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FOD: Working in access networks

Online course specification

Target audience:
Those who install, maintain and repair the copper and fibre connections to homes, businesses, and mobile cell sites within the UK's National Telecom Access Network.
This course supports the delivery of the following knowledge elements of the Telecoms field operative apprenticeship standard: K2, K4, K6, K7, K8, K10, K13, K14, K15.

Course aim:
This online course describes the role and responsibilities of field operatives working in the access networks that provide telecommunications services to businesses and residential customers.

Course level: Introductory
An explanation of PTT course levels is given at the end of this document

Pre-requisites:
This course does not assume any prior knowledge of telecommunications.

Course structure:
The course consists of the following four modules:

1. Providing telecoms services
2. Task and record management
3. Working safely
4. Data protection

Module 1: Providing telecoms services

Module aim: To describe the role of field operatives in providing access to, and ensuring the availability of, communications services and describe the environments in which those operatives are required to work.

After completing this module, a trainee will be able to:

- describe how access networks employ copper wire and optical fibre connections to provide telephony and broadband services to businesses and residential customers.
- describe the various tasks a field operative may be required to carry out in terms of installing, commissioning, testing, fault-finding, and repairing copper and fibre connections.
- describe the importance of ensuring a high availability of service provision and the timely delivery and restoration of service.
- describe the various types of location and environments in which a field operative may be required to work under supervision, alone, or as part of a team.
- describe the role of the various components of the physical infrastructure of access networks.
- explain that with the unbundling of service provision, access to parts of an access network may be required by different communications providers and contractors.

Module 2: Task and record management

Module aim: To describe the procedures involved in the management of maintenance tasks, the types of information that will aid installation and maintenance tasks, and the facilities of online applications that assist task and record management.

After completing this module, a trainee will be able to:

- define and compare the role of corrective maintenance and preventative maintenance.
- describe the types of information that should be available to field operatives to aid them in their installation and maintenance tasks.
- describe the procedures involved in carrying out maintenance tasks including the issuing of work orders, signing off completed tasks, and demonstrating service availability.
- describe the role of the operations and maintenance (OAM) team in managing and co-ordinating the maintenance of the access network.
- describe the role and importance of network records and the types of information held by those records.
- explain the importance of keeping network records up to date and completing tasks in the allotted time.
- describe the role and facilities typically provided by a computerised maintenance management system.
- explain the role and benefits of integrating geographic information system (GIS) data as employed by online maintenance and record management applications.
- describe the role and facilities typically provided by online fibre network management applications.

Module 3: Working safely

Module aim: To identify hazards that may be faced by telecoms field operatives, the importance of being aware of, and adhering to, appropriate safe working practices and legislation.

After completing this module, a trainee will be able to:

- describe the relationship between “hazard”, “risk” and “risk rating” and the importance of minimising the risk rating of a hazard before carrying out work.
- identify hazards that may be experienced by field operatives and give examples of the risk mitigating measures taken for working at height, in enclosed spaces, with optical cables, and with mobile base stations.
- explain that the health and safety at work Act identifies the responsibilities of employers and employees in maintaining a safe work environment for colleagues, customers and members of the public.
- give examples of the regulations, and approved codes of practice directly applicable to working in a telecoms access network and explain their relationship to the health and safety at work Act.
- explain that the safety at street works and road works code of practice details the precautions and procedures that should be followed to ensure the safety of operators and members of the public.
- explain the importance of receiving appropriate training to minimise the risk of harm from those hazards that an operative may be exposed to when carrying out assigned tasks.
- describe the importance and purpose of a risk assessment and method statement in ensuring a task is carried out safely.
- explain that an employer should maintain documented health, safety and environmental policies and procedures that are accessible by employees.

Module 4: Data protection

Module aim: To explain the need to protect information gathered by communications providers and describe the responsibilities of an organisation and its employees in protecting that data.

After completing this module, a trainee will be able to:

- define the terms confidentiality, privacy, integrity, and availability as applied to the protection of customer data.
- describe the types of information about customers and employees gathered by communications service providers and why such personal data should be kept secure.
- describe the various types of electronic and social engineering attack on the confidentially of personal data.
- describe the motives of attackers and the potential effects of security breaches.
- describe the role, scope, and aims of GDPR data protection legislation in the UK and Europe.
- explain that any misuse of personal data or loss of access to critical online systems can lead to financial and reputational losses for an organisation.
- describe the measures that should be taken to avoid unauthorised access to computer systems including strong passwords and multi-factor authentication.
- describe the responsibilities of employees of an organisation in protecting the confidentiality of the personal data gathered by that organisation.
- state that customers and employees have the right to check the accuracy, scope, and use of the personal information held about them by a communications service provider.

Course access requirements:
To access the course, a computer/tablet running a browser such as Chrome, Safari, Edge etc is required. The device should have an active Internet connection and a screen resolution of at least 1024x768.

Learning facilities:
This online course employs interactive simulations, hypertext links to an online glossary and multiple-choice question sessions to fully involve the trainee in the learning experience. Each module provides revision links to previously studied, relevant topics. A record of progress and level of achievement is recorded for each trainee. Once studied as a structured, assessed course, the content can be browsed for revision or reference.

PTT course levels:
PTT online courses are categorised by one of three levels according to the depth of treatment they provide:

1. **Introductory:**

   PTT Introductory courses are designed for those with no previous experience or knowledge of telecommunications. These courses provide an overview of telecommunications or discuss the fundamentals of electronic communications. The study of general science at secondary (high) school is a typical pre-requisite for PTT Introductory courses.
   PTT Introductory courses are suitable for those joining the telecommunications sector particularly those in an apprenticeship programme.

2. **Intermediate:**

   PTT Intermediate courses are designed for technicians and engineers requiring an understanding of a certain aspect of digital technology. Those planning to study an Intermediate course should understand the basic principles of computing or electronic communications.
   The depth of treatment provided by Intermediate courses is typically equivalent to level 3 of a UK national vocational qualification (NVQ).
   PTT Intermediate courses can be used to support level 3 digital apprenticeships.

3. **Advanced:**

   PTT Advanced courses are designed for those who require an in-depth treatment of a certain aspect of telecommunications. Such courses are suitable for system designers as well as those who will be responsible for the maintenance of the system described in the course.
   Those planning to study a PTT Advanced course should have a background in telecommunications, and an understanding of telecommunications fundamentals and the principles of the type of telecommunications system described in the course.

PTT
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