Coarse Wavelength Division Multiplexing and Add- Drop De-multiplexing Training System

FEATURE

- Coarse Wavelength Division Multiplexing system should be a bench-top integrated module to cover practical aspect of implementing the design by study of optical component parameters and verifying their performance.
- De multiplexing of wavelengths should be demonstrated along with the recovery of the transmitted signal.
- Channel addition and deletion (dropping) should be implemented using Bragg grating and three port optical circulator.
- This system should operate in PC control mode with USB Interface and have facility for Internal and external Modulation.
- The Bench-Top Integrated CWDM System should consist of all the Optical Devices and Components integrated in sturdy Aluminium Casing for protection.

TECHNICAL SPECIFICATIONS

- Lasers – 4 Nos
  1.25Gbps CWDM Laser Diode Modules at wavelengths of
  1510nm,1530nm,1550nm,1570nm
- In built Isolator
- Channel spacing : 20 nm
- Modulation : Digital modulation with maximum external modulation frequency 5MHz,Internal Modulation frequencies – 100Hz, 200Hz, 500Hz, 1KHz.
- Output optical power : 1mW.
- Detectors – 4 Nos
  1.5 GHz InGaAs PIN Photo diode Module
  Spectral Range : 1250nm to 1600nm
  Responsivity : Typical 0.9 A/W in 9/125 µm Fiber.
- CWDM multiplexer and demultiplexer (4 channels)
  Center Wavelength 1510nm,1530nm,1550nm,1570nm
  Channel spacing : 20nm
  Max Optical Power : 300 mW
- Three Port Circulator
  Polarization Independent Optical Circulator
  Band : C+L
- Fiber Bragg Grating :
  Central Wavelength : 1550 ± 0.5nm
- Software
  User friendly GUI for monitoring, controlling of CWDM system
  Operating modes like CW mode, VI characteristics mode, Internal & External Modulation

LASER control like Supply ON/OFF, wavelength selection and driving current
Real time signal level monitoring of Photo-detector.
Graphical representation : XY plot of VI characteristics and Internal Modulation

- EXPERIMENTS

Component characteristics

1. Diode laser characterization
2. MUX & DEMUX characterization
3. Optical circulator characterization
4. Bragg Grating characterization

- Optical communication system

1. 4 Channel CWDM by internal & external modulation
2. Add/Drop using Circulator & Bragg Grating