



**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/Al Aziziya Hall, The Proud Hotel Al Khobar, Al Khobar, KSA

**Course Reference**

IE0641-4D

**Course Duration/Credits**

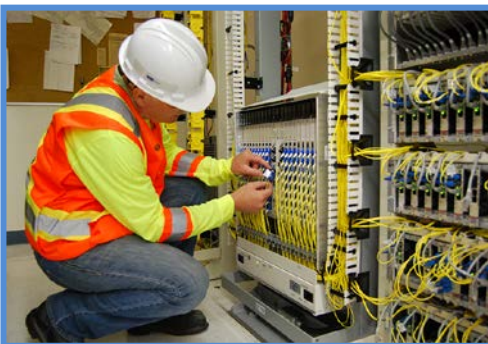
Four days/2.4 CEUs/24 PDHs



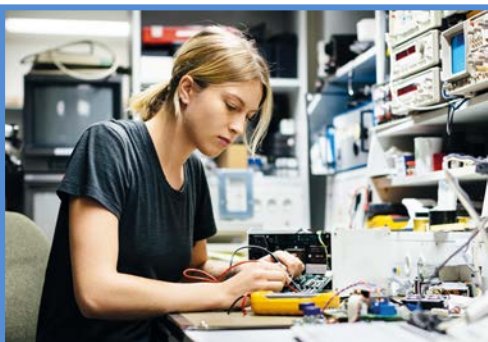
**Course Description**



***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, splicing, 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)**

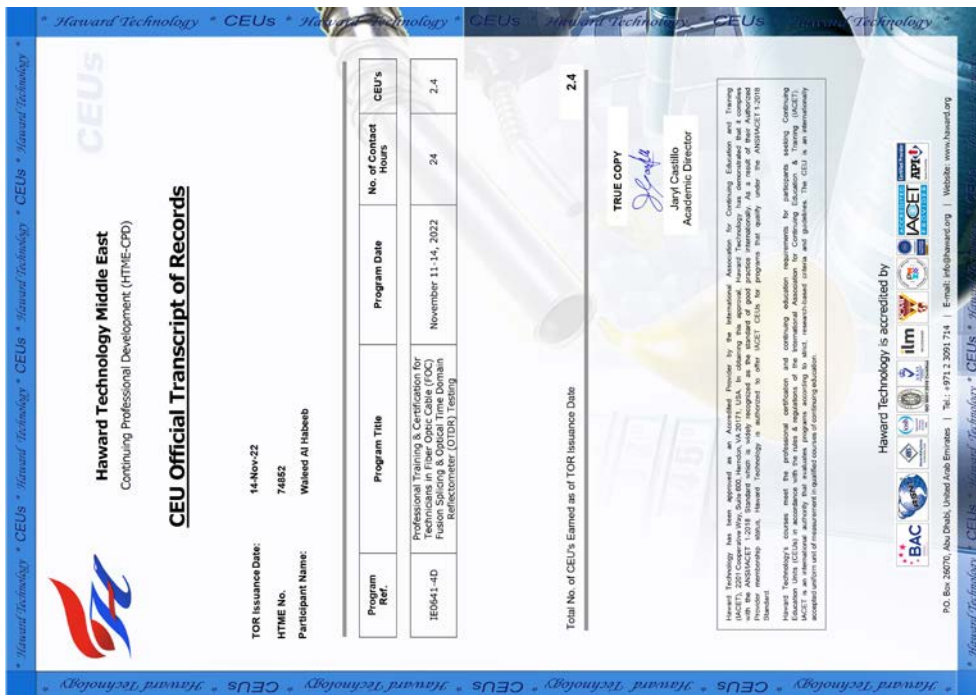
(1) Internationally recognized Competency Certificates and Plastic Wallet Cards will be issued to participants who completed a minimum of 80% of the total tuition hours and successfully passed the exam at the end of the course. Successful candidate will be certified as a “Certified Fiber Optic Technician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

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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.

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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:



**Professor Mike Kanova** is a **Senior Electrical & Instrumentation Engineer** with over **35 years** of industrial experience within the **Oil & Gas, Petrochemical and Refinery** industries. His expertise extends widely over the areas of **Refining & Rotating Equipment, Process Equipment, Instrumentation & Control, Control Loop Parameters, Control Loop Tuning, Surge Protect-Control, Business Management System (BMS), E&D Values & ROIVs Partial Stroke Testify, Alarm & Safety Interlocks System, P&IDs, Uninterruptible Power Supply (UPS) Design & Maintenance, UPS Construction, UPS DC & AC Types & Application, Static & Dynamic UPS, UPS Installation Methods, UPS Protection, Electric Heat Trace System, Foundation Fieldbus Data Communication & Fieldbus Systems, Data Communication & Fieldbus Systems, Fiber Optics Access Network Planning, Overhead Power Line Construction, Power Systems Control & Stability, Fault Analysis in Electrical Networks, OLE for Process Control (OPC), Process Control & Instrumentation, Distribution Cables, Custody Measurement, Loss Control & Multiphase Flowmetering of Petroleum Products, General Instrumentation & Process Control for Industrial Applications, Process Instrumentation, Process Control & Instrumentation, Process Measurement & Control, Experion PKS Operator, SCADA Systems, Generator Excitation, Process Control Techniques, Programmable Logic Controllers (PLC) Operation & Maintenance, Allen Bradley PLC, Siemens SIMATIC S7 Maintenance & Configuration, Distributed Control System (DCS) Applications, Selection & Troubleshooting, Compressor Control & Protection, GE Mark V, Power Systems Control & Stability, Advanced Electrical Safety, Switchgear Maintenance & Troubleshooting, Electrical Fault Investigation, Electrical Networks & Power Flow Analysis, Electrical Power Distribution System Performance & Methods of Improvement, Practical Fiber Optics Technology, Electric Motor Testing & Troubleshooting, Fundamentals of Telecommunication, Synchronous Digital Hierarchy (SDH) & Dense Wavelength Division Multiplexing (DWDM), WiMax Broadband Wireless, SDH Networks, IPT Avaya Network, WAN & Satellite Communication, Wireless Technology RC-400, National Electrical Code (NEC), National Electrical Safety Code (NESC), Security Systems Installation & Maintenance, Protection Relay, Power Generation, Circuit Breakers & Switchgears and Gas Turbine. Further, his experience has proven him well in the practice and has given him the chance to work with **international organizations** such as the Instrument Society of America (ISA), the Institute of Measurements and Control, the **United Nations Educational Scientific and Cultural Organization (UNESCO)** and the International Electrical Testing Association (NETA).**

During Professor Mohamed's career life, he gained extensive experience in the electrical, instrumentation and control systems engineering field through various challenging **engineering & managerial** positions that he filled while working as the **Scientist/Inventor, Project Manager, Development Engineer, Electronics Engineer, Stream Leader, Co-leader, Supervisor, Researcher, Conference Organizer, External Examiner, Lecturer** in Electronics, Opto-electronics and Power Electronics, **Course Developer, Organizing & Editorial Committee Member, Part-time Consultant** and Part-time **Lecturer** from the Cape Peninsula University of Technology, University of Cape Town, University of Western, University of Johannesburg Witwatersrand, Walter Sisulu University, **ESKOM, NRF, SCINAC Tokai, Plessey Southern Africa Retreat, Peninsula Technikon, SA Nylon Spinners and R&B Electronics Rondebosch.**

With the knowledge and skills he gained herein, he has produced **over 100 publications and papers** that were presented to numerous gatherings like the **International Conference on System Modelling & Control; International Conference on Industrial and Commercial Use of Energy; International Conference of Control Signals and Systems; the UICEE Annual Conference on Engineering Education, the ETMSA (Energy Technology Modelling, Simulation and Applications), the Symposium on Energy Technology, Modelling, Simulation & Applications.** Those papers were also published in journals such as the **NETA Journal; the IEEE Aerospace and Electronic Systems Journal; the International Journal of Power and Energy Systems; the Journal of the Electricity Supply Industry; the International Journal of Computers and Applications; the Journal of the Electronics Technology and the Quantum Journal.**

Professor Mohamed is a **Registered Professional Engineer** and has a **PhD, Master's and Bachelor's** degrees in **Electrical Engineering.** Further, he is a **Certified Instructor/Trainer, a Certified Internal Verifier/ Assessor/Trainer** by the **Institute of Leadership and Management (ILM)** and a well-respected member of the **IEEE** and is actively engaged with numerous projects in affiliation with the **Society for Photo-optical Instrumentation Engineers (SPIE), the Aerospace and Electronic Systems Society (AESS-IEEE), the Circuits and Systems Society (CSS-IEEE), the Lasers and Electro-optics Society (LES- IEEE) and the Power Electronic Society (PELS-IEEE).** He has further delivered numerous trainings, seminars, courses, workshops and conferences internationally.



**Course Fee**

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

**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, 09<sup>th</sup> of December 2024**

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Introduction to Fiber Optics</b> 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	<b>Fiber Optic Communications Networks</b> 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	<b>Fiber &amp; Cable</b> How Fiber Works • Fiber Types, Designs, Sizes • Cable Types & Specifications • Cable Types and Applications
1230 – 1245	Break
1245 – 1420	<b>Fiber &amp; Cable (cont’d)</b> Choosing a Cable Appropriate for the Application • Handling Cables, Pulling
1420 – 1430	<b>Recap</b> 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, 10<sup>th</sup> of December 2024**

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





1230 – 1245	Break
1245 – 1420	<b>Lab: Hands-On Terminations</b> How to Install Connectors on Fiber Optic Cables Using Appropriate Methods: Adhesive/Polish, Splice-On Connectors or Pigtails • Testing Patchcords and Testing the Connectors Made in the Lab
1420 – 1430	<b>Recap</b> 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, 11<sup>th</sup> of December 2024**

0730 – 0930	<b>Testing</b> 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	<b>Lab: Hands-On Fiber Optic Testing &amp; Troubleshooting</b> Proper Use of Fiber Optic Test Equipment • Testing Cables, Connectors, Splices and Network Equipment • Troubleshooting and Fault Location
1100 – 1230	<b>Designing a Fiber Optic Cable Plant</b> 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	<b>Installing a Fiber Optic Cable Plant</b> 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	<b>Course Conclusion</b> 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, 12<sup>th</sup> of December 2024**

0730 – 0800	<b>Briefing &amp; Review</b>
0800 – 0815	Break
0815 – 1015	<b>MOCK EXAM</b>
1015 – 1030	Break
1030 – 1100	<b>Discussion on the MOCK EXAM</b>
1100 – 1115	Break
1115 – 1315	<b>FOA-CFOT EXAM</b>
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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