ELECTRICAL AND ELCETRONICS ENGINEERING LABORATORY

II Semester: CSE / IT

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
AEE101	Foundation	-	-	3	2	30	70	100
Contact Classes: Nil	Tutorial Classes: Nil	Practical Classes: 39				Total Classes: 39		

I. COURSE OVERVIEW:

Electrical and electronics engineering laboratory is introduced to get the practical experience on with identification of all the electrical components. It also aims to get the knowledge of the different electronic devices like diodes, rectifiers, transistors and to measure the electrical quantities with different measuring devices and CRO.

II. OBJECTIVES:

The course should enable the students to:

I. Analyze basic electrical circuits by implementing different circuits.
II. Apply circuit theorems to evaluate the behavior of electrical circuits.
III. Gain knowledge on semiconductor devices like diode and transistor.
IV. Interpret different transistor configurations.

III. COURSE OUTCOMES:

After successful completion of the course, students should be able to:

CO 1	**Solve** the electrical circuit source resistance, currents, voltage and power by applying various network reduction techniques using hardware and software.	Apply
CO 2	**Apply** various network theorems to reduce complex network into simple equivalent network with DC excitation using hardware and software.	Apply
CO 3	**Acquire** basic knowledge on the working of PN-junction diode, Zenger diode to plot their V-I characteristics.	Understand
CO 4	**Identify** transistor configuration and their working to deduce itsworking as switch and amplifier.	Apply
CO 5	**Explore** the knowledge and skills of employability to succeed in national and international level competitive examinations.	Apply

IV. SYLLABUS:

LIST OF EXPERIMENTS

Week-1	**KIRCHOFF'S LAWS**
Practical verification of Kirchhoff's current law and voltage law.	
Week-2	**SUPERPOSITION THEOREM**
Illustration of superposition theorem.	
Week-3	**THEVENIN'S THEOREM**
Obtain the equivalent circuit of the given electrical network using Thevenin's theorem.	
Week-4	**NORTON'S THEOREM**
Practical verification of Norton's theorem and obtain the equivalent circuit.	

Week-5	**MAXIMUM POWER TRANSFER THEOREM**
Verification of maximum power transfer theorem.	
Week-6	**KVL AND KCL**
Verification of KVL and KCL using digital simulation.	
Week-7	**DIGITAL SIMULATION OF THEOREMS**
Superposition theorem and Thevenins theorem using digital simulation.	
Week-8	**NORTON'S THEOREM AND MAXIMUM POWER TRANSFER THEOREM**
Norton's theorem and maximum power transfer theorem using digital simulation.	
Week-9	**P-N JUNCTION DIODE**
Volt Ampere characteristics of p-n junction diode.	
Week-10	**ZENER DIODE**
Zener Diode VI Characteristics	
Week-11	**RECTIFIERS**
Application of diode as Half wave rectifier and Full wave rectifier.	
Week-12	**COMMON BASE TRANSISTOR**
Verify the characteristics of common base transistor.	
Week-13	**COMMON EMITTER TRANSISTOR**
Verify the characteristics of common emitter transistor.	

Reference Books:

1. A. Chakrabarti, "Circuit Theory", Dhanpat Rai Publications, 6th Edition, 2006.
2. William Hayt, Jack E. Kemmerly S.M. Durbin, "Engineering Circuit Analysis", Tata McGraw-Hill, 7th Edition, 2010.
3. K. S. Suresh Kumar, "Electric Circuit Analysis", Pearson Education, 1st Edition, 2013.

Web References:

1. http://www.ee.iitkgp.ac.in
2. http://www.citchennai.edu.in
3. http://www.iare.ac.in

Course Home Page: