Lesson Plan

Name of the Faculty : **Guest Faculty**
Discipline : **Electrical Engineering**
Semester : **3rd Semester**
Subject : **ELECTRICAL ENGINEERING MATERIALS**

Lesson Plan Duration : **13-15 Week**

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
	1	Classification of materials into conducting, Semi conducting		
	2	Insulating materials . Atomic theory, Energy band theory. Classifications of materials on the basis of atomic structure and energy bands. Characteristics of materials.		
	3	of conducting material such as low resistivity and high resistivity materials.		
	4,5	Properties and applications of different low resistivity materials such as silver, Gold, copper (hard drawn, annealed copper), aluminum, steel, ACSR and its alloys like copper alloy (brass, bronze) etc.		
	6,7	Properties and applications of different high resistivity material such as carbon, tungsten, platinum, mercury, lead, and its alloys like Constantan or eureka, Brass phosphor bronze, nichrome, manganin, tin-lead alloy etc.		
	8	Semi-conductors Materials and their Applications,		
	9	Commonly used semiconducting material Germanium and silicon and their properties. Types of Semiconductor etc.		
	10	Characteristics of good Insulating material, Electrical, thermal, chemical, visual, mechanical		
	11	Physical properties of Insulating materials. Types of Insulating materials. classification of insulating material on the basis of temperature		
	12	Gaseous Insulating Materials: Properties and applications of air, nitrogen and sulphur hexafluoride (SF-6) gases		
	13	Liquid Insulating Materials: Properties and applications of Mineral and Insulating oil for transformers (mineral oil), switchgears etc, synthetic insulating liquid (Pyranol).		
	14	Solid Insulating Materials: Properties, types and applications of Plastics such as polyvinyl chloride (PVC), Polyethylene, polystyrene, epoxy resin, Bakelite, Melamines, silicon resins etc		
	15	Natural Insulating materials, properties and their applications: Mica, asbestos, ceramic materials (porcelain and steatite)		
	16	Glass, Cotton, Silk, Jute, Paper (dry and impregnated) Rubber, Bitumen		
	17	Teflon, Silicon Grease , Insulating varnishes for coating and impregnation, Enamels for winding wires, wood etc		
	18	Characteristics and types of magnetic material, Properties of soft magnet material like Iron silicon alloy		
	19,20	Nickel iron alloy, Mu metal, soft ferrites, grain orientation, Cold rolled grain oriented silicon steels (C.R.G.O) etc. and their applications		
	21,22	Properties of hard magnet material like Tungsten steel alloy, chromium steel, cobalt steel, Hard ferrites etc. and their applications.		
	23	Cobalt steel, Hard ferrites etc. and their applications.		

	24	Thermocouples, Bimetals, soldering, fuse, materials and their applications		
	25	in fabrications of electrical machines such as motors		
	26	ors, transformers etc		
	27	Class Test		
	28,29	Problems, Doubts & their solution		
	30	Revision of important topics		