

**MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE  
(UGC - AUTONOMOUS)**

**M. Tech I Year - I SEMESTER**

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**ELECTRICAL MACHINES AND POWER SYSTEMS LAB  
(14EPS11P01)**

**Course Objectives:-**

1. To paraphrase the operational characteristics of synchronous machine
2. To categorize losses in induction motor
3. To analyze various faults in power system
4. To interpret the operating characteristics of various protective relays

**Course Outcomes:-**

After Completion of this course students will be able to

1. Analyze the synchronous machine characteristics for power system analysis
2. Analyze the no-load loss of a poly-phase induction motor
3. Realize the effect of fault during abnormal conditions
4. Analyze the performance of salient-pole type synchronous machine
5. Plot the characteristics of various protective relays

**List of Experiments:**

1. Determination of Sub transient Reactance of a Salient Pole Machine
2. Determination of Sequence Impedances of a Cylindrical Rotor Synchronous Machine
3. Fault Analysis-I
  - i) LG Fault
  - ii) LL Fault
4. Fault Analysis-II
  - i) LLG Fault
  - ii) LLLG Fault
5. Equivalent circuit of a three-winding transformer
6. Separation of No Load losses of a Three Phase Squirrel Cage Induction Motor
7. Power Angle Characteristics of a Salient Pole Synchronous Machine
8. Capability curve of a Synchronous Generator
9. Conversion of 3-phase to 2-phase through Scott Connection of transformer
10. Characteristics of IDMT Over Current Relay
11. Characteristics of Static Negative Sequence Relay
12. Characteristics of Over Voltage Relay
13. Characteristics of Percentage Biased Differential Relay