

III Year I Semester

15AEE22-ELECTRICAL MACHINES LAB – II

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Course Objectives:

- To prepare the students to have a basic knowledge of transformers, to prepare the students to have a basic knowledge of induction motors.
- To prepare the students to have a basic knowledge of alternators, to design a practical transformer, to know about an induction generator.

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 a Pair of Single Phase Transformers
3. Scott Connection of two single phase 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 3 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 Two 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 Z.P.F. and A.S.A Methods

Course Outcomes:

- Have knowledge of various parts of a electrical machine.
- Able to conduct open circuit/ short circuit test on transformer
- Ability to conduct experiments on AC Machines to find the characteristics.
- Able to calculate torque and speed of given Machine.
- Ability to perform test on synchronous Machine to find Direct and quadrature axis reactance.
- Ability to conduct No Load and Full load tests on transformers/Induction Motor

TEXT BOOKS:

1. Electrical Machines Lab manual with MATLAB Programs by Dr. D. K. Chaturvedi, University Science Press.

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BOS-Chairman