

Optical Fibre Communication Laboratory

Experimental Kit : Light Runner, optical communication technology trainer and setup kits

Software Used : OptiSim

List of Experiments

Calculation of additional loss due to patch cord.

Determine the connector loss into the fiber path.

Measurement of bending loss in the fiber. (Bend diameters of 30 mm/ 50 mm).

Dispersion in Optical Fiber

Measurement of distortion in the output at 660nm/1550 nm.

Measurement of delay between 660 nm and other C-band pulses,

Observation of various mode patterns by slightly bending the fiber at 660 nm.

Characterization of WDM Mux and Demux

Determine the insertion loss and cross talk at each port of Mux and Demux.

Characterization of FBG and Circulator

To explore FBG dependence on the direction of light launching to it.

To demonstrate Add/Drop filter using FBG/Circulator.

Characterization of Erbium Doped Fiber Amplifier

Measurement of gain at a given wavelength in the presence/ absence of other wavelengths.

Diode Laser Characteristics

Photodiode Characteristics

Study the linearity of the photo detector in photoconductive modes.

Study the linearity of the photo detector in photovoltaic modes.

Analog and Digital Fiber Optic Links

Analyze laser power for the signal transmission of analog source.

Time Division Multiplexing of Digital Signals

WDM Fiber Optic Link

Optical Amplification in a WDM Link

Measurement of exiting power at different wavelengths.

Calculation of exiting power at different fiber length.

Adding and Dropping of Channels in a WDM link

Designs add / drop multiplexer

Optical Time Domain Reflectometer

Analysing spatial resolution technique through OTDR

Differentiate the OTDR signal by varying the Wavelength and study the trace

Bit Error Rate and Eye Pattern Analysis

Analyze the effect on eye pattern in the presence of additional channels.

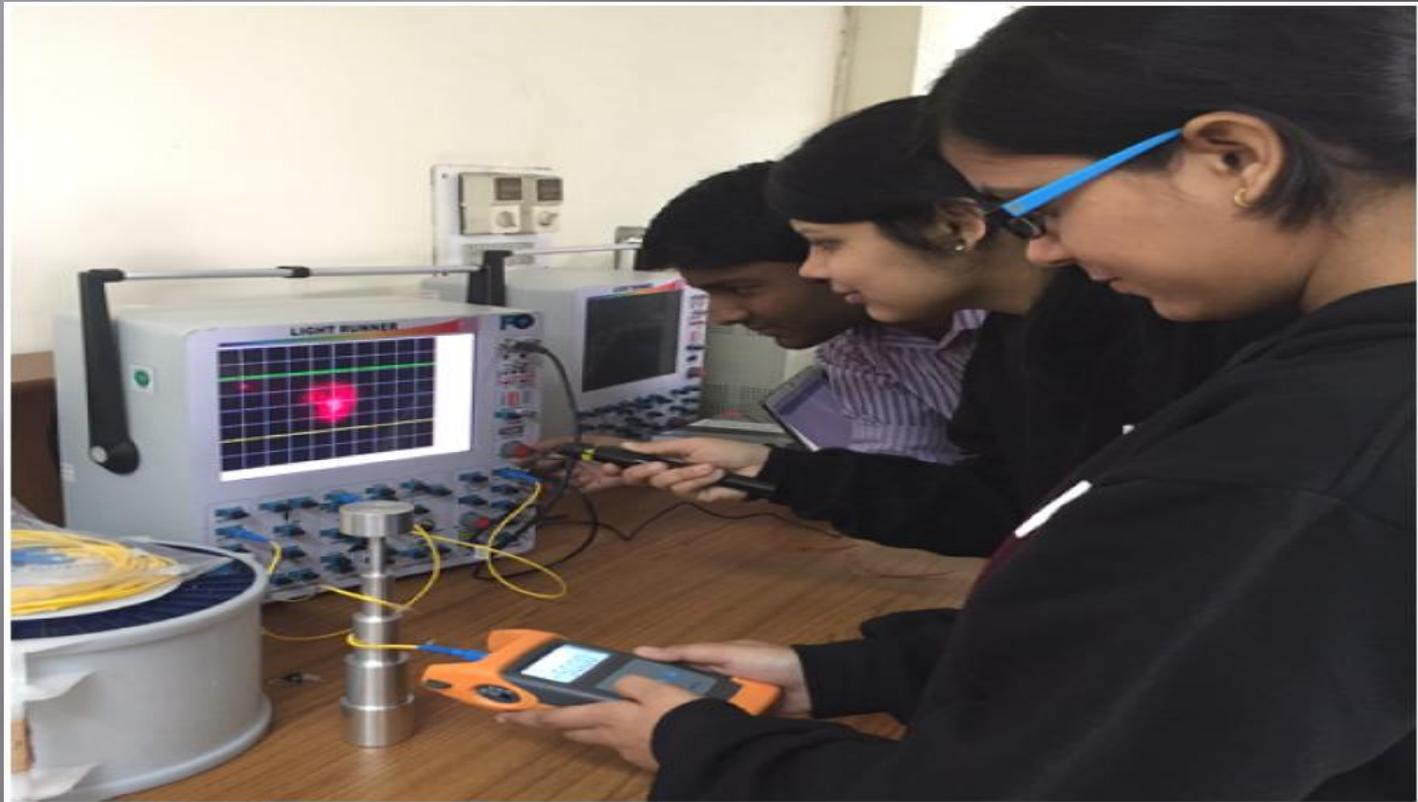
Measurement of the additional noise introduced by EDFA into the system.

Power Budgeting of a Fiber Optic Link

Rise Time Budgeting of a Fiber Optic Link.

Calculation of transmission distance with the given power and rise time budget for a bit rate of 100kb/s, 1Mb/s and 10Mb/s.

Light Runner Premium Optical Set Up



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