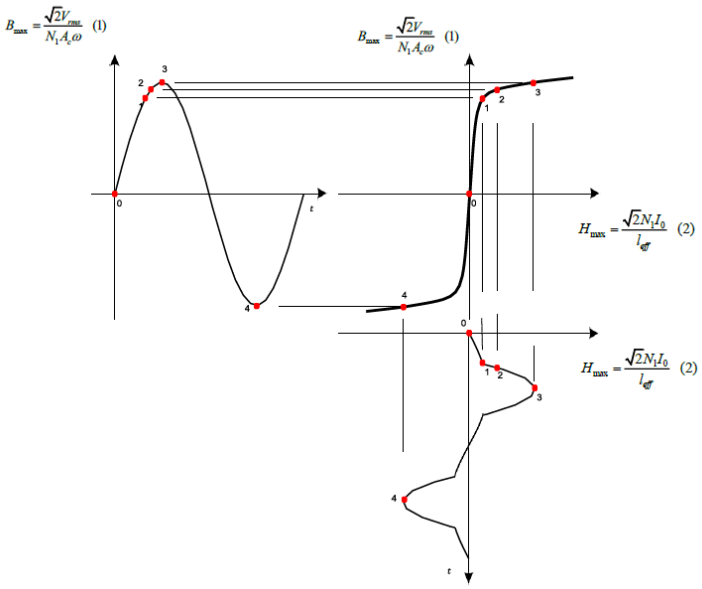
ECE 385 project description

Part 1:

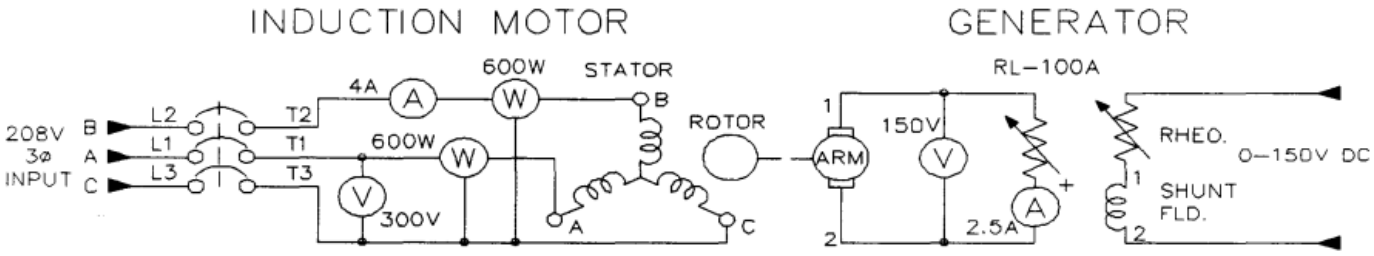
Demonstrate core magnetization characteristics in a single-phase non-linear transformer (Available as "non-linear transformer" in Simulink library). Plot the hysteresis loop and distorted excitation current.

> Hint: Relate the no-load test procedure of Single-Phase transformer- lab. Replace the parameters of Simulink transformer with transformer parameters, if required.



Part 2:

Implement a model in Simulink to demonstrate the running characteristics of a Squirrel cage induction motor. Use the 5 HP rated preset model of Asynchronous Machine in Simulink library and calculate the full-load torque rating of the motor. Use the machine to drive a DC generator of appropriate rating (Compatible RPM and power rating) which supplies variable DC load. Plot at least 6 operating points of torque -speed characteristics curve under different loading conditions. Illustrate the change in load torque,



slip and power factor under respective loading conditions.

ECE 385

Instructions:

- Each group should submit a project report consisting of deliverables for both part 1 and part 2 of the project description.
- Part 1 and part 2 are assigned the weightage of 40% and 60% of overall points, respectively.
- The lab groups of ECE 385L will be retained for the group projects of ECE 385.