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, 2020 to April, 2020)

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

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1st	1st	Introduction of microwave	1st	To study the microwave components.
	2nd	Microwave Resonator: Brief description of waveguides		
	3rd	Coplanar waveguides, cavity resonators: rectangular		
2nd	4th	Cavity resonators: rectangular	2nd	To study the microwave test bench setup.
	5th	Cylindrical, Spherical and coaxial , excitation.		
	6th	Coupling of cavities, Q factor		
3rd	7th	Measurement of frequency electronic method	3rd	To study the characteristics of Reflex klystron tube and to determine its electronic tuning range.
	8th	Measurement of impedance (using slotted section)		
	9th	Measurement of power its methods		
4th	10th	Class Test-1	4th	To determine the frequency and wavelength in a rectangular waveguide working in TE10 mode.
	11th	Measurement of Attenuation		
	12th	Measurement of dielectric constant		
5th	13th	Measurement of V.S. W. R.	5th	First Internal Assessment Viva
	14th	Measurement of insertion loss and permeability		
	15th	Construction, characteristics, operating principle and typical applications of Klystron (two cavity)		
6th	16th	Multicavity Klystron	6th	To determine the Standing

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

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