COURSE OVERVIEW IE0641-4D

Certified Fiber Optic Technician

(FOA-CFOT® Certification)

Course Title

Certified Fiber Optic Technician: *(FOA-CFOT® Certification)*

Course Date/Venue

December 09-12, 2024/Blue Room, Warwick Doha Hotel, Doha, Qatar

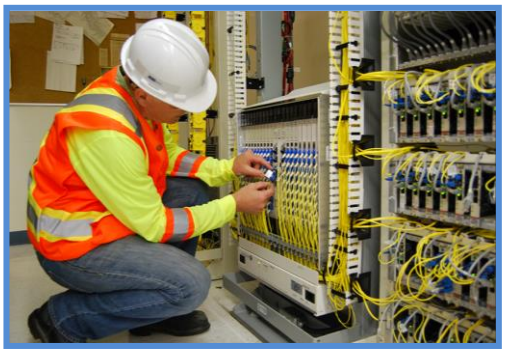
Course Reference

IE0641-4D

Course Duration/Credits

Four days/2.4 CEUs/24 PDHs

Course Description



This practical and highly-interactive course includes practical sessions and exercises where participants carryout fiber optic splicing, testing and troubleshooting. Theory learnt in the class will be applied using our state-of-the-art equipment.

The rapidly changing face of data communications and telecommunications has seen a continued growth in the need to transfer enormous amounts of information across large distances. The technologies that were used extensively in the past such as coaxial cable, satellite and microwave radio for transferring information were running out of capacity. With the introduction of fiber optic communications systems, the solution to the problems of transmission capacity shortage and to noisy industrial environments has been successfully found.

Fiber optic transmission has become one of the most exciting and rapidly changing fields in telecommunications engineering. An optical fiber is simply a very thin piece of glass which acts as a pipe, through which light can pass. The light that is passed down the glass fiber can be turned on and off to represent digital information or it can be gradually changed in amplitude, frequency or phase to represent analog information.

Fiber optic transmission systems have many advantages over more conventional transmission systems. They are less affected by noise, do not conduct electricity and therefore provide electrical isolation, carry extremely high data transmission rates and carry data over very long distances. These and other advantages will be discussed in detail in this course.

Fiber optic transmission systems are not perfect and there are difficulties involved in designing, implementing, and operating fiber optic communications systems. This course is designed to provide a thorough background to fiber optic communications systems and to illustrate the design and installation of these systems. The many pitfalls associated with the implementation of fiber optic systems will be discussed and workable solutions to these problems will be provided in this course.

This course will provide an extensive overview of the construction, operation and applications of optical fiber, with more emphasis on installation and troubleshooting. The course will give both the novice and the experienced participant a solid grasp of the principles and practical implementation of fiber optic cabling for industrial applications.

Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Get certified as a "*Certified Fiber Optic Technician (CFOT®)*"
- Identify the types of fiber optic applications and discuss the necessity of cleanliness in working with fiber
- Recognize Fiber Optic Communications Networks and how fiber optics is used in metropolitan and intelligent highway systems
- Review of telecom, datacom and CATV networks, CCTV, security, process control, etc.
- Explain how fiber optic communications links work and describe the Characteristics of fiber optic sources and detectors
- Identify Fiber types, designs and sizes as well as Cable types, specifications and applications
- Choose a cable appropriate for the application and handle cables and pulling
- Recognize the Connector types and illustrate Terminating processes and Fusion and mechanical splices
- Identify and use Installation tools and Cable plant hardware as well as employ Fiber optic test procedures, standards, equipment types, specifications and applications
- Apply Visual inspection and cleaning and differentiate insertion loss (OLTS) and backscatter (OTDR) tests
- Carryout proper Procedures for designing fiber optic cable plants, plan a fiber optic project and manage a fiber optic project
- Planning for the installation of fiber optic cable, identify the training requirements for installers and apply the installation process

Exclusive Smart Training Kit - H-STK®

*Participants of this course will receive the exclusive "Haward Smart Training Kit" (**H-STK®**). The **H-STK®** consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspects and considerations of fiber optics technology for all types of technicians, such as outside plant and premises installers, technicians working in specialty fields using fiber optics such as electrical utilities, oil and gas, wireless, platforms like ships and aircraft, component manufacturing technicians, network managers, network designers, etc. A well-prepared fiber optic technician will have job experience, a CFOT plus appropriate specialist certifications (CFOS) for the skills needed for the job (OSP, spicing, connectors, testing, design, etc.) and applications (FTTH, OLAN, Wireless, etc.).

Exam Eligibility & Structure

This course does not assume prior knowledge of communications or fiber optics. It is recommended that participants complete a free online self-study program on Fiber U that will cover the basics of fiber optics in preparation for the classroom instruction and hands-on labs sessions. If the course attendees have finished the Fiber U online course, the classroom course will only need to review the material studied online and concentrate on hands-on skills that can only be learned in a lab environment.

FOA certifications can be achieved by one of two methods:-

- **Training at FOA Approved Schools**: The FOA certifications are available through FOA-approved schools that offer training that meets FOA standards and provide certifications to the students.
- **Work to Cert** - direct certification based on industry experience: FOA also recognizes industry experience and has many persons who qualified for direct certification based on their experience in the field. Reference materials for studying for these certifications are available with the FOA textbooks or online free with the FOA Guide or Fiber U.

For preparation, either to take a training course or using the direct Work To Cert program, you should take the Fiber U Basic Fiber Optics course that is preparation for the CFOT exam and get your Certificate of Completion.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures
20% Practical Workshops & Work Presentations
30% Hands-on Practical Exercises & Case Studies
20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Certificate(s)

(1) Internationally recognized Competency Certificates and Plastic Wallet Cards will be issued to participants who completed a minimum of 80% of the total tuition hours and successfully passed the exam at the end of the course. Successful candidate will be certified as a *"Certified Fiber Optic Technician (CFOT)"*. Certificates are valid for 3 years.

Sample of Certificates

The following are samples of the certificates that will be awarded to course participants:

(2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations:

- The International Accreditors for Continuing Education and Training (IACET - USA)

  Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

  Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

  Haward Technology Middle East will award **2.4 CEUs** (Continuing Education Units) or **24 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:

Mr. Ahmed Sabry is a **Senior Communications & Control Engineer** with extensive experience in the **Petroleum**, **Petrochemical**, **Power**, **Pipelines** and **Communication** industries. His specialization covers the areas of **Fiber Optic** Professional, **Fiber Optics** Access Network Planning, **Fiber Optic** Technologies & Installation, Practical **Fiber Optics** Technology, Certified Fiber Optics Professional (**CFOP**), Practical **Fiber Optic Cables** (Joining & Termination), Practical **Fiber Optics** for Engineers & Technicians, **Process Control & Instrumentation**, **Process Control** Loop Operations, **Process Control** Troubleshooting & Problem Solving, **Process Analyzer** & Analytical Instrumentation, Distributed Control Systems (**DCS**), Programmable Logic Controller (**PLC**), Interruptible Power Systems (**UPS**), **Gas turbine**, **Steam Turbine**, **Rotational Speed & Guide**, **Supervisory Control** and Data Acquisition (**SCADA**), **High Voltage Electrical Safety**, **Circuit Breaker**, **Control System** Interface, **HV Switchgear** Maintenance, **Power Generation** Operation & Control, Fundamentals of **Power System Equipment**, Variable Frequency Drives **(VFD), Electrical Fault Analysis**, **Electrical Schematic Drawing**, **Cable Splicing and Terminating of Low-Voltage Cables**, Electrical Transient Analysis Programme **(ETAP)**, **AC/DC Motors**, Combined Cycle **Power Generation**, **Power System Protective Relaying,** Modern **Power Systems Protective Relaying**, **Antisurge Controllers**, **Cyber Security of Industrial Control System**, **Data Accuracy & System Function**, **Network** Comprehensive, Systems Analysis, **SCADA Security**, ESD System Function, Analysis & Control, **Custody Measurement & Loss Control**, **HV/MV Substation** Design & Maintenance, **PLC & SCADA Automation**, **SIS**, **SIL**, **ESD**, **Alarm Management** Systems and **Data Communication**. He is currently the **Operations & Maintenance Manager** of National Advanced Control Center (**NATA**) which is a **natural gas** transmission company and at the same time, he is the **Technical Manager** of the **SCADA Innovations**.

Mr. Ahmed has handled wide-ranging responsibilities in **communication**, **control** and **instrumentation** engineering throughout his career life. He started as **ODM Engineer**, **Fiber Optic Engineer**, **Network Technician** and **Fiber Optic Technician** for a multinational communication company in their **wireless access** solution department. This gave him the chance to join another multinational communication company working in **Optical Fiber Cables** and **SDH** transmission providing backbone **communication networks** for **SCADA projects** in **oil** and **natural gas** industries. Later on in his career, he worked for a natural gas transmission company as a **Senior SCADA Engineer** and took the responsibility for installation, commissioning, operation and maintenance of **SCADA systems** and its **communication links**.

Mr. Ahmed has a **Bachelor's** degree in **Electronics** and **Communications Engineering**. He is a **Certified Instructor/Trainer**, a certified **PMP Project Manager**, a **Certified Fiber Optic Technician**. Further, he has certifications in **SDH**, **Advanced PLC** and **Advanced SCADA** engineering from **ABB Italy** and he has **published numerous books** such as "**Control Centers**", **Remote Terminal Units & Communication**" and "**SCADA**" just to name a few. He has further delivered and presented innumerable trainings, courses, workshops, seminars and conferences worldwide.

Training Fee

US$ 5,000 per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Exam Fee

US$ 100 per Delegate.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1: ***Monday, 09th of December 2024***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction to Fiber Optics*** *What is "Fiber Optics?" • Types Of Fiber Optic Applications – Premises versus Outside Plant • The Reason for Industry Standards • Safety Working with Fiber Optics • The Necessity of Cleanliness in Working with Fiber • Jargon, The "Language" of Fiber Optics – How to "Speak Fiber Optics"*
0930 – 0945	*Break*
0945 – 1100	***Fiber Optic Communications Networks*** *How Fiber Optics is Used in Metropolitan and Intelligent Highway Systems as well as a Review of Telecom, Datacom and CATV Networks, CCTV, Security, Process Control, Etc. • How Fiber Optic Communications Links Work • Characteristics of Fiber Optic Sources and Detectors*
1100 – 1230	***Fiber & Cable*** *How Fiber Works • Fiber Types, Designs, Sizes • Cable Types & Specifications • Cable Types and Applications*
1230 – 1245	*Break*
1245 – 1420	***Fiber & Cable (cont'd)*** *Choosing a Cable Appropriate for the Application • Handling Cables, Pulling*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day One*

Day 2: ***Tuesday, 10th of December 2024***

0730 – 0930	***Lab: Hands-On Cable Preparation & Pulling*** *Using Samples of Cables, How Cables are Pulled and Prepared for Splicing and Termination*
0930 – 0945	*Break*
0945 – 1100	***Terminations & Splices*** *Connector Types • Terminating Processes • Fusion and Mechanical Splices • • Installation Tools • Cable Plant Hardware*
1100 – 1230	***Lab: Hands-On Splicing*** *Splicing Fiber Optic Cables with Fusion and/or Mechanical Splices • Installing Splices in Splice Closures • Testing Splices with OTDR*
1230 – 1245	*Break*

1245 – 1420	***Lab: Hands-On Terminations*** *How to Install Connectors on Fiber Optic Cables Using Appropriate Methods Adhesive/Polish, Splice-On Connectors or Pigtails • Testing Patchcords and Testin the Connectors Made in the Lab*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Two*

Day 3: Wednesday, 11th of December 2024

0730 – 0930	***Testing*** *Fiber Optic Test Procedures and Standards • Fiber Optic Test Equipment Types, Specifications and Applications • Visual Inspection and Cleaning • Difference Between Insertion Loss (OLTS) and Backscatter (OTDR) Tests • Measurement Uncertainty of Each Test*
0930 – 0945	*Break*
0945 – 1100	***Lab: Hands-On Fiber Optic Testing & Troubleshooting*** *Proper Use of Fiber Optic Test Equipment • Testing Cables, Connectors, Splices and Network Equipment • Troubleshooting and Fault Location*
1100 – 1230	***Designing a Fiber Optic Cable Plant*** *Procedures for Designing Fiber Optic Cable Plants • How to Plan a Fiber Optic Project • The Importance of Documentation • How to Manage a Fiber Optic Project • Lab: Case Study -Designing a Fiber Optic Cable Plant*
1230 – 1245	*Break*
1245 – 1420	***Installing a Fiber Optic Cable Plant*** *The Process of Installing a Fiber Optic Cable Plant • Planning for the Install • Training Requirements for Installers • The Installation Process • What Comes After the Installation*
1420 – 1430	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course*
1430	*Lunch & End of Day Three*

Day 4: Thursday, 12th of December 2024

0730 – 0800	***Briefing & Review***
0800 – 0815	*Break*
0815 – 1015	***MOCK EXAM***
1015 – 1030	*Break*
1030 – 1100	***Discussion on the MOCK EXAM***
1100 – 1115	*Break*
1115 – 1315	***FOA-CFOT EXAM***
1315 – 1330	*Presentation of Course Certificates*
1330	*End of Course*

Practical Sessions

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout fiber optic splicing, testing and troubleshooting exercises using the following state-of-the-art fiber optics technology and equipment, suitable for classroom training.

FSM-50S PROFILE ALIGNMENT FUSION SPLICER

Features & Capabilities:

- Fully automatic core alignment with 9 second splice time for SM fibre
- Reduced splice protector shrink time – now only 35 seconds
- Extremely compact & lightweight – just 2.8kg
- Automatic fibre-type identification
- Multi-position monitor for front or top mounting
- Real-time arc calibration
- Fibre clamps integrated into wind protector to reduce operation time

OptiFiber® OTDR

Features & Capabilities:

- Integrates power/loss, fiber length measurement, OTDR analysis and fiber connector end-face imaging
- allows network owners of any experience level to certify fiber to industry specifications and standards, troubleshoot links, and thoroughly document results
- makes dual wavelength OTDR measurements - 850/1300 nm or 1310/1550 nm
- identifies and characterizes the fiber link and its events
- compares the results to user-defined limits for immediate pass/fail link and event certification

Course Coordinator

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