NTAR
NATIONAL TRAINING ACADEMY FOR RAIL

Telecoms

TECHNICAL TRAINING

Contents

What is NTAR?

Our history

The idea of a National Training Academy for Rail (NTAR) came from the recognition that a significant skills gap existed in the rail industry just as the transition to the 'Digital Railway' gathered speed.

In fact, the shortage was a predicted 8,000 people over a ten year period.

So a collaboration between the National Skills Academy for Rail (NSAR), the Department for Business Energy and Industrial Strategy, along with the Department for Transport, and Siemens Mobility, conceived an idea to create a training academy that would 'mind the gap' and create a highly-skilled workforce for the future.

In 2015, NTAR opened its doors to its first intake of students.

Since then, more than 21,000 delegates have attended our multi-million pound training facility in Northampton to upskill, learn, and retrain on our many practical, skills development and educational programmes. We pride ourselves on providing trainees with the skills to ensure they have the competency to do their job and an experience that makes them eager to return.

Welcome from Joanna Binstead

NTAR is a unique environment where everyone who trains or tutors is part of the operational business. We believe in providing our trainees and learners with a positive experience and delivering the highest quality education from rail industry experts who have years of proven practical experience. For us, NTAR is a place to inspire and skill, so the people who attend our programmes leave feeling highly accomplished.

When you operate in a safety-critical industry like rail, you need to be confident that experts have trained your experts and they have the level of competency required for your work to be conducted safely and skilfully.

If you are an armed forces leaver you need to be sure that as you transition to your second career, your transferable skills will be applied to new learning as you retrain for the rail industry.

Or, if you're supporting a young person through an apprenticeship as they start their career, you need to be convinced that they will be equipped with the specialist training that will contribute to your business. I'm here to assure you that this is what NTAR delivers daily.

Technical Training in Telecommunications

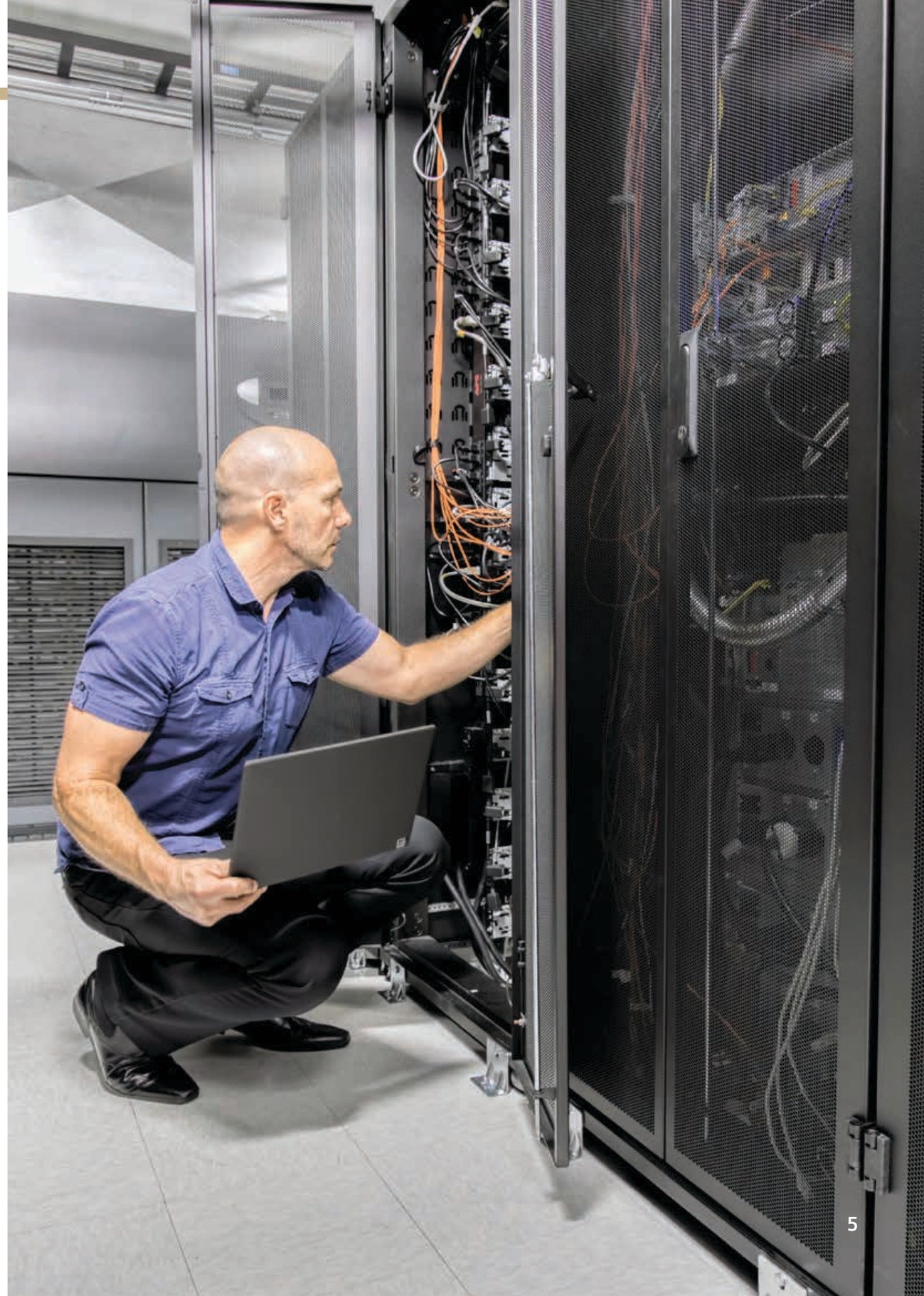
The demand for 24/7 Wi-Fi connectivity from rail passengers finally led to the announcement by the UK government in 2017 of its plans to modernise telecommunications and provide uninterrupted connectivity on main routes by 2025. Passengers want to be able to use their travel time effectively by working and communicating on the move, and that means consistent access to Wi-Fi.

This extensive upgrade requires rail technicians to understand the new technology - fibre optics, and the current technology they're replacing – copper cabling. To ensure technicians and engineers can meet this ambitious target NTAR has developed a qualification, suitable for both industry and ex-forces, that will equip the railway's telecoms experts with the technical knowledge and relevant skills to achieve the government's connectivity plans.

Qualification:

- EAL Level 3 Award
  Telecoms, Fibre and Copper

Developed and delivered
in partnership with



Course Code: **NTAR 1205**

Technical Training: Telecoms

EAL Level 3 Award Telecoms, Fibre and Copper

The qualification has a Total Qualification Time of 70 hours of which 30 are Guided Learning for each of the selected Units. Learners should expect to spend around 5 hours outside of the course, studying and completing assignments for each Unit.

Qualification
This qualification is accredited by OfQual at Level 3

What is this qualification?

The EAL Level 3 Award in Telecoms, Fibre and Copper includes two units:

- **Copper Cable Termination and Testing** – this has a total of 10 learning outcomes that the learner must complete
- **Fibre Optic Splicing, Termination and Testing** – this has a total of 10 learning outcomes that the learner must complete

This qualification is achieved when either one or both of the units (stand-alone units) have been achieved.

The two qualification units which will develop the knowledge and practical skills the learner requires to progress in copper or fibre cable engineering, particularly the methods used in splicing, termination and testing of copper and/or fibre cables in the relevant industries.

What does it cover?

The learner can undertake either of the units independently or they can select both units together. Certification will be awarded for either one of the units or both.

As part of the learning outcomes, learners will also cover topics including health and safety, planning, and undertaking tasks which are relevant to the copper and/or fibre optic cable termination and testing environments for the relevant industries.

What could this qualification lead to?

This qualification is aimed at new entrants to the relevant cable splicing, termination and testing industry who wish to develop their knowledge and practical skills to enable progression within their workplace. They could be learners who may already have prior knowledge and understanding of associated engineering, or furthermore, they could have the ability to achieve a level 3 qualification.

Alternatively, for example, upskilling or career changes for learners who may have existing technical engineering competence and knowledge at level 3 and now wish to progress into the copper and fibre cable engineering industry.

Requirements

Learners must have the minimum levels of literacy and numeracy to comply with the health and safety aspects of the qualification, the completion of the learning outcomes and the assignments.

Learners must be at least 16 years old.

Location
NTAR, Northampton

Duration
5 Days when a single Unit is selected or 10 Days when both Units are being taken

Delivery Channel
Face to Face

Maximum Attendees
12

Candidate Profile
Learners may have a prior knowledge and understanding of associated engineering and have the ability to achieve a Level 3 qualification.

Developed in partnership with

Units shown on the following pages >

Overview of Copper Cable Termination and Testing unit

Unit purpose/ aims

This qualification is intended to introduce learners to the various copper cables used within industry applications. The unit covers the component parts of copper cables, cable termination and basic cable testing.

Learners will require access to copper cables and terminating enclosures, cables to include PEUT(20/09) and Tail cables 2/0.9) and associated terminating and test equipment to complete this unit.

1. Work safely when working with internal and external copper cables

Learning criteria:
- Identify the hazards when working with copper cable products within the specified working environment
- List the control methods used to manage the hazards with the copper network

2. Install copper cables in the approved containment both armoured (external) non armoured (internal)

Learning criteria:
- Identify the different types of troughing and enclosures used in the specified working infrastructures
- Describe how specified environments identify their copper cables and the colour coding and wrapping of the PEUT type cable
- Install cables in approved containment

3. Prepare copper cables for jointing and termination within joints, enclosures and panels

Learning criteria:
- Strip armoured and Internal cable
- Clean and separate the internal pairs within the cable
- Identify cable pairs within cables and units

4. Prepare cables for termination in an enclosure or cable joint

Learning criteria:
- Separate cable pairs using the correct colour code
- Clean and strip individual cable pairs
- Terminate cables within an IDC type termination
- Extend circuits using the correct jumpering wires
- Identify circuit types using the correct jumpering wire
- Complete cable termination details for records

5. Label specified environment telecoms cables and enclosures

Learning criteria:
- Identify the cable for labelling
- Identify different types of enclosures (REB, TEH, BOP, LOC)
- Use the correct labelling method

6. Identify copper cable tests compliant with the specified work environment standards

Learning criteria:
- Identify copper cable tests compliant with specified work environment standards
- List the various cable tests for copper cables used with the external network

7. Use copper cable testing equipment

Learning criteria:
- Set cable pairs appropriately for the designated test
- Use test equipment to prove cable pair setting
- Record test results in suitable format

8. Install a Signal Post Telephone (SPT) onto a post and terminate the cable tail

Learning criteria:
- Install a SPT telephone
- Terminate the tail cable within the phone and the BOP
- Carry out a cable test
- Carry out a telephone test
- Ensure the telephone is correctly labelled to specified work environment standards

9. Extend cable circuits on a Main Distribution Frame (MDF)

Learning criteria:
- Identify how the circuits are labelled on a MDF within a specified work environment building
- Identify Individual circuits from records
- Extend circuits using the correct jumper wire

10. Identify circuits within a Main Distribution Frame (MDF)

Learning criteria:
- Trace cable jumpering on an MDF
- Record results in correct format

Overview of Fibre Optic Splicing, Termination and Testing unit

Unit purpose/ aims

This qualification is intended to introduce learners to the various fibre optic cables used within the industry infrastructure.

It covers Fibre Optic components, installation techniques including; splicing and termination and the diagnostic approach to fault finding on the Optic network.

1. Work safely when working with optical fibre cables

Learning criteria:
- Identify the hazards when working with fibre optic transmission products within the specified working environment
- List the control methods to manage the hazards with the optical transmission network

2. Route Armoured and Double Insulated Super Armoured Cable (DISAC) optical fibre cables in specified work environment approved containment

Learning criteria:
- Identify the different types of fibre optic cable commonly used within the specified working infrastructures
- Identify the different types of troughing and enclosures commonly used within the specified working infrastructures
- Describe how the specified working environment fibres are identified and the colour coding and wrapping of the internal fibre cores and strands

3. Prepare optical fibre cables for jointing and termination

Learning criteria:
- Strip armoured and DISAC cable
- Clean and separate internal fibre tubes
- Wrap into joint or panel as required

4. Use cleaving and splicing techniques for both single and multimode fibre cables

Learning criteria:
- Separate individual fibre strands using the correct colour code
- Clean and strip individual fibre stands
- Cleave and splice both single mode and multi-mode fibre

5. Seal and label specified work environment telecoms enclosures

Learning criteria:
- Close the enclosure and panels without damaging the fibres
- Seal inputs to the enclosure with heat shrink
- Use the correct labelling method

6. Use correct specified work environment procedures for fibre testing

Learning criteria:
- Interpret straight line fibre drawings and panel references
- List the correct wavelengths and pulse commonly used by the specified working environment

7. Prepare optical test (Optical Time Domain Reflectometer (OTDR) and optical component cleaning equipment

Learning criteria:
- Clean and prepare all fibre test leads and buffers
- Use equipment to confirm cables are correctly prepared
- Power up and set the OTDR within the specified working environment parameters
- Set up the file storage within the OTDR for test results

8. Apply Optical Time Domain Reflectometer (OTDR) set up parameters for bi-directional testing and fault finding

Learning criteria:
- Run a bi-directional test

9. Use Optical Time Domain Reflectometer (OTDR) distance markers and fault procedures

Learning criteria:
- Use distance markers to identify anomies and splice points on the OTDR
- Describe the specified working environment fault tolerances and how to identify faults
- Save the results in a suitable format

10. Use Optical Time Domain Reflectometer (OTDR) red light function

Learning criteria:
- Use OTDR red light function to identify local faults and fibres

Contact us

We welcome all enquiries.

If you are a business or individual interested in finding out more about NTAR, and the qualifications, courses and services that we offer, please do not hesitate to contact us at our state-of-the-art facility in Northampton.

We would also be keen to hear from you if you are a training provider or supplier interested in working with NTAR, to further support our curriculum.

We can be contacted through the enquiry form on our website, by email or by calling us on:

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