GOVERNMENT CO.ED POLYTECHNIC RAIPUR (C.G)

DEPARTMENT OF ELECTRICAL ENGINEERING

LESSON PLAN

Session:

Session start as per university calendar:

Course Name: DC Machines and Transformers

Name of Subject Teacher:

Lecturer plan T+P = 4

Course code: 2024373(024)

Discipline: EE, EEE		Semester: 3RD			Class room Instruction Start Date:				
S.No.	**Chapter No.**	**Topics**	**Sub Topic to be covered under this unit**	**Total hours**	**No. of periods planned**	**Actual No of periods taken**	**Date of Class Conduction**	**Use of AV resources if any**	**Remarks if any**
1	1	*Basics of DC Machines*	Law of conservation of energy	15				NA	
			Electromagnetic Induction, Faraday's laws of electromagnetic induction, Lenz's Law -						
			Fleming's right and left hand rule DC machines construction,its parts						
			EMF equations : EMF, Back EMF						
2	2	*DC Generators*	Working and applications of different types of DC generator (DC series, and DC shunt)	15				NA	
			EMF equation						
			Performance of DC generators- -Efficiency, losses						
			Condition for building up EMF in self excited generator						
			Internal and external characteristics						
			Concept of Armature reaction and its effects						
3	3	*DC Motor*	Working and applications of different types of DC Motors (DC series and DC shunt	15				NA	
			EMF equation, Back EMF, Torque, speed, Output power, Losses and efficiency						
			Need of starters and types (two and three point only)						
			Compare the performance of Series and Shunt						
			Speed control methods of DC shunt and series motor						
4	4	*Single Phase Transformer*	Working Principle, construction, Types - Shell and Core	15				NA	
			EMF equation, Voltage and Current Transformation ratio ,						
			Losses: Iron loss- Hysteresis and eddy current , Copper loss						
			Parallel operation of two single phase transformers, Essential and desirable conditions						
			Efficiency, Condition for maximum efficiency and voltage regulation for lagging load only						
5	5	*Poly phase Transformer*	Formulation of three phase transformer by three single phase transformers	15				NA	
			3 phase Star-delta connection						
			Cooling methods of Power transformers						
			Parallel operation of two three phase transformers						
				75 Hours					