

Certified Optical Network Associate Training Course

COURSE DESCRIPTION:

The Certified Optical Network Associate (CONA) course provides an in-depth introduction to modern optical telecommunications networks and transmission systems. Over five days, participants explore direct detection fibre optic networks, from single-channel systems through to advanced multi-channel optical technologies.

The course focuses on practical methods for designing and optimising optical networks, covering key factors such as fibre quality, attenuation, dispersion and transmission performance. Real-world case studies are used to demonstrate optical network planning, system configuration and troubleshooting techniques.

Participants will gain the knowledge required to design and evaluate optical transmission links, assess fibre infrastructure performance and understand the technologies that support high-capacity optical communications networks.

WHO SHOULD ATTEND?


Optical network planners, telecommunications engineers, WAN service engineers, data centre network engineers, operations staff and professionals working with fibre optic communication systems.

SOME COURSE BENEFITS:

- Understanding of modern optical telecommunications networks
- Ability to design and evaluate optical transmission links
- Knowledge of optical components and system architecture
- Improved ability to assess fibre infrastructure performance
- Practical understanding of dispersion, power budgets and optical amplification

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COURSE OBJECTIVES:

Participants will gain the knowledge and skills required to:

- Plan optical transmission links supporting high capacity networks
- Specify components required for fibre optic transmission systems
- Design links for optimal performance and testability
- Calculate chromatic dispersion requirements and compensation methods
- Verify optical link performance based on power levels and dispersion limits
- Assess fibre infrastructure suitability for different optical systems
- Identify when optical amplifiers are required and select suitable technologies
- Determine optical power budgets for transmission systems
- Calculate optical loss budgets for fibre optic links

FORMAT:

5-day interactive classroom training including theory sessions, case studies and practical exercises.

Maximum attendees: 10 per course.

CONTENT:

Introduction to Optical Networking


- Course introduction
- Optical networking overview
- Case study discussions

Fundamentals of Light & Optical Transmission


- Understanding light
- Managing light in optical systems
- Light propagation in optical fibres

Multiplexing Technologies

- Introduction to multiplexing
- Multiple channel transmission systems
- Optical networking infrastructure

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Optical Fibre Infrastructure

- Optical fibres for telecommunications
- Fibre optic network infrastructure
- Specifying fibre optic cables

Fibre Installation & Connectivity

- Jointing external cables
- Terminating external cables
- Connector technologies
- Fibre polarity considerations

Infrastructure Testing

- Testing fibre infrastructure
- Performance verification

Optical Transmission Systems

- Transmission system architecture
- System performance considerations
- Power levels and optical loss

Optical Amplification

- Optical amplifier technologies
- When and where amplifiers are required


Optical Components & Devices

- Optical transceivers
- System components


Dispersion in Optical Networks

- Dispersion fundamentals
- Chromatic dispersion
- Chromatic dispersion management
- Polarisation mode dispersion (PMD)

Optical Network Architecture

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- Optical networking concepts
- Photonic networks

Practical Implementation


- Optical system deployment considerations
- Network testing and verification

Assignment

Participants will complete a course assignment to demonstrate understanding of optical network design principles.

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