Intermediate Fibre Optics Training

Duration: Full Day (7–8 hours)
Level: Intermediate
Delivery: Classroom + hands-on practical sessions
Certification: Certificate of Completion (Intermediate Level)

Course Overview

Connector Mastery & Installation Practices (Australia) is a hands-on, intermediate-level course designed for technicians actively working with fibre infrastructure in carrier, data centre, mobile, mining, and enterprise environments.

Building on the fundamentals covered in **Fibre Foundations**, this course focuses on **connector performance, installation quality, loss control, and compliance with Australian standards**, preparing participants for real-world deployment scenarios.

Who Should Attend

- Working fibre technicians and installers
- Carrier and data centre installation teams
- Mobile network and DAS installers
- In-house fibre and IT infrastructure teams
- Contractors supporting **Telstra, NBN, utilities, mining, and defence** projects
- Anyone who has completed the **Entry-Level Fibre Foundations** course (or equivalent experience)

Prerequisites

- Basic understanding of fibre types and connectors
- Familiarity with fibre safety and cleaning practices
  (Entry-Level Fibre Foundations recommended)

Topics Covered

Module 1 - Advanced Connector Theory & Performance

- Detailed connector types and applications:
    - SC, LC, FC, ST
    - UPC vs APC – reflection, return loss, and use cases
- High-density connectors:
    - MPO / MTP (12F, 24F, 144F ribbon systems)
- Connector tolerances and Grade A performance
- Connector failure modes and common field issues

Module 2 - Australian Standards & Compliance

- AS/CA S008 & S009 — practical interpretation
- Carrier-specific requirements (Telstra-aligned practices)
- Documentation and compliance checklists
- Installation sign-off requirements

Module 3 - Fusion Splicing – Best Practices

- Fusion splicing fundamentals
- Fibre preparation, cleaving, and splice protection
- Managing splice loss and environmental factors
- Splice tray layout and fibre management
- Common splicing mistakes and how to avoid them

Module 4 - Cable Handling & Mechanical Integrity

- Bend radius limits (static vs dynamic)
- Tensile loading and pulling practices
- Aramid yarn and strength member management
- Breakout cable design and handling
- Managing hybrid cables (power + fibre) safely

Module 5 - High-Density & Modular Fibre Systems

- MPO/MTP trunk and cassette architectures
- Polarity types (A, B, C) and application scenarios

- Connector orientation and gender management
- Modular patching strategies for scalability
- Integration of splitters, CWDM/DWDM passives

Module 6 - Loss Budgeting & Performance Planning

- Understanding end-to-end loss budgets
- Typical loss values for:
    - Connectors
    - Splices
    - MPO/MTP interfaces
- Designing within carrier and data centre thresholds
- Using Grade A components to extend system life

Module 7 - Test & Commissioning Fundamentals

- OTDR basics:
    - Trace interpretation
    - Event identification
- Power meter and light source testing
- Visual Fault Locator (VFL) use cases
- Acceptance testing and documentation

Module 8 - Installation Workflows & Checklists

- Step-by-step installation workflows
- Pre-install and post-install checklists
- Handover documentation requirements
- Reducing rework and fault call-outs

Tools & Products Used During the Course

Participants will work with real Diamond Optics solutions, including:

- MPO/MTP trunks and modular cassettes
- Hybrid fibre cables (4 RRU, 6 RRU, 9 RRU)

- Breakout fibre assemblies
- Fusion splicing tool kits
- VFLs, power meters, inspection microscopes
- Fibre cleaning systems and consumables

What You'll Gain

By the end of this course, participants will:

- Confidently install and manage fibre connectors in live networks
- Reduce optical loss and improve system reliability
- Understand and apply Australian installation standards
- Work effectively with high-density and hybrid fibre systems
- Perform basic testing and fault identification
- Be prepared for complex field deployments

Pathway

This course prepares participants for:

➞ **Advanced Fibre Systems & Network Design**
➞ High-density data centre deployments
➞ Mobile and industrial fibre environments