



# دورة تدريبية في هندسة الألياف البصرية وشبكات الضوء البصرية



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الرجوع: 36307\_64268 التاريخ: 21 - 25 Dec 2026 الموقع: برشلونة الرسوم: Euro 5700

### Course Overview:

This course offers an in-depth exploration of the rapidly evolving field of fiber optic technology. This course is designed to provide participants with a complete understanding of fiber optic engineering, optical networks, and the fundamental principles of fiber optic communications. Key areas of focus include optical fiber transmission, signal processing, and the latest advancements in semiconductor lasers and photodetectors. Participants will gain practical knowledge in fiber optic systems, optical network design, and the maintenance of fiber optic components, all essential for mastering telecommunications networking. The course also covers critical topics such as optical-fiber theory, signal characterization, and high-speed optical communications, preparing attendees to tackle real world challenges in the industry. This training is ideal for those looking to enhance their expertise in fiber optic technologies and stay ahead in the competitive landscape of optical networking.

### Target Audience:

- Telecommunications Engineers
- Network Designers
- Optical Fiber Technicians
- IT Professionals specializing in Network Infrastructure
- Electrical Engineers
- Fiber Optic Installation and Maintenance Personnel
- Project Managers in Telecommunications

### Targeted Organizational Departments:

- Information Technology
- Telecommunications
- Research and Development
- Operations and Maintenance
- Network Infrastructure
- Technical Support
- Engineering
- Quality Assurance

## Targeted Industries:

- Telecommunications
- Internet Service Providers
- Manufacturing of Optical Components
- Defence and Aerospace
- Healthcare Medical Imaging and Diagnostics
- Energy Smart Grid and Communication
- Transportation Intelligent Traffic Systems
- Data Centres and Cloud Services

## Course Offerings:

By the end of this course, participants will be able to:

- Design and implement advanced fiber optic communication systems
- Analyse and optimize optical fiber transmission for high-speed data
- Develop and maintain reliable optical networks
- Understand the principles and applications of semiconductor lasers and photodetectors
- Apply knowledge of optical signal processing in various network scenarios
- Conduct thorough testing and measurement of fiber optic systems
- Implement fiber optic standards and best practices in installation and maintenance

## Training Methodology:

This course employs a blend of theoretical instruction and practical exercises. Participants will engage in case studies, hands-on labs, and group work, ensuring a deep understanding of fiber optic engineering concepts. Interactive sessions will facilitate knowledge sharing and collaborative problem-solving, while real-world scenarios will be used to illustrate the application of principles in fiber optic communications and optical networks. The course will also feature guest lectures from industry experts, providing insights into cutting-edge technologies and trends. Feedback sessions will allow participants to discuss challenges and solutions, enhancing their learning experience.

## Course Toolbox:

- complete course workbooks
- Checklists for fiber optic installation and maintenance
- Templates for network design and documentation
- Online resources for further reading and study
- Case study materials for practical application exercises

## Course Agenda:



## Day 1: Fundamentals of fiber Optic Communications

- Introduction to fiber Optic Communications Topic 1: •
- The Nature of Light in fiber Optics Topic 2: •
- The Wave and Particle Nature of Light Topic 3: •
- The Electromagnetic Spectrum Topic 4: •
- Elements of a fiber Optic Link Topic 5: •
- Light Sources, Detectors, and Glass fibers Topic 6: •
- Overview of Day 1 Concepts Reflection & Review: •

## Day 2: Advanced Concepts in Optical Networks

- Introduction to Communication Networks Topic 1: •
- Network Topologies Topic 2: •
- Telecommunication Networks Topic 3: •
- Networking Spans: LANs, MANs, and WANs Topic 4: •
- Hierarchical Structure of Networks and OSI Model Topic 5: •
- Circuit Switching vs. Packet Switching Networks Topic 6: •
- Key Learnings in Network Architecture Reflection & Review: •

## Day 3: Signal Characterization and Optical Components

- Signal Analysis in fiber Optics Topic 1: •
- Fourier Transform and Signal Representation Topic 2: •
- Digital and Analogue Signal Processing Topic 3: •
- High-Speed Electrical Signals in fiber Optics Topic 4: •
- Characteristics of Optical Signals Topic 5: •
- Spectral Characteristics of Optical Signals Topic 6: •
- Integrating Signal Concepts with fiber Optic Systems Reflection & Review: •

## Day 4: Semiconductor Lasers and Optical fibers

- Introduction to Semiconductor Lasers Topic 1: •
- Optical Gain and Oscillation Topic 2: •
- Physical Processes for Optical Amplification Topic 3: •
- Rate Equation Approximation and Laser Dynamics Topic 4: •
- Semiconductor Laser Structures Topic 5: •
- Introduction to Optical fibers and Their Properties Topic 6: •
- Laser Technologies and fiber Applications Reflection & Review: •

## Day 5: System Design, Reliability, and Standards

- Optical Transmitter and Receiver Design Topic 1: •
- Reliability in fiber Optic Systems Topic 2: •
- Test and Measurement Techniques in fiber Optics Topic 3: •
- fiber Optic Standards and Compliance Topic 4: •
- Emerging Trends in Optical Networks Topic 5: •
- Practical Applications and Case Studies Topic 6: •
- Course Wrap-Up and Final Discussions Reflection & Review: •

## How This Course is Different from Other Fiber Optics Engineering Courses:

The course distinguishes itself by offering an integrated approach that combines fundamental theory with hands-on practical training. Unlike other courses, this program delves deeply into both the engineering aspects of fiber optics and the operational challenges of optical networks. The curriculum is designed to be current with industry trends, including topics like WDM Networks, PONs, and the latest in semiconductor lasers and photodetectors.



## فئات الدورات التدريبية



HR TRAINING & DEVELOPMENT

دورات إدارة و تطوير الموارد البشرية



دورات إدارة و تحليل البيانات ودورات علم البيانات



دورات إدارة الجودة وتطوير العمليات



الدورات التدريبية في مجال البيئة والاستدامة



دورات التسويق وإدارة علاقات العملاء وإدارة المبيعات



دورات التدريب القانوني والمشتريات والتعاقدات



دورات الاتصال الجماهيري و السياسات والعلاقات العامة



دورات النظم السبراني ودورات تقنية المعلومات



دورات الصيانة ودورات المجالات الهندسية المتنوعة



دورات الصحة والسلامة والأمن المهني



دورات السكرتارية و إدارة المكاتب



دورات الحوكمة وإدارة المخاطر والامتثال



**AGILE LEADERS**  
Training Center

## فئات الدورات التدريبية



دورات معتمدة بشهادة CPD



دورات في مجالات القيادة والإدارة



دورات المهارات الشخصية وتطوير الذات



دورات المحاسبة و التمويل و دورات الإدارة  
الهائية



دورات مكتب إدارة المشاريع وإدارة المشاريع  
الرشيقية



دورات معتمدة من قبل هيئات دولية

## مدن التدريب



اسطنبول - تركيا



أمستردام - هولندا



أنقرة - تركيا



أثينا - اليونان



الرياض - المملكة العربية السعودية



الدوحة - قطر



الدار البيضاء - المغرب



الجبيل - المملكة العربية السعودية



باريس - فرنسا



المنامة - مملكة البحرين



الكويت - الكويت



القاهرة - مصر



براغ - جمهورية التشيك



بانكوك - تايلاند



بالي - جمهورية إندونيسيا



باكو - أذربيجان

## مدن التدريب



جاكرتا - جمهورية اندونيسيا



تيليسي - جورجيا



بوكيت - تايلاند



برشلونة - اسبانيا



روما - ايطاليا



دبي - الامارات العربية المتحدة



جوهانسبرغ - جنوب افريقيا



جنيف - سويسرا



شهر الشيخ - مصر



سيول - كوريا الجنوبية



سان دييغو - الولايات المتحدة  
الامريكية



زنبار - تنزانيا



طوكيو - اليابان



طشقند - اوزبكستان



طرابزون - تركيا



شيكاغو - الولايات المتحدة  
الامريكية

## مدن التدريب



كوالالمبور - ماليزيا



فيينا - النمسا



عن بعد - منصة زووم



عمان - المملكة الأردنية الهاشمية



ماربيا - اسبانيا



لندن - المملكة المتحدة



لانكاوي - ماليزيا



كيب تاون - جنوب إفريقيا



ميلان - إيطاليا



مونترنو - سويسرا



مسقط - سلطنة عمان



مدريد - إسبانيا



نيس - فرنسا



نيروبي - كينيا



ميونخ - ألمانيا

# WHO WE ARE

Agile Leaders is a renowned training center with a team of experienced experts in vocational training and development. With 20 years of industry experience, we are committed to helping executives and managers replace traditional practices with more effective and agile approaches.

## OUR VISION

We aspire to be the top choice training provider for organizations seeking to embrace agile business practices. As we progress towards our vision, our focus becomes increasingly customer-centric and agile.

## OUR MISSION

We are dedicated to developing value-adding, customer-centric agile training courses that deliver a clear return on investment. Guided by our core agile values, we ensure our training is actionable and impactful.

## WHAT DO WE OFFER

At Agile Leaders, we offer agile, bite-sized training courses that provide a real-life return on investment. Our courses focus on enhancing knowledge, improving skills, and changing attitudes. We achieve this through engaging and interactive training techniques, including Q&As, live discussions, games, and puzzles.



**AGILE LEADERS**  
Training Center

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