



Orissa School of Mining Engineering Keonjhar

Department of Electrical Engineering

Lesson Plan (

VISION OF OUR DEPARTMENT:

To provide excellent knowledge and enrich the problem solving skills of the students in the field of Electrical Engineering with a focus to prepare the students for industry need, recognized as innovative leader, responsible citizen and improve the environment.

MISSION OF OUR DEPARTMENT:

1. Prepare the students with strong fundamental concepts, analytical capability, and problem solving skills. Create an ambience of education through faculty training, self-learning, sound academic practices and research endeavors.
2. Provide opportunities to promote organizational and leadership skills in students through various extra- curricular and co-curricular events.
3. To make the students as far as possible industry ready to enhance their employability in the industries.
4. To improve department industry collaboration and to maintain effective operational environment.

Program Educational Objectives

The Program Educational Objectives (PEOs) of the Electrical Engineering Department are given below:

1. PEO1- To engage in Design of Systems, tools and applications in the field of electrical Engineering and allied engineering Industries.
2. PEO2- To apply the knowledge of electrical engineering to solve problems of social relevance and/or pursue higher education
3. PEO3- To work effectively as individuals and as team members in multidisciplinary projects by exhibit leadership capability, triggering social and economic commitment and inculcate community services and protect environment
4. PEO4- Engage in lifelong learning, career enhancement and adapt to changing professional and societal needs.



Orissa School of Mining Engineering

Keonjhar

Department of Electrical Engineering

LESSON PLAN

Subject : SWITCH GEAR AND PROTECTION DEVICES			
Discipline: Electrical Engineering		Name of the Faculty: ADITYA PATTNAIK	
Course Code:	TH-2	Semester:	6TH
Total Periods:	75	Examination:	2023(SUMMER)
Theory Periods:	5P/W	Class Test:	20
Maximum Marks:	100	End Semester Examination:	80

MONTH	CLASS DAY	THEORY TOPICS TO BE COVERED	REMARK
FEBRUARY	14/02/23	1.1 Essential Features of switchgear	
	17/02/23	1.2 Switchgear Equipment	
	17/02/23	1.3 Bus-Bar Arrangement	
	20/02/23	1.4 Switchgear Accommodation	
	21/02/23	1.5 Short Circuit.	
	24/02/23	1.6 Faults in a power system	
	24/02/23	2.1 Symmetrical faults on 3-phase system	
	25/02/23	2.2 Limitation of fault current	
	27/02/23	2.3 Percentage Reactance	
	28/02/23	MONTHLY TEST I	
MARCH	03/03/23	2.4 Percentage Reactance and Base KVA	
	03/03/23	2.5 Short – circuit KVA	
	04/03/23	2.6 Reactor control of short circuit currents	
	06/03/23	2.7 Location of reactors.	
	07/03/23	2.8 Steps for symmetrical Fault calculations	
	10/03/23	2.9 Solve numerical problems on symmetrical fault	
	10/03/23	Desirable characteristics of fuse element. Fuse Element materials	
	11/03/23	Types of Fuses and important terms used for fuses. Low and High voltage fuses	
	13/03/23	Current carrying capacity of fuse element. Difference Between a Fuse and Circuit Breaker	
	14/03/23	CUIT BREAKERS 4.1 Definition and principle of Circuit Breaker. Arc phenomenon and principle of Arc Extinction. Methods of Arc Extinction.	
	17/03/23	Definitions of Arc voltage, Re-striking voltage and Recovery voltage. Classification of circuit Breakers. Oil circuit Breaker and its classification	
	17/03/23	Plain brake oil circuit breaker. Arc control oil circuit breaker	
	18/03/23	Low oil circuit breaker. Maintenance of oil circuit breaker	
	20/03/23	4.11 Air-Blast circuit breaker and its classification	
	21/03/23	4.12 Sulphur Hexa-fluoride (SF ₆) circuit breaker	
	24/03/23	4.13 Vacuum circuit breakers.	

	25/03/23	Problems of circuit interruption	
	27/03/23	4.15 Problems of circuit interruption. 4.16 Resistance switching.	
	28/03/23	4.17 Circuit Breaker Rating.	
	31/03/23	5.1 Definition of Protective Relay. 5.2 Fundamental requirement of protective relay	
	31/03/23	MONTHLY TEST 2	
APRIL	01/04/23	5.3 Basic Relay operation 5.3.1. Electromagnetic Attraction type 5.3.2. Induction type	
	03/04/23	Definition of following important terms 5.5 Definition of following important terms. 5.5.1. Pick-up current. 5.5.2. Current setting.	
	04/04/23	5.5.3. Plug setting Multiplier 5.5.4. Time setting Multiplier	
	08/04/23	5.6 Classification of functional relays	
	10/04/23	5.7 Induction type over current relay (Non-directional)	
	11/04/23	5.8 Induction type directional power relay.	
	15/04/23	5.9 Induction type directional over current relay	
	17/04/23	5.10 Differential relay 5.10.1. Current differential relay	
	18/04/23	5.10.2. Voltage balance differential relay	
	21/04/23	5.11 Types of protection	
	21/04/23	6.1 Protection of alternator. 6.2 Differential protection of alternators.	
	22/04/23	6.3 Balanced earth fault protection	
	24/04/23	6.4 Protection systems for transformer 6.5 Buchholz relay	
	25/04/23	6.6 Protection of Bus bar. 6.7 Protection of Transmission line	
	28/04/23	6.8 Different pilot wire protection (Merz-price voltage Balance system)	
	28/04/23	6.9 Explain protection of feeder by over current and earth fault relay	
	29/04/23	MONTHLY TEST 3	
MAY	01/05/23	7.1. Voltage surge and causes of over voltage.	
	02/05/23	7.2. Internal cause of over voltage.	
	06/05/23	7.3. External cause of over voltage (lighting)	

08/05/23	7.4 Mechanism of lightning Discharge.	
09/05/23	7.5. Types of lightning strokes.	
12/05/23	7.6. Harmful effect of lightning	
12/05/23	7.7. Lightning arresters and Type of lightning Arresters.	
13/05/23	7.7.1. Rod-gap lightning arrester.	
15/05/23	7.7.2. Horn-gap arrester.	
16/05/23	7.7.3. Valve type arrester.	
20/05/23	7.8. Surge Absorber 8. 1 Advantage of static relay.	
22/05/23	8. 2 Instantaneous over current relay. 8. 3 Principle of IDMT relay.	
23/05/23	MONTHLY TEST 4	
TOTAL CLASS		61

ER. Aditya pattnaik

EW
13/2/23
H.O.D
ELECTRICAL
ENGINEERING
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LP Roy
PRINCIPAL
OSME
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13/2/23