

SEMESTER	DEPARTMENT	COURSE TITLE
<i>Eighth</i>	<i>Power Engineering</i>	<i>Protection Systems Lab</i>
COURSE CODE	HOURS: 3	COURSE SPECIFICATIONS
<i>EP806</i>	UNITS: 1	<i>Practical Content</i>
<p>1. Know the Concept of Protection Zones.</p> <ul style="list-style-type: none"> ➤ Measure zero sequence current for three- phase system by using three transformers during earth fault. 		
<p>2. Know the Transformer Protection Against Different Types of Faults.</p> <ul style="list-style-type: none"> ➤ Using differential protection for protecting power transformer against over-current. ➤ Testing the relays using special testing instrument. 		
<p>3. Demonstrate Motor Protection Against Different Types of Faults.</p> <ul style="list-style-type: none"> ➤ Study the function, and apply the diagram of directional relay system of earth leakage protection. ➤ Study the system of earth leakage protection relays (with current circuit breakers and voltage circuit breakers) and apply its diagram. 		
<p>4. Know Feeders and Transmission Lines Protection Against Different Types of Faults.</p> <ul style="list-style-type: none"> ➤ Apply the diagram of line protection against earth fault using instantaneous relay. ➤ Apply and test the diagram of complete protection for transmission line by using two reverse relays and instantaneous relay. ➤ Apply and test the diagram of transmission line protection against over-current in one phase. ➤ Examine the usage of relays for transmission line protection against earth leakage when the neutral point connected to Paterson coil. 		
<p>5. Understand the Bus-Bar Protection Against Ground Fault.</p> <ul style="list-style-type: none"> ➤ Connect and test the protection system against over current and earth leakage protection in a sub-line. ➤ Inspect and connect earth fault protection by using instantaneous relay and timer. 		
<p>6. Understand the Generator Protection Against Different Types of Faults.</p> <ul style="list-style-type: none"> ➤ Verify different generator protection systems. 		

References:

- 1- *Switchgear and Protection*. By SUNI S-RGO.
- 2- *Principle of Power*. By V.K Mehata.
- 3- *Protective Relays* W.H.
- 4- *Applied protective relaying*. Westinghouse Electric Corporation Relay – Instrument Division, 1982.
5. *Modern Control Systems*, R. C. Dorf, Eddison Wesley, 1990.