CURRICULUM

Fiber Optic Technician

03 Month Program

NATIONAL TRAINING BUREAU
H-9, ISLAMABAD

1. Introduction:

This Fiber Optics Technician Course is designed for anyone interested in becoming a Fiber Optic Technician or who needs to understand or use Fiber Technology within their job.

This training course provides the student with a strong background in the area of installation, testing and maintenance of O.F.C networks as well as to provide the unique opportunity to work and enhance their skills in fiber optic technology.

2. Training Objective:

To provide our students with the hands-on knowledge and the ability to identify fiber types, recognize various connectors used in fiber installation; install, terminate, splice and properly fault test installed fiber cable to existing standards.

3. Key Benefits:

At the end of this course the student will understand the OFC and practical skills required to install, splice, troubleshoot and restore a fiber optic cable. Extensive hands-on labs provide the exposure of actual field environment and confidence to work freely with this technology.

4. Curriculum Salient

Entry-Level	Matric/F.Sc/DAE
Duration of course	3 Months
Training Hours	360 Hours 30Hours a week
Training Methodology	80% Practical 20% Theory
Medium of Instructions	Urdu / English

5. Scheme of Studies

Sr.	Modules	Theory (Hrs)	Practical (Hrs)	Total (Hrs)
1.	Basic Electronics	10	30	40
2.	Telecommunication Fundamentals	4	16	20
3.	History Of Fiber Optic Technology	2	2	4
4.	Introduction to Fiber Optics	10	25	35
5.	Light Propagation through Optical Fiber	6	10	26
6.	Classification of Optical Fiber and Optical Fiber Cables	10	40	40
7.	OFC Installation and Restoration	10	30	40
8.	Jointing, Splicing &Connectorization	10	85	95
9.	Test & Measurement Techniques	10	50	60
	Total	**72**	**288**	**360**

6. Detail of Course Contents

Sr. No.	Detail of Topics	Theory Hours
1.	**Basic Electronics**	
	1.1. Electricity 1.1.1. Structure of atom, K, L and M shell, energy levels and valence electrons 1.1.2. Conductors, insulators and semiconductors 1.1.3. Voltage, current and resistance 1.1.4. Units of Voltage, current and resistance	2
	1.2. DC Fundamentals 1.2.1. Ohm's Law 1.2.2. Resistor construction and types 1.2.3. Resistors, color coding 1.2.4. lResistance in series and parallel	2
	1.3. AC Fundamentals 1.3.1. Sine wave, cycle, wavelength, period, frequency and units 1.3.2. Audio and Radio frequencies	1
	1.4. Semiconductors 1.4.1. Doping and doping material 1.4.2. PN Junction diode, Depletion region and junction potential 1.4.3. Half wave, full wave and Bridge rectifier	1
	1.5. Special Diodes 1.5.1. LASER Diode 1.5.2. Photo diode. 1.5.3. Light Emitting Diode(LED)	2
2	**Telecommunication Fundamentals**	
	2.1. Definition and concept 2.1.1. Components of a communication system 2.1.1.1. Transmitter 2.1.1.2. Medium 2.1.1.3. Receiver 2.1.2. Definition of Telecom 2.1.3. Examples	1
	2.2. Major parts of a Telecommunication network 2.2.1. Access network 2.2.1.1. Fixed line Access Network 2.2.1.2. Wireless Access Network (WLL) 2.2.2. Switching network 2.2.3. Transmission Network	4

	2.2.3.1. Transmission by copper cables (Twisted pair, coaxial cable, wave guide) 2.2.3.2. Transmission by satellite 2.2.3.3. Transmission by microwave 2.2.3.4. Transmission by fiber optic	
3	**History of Fiber Optic Technology** **3.1.** First optical communication **3.2.** Invention of Optical telegraph (1793) **3.3.** Invention of Photophone (1880) **3.4.** Piping light system (1880) **3.5.** Development of fiber optic image scrambler (1954) **3.6.** First fiber optic company "MOSAIC FABRICATION" (1958) **3.7.** Manufacturing of first single mode fiber (1959) **3.8.** Demonstration of LASER (1960) **3.9.** Invention of semiconductor LASER (1962) **3.10.** Invention of APD (Avalanche Photodiode) (1962) **3.11.** Proposal of multimode graded index fiber (1967) **3.12.** MCVD process for fiber manufacturing at Bell labs (1973) **3.13.** Manufacturing of first commercial optical fiber and Laser by corning (1975) **3.14.** First live telephone traffic through optical fiber (1977) **3.15.** Field trial of single mode fiber optic (1982) **3.16.** Bell Communication Research announced SONET standards (1986) **3.17.** Development of EDFA (1987) **3.18.** First transatlantic fiber optic cable (1988) **3.19.** Standardization of SC connector by IEC and TIA (1992) **3.20.** Demonstration of graded index plastic optic fiber (1997) **3.21.** Fiber optic decades (1960-2010)	2
4	**Introduction to Fiber Optics** **4.1. Structure of optical fiber** 4.1.1. Core 4.1.2. Cladding 4.1.3. Coating 4.1.4. Material 4.1.5. Size **4.2. Advantages of optical fiber** 4.2.1. Light weight & wide bandwidth 4.2.2. Low loss 4.2.3. Noise Immunity 4.2.4. Low Maintenance 4.2.5. Information handling 4.2.6. Security 4.2.7. Wide temperature range 4.2.8. Safety 4.2.9. Non-obselence 4.2.10. Material availability 4.2.11. Stable performance 4.2.12. Standardization **4.3. Disadvantages of optical fiber** 4.3.1. Skilled personnel required	2 3 ½

	4.3.2. Higher cost **4.4. Symbols and terminologies used in optical fiber industry** **4.5. An overview of optical fiber applications** 4.5.1. Public trunk line 4.5.2. Subscriber network 4.5.3. CATV 4.5.4. LAN 4.5.5. Submarine cable 4.5.6. Power plant **4.5.7.** Airplane/ship	3 1 ½
5	**<u>Light Propagation through Optical Fiber</u>** **5.1. Concept of light** **5.2. Nature of light** **5.3. Light windows** 5.3.1. 1st window 5.3.2. 2nd window 5.3.3. 3rd window 5.3.4. 4th window **5.4. Index of refraction and refraction of light** **5.5. Methods of optical confinement** 5.5.1. Total Internal Reflection 5.5.2. Continuous Refraction **5.6. Transmission losses** 5.6.1. Raleigh scattering 5.6.2. Fresnel loss 5.6.3. Absorption loss 5.6.4. Bending Losses	½ ½ 1 1 2 1
6	**<u>Classification of Optical Fiber and Optical Fiber Cables</u>** **6.1. Classification of optical fibers on the basis of** 6.1.1. Fiber optic material 6.1.1.1. Glass material 6.1.1.2. Plastic material 6.1.1.3. Midway solution (Plastic clad silica) 6.1.2. Propagation methods 6.1.2.1. Multimode step index glass fiber 6.1.2.2. Multimode step index plastic fiber 6.1.2.3. Multimode graded index glass fiber 6.1.2.4. Multimode graded index plastic fiber 6.1.2.5. Singlemode step index glass fiber 6.1.2.6. Multimode vs. Single-mode fibers **6.2. Classification of optical fiber Cables on the basis of:** 6.2.1. Cable core structure 6.1.1.1. Standard loose buffer tube type	4 6

	6.2.1.2. Standard tight buffer (bound) type 6.2.1.3. Fiber ribbon techniques 6.2.2. Areas of applications 6.2.2.1. Internal 6.2.2.1.1. Simplex cord 6.2.2.1.2. Duplex cord 6.2.2.1.3. Breakout cable 6.2.2.1.4. Distribution cable (Indoor) 6.2.2.2. External 6.2.2.2.1. Direct Buried Cable 6.2.2.2.2. Duct cable 6.2.2.2.3. Aerial cable 6.2.2.2.4. Underwater cable	
7	**<u>Optical Fiber Cable Installation and Restoration</u>**	
	7.1. Guidelines for optical fiber cable installation 7.1.1. With in a building 7.1.2. Underground installation 7.1.3. Aerial cable installation	½
	7.2. Types of cable installations 7.2.1. Duct 7.2.2. Direct buried 7.2.3. Air blown 7.2.4. Submarine 7.2.5. Aerial	1
	7.3. Handling of optical Fiber cable 7.3.1. Limitations of optical fiber cable 7.3.2. Tensile strength of the cable 7.3.3. Minimum bend radius	½
	7.4. Duct Installation 7.4.1. Planning 7.4.2. Duct installation procedures 7.4.3. Cable in duct installation 7.4.4. Cable installation tools 7.4.5. Cable Pulling methods 7.4.5.1. End pulling 7.4.5.2. Center Pulling 7.4.6. Tension monitoring 7.4.7. Cable pulling lubricants	1 ½
	7.5. Direct burial 7.5.1. Considerations 7.5.2. Proper route planning & engineering 7.5.3. Equipment requirement 7.5.4. Burial depths	1
	7.6. Methodologies for the establishment of optical fiber cable links 7.6.1. Direct buried cable in normal/mixed soil 7.6.2. Small canal crossing 7.6.3. Bridge crossing	1

	7.6.4. Laying of GI pipe 7.6.5. Joint buried in urban areas 7.6.6. Joint buried in rural areas 7.6.7. Installation of marker posts **7.7. Air Blown Fiber (ABF)** 7.7.1. Benefits of ABF 7.7.2. Elements of an ABF Network **7.8. Methodologies to install aerial cable** 7.8.1. By self supporting method 7.8.2. By lashing method 7.8.3. By wrapping method **7.9. Laying of submarine cable** **7.10. Restoration of Optical fiber cable** 7.10.1. Murphy's law on cable restoration 7.10.2. Typical causes of failures 7.10.3. Types of optical cable damage 7.10.4. Restoration techniques 7.10.4.1. Identify the problem 7.10.4.2. Locate the problem 7.10.4.3. Resolve the problem 7.10.5. Problems frequency encountered in 7.10.5.1. Aerial cable problems 7.10.5.2. Underground cable problems 7.10.6. Equipment used in restoration 7.10.7. Restoration kit requirements 7.10.7.1. Emergency restoration kit 7.10.7.2. Permanent restoration kit **7.11. Safety** 7.11.1. Optical fiber safety concerns 7.11.1.1. LASERs 7.11.1.2. Fibers 7.11.1.3. Chemicals 7.11.1.4. Installation practices 7.11.1.5. Basic safety practices	½ ½ ½ 2 1
8	**<u>Jointing, Splicing & Connectorization</u>** **8.1. Fiber optic jointing methods** 8.1.1. Splicing 8.1.2. Connectorization **8.2. Splicing** 8.2.1. Why do we need to splice? 8.2.2. What issues affect splice performance? 8.2.3. Good splice requirements 8.2.4. Sequence of events in splicing 8.2.5. Fiber cable preparation 8.2.6. Fiber cleaving	½ ½

	8.3. Types of Splicing 8.3.1. Fusion splicing 8.3.2. Mechanical splicing	½
	8.4. Fusion splicing 8.4.1. Features of fusion splicing 8.4.2. Processes during fusion splicing 8.4.3. Principle of thermal splicing 8.4.4. Influences on fusion process 8.4.4.1. Self centering effect 8.4.4.2. Core eccentricity 8.4.4.3. Fiber end face quality 8.4.4.4. Fiber preparation quality 8.4.4.5. Dirt particles or coating residues 8.4.4.6. Fiber melting characteristics 8.4.4.7. Electrode condition 8.4.4.8. Fusion disaster	2
	8.5. Mechanical splicing 8.5.1. Features of mechanical splices 8.5.2. Mechanical splicing process 8.5.3. Types of mechanical splices 8.5.3.1. Core link – AMP 8.5.3.2. Fiberlok TM II - 3M 8.5.3.3. Ultra splice 8.5.3.4. Lab splice – Siecore 8.5.3.5. Cam splice – RXS	½
	8.6. Optical fiber connectors 8.6.1. Features of optical fiber connectors 8.6.1.1. Low loss 8.6.1.2. Easy installation 8.6.1.3. Economical 8.6.1.4. Consistency 8.6.1.5. Repeatability 8.6.2. What to look for in a connector? 8.6.2.1. Insertion loss 8.6.2.2. Return loss 8.6.2.3. Mating durability 8.6.2.4. Cable retention 8.6.2.5. Repeatability	2
	8.7. Connectorization methods 8.7.1. Field installable connectors 8.7.2. Pigtails 8.7.3. Factory pre-connectorized cable	½
	8.8. Common single mode & multimode connectors 8.8.1. SMA connector 8.8.2. ST connector 8.8.3. FC connector 8.8.4. LC connector 8.8.5. MTRJ connector	1

	8.8.6. Mini BNC connector 8.8.7. SC connector 8.8.8. Escon connector 8.8.9. E-2000 connector 8.8.10. DIN connector 8.8.11. FDDI connector **8.9. Fiber Optic connector polishes** 8.9.1. Flat Finish 8.9.2. PC finish 8.9.3. APC finish **8.10. How to protect the splices?** 8.10.1. Protectors 8.10.2. Closures 8.10.2.1. Straight or inline closures 8.10.2.2. Butt closure configuration 8.10.2.3. Overview on closures 8.10.3. OFDFs and trays 8.10.3.1. Fiber management system 8.10.3.2. Splice trays 8.10.3.3. OFDFs **8.11. Termination techniques in OFDFs** 8.11.1.1. Fusion splicing 8.11.1.2. Fiber fan 8.11.1.3. Direct termination **8.12. Types of OFDFs** 8.12.1. Wall mounted 8.12.2. Rack mounted	½ 1 ½ ½
9	**<u>Test & Measurement Techniques</u>** **9.1. Introduction (Test & Measurement Techniques)** **9.2. Fiber optic test equipment** 9.2.1. Optical power meter 9.2.2. Optical light source 9.2.3. Optical loss meter 9.2.4. Optical attenuator 9.2.4.1. Fixed 9.2.4.2. Variable 9.2.5. Fiber Identifier 9.2.6. Visual fault locator 9.2.7. Optical talk set 9.2.8. Optical Time Domain Reflectometer (OTDR) 9.2.8.1. Why do we need OTDR? 9.2.8.2. How OTDR works 9.2.8.3. OTDR signatures 9.2.9. Analyzing OTDR trance 9.2.9.1. Event insertion loss and reflections 9.2.9.2. Link (end-to-end) insertion loss	1 9

	9.2.9.3. Need for launch and receive cables	

Sr. No.	Detail of Topics	Practical Hours
1	**Basic Electronics** 1.1. Function and application of multimeter 1.2. Measurement of current, voltage and resistance using Ammeter, voltmeter and multimeter 1.3. Verification of ohm law by 1.3.1. Keeping the voltage constant 1.3.2. Keeping the Resistance constant 1.4. Practice of resister color coding 1.5. Verify the laws of series combination of resistors 1.6. Verify the laws of parallel combination of resistors 1.7. Assemble a half wave, full wave and bridge rectifier circuit 1.8. Application of special diodes 1.8.1. LASER Diode 1.8.2. Photo diode. 1.8.3. Light Emitting Diode(LED)	**30**
2	**Telecommunication Fundamentals** 2.1. Function and applications of components 2.1.1. Transmitter 2.1.2. Receiver 2.1.3. Medium 2.1.4. Transducer 2.1.5. Transceiver 2.2. More about the medium 2.2.1. Shielded Twisted pair 2.2.2. Unshielded twisted pair 2.2.3. Coaxial cable 2.2.4. Wave guide 2.2.5. Drop wire 2.2.6. Single mode optical fiber cable 2.2.7. Multimode optical fiber cable 2.3. Working of transmission system 2.3.1. Copper based transmission 2.3.2. Optical fiber transmission	**16**

	2.3.3. Microwave transmission 2.3.4. Voice and data transmission systems	
3	**History of fiber optic technology** 3.1. Videos: History of optical fiber 3.2. Fabrication of optical fiber using different methods 3.3. Historical optical fibers and connectors	**2**
4	**Introduction to fiber optics** 4.1. Fiber optic concept and structure (video) 4.2. Physical overview of optical fiber structure 4.2.1. Loose buffer optical fiber 4.2.2. Tight buffer optical fiber 4.3. Physical parts of optical fiber 4.3.1. Core 4.3.2. Cladding 4.3.3. Coating 4.4. Practice to remove coating of optical fiber 4.5. European and American standard optical fiber 4.6. Ffiber optic manufacturing standards 4.6.1. G.651 4.6.2. G.652 4.6.3. G.655 4.7. Introduction to fiber optic network components and symbol 4.8. Structure of optical fiber	**25**
5	**Light propagation through optical fiber** 5.1. Light source 5.1.1. LASER 5.1.2. LED 5.2. Light detectors 5.2.1. Avalanche Photo Diode 5.2.2. PIN photo diode 5.2. Short and medium wavelength light sources 5.3. Long wavelength light sources 5.4. Infrared and visible light sources 5.5. Step index and graded index fiber and phenomenon of light	**10**

	propagation in optical fiber (Videos) 5.6. Propagation of light through optical fiber (Videos)	
6	**Classification of optical fiber and optical fiber cables** 6.1. Single mode and multimode optical fibers 6.2. Glass and plastic optical fibers 6.3. Practice of fiber optic color coding scheme 6.4. OFC classification 6.4.1. According to cable manufacturing and structure, shape and colour coding 6.4.1.1. Loose tube OFC 6.4.1.2. Slotted core OFC 6.4.1.3. Ribbon OFC 6.4.1.4. Tight buffer OFC 6.4.2. According to cable protection techniques 6.4.2.1. Armored fiber optic cable 6.4.2.2. Unarmored fiber optic cables 6.4.3. According to cable application 6.4.3.1. Internal cables 6.4.3.1.1. Pigtails 6.4.3.1.2. Patch cords 6.4.3.1.3. Single mode pigtails and patch cords 6.4.3.1.4. Multimode pigtails and patch cords 6.4.3.1.5. Distribution cables 6.4.3.1.6. Breakout cables 6.4.3.2. External OFCs 6.4.3.2.1. Direct buried fiber optic cable 6.4.3.2.2. Indirect buried fiber optic cable 6.4.3.2.3. Submarine fiber optic cable 6.4.3.2.4. Aerial fiber optic cable 6.4.3.2.5. Short span, long span, ADSS and OPGW fiber optic aerial cables	**40**
7	**Optical fiber cable installation and restoration** 7.1. safety practice regarding optical fiber cable handling during installation and maintenance of optical fiber cables. 7.2. Practice of fiber optic cable installation methods	**30**

	7.2.1. Indoor installation 7.2.2. Ductinstallation 7.2.3. Inside plant air blown fiber installation 7.2.4. Outside plant underground installation 7.2.5. Outdoor aerial cable installation 7.2.6. Submarine fiber optic cable installation 7.3. Practice of optical fiber cable emergency restoration 7.3.1. Causes of optical fiber cable damage 7.3.2. Frequently encountered problems 7.3.3. Restoration techniques 7.3.3.1. Identify the problem 7.3.3.2. Locate the problem 7.3.3.3. Resolve the problem 7.4. Practice of equipment and tools used in restoration process 7.4.1. Fiber microscope 7.4.2. Optical loss test set 7.4.3. Visual fault locator 7.4.4. Optical Time Domain Reflectometer 7.4.5. Fusion splicing machine 7.4.6. Cleaver 7.4.7. Fiber optic jointing kit 7.4.8. Fiber optic cleaning kit 7.4.9. Fiber optic splicing kit	
8	**Jointing, splicing and connectorization** 8.1. Splicing techniques 8.2. Alignment methods during fusion splicing 8.3. Program setup for splicing process 8.4. Splicing practice 8.5. Connectorization and patch panels 8.6. How to cleave and polish a fiber optic connector 8.7. How to inspect and clean fiber optic connector 8.8. How to prepare fiber optic cable for jointing process 8.9. Fiber optic splicing and splice closures 8.10. Techniques used in joint boxes and optical fiber distribution frames 8.11. System patch and dispatch on optical fiber distribution frames	**85**

9	**Test and measurement techniques** 9.1. Testing, troubleshooting and documentation 9.2. Troubleshooting a fiber optic link 9.3. Testing a fiber optic link using 9.3.1. Optical power meter 9.3.2. Optical light source 9.3.3. Visual fault locator 9.4. Measurement of sensitivity of a fiber optic transmission system using 9.4.1. Variable optical attenuator 9.4.2. Optical power meter 9.5. Observe and monitor the alarm on transmission system during high attenuation and break situation.	**50**

Tools / Equipment Detail

Sr.	Description of Tools and Equipment	Quantity
1.	Fiber Splicing Machines	04 Nos.
2.	Cleavers (as per Splicing Machine)	04 Nos.
3.	Fiber Optic Patch Chords (SC-SC) Single Mode	10 Nos.
4.	Fiber Optic Patch Chords (SC-SC) Multi Mode	10 Nos.
5.	Fiber Optic Patch Chords (SC-FC) Single Mode	10 Nos.
6.	Fiber Optic Patch Chords (SC-LC) Single Mode	10 Nos.
7.	Fiber Optic Patch Chords (FC-FC) Single Mode	10 Nos.
8.	Fiber Optic Patch Chords (FC-LC) Single Mode	10 Nos.
9.	Fiber Optic Patch Chords (LC-LC) Single Mode	10 Nos.
10.	Fiber Optic Pigtails (SC Connector) Single Mode	10 Nos.
11.	Fiber Optic Pigtails (FC Connector) Single Mode	10 Nos.
12.	Fiber Optic Pigtails (LC Connector) Single Mode	10 Nos.
13.	Fiber Optic Connectors (SC)	10 Nos.
14.	Fiber Optic Connectors (FC/PC)	10 Nos.
15.	Fiber Optic Connectors (LC)	10 Nos.
16.	Fiber Optic Adapters (SC-SC) Simplex	10 Nos.
17.	Fiber Optic Adapters (SC-SC) Duplex	10 Nos.
18.	Fiber Optic Adapters (SC-FC) Simplex	10 Nos.
19.	Fiber Optic Adapters (SC-FC) Duplex	10 Nos.
20.	Fiber Optic Adapters (SC-LC) Simplex	10 Nos.
21.	Fiber Optic Adapters (SC-LC) Duplex	10 Nos.
22.	Fiber Optic Adapters (FC-FC) Simplex	10 Nos.
23.	Fiber Optic Adapters (FC-FC) Duplex	10 Nos.
24.	Fiber Optic Adapters (FC-LC) Simplex	10 Nos.
25.	Fiber Optic Adapters (FC-LC) Duplex	10 Nos.
26.	Fiber Optic Adapters (FC-ST) Duplex	10 Nos.
27.	Fiber Optic Adapters (LC-LC) Simplex	10 Nos.
28.	Fiber Optic Adapters (LC-LC) Duplex	10 Nos.
29.	SC Fixed Attenuators (3dB)	10 Nos.
30.	SC Fixed Attenuators (5dB)	10 Nos.

31.	SC Fixed Attenuators (7dB)	10 Nos.
32.	SC Fixed Attenuators (10dB)	10 Nos.
33.	FC Fixed Attenuators (3dB)	10 Nos.
34.	FC Fixed Attenuators (5dB)	10 Nos.
35.	FC Fixed Attenuators (7dB)	10 Nos.
36.	FC Fixed Attenuators (10dB)	10 Nos.
37.	LC Fixed Attenuators (3dB)	10 Nos.
38.	LC Fixed Attenuators (5dB)	10 Nos.
39.	LC Fixed Attenuators (7dB)	10 Nos.
40.	LC Fixed Attenuators (10dB)	10 Nos.
41.	Variable Attenuator	02 Nos.
42.	Buried Cable Joint	05 Nos.
43.	Aerial Cable Joint	05 Nos.
44.	OTDR (AQ7275 and AQ1200 Yokogawa Japan) with software simulator for each students	02 Nos.
45.	Power Meter	02 Nos.
46.	Laser Source	02 Nos.
47.	Fiber Spools (For fiber Link Testing Practical)	05 Nos.
48.	Loose Tube Optical Fiber Cable	01 Roll.
49.	Fiber Optic Splicing and Jointing Tool Kit	02 Nos.
50.	Fiber Optic Cleaning Kit	01 Nos.
51.	12 Ports Wall Mounted Optical Fiber Distribution Frames	03 Nos.
52.	24 Ports Wall Mounted Optical Fiber Distribution Frames	03 Nos.
53.	48 Ports Wall Mounted Optical Fiber Distribution Frames	03 Nos.
54.	96 Ports Wall Mounted Optical Fiber Distribution Frames	03 Nos.
55.	12 Ports Rack Mounted Optical Fiber Distribution Frames	03 Nos.
56.	24 Ports Rack Mounted Optical Fiber Distribution Frames	03 Nos.
57.	48 Ports Rack Mounted Optical Fiber Distribution Frames	03 Nos.
58.	Visual Fault Locator	02 Nos.
59.	Fiber Optic Microscope	02 Nos.

EMPLOYABILITY OF PASS-OUTS

The pass outs of this course may find job / employment opportunities in the following areas / sectors:

- In industries Can be select as a Fiber Splicer/technician
- Telecom solution/service providers
- Mobile Network companies
- IT Solution providers
- ISPs and DSL network provider
- Assembler / technician in Telecom product companies.
- Salesman/Technician in shops dealing with telecomequipment.
- Huge market is available outside the Pakistan especially in Gulf.

Reference Books:

1. Introduction to fiber optics (John Crisp)
2. System Manuals

Qualification Of teacher:

DAE electronics with 2years' Experience in relevant Field.