

GOVERNMENT COED POLYTECHNIC, RAIPUR

DEPARTMENT OF ELECTRICAL ENGINEERING

LESSON PLAN

Session:-

Semester:- 5th

Session start date as per University Calendar:-

Course Name:- **Installation and Maintenance of Electrical Equipment**

Course Code:- **2024574(024)**

Name of Subject teacher:-

Unit-1.0 Installation of Electrical equipment and machines				
Class Room Instruction (CI)	No. of Periods	Laboratory Instruction (LI)	No. of Periods	Remark
1.1 Types of heavy electrical equipment	1	1.1 Identify the different types of installation kits, tools, accessories and equipment. 1.2 Unloading electrical equipment at site, Inspection of electrical equipment at site. 1.3 Installation procedures of small and large static equipment.	2	
1.2 Unloading electrical equipment at site, Inspection of electrical equipment at site.	2			
1.3 Installation procedures of small and large static equipment.	1	1.4 Installation procedures of small and large rotating type machine 1.5 Installation of pole mounted transformer	2	
1.4 Installation procedures of small and large rotating type machine	2			
1.5 Installation of pole mounted transformer	2			
Number of periods planned (CI + LI) : 12				
Number of periods actually taken :				

Unit-2.0 Commissioning of Electrical equipment and Machines

Class Room Instruction (CI)	No. of Periods	Laboratory Instruction (LI)	No. of Periods	Remark
2.1 Commissioning procedure to be adopted for commissioning the static equipment in respect of: Mechanical installation and alignment.	2	2.1 Identify the different types of commissioning tools,accessories and instruments.	2	
2.2 Commissioning procedure to be adopted for commissioning the static equipment in respect of: Electrical tests and safety precautions to be adopted before energization	2	2.2 Make a report for commissioning of given static machine.		
2.3 Commissioning procedure to be adopted for commissioning the rotating machine in respect of: Mechanical installation and alignment.	2			
2.4 Commissioning procedure to be adopted for commissioning the rotating machine in respect of: Electrical tests and safety precautions to be adopted before energization.	1	2.3 Make a report for commissioning of the given rotating machine	2	
2.5 Test report on commissioning and test certificate	1	2.4 Make a report for commissioning of pole mounted transformer.		

Number of periods planned (CI + LI) : 12

Number of periods actually taken :

Unit-3.0 Earthing systems:				
Class Room Instruction (CI)	No. of Periods	Laboratory Instruction (LI)	No. of Periods	Remark
3.1 Necessity of earthing.	1	3.1 Prepare drawing of plate/pipe earthing.	2	
3.2 Different methods of earthing	1			
3.3 Permissible earth resistance value for different electrical installations.	1			
3.4 Factors affecting the earth resistance	2			
3.5 Methods for Improvement of earth resistance.	2			
3.6 Measurement of earth resistance	1	3.2 Measure earth resistance of any Electrical	2	
		3.3 Measure earth resistance of a electrical substation		
Number of periods planned (CI + LI) : 12				
Number of periods actually taken :				

Unit-4.0 Maintenance of Electrical Machines and Installations				
Class Room Instruction (CI)	No. of Periods	Laboratory Instruction (LI)	No. of Periods	Remark
4.1 Reason of failure of electrical equipment and machines.	1	4.1 Perform insulation test of transformer oil.	1	
4.2 Methods for drying insulation, Measurement of internal temperature of winding, Need of vacuum impregnation	2	4.2 Prepare preventive maintenance report of distribution transformer installed in college premise		
4.3 Filtering process of insulating oil, Testing of insulating oil 4.4 Concepts of preventive maintenance,	2	4.3 Prepare the standard operating procedure for Shut down and Re energizing of a given electrical equipment to be taken up for preventive maintenance. 4.4 Prepare Preventive maintenance schedule of induction motors in industrial establishment.	1	
4.5 maintenance schedule for induction motor, DC Motor, transformer, power Distribution line, Circuit breaker and underground cable	2	4.5 Prepare maintenance schedule of 33/11 kV O.H. Lines. 4.6 Perform preventive maintenance check for LV Air circuit breaker and Vacuum circuit breaker.	1	
4.6 Tools for hot line maintenance	1	4.7 Measure insulation resistance of a given HV underground cable. 4.8 Identify measurement tools available for conditioning monitoring of electrical equipment.	1	
Number of periods planned (CI + LI) : 12				
Number of periods actually taken :				

Unit – 5 Trouble shooting and safety measures

Class Room Instruction (CI)	No. of Periods	Laboratory Instruction (LI)	No. of Periods	Remark
5.1 Normal performance of equipment 5.2 Causes of Electrical accidents	1	5.1 Identify the types of firefighting equipment used for electrical fires 5.2 Identify the tools and equipment used in installation and maintenance work	2	
5.3 Common faults in electrical equipment ; DC Machines, AC Machines, Transformers, Power cables and electrical Installation 5.4 Trouble shooting of internal and external faults; DC Machines, AC Machines, Transformers, Power cables and electrical Installations	3			
5.5 Instruments and accessories for trouble shooting. 5.6 Trouble shooting charts; electrical iron, ceiling fan, wall fan, washing machine, air cooler.	2	5.3 Prepare Trouble shooting chart of the given equipment 5.4 Undertake drill operation for using fire extinguishers for safety against fire. 5.5 Prepare a report on action to be taken when a person gets attached to a live part.	2	
5.7 Safety regulation and safety measures 5.8 Treatment of shock	1			
5.9 Different types of Fire extinguishers	1			

Number of periods planned (CI + LI) : 12

Number of periods actually taken :