

SEMESTER <i>Sixth</i>	DEPARTMENT <i>Power Engineering</i>	COURSE TITLE <i>AC Machines Lab</i>
COURSE CODE <i>EP602</i>	HOURS: 3 UNITS: 1	COURSE SPECIFICATIONS <i>Practical Content</i>
<p>1. Knows the Construction and Operation of 3-Phase Squirrel-Cage and Slip-Ring Motors.</p> <ul style="list-style-type: none"> ➤ To be familiar with the safety rules in lab. ➤ To be able to strip-down a three-phase motor ➤ Identify its components, inspect and clean. ➤ Assemble the 3-phase motor. 		
<p>2. Examining the Relationship between Torque and Speed.</p> <ul style="list-style-type: none"> ➤ Rewind stator windings of induction motor. ➤ Rewind 3- phase motor squirrel cage. ➤ Rewind a 3-phase slip motor. 		
<p>3. Conduct Tests to Determine the Equivalent Circuit Constants and Efficiency.</p> <ul style="list-style-type: none"> ➤ 3-ph induction motor no load and blocked rotor tests. ➤ The load test (torque / speed, efficiency / load current, power factor / load current). 		
<p>4. Conduct tests of different methods of starting 3-phase motors.</p> <ul style="list-style-type: none"> ➤ Apply the starting method by using external resistors with the rotor and ➤ Apply starting for a 3-phase induction motor by star-delta method. ➤ Starting of 3-phase induction motor by autotransformer method. 		
<p>5. Understands the Construction of Operation for Synchronous Generators. Ability to Control the Generated Voltage and Frequency. Understanding the Parallel Operation.</p> <ul style="list-style-type: none"> ➤ Strip down, clean and assemble a synchronous generator. ➤ Carry out Synchronous generator load test. ➤ Parallel operation of synchronous generator to infinite bus. 		
<p>6. Understands the Construction and Theory of Operation of Single-Phase Induction Motors and Stepper Motors.</p> <ul style="list-style-type: none"> ➤ Strip-down and collect a single-phase induction motor. 		

- Be familiar with internal construction parts of them.
- Be able to define types of single phase induction motors.
- Apply different starting methods for starting single-phase motors.
- Be able to strip-down and assemble a stepper motors.

References:

1- *Elements of power system*, by W. Stevenson.

2- *Power System Analysis*, John Grainger and William D. Stevenson JR. 1994