

**III Year – I SEMESTER**

<b>T</b>	<b>P</b>	<b>C</b>
<b>0</b>	<b>3</b>	<b>2</b>

**ELECTRICAL MACHINES – II LAB****Learning objectives:**

- To predetermine the efficiency and regulation of transformers and assess their performance.
- To predetermine the regulation of three-phase alternator by various methods, find  $X_d / X_q$  ratio of alternator and assess the performance of three-phase synchronous motor.
- To perform various tests on Induction motor for assessing its performance.

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

1. O.C. & S.C. Tests on Single phase Transformer
2. Sumpner's test on single phase transformers
3. Scott connection of transformers
4. No-load & Blocked rotor tests on three phase Induction motor
5. Regulation of a three –phase alternator by synchronous impedance & M.M.F. Methods.
6. V and Inverted V curves of a three—phase synchronous motor.
7. Equivalent Circuit of a single phase induction motor
8. Determination of  $X_d$  and  $X_q$  of a salient pole synchronous machine

**In addition to the above eight experiments, at least any two of the following experiments are required to be conducted from the following list:**

1. Parallel operation of Single phase Transformers
2. Separation of core losses of a single phase transformer
3. Brake test on three phase Induction Motor
4. Regulation of three-phase alternator by Potier triangle method.
5. Efficiency of a three–phase alternator

6. Heat run test on a bank of 3 Nos. of single phase Delta connected transformers.
7. Measurement of sequence impedance of a three-phase alternator.

**Learning outcomes:**

- Able to predetermine the efficiency and regulation of transformers and assess their performance.
- Able to predetermine the regulation of three-phase alternator by various methods, find  $X_d / X_q$  ratio of alternator and assess the performance of three-phase synchronous motor.
- Able to perform various tests on Induction motor for assessing its performance.