SEMESTER	***DEPARTMENT***	***COURSE TITLE***
Eighth	*Power Engineering*	*Protection Systems*
COURSE CODE	***HOURS:*** 3	***COURSE SPECIFICATIONS***
EP805	***UNITS:*** 3	*Theoretical Content*

1. Know the Concept of Protection Zones.

- Defines protection zones, primary protection, and secondary protection.

2. Know the Transformer Protection Against Different Types of Faults.

Demonstrate:

- Protection of transformer avoiding magnetizing inrush current.
- Differential protection for transformer.
- Incorrect, Y-Delta transformer protection.
- Protection of shunt reactors.

3. Demonstrate Motor Protection Against Different Types of Faults.

Demonstrates different types of motor protection.

- Ground fault protection.
- Phase fault protection.
- Locked rotor protection.
- Overload protection.
- Low voltage protection.
- Phase rotation protection.
- Loss of excitation protection.

4. Know Feeders and Transmission Lines Protection Against Different Types of Faults.

Explain different types of feeders and transmission lines protection against different types of faults in:

- Transmission circuit protection.
- Sub transmission circuit protection.
- Ground fault protection.

5. Understand the Bus-Bar Protection Against Ground Fault.

Define different types of bus-bar protection.

- Defines and draws diagram for protecting a bus bar that includes transformer bank.
- Defines and draws diagram for differential protection of bus bar.
- Demonstrates over-current differential relaying diagram.
- Defines and draws diagram directional compression relaying.
- Demonstrates ground fault protection for bus bar.

6. Understand the Generator Protection Against Different Types of Faults.

Define and draws diagrams of different types of generator's protection.

- Ground fault protection.
- Overload protection.
- Over speed protection.
- Loss of field
- Generator protection at reduced frequency.
- Generator unbalances protection.

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.