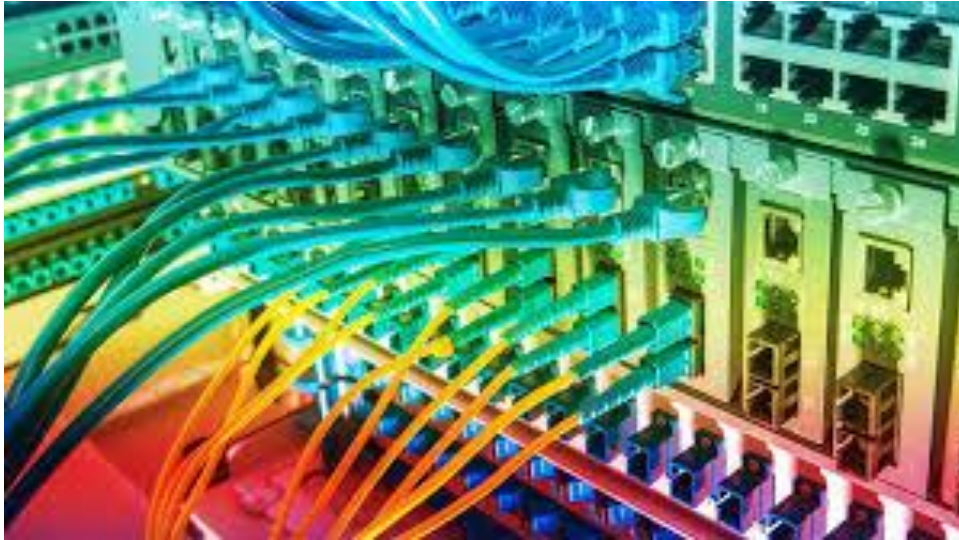


DIPLOMA IN OPTICAL FIBER TECHNOLOGY



Basic Electricity and Digital Electronics use in
Telecommunication Theory

Introduction to Transmission Technologies Theory

Optical Fiber System Theory
(PCM, PDH, SDH, SONET, OFN, ONU, W/DWDM)

Optical Fiber Cable Jointing / Splicing Theory

Optical Fiber Cable Practical use of FSM, OTDR, OSM, OPM, VFL etc

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SKILL DEVELOPMENT COUNCIL

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BASIC ELECTRICITY AND D/ELECTRONICSRONICS USE IN TELECOMMUNICATION THEORY

BASIC ELECTRICITY

- 1) Introduction to Basic Electricity
- 2) A.C Supply
- 3) D.C Supply
- 4) Ohms Law with derivation
- 5) Coulomb law
- 6) Kirchoffs laws
- 7) Conductors, Insulators, Dielectrics
- 8) Current, Voltage, Resisters, Capacitors
- 9) Series and Parallel circuits
- 10) Colors coding of Resisters
- 11) Rectifier

DIGITAL ELECTRONICS

- 1) Introduction to Digital Electronics
- 2) Advantages of digital Electronics and uses
- 3) Analog and Digital Signal
- 4) Numbering system and its conversion
- 5) What is clock?
- 6) Digital logic gates
- 7) Flip Flop
- 8) Digital Multiplexer
- 9) Counters
- 10) Adders and Substracters

LIGHT

- 1) Nature of Light
- 2) Reflection of Light
- 3) Refraction of Light
- 4) Refractive Index
- 5) Snell's Law
- 6) Diffraction of Light

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- 7) Total Internal Reflection
- 8) Reflection between Frequency Spectrums
- 9) LED and LASER Diode
- 10) Photo Diode, Avalanche and Pin Diode

INTRODUCTION TO TRANSMISSION TECHNOLOGIES THEORY

- 1) Basic Telecommunication
- 2) Introduction to Transmission
- 3) Fundamental Elements of Communication System
- 4) Telephone Network
- 5) Local Line Connection for a Telephone Subscriber
- 6) Conversation of Analog Single to Digital Single
- 7) Media
- 8) Attenuation
- 9) Bandwidth
- 10) Microwave Communication (NEC, DRS, NEAR, SRAL)
- 11) High Frequency Communication
- 12) Very High Frequency Communication
- 13) Ultra High Frequency Communication
- 14) Super High Frequency Communication
- 15) Satellite Communication

OPTICAL FIFER SYSTEM THEORY

MULTIPLEXING

- 1) Multiplexing
- 2) Frequency Division Multiplexing
- 3) Time Division Multiplexing
- 4) Wavelength Division Multiplexing
- 5) Space Division Multiplexing

PLUS CODE MODULATION(PCM)

- 1) Introduction to Plus Code Modulation
- 2) Sampling
- 3) Quantization
- 4) Encoding/Decoding
- 5) Line coding technique

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6) Block schematic diagram of 2 Mb/sec PCM Single frame.

PLESIOCHRONOUS DIGITAL HIERARCHEY (PDH)

- 1) Basic concept about Plesiochronous Digital Hierarchey (PDH)
- 2) Block schematic diagram of 8Mb/sec PDH single frame.
- 3) Block schematic diagram of 34Mb/sec PDH single frame.
- 4) Block schematic diagram of 140Mb/sec PDH single frame.
- 5) Block schematic diagram of 565 Mb/sec PDH single frame.
- 6) Block detail schematic diagram of PDH from 2Mb/sec to 565Mb/sec with bit rates and channels capacity.
- 7) PPM levels

SYNCHRONOUS DIGITAL HIERARCHEY (SDH)

- 1) Basic concept about Synchronous Digital Hierarchy (SDH)
- 2) Block schematic diagram of SDH single frame STM-1 and STM-4.
- 3) Block schematic diagram of SDH STM-1 from 2Mb/sec to 155.520Mb/sec in detail.
- 4) Detail structural diagram of SDH , ITU recommendation E1 , E3 ,VC4.
- 5) Difference between PDH and SDH.

SONET

- 1) Introduction to SONET
- 2) Frame structure, Hierarchy of SONET
- 3) Advantages & Disadvantages

OFAN

- 1) Introduction OFAN
- 2) Need of OFAN
- 3) Technical working of OFAN

ONU

- 1) Introduction to ONU
- 2) Triple play of ONU
- 3) Conversion (Light to Electrical)

DWDM

- 1) Introduction to DWDM
- 2) Visible Spectrum
- 3) Radiation modes

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OPTICAL FIBER CABLE JOINTING / SPLICING THEORY

- 1) Introduction of Optical Fiber
- 2) Advantages and Disadvantages of Optical Fiber
- 3) Types of Optical Fiber according to Modes.
- 4) Types of Optical Fiber according Refractive Index.
- 5) Single Mode Step Index OF.
- 6) Multi-Mode Graded Index OF.
- 7) Introduction about Optical Sources.
- 8) Introduction about Optical Detectors.
- 9) Introduction about Optical Connectors.
- 10) Detail Link diagram of Optical Fiber between two stations.
- 11) Introduction to Optical Fiber Regenerator Repeaters and Amplifiers.
- 12) Optical Fiber losses and link budgeting.

OPTICAL FIBER CABLE PRACTICAL

- 1) Identification of color coding of Different Optical Fiber Cable
(OLEX, FUJIKURA, LTE, GYFTA).
- 2) Preparations Of Optical Fiber Cable
(OLEX, GYFTA , FUJIKURA , LTE etc)
Tools that use in Preparation of Optical Cable
- 3) Preparations Of Optical Fiber Enclosure
UCM 7/20, MS – MADDADI and OLEX Enclosure
Tools that use in Preparation of Optical Enclosures
- 4) Optical Fiber FUSION Splicing
FUJIKURA OR SOMITOMO Splicing Machine
Tools that use in Procedure of Optical Fusion Splicing
- 5) OTDR Theory with Using