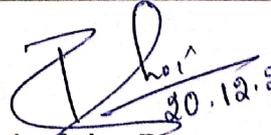


**ACADEMIC SESSION: 2025-26**

<b>Discipline:</b> Electrical engineering	<b>Semester:</b> 4 <sup>th</sup>	<b>Name of the Teaching Faculty:</b> Sri Chandramani Mahapatra (Lect. Stage II)
Subject: SWITCH GEAR AND PROTECTIVE DEVICES	No. of days / week class allotted	Semester From date: 22/12/2025 to 18/04/2026  Nos. of Weeks per semester: 15
<b>Week</b>	<b>Class Day</b>	<b>Theory / Topic</b>
1	Day 1	Introduction to Switchgear, essential features
	Day 2	Switchgear equipment
	Day 3	Bus-bar arrangement
2	Day 1	Switchgear accommodation
	Day 2	Short circuit – causes and effects
	Day 3	Faults in a power system
3	Day 1	Symmetrical faults in 3-phase systems
	Day 2	Limitation of fault current
	Day 3	Percentage reactance
4	Day 1	Percentage reactance and base kVA
	Day 2	Short-circuit kVA
	Day 3	Reactor control of short-circuit currents
5	Day 1	Location of reactors
	Day 2	Steps for symmetrical fault calculations
	Day 3	Numerical problems on symmetrical faults
6	Day 1	Fuse – desirable characteristics
	Day 2	Fuse element materials
	Day 3	Types of fuses and fuse terminology
7	Day 1	Low-voltage and high-voltage fuses
	Day 2	Current carrying capacity of fuse element
	Day 3	Difference between fuse and circuit breaker

8	Day 1	Circuit breaker – definition and principle
	Day 2	Arc phenomenon and arc extinction
	Day 3	Methods of arc extinction
9	Day 1	Arc voltage, restriking voltage, recovery voltage
	Day 2	Classification of circuit breakers
	Day 3	Oil circuit breakers – types
10	Day 1	Plain break and arc control oil circuit breakers
	Day 2	Low oil circuit breaker
	Day 3	Maintenance of oil circuit breakers
11	Day 1	Air-blast circuit breaker
	Day 2	SF6 circuit breaker
	Day 3	Vacuum circuit breaker
12	Day 1	Switchgear components
	Day 2	Problems of circuit interruption
	Day 3	Resistance switching and circuit breaker ratings
13	Day 1	Protective relay – definition & requirements
	Day 2	Relay operation (EM attraction & induction type)
	Day 3	Relay terms: pick-up current, settings, PSM, TSM
14	Day 1	Classification of relays & over-current relays
	Day 2	Directional and differential relays
	Day 3	Protection of alternator, transformer, bus-bar & feeder
15	Day 1	Transmission line & pilot wire protection
	Day 2	Over-voltage, lightning & lightning arresters
	Day 3	Static relay, IDMT relay & revision
 Chandramani Mahapatra Lect. Stage-II (Electrical Engg.)		 Head of the Department Electrical Engg., GP Sonapur 20.12.25