Principles of Communications Cabling

Lesson 0: Course Outline

Introduction

Hello and welcome to this training course on Principles of Communications Cabling.

We live in the age of data. Big Data

What is Big Data?

Big data is the set of technologies created to store, analyse and manage the explosion of data available to us.

This explosion in available data is caused by the rapidly increasing number of devices (estimated to be over 20 million) now connecting to the internet.

These devices are in very diverse sectors such as medicine, agriculture, gambling, engineering and environmental protection.

Smart sensors in medical devices monitor patient vitals and provide important medical information.

Vehicles and appliances have increasing number of data sensors that can tie into automation or artificial intelligence for optimal control.

In agriculture, soil and weather monitoring can be used to identify the time to sow and harvest and predict the exact amount of fertiliser or pesticide application.

In Industry Information 4.0 and the Internet of things we now see more autonomous manufacture with a high degree of machine data interchange, robotic operation and data interchange among different computer systems.

The increase in demand for data and the need to use the data very quickly requires the transfer of data in communications cables at high speed.

“High-speed” is a relative term that has constantly evolved from a few hundred bits per second to communications channels that feature transfer rates over 100Gbits per second.

The communication signal must also ensure that the data transferred has a high degree of integrity with minimal signal loss and distortion.

This critical requirement to transfer large volumes of data in high- speed signals has led to the roll out of new high capacity communications cable networks.

In this course we will look at the principles of communications cable networks and how they work.

On completion of this training course, you will be able to:

- Understand the safety risks and precautions associated with communication system installations
- Understand the relevant safety regulations and legislation that apply to communications system installations
- Understand the symbols and SI units associated with signal transmission
- Understand the different elements of a communications system
- Appreciate the properties of different communications channels
- Understand optical fibre transmission and the advantages and disadvantages over copper transmission
- Understand the principles of analogue and digital data communication
- Appreciate the use of modems, multiplexers and different network topologies in data communication

Who is this course for?

This course is ideal for those who are looking to study Communication Networks

This course is also appropriate for those who wish to work in the installation and testing of communication cable networks.

The course is divided into 4 lessons:

- **Lesson 1: Safe Working Practices**

- **Lesson 2: SI Units and Symbols**
- **Lesson 3: Principles of Communication Systems**
- **Lesson 4: Principles of Data Communications**

How to navigate the course

If this is your first course with People & Process Academy, be sure to look at “Studying with People & Process” before you begin. This short video shows you how to find your way around the lessons and modules.

Lessons are all presented in video format, and there's a transcript you can follow as you watch. If you like, you can download the video transcript to revise later on. In this course, each new lesson builds on previous information, so it’s best to follow the lessons in order. Similarly, you should follow each module in sequence as you first go through the course. All registered users have unlimited access to video lessons and transcripts, and you can repeat each video as often as you like.

There's a discussion forum attached to this course. You'll find the discussion forum on the course homepage. In this forum you can chat to other students and leave questions and comments on the course.

If you have any difficulties navigating the course, see the support section for help.

The Assessment Method

There's a quiz at the end of each lesson to test your understanding of the material. To successfully complete this course, you must pass the quiz for each lesson. Once all the lessons have been completed, you can then download and print the People & Process completion certificate.

So, let’s get started! In the next lesson entitled “Safe Working Practices”, we will look at the risks and safety precautions to be taken in installing communications cabling.