Int. Marks	Ext. Marks	Total Marks		L	T	P	C
60	**40**	**100**		**-**	**-**	**3**	**2**

Pre-Requisites: Electromagnetic Waves and Transmission lines

List of Experiments:

Part – A (Any 7 Experiments)
1. Reflex Klystron Characteristics.
2. Gunn Diode Characteristics.
3. Attenuation Measurement.
4. Directional Coupler Characteristics.
5. Impedance and Frequency Measurement.
6. Scattering parameters of Circulator.
7. Scattering parameters of Magic Tee.
8. Radiation Pattern of Horn and Parabolic Antennas.
9. Synthesis of Microstip antennas (Rectangular Structure) Using HFSS.

Part – B (Any 5 Experiments) :
1. Characterization of LED.
2. Characterization of Laser Diode.
3. Intensity modulation of Laser output through an optical fiber.
4. Measurement of Data rate for Digital Optical link.
5. Measurement of NA.
6. Measurement of losses for Analog Optical link.

Equipment required:
1. Regulated Klystron Power Supply, Klystron mount
2. VSWR Meter
3. Micro Ammeter
4. Multi meter
5. CRO
6. GUNN Power Supply, Pin Modulator
7. Crystal Diode detector
8. Microwave components (Attenuation)
9. Frequency Meter
10. Slotted line carriage
11. Probe detector
12. Wave guide shorts
13. SS Tuner
14. Directional Coupler
15. E, H, Magic Tees
16. Circulators, Isolator
17. Matched Loads
18. Pyramidal Horn and Parabolic Antennas
19. Turntable for Antenna Measurements
20. HFSS Software
21. Fiber Optic Analog Trainer based LED
22. Fiber Optic Analog Trainer based laser
23. Fiber Optic Digital Trainer Fiber cables -(Plastic, glass)

Course Outcomes:

After successful completion of the course, the students can be able to:

S.No	Course Outcome	BTL
1.	Design test bench for measurement of various microwave parameters.	L6
2.	Analyze various characteristics of microwave junctions and design of microwave communication links.	L4
3.	Utilize a microwave test bench for analyzing various types of microwave measurements.	L4
4.	Measure various parameters such as VSWR, impedance, frequency and scattering parameters in microwave engineering.	L5
5.	Implementation of an optical communication link.	L6
6.	Analyze the characteristics of various optical communication devices.	L4

Correlation of COs with POs & PSOs:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO 1	2	2	3	-	-	-	-	-	-	-	2	2	3	3
CO 2	3	3	3	-	-	-	-	-	-	-	2	2	3	3
CO 3	3	3	3	-	-	-	-	-	-	-	2	2	3	3
CO 4	2	2	-	-	-	-	-	2	-	-	3	2	3	3
CO 5	-	3	3	-	2	-	-	2	-	-	2	2	3	3
CO 6	3	3	3	-	-	-	-	-	-	-	2	2	3	3