Fibre Foundations (Australia)

Duration: Half Day (3.5–4 hours including breaks)
Delivery: Classroom + hands-on demonstrations
Location: On-site / Diamond Optics facility / Partner sites
Certification: Certificate of Completion (industry-aligned)

Who This Course Is For

This course is designed for individuals **new to fibre optics or transitioning into fibre-based infrastructure**, including:

- Beginners with **no prior fibre experience**
- Junior technicians and apprentices
- Electricians and data installers moving from copper to fibre
- Contractors seeking to work on **Telstra, NBN, carrier, or enterprise projects**
- Mining, industrial, or defence personnel exposed to fibre systems
- Project managers or supervisors needing foundational fibre knowledge

☞ **No prior fibre knowledge required**

Course Objectives

By the end of this course, participants will:

- Understand how fibre optic systems work in Australian networks
- Identify common fibre types, connectors, and applications
- Apply correct handling, cleaning, and safety procedures
- Understand optical loss, testing basics, and contamination risks
- Gain confidence working with patch leads, panels, and pre-terminated systems
- Be better prepared for carrier-aligned installation environments

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Course Structure (Half Day)

Module 1 — Fibre Optics Fundamentals

- What is fibre optics and why it's used
- Fibre vs copper: performance, distance, EMI immunity
- Singlemode (SM) vs Multimode (MM)
- Common fibre counts and applications

Module 2 — Australian Standards & Compliance

- Overview of **AS/CA S008 & AS/CA S009**
- Why standards matter on carrier sites
- Documentation and workmanship expectations
- Introduction to Telstra-style compliance requirements

Module 3 — Fibre Connector Types (Hands-On)

- Common connector formats:
    - SC
    - LC
    - FC
    - ST
- APC vs UPC polishing
- Connector handling and mating best practices
- Introduction to **MTP/MPO** (high-level overview only)

Module 4 — Fibre Loss & Performance Basics

- Understanding dB and insertion loss
- Where losses occur in real networks
- Connector vs splice vs bend loss
- Why cleanliness is critical to performance and longevity

Module 5 — Cleaning, Inspection & Contamination Control

- Fibre contamination risks explained
- Cleaning before every connection (why it's mandatory)
- Hands-on inspection using scopes

- Correct use of:
    - Dry cleaners
    - Wet/dry methods
    - Cassette and port cleaners

Module 6 — Introduction to Splicing (Awareness Level)

- What fusion splicing is
- When splicing is required vs pre-terminated solutions
- Splice trays, protection sleeves, and enclosure basics
- Common beginner mistakes (and how to avoid them)

(Note: No live splicing — this is an awareness module only)

Module 7 — Introduction to Diamond Optics Solutions

- Patch leads and assemblies
- Entry-level fibre tool kits
- Cleaning and inspection solutions
- Introduction to **pre-terminated and hybrid fibre systems**
- Where these products fit into real-world deployments

Module 8 — Safety & Best Practices

- Laser safety fundamentals
- Fibre shard hazards
- PPE expectations
- Safe disposal of fibre waste
- Working in live environments

Tools & Products Demonstrated

Participants will gain hands-on exposure to:

- Diamond Optics LC & SC patch leads
- Fibre cleaning kits
- Inspection microscopes/scopes

- Entry-level fibre tool packs
- Pre-terminated fibre assemblies
- Hybrid cable samples (introductory)

What Participants Will Gain

✓ Strong foundational understanding of fibre optics
✓ Confidence handling connectors and patching systems
✓ Awareness of Australian standards and site expectations
✓ Reduced risk of installation errors and rework
✓ Improved employability on carrier and enterprise projects
✓ Certificate of Completion suitable for contractor records

Outcomes & Next Steps

This course serves as:

- A **foundation prerequisite** for Diamond Optics' **Intermediate Fibre Installation Practices** course
- An entry point for technicians aiming to work on:
    - Telstra mobile sites
    - Data centres
    - Industrial and mining fibre deployments
