

Lesson Plan

Name of Faculty : Smt. Suresh Rani
 Discipline : Electronics & Communication Engg
 Semester : 6th
 Subject : Microwave and Radar Engineering

Lesson Plan Duration : 15weeks

Work Load (Lecture /Practical) per week in hours: Lecture : 2 Practical:2

Week	Theory		Practical	
	Lecture Day	Topic (Including assignment/test)	Practical Day	Topic
1 st	1st	Introduction to Microwaves, Introduction to microwaves and its applications		Introduction
	2nd	Classification on the basis of its frequency bands (HF, VHF, UHF, L, S, C, X, KU, KA, mm, SUB, mm)		Introduction
2 nd	3rd	Multi cavity Klystron, Reflex Klystron		Familiarization of Microwave Components
	4th	Multi – cavity magnetron, Traveling wave tube		Familiarization of Microwave Components
3 rd	5th	Gunn diode, Impatt diode		Familiarization of Microwave Components
	6th	Revision		Familiarization of Microwave Components
4 th	7th	Rectangular and circular wave guide and their application, Modes of wave guide.		To measure electronics and mechanical tuning range of a reflex klystron
	8th	Propagation constant of a rectangular wave guide, Cut off wavelength		To measure electronics and mechanical tuning range of a reflex klystron
5 th	9th	Guide Wavelength and their relationship with free space wavelength (no mathematical derivation)		To Measure Klystron frequency by slotted section method
	10th	Impossibility of TEM mode in a wave guide,		To Measure Klystron frequency by slotted section method
6 th	11th	Constructional features, characteristics and application of tees.		Revision
	12th	Matched termination		Revision
7 th	13th	Twists, detector		To Measure the directivity of a directional Coupler
	14th	Mount, Slotted Section, Directional coupler		To Measure the directivity of a directional Coupler

8 th	15th	Fixed and variable attenuator, Duplexer		To measure the coupling factor of a directional coupler
	16th	Coaxial to wave guide adapter		To measure the coupling factor of a directional coupler
9 th	17th	Revision		To Study the properties of E Plane tee
	18th	Block diagram and working principles of microwave communication link.		To Study the properties of E Plane tee
10 th	19th	Troposcatter communication, horn antenna		To Study the properties of Magic tee
	20th	Introduction to radar, its various applications.		To Study the properties of Magic tee
11 th	21st	Radar range equation (no derivation) and its applications.		Revision
	22nd	Block diagram and operating principles of basic pulse radar.		Revision
12 th	23rd	Concepts of ambiguous range.		To measure VSWR of a given load
	24th	Radar area of cross-section and its dependence on frequency.		To measure VSWR of a given load
13th	25th	Block diagram and operating principles of CW (Doppler)		To study the radiation pattern of Horn antenna
	26th	FMCW radars and their applications		To study the radiation pattern of Horn antenna
14 th	27th	Block diagram and operating principle of MTI radar.		Revision & Viva
	28th	Block diagram and operating principle of MTI radar.		Revision & Viva
15 th	29th	Radar display PPI		Revision & Viva
	30th	Revision/Problem discussion		Revision & Viva

