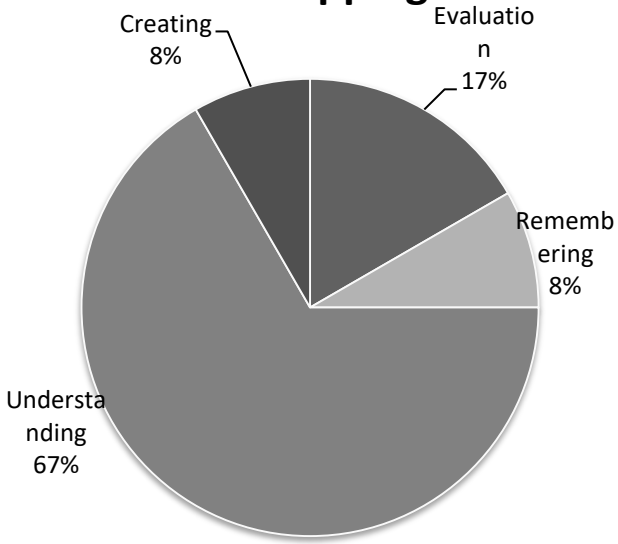
**I B.Tech II - Mid Examinations, March-2023**

BR22

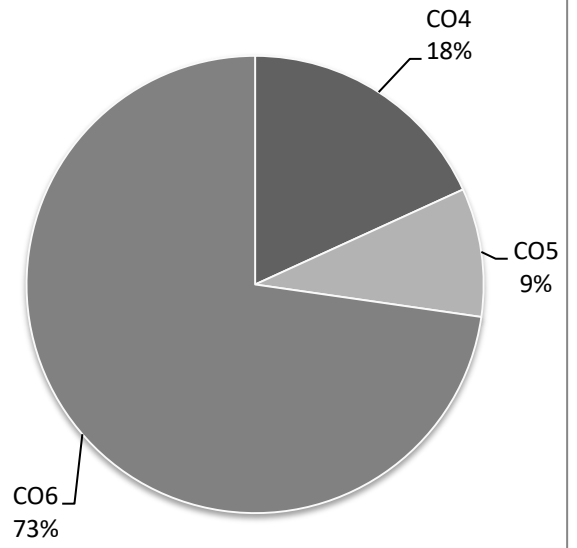
## Assignment questions

1. Derive the condition for maximum efficiency in a single phase transformer?  
[C114.4] (Evaluation L5)
2. A six pole induction motor is fed by three phase 50 Hz supply and running with a full load slip of 3%. Find the full load speed of induction motor and also the frequency of rotor EMF?  
[C114.5] Remembering(L1)
3. Explain the concept rotating magnetic field and hence explain the operation of the three phase induction motor?  
[C114.5] Understanding L2)
4. Explain working of alternator with neat diagram? [C114.5] Understanding L2)
5. What is ELCB? Explain the working principle of ELCB? [C114.6] Understanding L2)
6. Explain power factor improving methods? [C114.6] Understanding L2)
7. A single-phase transformer is rated at 40 kVA. The transformer has full-load copper losses of 800W and iron losses of 500W. Determine the transformer efficiency at
  - i. full load unity power factor
  - ii. 75 % of load 0.8 power factor
  - iii. Maximum efficiency [C114.4] (Evaluation L5)
8. With neat sketches, explain the construction and functions of the various parts of a DC machine [C114.5] (Understanding L2)
9. Explain torque slip characteristics of 3 phase induction motor?  
[C114.5] (Understanding L2)
10. Explain the working principle of MCB neat sketch? [C114.6] (Understanding L2)
11. Define power factor and discuss disadvantages of low power factor?  
[C114.6] Creating(L6)
12. Explain about different types of batteries. [C114.6] (Understanding L2)

### BT Mapping



### CO Mapping





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Website: <https://siiet.ac.in/>

## SCHEME OF EVALUATION

### → FOR MID 1

S.NO	DESCRIPTION	MARKS	BLOOMS TAXONOMY	CO
1	For writing mesh equations	3	Remembering(L1)	C114.1
	Solving mesh equations	2	Remembering(L1)	C114.1
2	Explanation of KCL	3	Understanding(L2)	C114.1
	Explanation of KVL	2	Understanding(L2)	C114.1
3	Phasors of R,L and C	3	Understanding(L2)	C114.2
	Derivation of R,L and C	2	Understanding(L2)	C114.2
4	Characteristics of resonance	3	Understanding(L2)	C114.2
	Conditions of resonance	2	Understanding(L2)	C114.2
5	Calculation of resistance	2	Evaluation(L4)	C114.2
	Calculation of capacitance	2	Evaluation(L4)	C114.2
	Calculation of power factor	1	Evaluation(L4)	C114.2
6	Derivation of EMF equation	5	Understanding(L2)	C114.3

### → FOR MID 2

S.NO	DESCRIPTION	MARKS	BLOOMS TAXONOMY	CO
1	Derivation of maximum efficiency	4	Evaluation L5	C114.4
	Condition of maximum efficiency	1	Evaluation L5	C114.4
2	Full speed of Induction motor	4	Remembering(L1)	C114.5
	Frequency of rotor emf	1	Remembering(L1)	C114.5
3	concept of rotating magnetic field	3	Understanding L2)	C114.5
	Working of induction motor	2	Understanding L2)	C114.5
4	working diagram of alternator	1	Understanding L2)	C114.5
	working of alternator	4	Understanding L2)	C114.5
5	ELCB definition	1	Understanding L2)	C114.6
	working principle of ELCB	4	Understanding L2)	C114.6
6	power factor improving methods	5	Understanding L2)	C114.6



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## RESULT ANALYSIS

**Branch :** CSE-cyber security

**Subject:** Basic Electrical Engineering

### List of slow learners

S.NO	ROLL NO	Intermediate percentage	MID1 MARKS	MID2 MARKS
1	22X31A6202	56	21	26
2	22X31A6207	60	23	25
3	22X31A6213	60	25	21
4	22X31A6221	50.3	17	17
5	22X31A6222	61	23	17
6	22X31A6224	52	20	18
7	22X31A6226	60	24	17
8	22X31A6228	47.1	17	17
9	22X31A6234	59.7	24	5
10	22X31A6246	63	23	27

### List of advance learners

S.NO	ROLL NO	Intermediate percentage	MID1 MARKS	MID2 MARKS
1	22X31A6208	95.6	31	35
2	22X31A6212	91.5	28	34
3	22X31A6227	90	33	24
4	22X31A6243	92	30	29
5	22X31A6247	97	30	32
6	22X31A6253	95	32	31
7	22X31A6255	93	29	27



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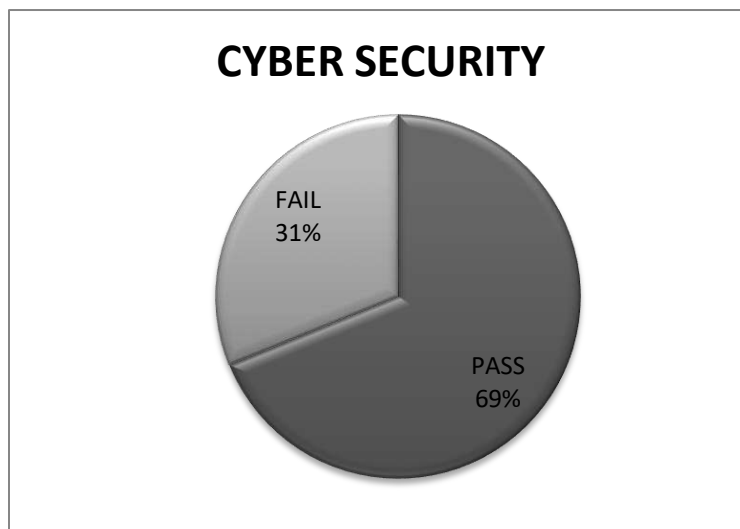
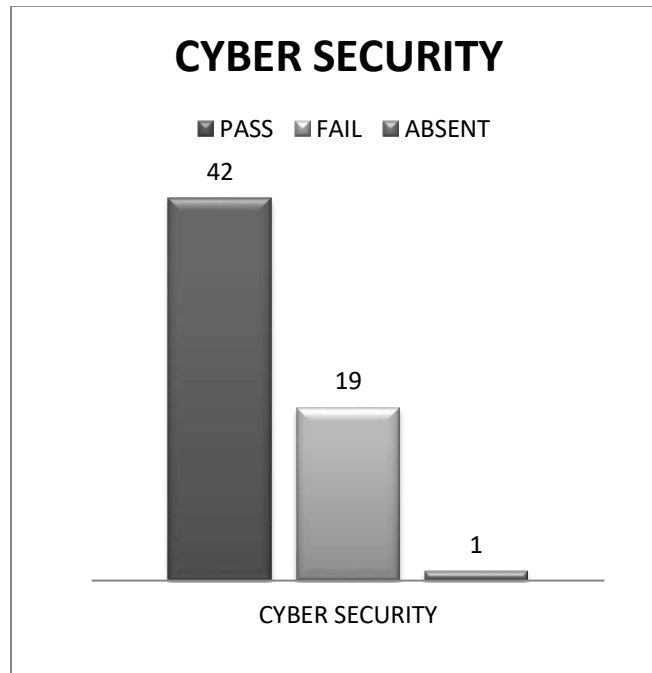
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Website: <https://siiet.ac.in/>

## RESULT ANALYSIS AT END

Branch : CSE-CYBER SECURITY

Subject: Basic Electrical Engineering





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## REMEDIAL CLASSES TIME TABLE

### DEPARTMENT OF HUMANITIES AND SCIENCE

DAY/	MON	TUE	WED	THUR	FRI	SAT
PERIOD	4.00-5.00	4.00-5.00	4.00-5.00	4.00-5.00	4.00-5.00	4.00-5.00
CSE-A	M&C	PPS	BEE	EG	EC	M&C
CSE-B	BEE	M&C	EG	PPS	EC	BEE
CSE-C	EC	EG	BEE	M&C	PPS	EC
DS	M&C	EC	BEE	PPS	EG	EC
CYBER	PPS	M&C	EC	EG	BEE	M&C
AIML-A	AP	PPS	M&C	ENG	AP	M&C
AIML-B	M&C	EG	PPS	AP	M&C	EG
AI&DS	M&C	ENG	AP	PPS	AP	PPS
IOT	PPS	AP	M&C	EG	M&C	EG
ECE	AP	ENG	M&C	PPS	AP	PPS
CIVIL	EG	AP	M&C	PPS	M&C	EG

  
Head of the Department  
Department of H&S  
SRI INDU INSTITUTE OF ENGG & TECH  
Sheriguda(V) Ibrahimpatnam (M) R.R. Dist-501 510

  
PRINCIPAL  
Sri Indu Institute of Engineering & Techno.  
Sheriguda(VIII), Ibrahimpatnam  
R.R. Dist. Telangana-501 510.





56	22X31A6256	5			5					2			1						6	5
57	22X31A6257	2			5					4			1						8	5
58	22X31A6258	5			5			5		5									10	5
59	22X31A6259	5			5								1						8	5
60	22X31A6260	5			5					5			4						9	5
61	22X31A6261	5			5			1		5									6	5
62	22X31A6262	3			5					5			1						7	5
Target set by the faculty / HoD		3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	6.00	3.00
Number of students performed above the target		49	0	0	50	0	0	6	0	0	36	0	0	7	0	0	0	0	58	62
Number of students attempted		59	0	0	56	0	0	11	0	0	45	0	0	31	0	0	1	0	62	62
Percentage of students scored more than target		83%			89%			55%			80%			23%			0%		94%	100%

**CO Mapping with Exam Questions:**

CO - 1	Y			Y															Y	Y
CO - 2							Y			Y			Y						Y	Y
CO - 3																Y			y	y
CO - 4																				
CO - 5																				
CO - 6																				

>Target %	83%			89%			55%			80%			23%			0%			94%	100%
-----------	-----	--	--	-----	--	--	-----	--	--	-----	--	--	-----	--	--	----	--	--	-----	------

**CO Attainment based on Exam Questions:**

CO - 1	83%			89%															94%	100%
CO - 2							55%			80%			23%						94%	100%
CO - 3																0%			94%	100%
CO - 4																				
CO - 5																				
CO - 6																				

CO	Subj	obj	Asgn	Overall	Level
CO-1	86%	94%	100%	93%	3.00
CO-2	52%	94%	100%	82%	3.00
CO-3	0%	94%	100%	65%	3.00
CO-4					
CO-5					
CO-6					

Attainment Lev	
1	40%
2	50%
3	60%

Attainment (Internal 1 Examination) = **3.00**

# SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Humanities & Sciences

## Course Outcome Attainment (Internal Examination-2)

Name of the faculty : S NISCHALA

Academic Year:

2022-2023

Branch & Section: CSE -Cyber security

Examination:

II Internal

Course Name: BASIC ELECTRICAL ENGINEERING

Year: I

Semester: I

S.No	HT No.	Q1a	Q1b	Q1c	Q2a	Q2b	Q2c	Q3a	Q3b	Q3c	Q4a	Q4b	Q4c	Q5a	Q5b	Q5c	Q6a	Q6b	Q6c	Obj	A2	viva/ ppt
	<b>Max. Marks ==&gt;</b>	<b>5</b>			<b>5</b>			<b>5</b>			<b>5</b>			<b>5</b>			<b>5</b>			<b>10</b>	<b>5</b>	<b>5</b>
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5	22X31A6205	5			5						4						5			10	5	5
6	22X31A6206	5			5									4			5			10	5	5
7	22X31A6207	4			4									1			2			9	5	5
8	22X31A6208	5			5									5			5			10	5	5
9	22X31A6209	4			4									2			2			9	5	5
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15	22X31A6215				5									2			2			8	5	5
16	22X31A6216	3			4						4						1			9	5	5
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33	22X31A6233	3			2						2						2			6	5	5
34	22X31A6234																			0	5	5
35	22X31A6235	2						1									1			8	5	5
36	22X31A6236																			0	5	5
37	22X31A6237	5												5			5			9	5	5
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50	22X31A6250																			10	5	5
51	22X31A6251				5						5			5						10	5	5
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53	22X31A6253	5			5									1			5			10	5	5
54	22X31A6254	5			5									1			5			9	5	5
55	22X31A6255	1			5			1						5						10	5	5
56	22X31A6256	5			5												5			9	5	5
57	22X31A6257	2			2						3						2			6	5	5
58	22X31A6258	5			5			5									5			9	5	5
59	22X31A6259	2						1			3						2			10	5	5
60	22X31A6260	5			5									2			5			7	5	5

61	22X31A6261	5			5			5			5								10	5	5	
62	22X31A6262	5			5			3									4		10	5	5	
63																						
Target set by the faculty / HoD		3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	6.00	3.00	3.00
Number of students performed above the target		37	0	0	36	0	0	8	0	0	11	0	0	14	0	0	22	0	0	58	62	62
Number of students attempted		51	0	0	50	0	0	17	0	0	16	0	0	32	0	0	37	0	0	62	62	62
Percentage of students scored more than target		73%			72%			47%			69%			44%			59%			94%	100%	100%

**CO Mapping with Exam Questions:**

CO - 1																						
CO - 2																						
CO - 3																						
CO - 4	Y																		Y	Y	y	
CO - 5				Y			Y				Y								Y	Y	y	
CO - 6													Y			y			Y	Y	y	

% Students Scored >Target %	73%			72%			47%			69%			44%			59%			94%	100%	100%
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**CO Attainment based on Exam Questions:**

CO - 1																						
CO - 2																						
CO - 3																						
CO - 4	73%																		94%	100%	100%	
CO - 5				72%			47%			69%									94%	100%	100%	
CO - 6													44%			59%			94%	100%	100%	

CO	Subj	obj	aasgn	ppt	Overall	Level
CO-1						
CO-2						
CO-3						
CO-4	73%	94%	100%	100%	92%	3.00
CO-5	63%	94%	100%	100%	89%	3.00
CO-6	52%	94%	100%	100%	86%	3.00

Attainment Level	
1	40%
2	50%
3	60%

Attainment (Internal Examination-2) = **3.00**



# SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Humanities & Sciences

## Course Outcome Attainment (University Examinations)

Name of the faculty : S NISCHALA

Academic Year: 2022-2023

Branch & Section: CSE -Cyber security

Year / Semester: I/I

Course Name: BASIC ELECTRICAL ENGINEERING

S.No	Roll Number	Marks Secured	S.No	Roll Number	Marks Secured								
1	22X31A6201	6	36	22X31A6236	38								
2	22X31A6202	13	37	22X31A6237	31								
3	22X31A6203	13	38	22X31A6238	24								
4	22X31A6204	0	39	22X31A6239	29								
5	22X31A6205	12	40	22X31A6240	28								
6	22X31A6206	26	41	22X31A6241	32								
7	22X31A6207	11	42	22X31A6242	24								
8	22X31A6208	29	43	22X31A6243	38								
9	22X31A6209	12	44	22X31A6244	6								
10	22X31A6210	47	45	22X31A6245	26								
11	22X31A6211	22	46	22X31A6246	24								
12	22X31A6212	28	47	22X31A6247	32								
13	22X31A6213	11	48	22X31A6248	22								
14	22X31A6214	30	49	22X31A6249	31								
15	22X31A6215	2	50	22X31A6250	A								
16	22X31A6216	16	51	22X31A6251	29								
17	22X31A6217	34	52	22X31A6252	0								
18	22X31A6218	9	53	22X31A6253	36								
19	22X31A6219	26	54	22X31A6254	23								
20	22X31A6220	28	55	22X31A6255	22								
21	22X31A6221	10	56	22X31A6256	31								
22	22X31A6222	22	57	22X31A6257	22								
23	22X31A6223	35	58	22X31A6258	38								
24	22X31A6224	21	59	22X31A6259	40								
25	22X31A6225	45	60	22X31A6260	24								
26	22X31A6226	21	61	22X31A6261	25								
27	22X31A6227	52	62	22X31A6262	27								
28	22X31A6228	4	63										
29	22X31A6229	25	64										
30	22X31A6230	7	65										
31	22X31A6231	0	66										
32	22X31A6232	10	67										
33	22X31A6233	37	68										
34	22X31A6234	4	69										
35	22X31A6235	23	70										
Max Marks		60											
Class Average mark		23	<table border="1"> <thead> <tr> <th>Attainment Level</th> <th>% students</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>40%</td> </tr> <tr> <td>2</td> <td>50%</td> </tr> <tr> <td>3</td> <td>60%</td> </tr> </tbody> </table>			Attainment Level	% students	1	40%	2	50%	3	60%
Attainment Level	% students												
1	40%												
2	50%												
3	60%												
Number of students performed above the target		35											
Number of successful students		62											
Percentage of students scored more than target		56%											
<b>Attainment level</b>		<b>3</b>											



# SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Humanities & Sciences

## Course Outcome Attainment

Name of the faculty :

S NISCHALA

Academic Year: 2022-2023

Branch & Section:

CSE -Cyber security

Course Name:

BASIC ELECTRICAL ENGINEERING

Year: 1

Semester: 1

Course Outcomes	1st Internal Exam	2nd Internal Exam	Internal Exam	University Exam	Attainment Level
CO1	3.00		3.00	3.00	3.00
CO2	3.00		3.00	3.00	3.00
CO3	3.00		3.00	3.00	3.00
CO4		3.00	3.00	3.00	3.00
CO5		3.00	3.00	3.00	3.00
CO6		3.00	3.00	3.00	3.00
<b>Internal &amp; University Attainment:</b>			3.00	3.00	
<b>Weightage</b>			40%	60%	
<b>CO Attainment for the course (Internal, University)</b>			1.20	1.80	
<b>CO Attainment for the course (Direct Method)</b>			3.00		

**Overall course attainment level**

**3.00**



# SRI INDU INSTITUTE OF ENGINEERING & TECHNOLOGY

Department of Humanities & Sciences

## Program Outcome Attainment (from Course)

Name of Faculty: S NISCHALA Academic Year: 2022-2023  
 Branch & Section: CSE -Cyber security Year: I  
 Course Name: BASIC ELECTRICAL ENGINEERING Semester: I

### CO-PO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	1	2	1	1	-	-	-	-	-	-	-	-
CO2	3	3	1	-	-	-	-	-	-	-	-	-	-	-
CO3	3	2	-	-	-	1	1	-	-	-	-	2	-	-
CO4	3	1	-	-	-	-	-	-	-	-	-	2	-	-
CO5	3	1	-	-	-	-	-	-	-	-	-	2	-	-
CO6	3	-	-	-	-	2	-	-	-	-	-	2	-	-
<b>Course</b>	<b>3.00</b>	<b>1.80</b>	<b>1.00</b>	<b>2.00</b>	<b>1.00</b>	<b>1.33</b>	<b>1.00</b>					<b>2.00</b>		

CO	Course Outcome Attainment
	3.00
CO1	3.00
CO2	3.00
CO3	3.00
CO4	3.00
CO5	3.00
CO6	3.00
<b>Overall course attainment level</b>	<b>3.00</b>

### PO-ATTAINMENT

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO Attainment	3.00	1.80	1.00	2.00	1.00	1.33	1.00					2.00

CO contribution to PO - 33%, 67%, 100% (Level 1/2/3)



# **SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY**

(An Autonomous Institution under UGC)

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(Approved by AICTE, New Delhi and Affiliated to JNTUH, Hyderabad)

Khalsa Ibrahimpatnam, Sheriguda (V), Ibrahimpatnam (M), Ranga Reddy Dist., Telangana – 501 510

Website: <https://siiet.ac.in/>

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## **MID ANSWER SCRIPTS , ASSIGNMENTS AND REGISTERS**

**Mid 1 answer script link:**

<https://drive.google.com/file/d/1wFSmrvDGIsi7CUGdq20nPomvwZAlEcRS/view>

**Mid 2 answer script link:**

[https://drive.google.com/file/d/1QOY6PFTSlt0JnTM24srDq-8j7Lsruc\\_r/view](https://drive.google.com/file/d/1QOY6PFTSlt0JnTM24srDq-8j7Lsruc_r/view)

**Mid 1 assignment link:**

<https://drive.google.com/file/d/1vyEvXTszzPW2uN4NUFCSRK2VhPfmPqtd/view>

**Mid 2 assignment link:**

[https://drive.google.com/file/d/15PvgTcB6yWsQ\\_wOjAYVkjN49CEOX7Rfi/view](https://drive.google.com/file/d/15PvgTcB6yWsQ_wOjAYVkjN49CEOX7Rfi/view)

**Class register link:**

[https://drive.google.com/file/d/1WB\\_Df9lIvDSU9DOjWd1hPOloaey--zGW/view](https://drive.google.com/file/d/1WB_Df9lIvDSU9DOjWd1hPOloaey--zGW/view)