BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LABORATORY

I Semester: CE II Semester: ME									
Course Code	Category	Hours / Week			Credits	Maximum Marks			
AEEB08	Foundation	L	Т	Р	С	CIA	SEE	Total	
		-	-	3	2	30	70	100	
Contact Classes: Nil	Tutorial Classes: Nil	Practical Classes: 48				Total Classes: 48			

OBJECTIVES:

The course should enable the students to:

- I. Analyze the basic concepts of electrical circuits.
- II. Study the performance of DC machines and AC machines.
- III. Understand the characteristics of electronic components.

COURSE LEARNING OUTCOMES (CLOs):

The students should enable to:

- 1. Understand the application of basic concept of electrical circuits KCL and KVL in series and parallel circuits.
- 2. Understand the basic concept of electrical circuits Ohm's law.
- 3. Draw the performance characteristics of DC shunt generator.
- 4. Calculate the performance analysis in DC shunt machine as both generator and motor by Swinburne's test.
- 5. Calculate the performance analysis in single phase transformer.
- 6. Draw and analysis of performance characteristics of three phase induction motor by brake test.
- 7. Determine the regulation of alternator using synchronous impedance method.
- 8. Draw and analysis of performance characteristics of PN junction diode.
- 9. Draw and analysis of performance characteristics of Zener diode.
- 10. Demonstrate practical understanding of Half wave rectifier.
- 11. Demonstrate practical understanding of Full wave rectifier.
- 12. Draw and analysis of performance characteristic curves of common emitter transistor.
- 13. Draw and analysis of performance characteristic curves of common base transistor.
- 14. Demonstrate practical understanding of CRO.

LIST OF EXPERIMENTS

Expt - 1 KIRCHOFF'S CURRENT LAW AND VOLTAGE LAW

Verification of Kirchhoff's current and voltage laws.

Expt - 2 OHM' S LAW

Verification of Ohm's law.

Expt - 3 OPEN CIRCUIT CHARACTERISTICS OF DC SHUNT GENERATOR

Study the magnetization characteristics of DC shunt generator.

Expt - 4 SWINBURNE'S TEST

Predetermination of efficiency (Swinburne's test) of DC shunt machine.

Determination of efficiency of single phase transformer by conducting open circuit and short circuit test. Expt - 6 BRAKE TEST ON THREE PHASE INDUCTION MOTOR Plot the performance characteristics of three phase induction motor by conducting brake test. Expt - 7 REGULATION OF ALTERNATOR Determine the regulation of alternator using synchronous impedance method. Expt - 8 PN JUNCTION DIODE Study the characteristics of PN junction diode. Expt - 9 ZENER DIODE Study the characteristics of Zener diode and breakdown mechanism. Expt - 10 HALF WAVE RECTIFIER CIRCUIT Determine the efficiency of, regulation of half wave rectifier circuit. Expt - 11 FULL WAVE RECTIFIER CIRCUIT Determine the efficiency of, regulation of full wave rectifier circuit. Expt - 12 TRANSISTOR Study the characteristics of Transistor with common emitter (CE) configuration. Expt - 13 TRANSISTOR Study the characteristics of Transistor with common base (CB) configuration. Expt - 14 CATHODE RAY OSCILLOSCOPE (CRO) Check the features and limitations of cathode ray oscilloscope. Text Books: 1 1 A Chakrabarti, "Circuit Theory", Dhanpat Rai Publications, 6th Edition, 2004.	Expt - 5	OPEN CIRCUIT AND SHORT CIRCUIT TEST				
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- 4. M Arshad, "Network Analysis and Circuits", Infinity Science Press, 9 th Edition, 2016.

Web References:

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