

“Ethernet/IP networks” online study programme

Modern business communications networks and the Internet rely on the inter-relationship between a suite of protocols some of which were devised in the 1970s and subsequently adapted and supplemented to meet the need for high speed, secure communications.

It can be difficult for those maintaining these networks to fight through the thicket of acronyms, equipment manufacturers’ own terminology, and the complexity introduced by protocol modifications.

Therefore, PTT has devised a comprehensive online study programme that ensures participants have a thorough understanding of the operation of networks using the Ethernet and IP suite of protocols.

The “Ethernet/IP networks” study programme does not assume prior knowledge. Instead, the programme begins with first principles and then lead through the various aspects of providing secure, reliable and fast communications within offices and between remote sites.

Programme aim:

To explore the fundamental principles, components, operation and facilities of local and wide area networks that employ the Ethernet and IP suite of protocols.

Target audience:

This study programme is designed for those who are, or intend to be, involved in the maintenance of modern communications networks.

Prerequisites

Although not obligatory, the study of Physics at secondary (high) school level will aid your understanding of the principles covered in the study programme.

What you are provided with:

- 20% discount on standard course pricing.
- Licence to access seven courses online for a period of 12 months. Once a course has been studied it can be revisited at any time for revision and reference during the licence period.
- Online study guide which summarises the topics covered by each course and gives guidance about studying the courses and attempting the assessments.
- Online access to your tutor who will respond to a question within two working days.

Certificate award

When you have studied the seven courses in the study programme and their assessments, a signed certificate from PTT will be mailed to you.

Programme courses

Programme participants are given access to the following seven courses, involving a minimum of 45 hours of learning.

SRC: "Data communications principles"

This course explains the principles of the transmission techniques used in modern networks and the basic concepts that underpin modern data communications.

The principles, advantages and drawbacks of packet switching are discussed. The characteristics of the various types of communications links are described and the meaning and causes of network congestion explained.

Finally, the course describes the role and facilities of data protocols and their categorisation with reference to the OSI Reference Model.

EBA: "Ethernet fundamentals"

This course introduces the principles of operation of local area networks (LANs) that employ the Ethernet suite of protocols and the role and characteristics of a LAN's functional components.

Topics discussed include the way in which computers can share a transmission medium and the operation of Ethernet hubs and switches.

EBB: "Structured cabling"

This course describes the structure, components, installation requirements and testing of cabling systems employed in local area networks (LANs) with reference to the published standards and requirements for high speed data communications.

EBC: "Ethernet networks"

This course describes in more detail the operation of fixed line and wireless Ethernet networks. The course discusses the ways in which attached devices are identified and how communications are delivered to their intended destination by Ethernet switches.

The capabilities and operation of switches are discussed with reference to their characteristics and the operating modes that affect network performance.

The roles of the Ethernet and the Internet protocols are described and compared, and their relationship explained.

The roles of the various components of fixed line and wireless local area networks are then described.

TNF: "IP networks"

This course describes the features, facilities, structure and basic operation of networks using the Internet suite of protocols.

The course begins by describing the basic structure of the Internet, the role of the various Internet administrative bodies and the role of Internet service providers.

The course then explains the principles of addressing, routing and route discovery in a network based on the use of the Internet Protocol (IP).

The roles of the Internet protocols involved in web browsing, emailing and file transfer are then discussed.

The security issues relating to IP networks are referred to throughout the course.

TNG: "IP routing"

This course describes and compares in detail the role, facilities, and operation of the various protocols that discover routes over an IP network and those that discover routes between networks.

The course also discusses methods of increasing the efficiency and security of the routing process and IP address allocation.

EBD: "Advanced Ethernet networks"

This course discusses the techniques employed to enhance the security of Ethernet local area networks (LANs), the role and facilities of network management and testing tools, and the wide area network services that provide connections between remote LANs.

Topics discussed include the concept and advantages of the various types of virtual LAN, methods of preventing unauthorised access to networks, the characteristics of Ethernet wide area network (WAN) connections, and assessing the performance of those connections.

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