



I Year-II Semester		L	T	P	C
		0	0	3	1.5
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LAB (ES1208)					

Prerequisite Course: Students should have basic knowledge of electrical circuits.

Course Description and Objectives:

To understand the principle of operation and construction details of DC machines & Transformers.

- To predetermine the efficiency of dc shunt machine using Swinburne’s test.
- To predetermine the efficiency and regulation of 1-phase transformer with O.C and S.C tests.
- To obtain performance characteristics of DC shunt motor & 3-phase induction motor.
- To find out regulation of an alternator with synchronous impedance method.
- To control speed of dc shunt motor using Armature voltage and Field flux control methods.
- To find out the characteristics of PN junction diode & transistor
- To determine the ripple factor of half wave & full wave rectifiers.

Course Outcomes:

Upon completion of the course, the student will be able to achieve the following outcomes.

CO	Course Outcomes	POs
1	Predetermine the efficiency of dc shunt machine using Swinburne’s test & efficiency and regulation of 1-phase transformer with O.C and S.C tests.	3
2	Obtain performance characteristics of DC shunt motor & 3-phase induction motor	3
3	Control speed of dc shunt motor using Armature voltage and Field flux control methods	2
4	Find out the characteristics of PN junction diode & transistor	4
5	Determine the ripple factor of half wave & full wave rectifiers	4



Syllabus:

Section A: Electrical Engineering:

The following experiments are required to be conducted as compulsory experiments:

1. Swinburne's test on D.C. Shunt machine (predetermination of efficiency of a given D.C. shunt machine working as motor and generator).
2. OC and SC tests on single phase transformer (predetermination of efficiency and regulation at given power factors).
3. Brake test on 3-phase Induction motor (determination of performance characteristics)
4. Regulation of alternator by Synchronous impedance method.
5. Speed control of D.C. Shunt motor by a) Armature Voltage control b) Field flux control method
6. Brake test on D.C. Shunt Motor

Section B: Electronics Engineering:

The following experiments are required to be conducted as compulsory experiments:

1. PN junction diode characteristics a) Forward bias b) Reverse bias (Cut in voltage and resistance calculations)
2. Transistor CE characteristics (input and output)
3. Half wave rectifier with and without filters.
4. Full wave rectifier with and without filters.
5. CE amplifiers. 6. OP- amp applications (inverting, non inverting, integrator and differentiator)