

Course Outcome:	
At the end of the course student will be able to:	
CO.EEC.257.1	impart the knowledge of magnetic circuit and EMEC devices.
CO.EEC.257.2	understand the concept of DC machines.
CO.EEC.257.3	impart the knowledge of single phase transformer.
CO.EEC.257.4	impart the knowledge of three phase transformer

List of Experiments:

- To study the construction and operation of various types of starters available in the laboratory for starting DC motors.
- To study the magnetization characteristics of a separately excited D.C generator at different speeds and to find the critical field resistance at those speeds.
- To perform the load test on D.C. shunt motor and to draw the performance characteristics.
- To control the speed of a DC shunt motor by using
 - Field control
 - Armature/Rheostatic control
 - Supply voltage control
- To perform the Swinburne's test on a D.C. shunt Machine and to pre determine its efficiency when running as a motor as well as generator and also draw the characteristic curves.
- To conduct load test on DC shunt generator and obtain its internal and external characteristics.
- To perform O.C./S.C. tests on a single phase transformer and determine equivalent circuit parameters.
- To perform Sumpner's (back to back) test on two identical single phase transformers and draw the load efficiency graphs.
- To perform load test on a single-phase transformer and determine the following:
 - Voltage ratio of transformer.
 - Efficiency at different loads.
 - Voltage regulation of the transformer.
- To perform Polarity test on two single-phase transformers, connect them in parallel and study the load sharing between them.
- To convert a three-phase supply into two phase supply using Scott-connection between two single phase transformers with suitable tapping. Verify the following:
 - Turn ratio between windings of main and teaser transformers.
 - Voltage of both phases of two phase supply is equal.
 - Whether the phase angle between them is 90°.
- To connect three-phase transformers in Y- Y / Y - Δ , Δ - Δ / Δ - Y connections and study line /phase voltage relationships.

NOTE:- At least 10 experiments must be performed by the students, they may be asked to do more.

At least 5 experiments must be from the given list.

Sr. No.	Title of Lab Experiments	CO
1.	To study the construction and operation of various types of starters available in the laboratory for starting DC motors.	CO1, CO2
2.	To study the magnetization characteristics of a separately excited D.C generator at different speeds and to find the critical field resistance at those speeds.	CO1, CO2
3	To perform the load test on D.C. shunt motor and to draw the performance characteristics.	
4.	To control the speed of a DC shunt motor by using <ol style="list-style-type: none"> Field control Armature/Rheostatic control Supply voltage control 	CO1, CO2

Electrical and Electronics Engineering Department

5.	To perform the Swinburne's test on a D.C. shunt Machine and to pre determine its efficiency when running as a motor as well as generator and also draw the characteristic curves.	CO1, CO2
6.	To conduct load test on DC shunt generator and obtain its internal and external characteristics.	CO1, CO2
7.	To perform O.C./S.C. tests on a single phase transformer and determine equivalent circuit parameters.	CO1, CO3
8.	To perform Sumpner's (back to back) test on two identical single phase transformers and draw the load efficiency graphs.	CO1, CO3
9.	To perform load test on a single-phase transformer and determine the following: (a) Voltage ratio of transformer. (b) Efficiency at different loads. (c) Voltage regulation of the transformer.	CO1, CO3
10	To perform Polarity test on two single-phase transformers, connect them in parallel and study the load sharing between them.	CO1,CO3
Extra 1	To convert a three-phase supply into two phase supply using Scott-connection between two single phase transformers with suitable tapping. Verify the following: (a) Turn ratio between windings of main and teaser transformers. (b) Voltage of both phases of two phase supply is equal. (c) Whether the phase angle between them is 90°.	CO1, CO4
Extra 2	To connect three-phase transformers in Y- Y / Y - Δ, Δ-Δ/Δ- Y connections and study line /phase voltage relationships.	CO1, CO4