

Syllabus

Subjects for Exam

1. Distributed Energy Resources

- Types of DER;
- Distributed generation characteristics.

2. Relay protection of distribution networks

- General principle, protected zone;
- Types of protective relaying schemes;
- Back-up protection;
- Current and voltage transformers;
- Line protection:
 - overcurrent protection,
 - directional overcurrent protection,
 - differential protection,
 - distance protection;
- Transformer protection:
 - transformer abnormal conditions,
 - differential protection scheme;
- Generator protection:
 - differential protection,
 - ground fault protection,
 - protection against unbalanced external faults;
- Autoreclosing: general idea;
- Breaker failure protection.

3. Interconnection of distributed generation

- Main requirements;
- Autoreclosing requirements;
- Method of islanding detection;
- Protection issues.

4. Wind turbine generation

- Type of rotating machines used;
- Methods of interconnection with distribution networks;
- DFIG-fed Induction Generators:
 - General scheme,
 - Interconnection principle and control.