



SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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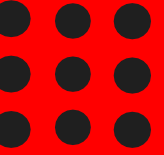
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE NAME : 19EE605 – PROTECTION & SWITCH GEAR

III YEAR /VI SEMESTER EEE

Unit 1 – Protection Schemes

Topic-Introduction to Protection Scheme





INTRODUCTION TO POWER SYTEM

- Power system is all about generation and distributing electrical power to users such as domestic and commercial.
- Generally the electrical power is transmitted through conductors with the support of towers.
- Involves huge capital cost at the time of installation.





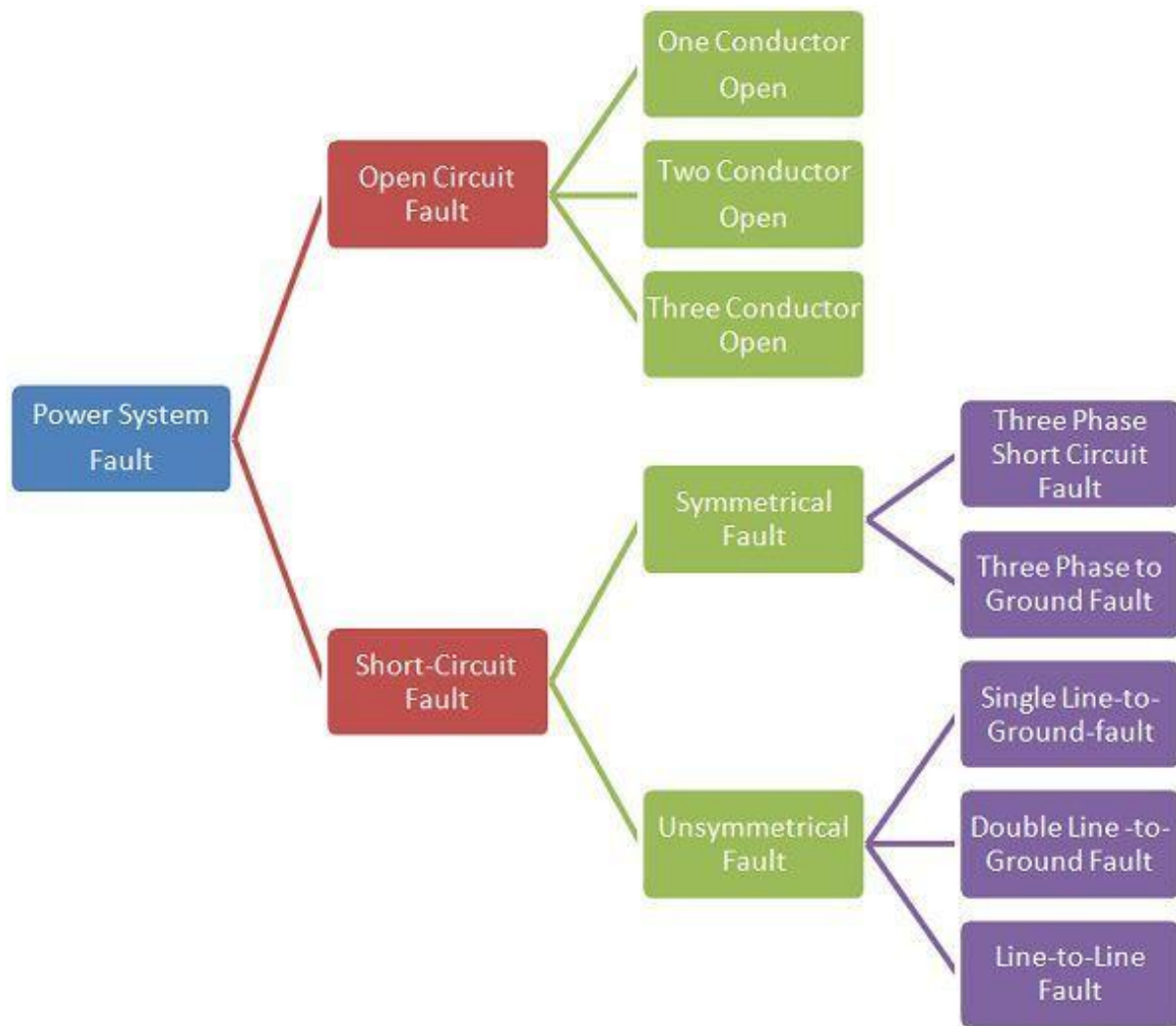
FAULT IN ELECTRICAL POWER SYSTEM

1. The abnormalities in an electrical system that causes unwanted current is called an electrical fault. The current in such a condition is called fault current.
2. It can create a short circuit, open circuit, over current, Under voltage, overvoltage, reverse power and unbalance in the phases.





TYPES OF FAULTS



- Assume yourself as a user and share the empathy about the faults
- When it will happen?





PRINCIPLE OF POWER SYSTEM PROTECTION

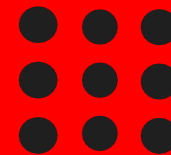
- The objective of a protection scheme is to keep the power system stable by isolating only the components that are under fault, whilst leaving as much of the network as possible in operation. The devices that are used to protect the power systems from faults are called **protection devices**.





FUNCTIONS OF PROTECTIVE RELAYING

- To disconnect the abnormally operating part so as to avoid the damage within effective operation of the rest of the system.
- To prevent the subsequent faults arising due to the primary fault.
- To disconnect the faulty part as quickly as possible so as to minimize the damage to the faulty part itself.
- To improve system performance, reliability and service continuity.





PROTECTIVE SYSTEM

A protective system includes circuit breakers, transducers (CTs and VTs), and protective relays to isolate the faulty section of the power system from the healthy sections.





CIRCUIT BREAKER

- A circuit breaker can disconnect the faulty element of the system when it is called upon to do so by the protective relay.





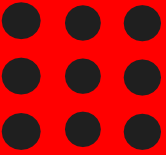
RELAY

- The function of a protective relay is to detect and locate a fault and issue a command to the circuit breaker to disconnect the faulty element. It is a device which senses abnormal conditions on a power system by constantly monitoring electrical quantities of the systems, which differ under normal and abnormal conditions.





ASSESSMENT 1



1. Which is not a unsymmetrical fault?

- a) Single line to ground fault
- b) Double line to ground fault
- c) Three phase to ground fault
- d) Line to line fault

2. The function of the protection system is to _____ the faulty line from the machine.

3. List the components in protection system.





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THANK YOU