Submarine Cable Systems Operations and Maintenance Training Course



22 - 26 Nov 2026

Istanbul

4900 € (Per Person)

Ref: #TEL2468_238739

Course Introduction / Overview:

Submarine cable systems are the invisible backbone of the global internet, carrying over 99% of all international data traffic. Their seamless operation and strategic maintenance are critical for global commerce, communication, and security. This comprehensive training course provides an in-depth exploration of the entire lifecycle of submarine cable systems, from initial design and installation to daily network operations and complex marine repairs. As detailed in foundational texts like "Undersea Fiber Communication Systems" by Jose Chesnoy, the field combines advanced fiber-optic technology with challenging marine engineering. This program, offered by BIG BEN Training Center, is designed to equip professionals with the specialized knowledge and practical skills required to manage these vital assets effectively. Participants will delve into the intricacies of both the "wet plant" (undersea cables, repeaters) and the "dry plant" (landing stations, terminal equipment), gaining a holistic understanding of the system's architecture. The curriculum covers everything from routine performance monitoring and capacity management to emergency fault localization and deep-sea repair coordination. By mastering these competencies, attendees will be prepared to ensure the reliability, resilience, and longevity of critical subsea communication infrastructure, safeguarding the flow of global data.

Target Audience / This training course is suitable for:

- Network Operations Center (NOC) Engineers and Managers.
- Subsea Systems Technicians and Supervisors.
- Marine Operations Planners and Coordinators.
- Cable Landing Station Managers.
- Telecommunications Project Managers.
- Technical Support Engineers for Subsea Networks.
- Capacity Planners and Network Architects.
- Regulatory and Compliance Officers in Telecommunications.
- Field Engineers involved in cable maintenance.
- IT and Infrastructure Managers in data-intensive industries.

Target Sectors and Industries:

- Telecommunication Service Providers and Network Operators.
- Data Center and Cloud Service Providers.
- Content Delivery Network (CDN) Providers.
- Oil and Gas Exploration and Production.
- Governmental Agencies including Defense and National Security.
- Marine Engineering and Construction Companies.
- Financial Institutions with global operations.
- Scientific and Oceanographic Research Institutions.
- Global Enterprises with significant international data transfer needs.

Target Organizations Departments:

- Network Operations and Management.
- Marine Maintenance and Repair.
- Technical Planning and Engineering.
- Project Management and Implementation.
- Infrastructure and Asset Management.
- Regulatory Affairs and Legal Compliance.
- Global Network Strategy.
- Field Operations and Technical Support.
- Security and Risk Management.

Course Offerings:

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

- Analyze the complete architecture of modern submarine fiber optic cable systems.
- Differentiate between the components and functions of the wet plant and dry plant.
- Implement effective network monitoring and performance management strategies for subsea links.
- Understand the operational procedures of a Cable Landing Station (CLS).
- Evaluate marine survey data for route planning and cable protection.

- Describe the roles and operations of cable ships and Remotely Operated Vehicles (ROVs).
- Develop a systematic approach to submarine cable fault detection and localization.
- Formulate a comprehensive marine repair plan and coordinate associated logistics.
- Assess and mitigate security risks and physical threats to submarine cables.
- Apply industry best practices and international standards for cable maintenance.
- Plan for network restoration and disaster recovery scenarios.
- Analyze the commercial and regulatory landscape governing subsea cable systems.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be highly interactive, practical, and engaging, ensuring that participants gain both theoretical knowledge and real-world skills. This course moves beyond traditional lectures by incorporating a blended learning approach. Sessions will feature detailed presentations on core concepts, followed by immersive group discussions and collaborative problem-solving exercises. A significant portion of the training is dedicated to the analysis of real-world case studies, examining notable cable faults, successful repair missions, and innovative operational strategies from across the industry. Participants will work in teams on simulated scenarios, such as planning a cable repair operation or designing a network monitoring dashboard, which fosters practical skill development and peer-to-peer learning. The instructor will facilitate interactive Q&A sessions to address specific challenges and share expert insights. This hands-on, participant-centered approach ensures that attendees can directly apply the learned concepts to their professional roles, enhancing their ability to manage and maintain complex submarine cable systems effectively. BIG BEN Training Center is committed to providing a dynamic learning environment that bridges theory with practice.

Course Agenda (Course Units):

Unit One Introduction to Submarine Cable Systems

- Fundamentals of fiber optic communications.
- History and evolution of submarine cables.
- Global submarine cable network geography.
- Key components of a subsea system: wet plant and dry plant.
- System architecture: repeaters, branching units, and power feeding equipment.
- Types of submarine cables and optical fibers.
- Overview of the system lifecycle from planning to decommissioning.

Unit Two Dry Plant and Network Operations

- In-depth look at the Cable Landing Station (CLS) infrastructure.
- Submarine Line Terminating Equipment (SLTE) technology.
- Network Operations Center (NOC) roles and responsibilities.
- Techniques for performance monitoring and quality of service.
- System testing, commissioning, and acceptance procedures.
- Capacity management and network upgrades.
- Power feeding equipment (PFE) operation and safety.

Unit Three Wet Plant and Marine Operations

- Marine route surveys and seabed analysis.
- Cable installation techniques and burial methods.
- The role and capabilities of cable ships and support vessels.
- Introduction to Remotely Operated Vehicles (ROVs) in cable maintenance.
- Cable protection strategies against natural and man-made threats.
- Understanding marine regulations and permitting.
- Environmental considerations in marine operations.

Unit Four Fault Management and Repair Strategies

- Common causes of submarine cable faults.
- Techniques for fault detection and precise localization (OTDR, COTDR).
- Developing a cable fault response and repair plan.
- Logistics of mobilizing a repair vessel and crew.
- Cable jointing and repair procedures at sea.
- Post-repair testing and system restoration protocols.
- Disaster recovery and network resilience planning.

Unit Five Advanced Topics and Future Trends

- Submarine cable security: physical and cybersecurity threats.
- The legal and regulatory framework for subsea cables.
- Commercial aspects: consortiums, private cables, and landing parties.
- Asset management and strategies for extending system lifespan.
- Innovations in subsea technology: unrepeatered vs. repeatered systems.
- The impact of new technologies like coherent transmission.
- The future of global connectivity and the role of submarine networks.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

Considering the increasing geopolitical tensions and the physical vulnerability of subsea cables, how might future network architectures evolve to build greater resilience beyond simple route diversity?

What unique qualities does this course offer compared to other courses?

This training course distinguishes itself by offering a holistic and deeply practical perspective on submarine cable systems, a quality BIG BEN Training Center champions in all his specialized programs. Unlike courses that focus narrowly on either fiber optic theory or marine operations, this program integrates all critical aspects of the system's lifecycle. It provides a comprehensive understanding by seamlessly connecting the functions of the dry plant and network operations with the complexities of wet plant maintenance and marine repairs. The curriculum is built upon a foundation of real-world case studies, allowing participants to analyze actual cable faults, repair strategies, and operational challenges, moving beyond theoretical knowledge to practical wisdom. Furthermore, the course places strong emphasis on the strategic elements of management, including risk assessment, security, regulatory compliance, and asset longevity. This ensures that participants are not just trained as technicians but are developed as strategic managers of critical global infrastructure. The interactive methodology, focused on collaborative problem-solving and expert-led discussions, creates a rich learning environment where professionals can build tangible skills directly applicable to ensuring the resilience and reliability of the world's most vital communication networks.