

Lesson Plan

Name of the Faculty : Monika Sharma (Theory) **and** (Practical)
Discipline : Electronics and Communication Engineering
Semester : 8th
Subject : Microwave Engineering (ECE-404N) **and**
 Microwave Engineering Lab (ECE-410N)
Lesson Plan Duration : 15 weeks (from January, 2021 to April, 2021)

****Work Load (Lecture / Practical) per week (in hours)** : Lectures-03, Practical-03

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1 st	1 st	Introduction of microwave	1 st	To study the microwave components.
	2 nd	Microwave Resonator: Brief description of waveguides		
	3 rd	Coplanar waveguides, cavity resonators: rectangular		
2 nd	4 th	Cavity resonators: rectangular	2 nd	To study the microwave test bench setup.
	5 th	Cylindrical, Spherical and coaxial , excitation.		
	6 th	Coupling of cavities, Q factor		
3 rd	7 th	Measurement of frequency electronic method	3 rd	To study the characteristics of Reflex klystron tube and to determine its electronic tuning range.
	8 th	Measurement of impedance (using slotted section)		
	9 th	Measurement of power its methods		
4 th	10 th	Class Test-1	4 th	To determine the frequency and wavelength in a rectangular waveguide working in TE ₁₀ mode.
	11 th	Measurement of Attenuation		
	12 th	Measurement of dielectric constant		
5 th	13 th	Measurement of V.S. W. R.	5 th	First Internal Assessment Viva
	14 th	Measurement of insertion loss and permeability		
	15 th	Construction, characteristics, operating principle and typical applications of Klystron (two cavity)		
6 th	16 th	Multicavity Klystron	6 th	To determine the Standing

	17 th	Reflex Klystron		Wave Ratio and Reflection coefficient.
	18 th	Magnetron(Cylindrical magnetron)		
7 th	19 th	Description of II mode applications	7 th	To study the V-I characteristics of Gunn diode.
	20 th	Frequency pushing and pulling		
	21 st	Scattering matrix-its properties		
8 th	22 nd	Measurement of scattering coefficients.	8 th	To draw the polar pattern of and measure the gain of the waveguide Horn antenna.
	23 rd	Scattering matrices for common microwave systems		
	24 th	Waveguide tees- E-plane,		
9 th	25 th	H-plane, magic tee	9 th	To study the function of multi-hole directional coupler by measuring the following parameters.
	26 th	directional couplers		
	27 th	Problems		
10 th	28 th	Tuning screws and stubs,	10 th	Second Internal Assessment Viva
	29 th	Isolators		
	30 th	Class Test-2		
11 th	31 st	Circulator its constructional features and applications.	11 th	Study of Magic Tee.
	32 nd	Microwave filters		
	33 rd	Phase shifters		
12 th	34 th	Attenuators, Wave meter	12 th	To study the Isolators and its types.
	35 th	Transferred electron devices- GUNN EFFECT		
	36 th	Gunn effect		
13 th	37 th	Field Domain formation	13 th	To study the Attenuators (fixed and variable).
	38 th	Gunn diode structure		
	39 th	Impatt diode		
14 th	40 th	Trapatt diode	14 th	To study the Circulators.
	41 st	Baritt diode		
	42 nd	Parametric Amplifiers		
15 th	43 rd	Problems	15 th	Third Internal Assessment Viva
	44 th	Revision		
	45 th	Class Test-3		

(Monika Sharma)
Assistant Professor
ECE Department
ACE

