

## COURSE NAME: MICROWAVE & OPTICAL COMMUNICATIONS

Branch : ECE  
Year : IV B.Tech  
Semester : I Semester



Lab Instructor

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Lab Technician

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### Course Objectives:

1. To make students skilled in verify the characteristics of various microwave components using microwave test bench.
2. To an expose the newcomers to exciting area of optical communication.

### Course Outcomes:

1. The students are capable of applying microwave concepts or microwave components and test them.
2. The students are expected to design and analyze the optical fiber communications link.

### List of Experiments:

#### Part-A Microwave Communication

1. Reflex Klystron Characteristics.
2. Gunn Diode Characteristics.
3. Attenuation Measurement.
4. Directional-Coupler Characteristics.
5. VSWR Measurement.
6. Impedance Measurement.
7. Frequency and Wavelength measurements using slotted section.
8. Impedance Matching and Tuning
9. Scattering parameters of Magic Tee.
10. Radiation Pattern Measurement of horn Antennas

#### Part-B : Optical Communication

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 Numerical Aperture of the given fiber.
6. Measurement of losses for Analog Optical link.

### Equipment required for the Laboratory:

Regulated Klystron Power Supply, VSWR Meter, Milli /Micro Ammeters, Multi meters, Cathode Ray Oscilloscope's. GUNN Power Supply, Relevant Microwave components, Fiber Optic Analog Trainer based LED, Fiber Optic Analog Trainer based laser. Fiber Optic Digital Trainer. Fiber cables

**Note:-** All experiments to be conducted.