Next Generation Transmission

Duration: 3 Days      Course Code: TY2702

Overview:

The introduction of new services such as voice over IP, video on demand and IPTV is putting increased pressure on operators to provide more bandwidth in their existing core and access telecommunications networks. Bandwidth requirements for normal web browsing alone are currently increasing at 40% year on year. This creates problems for operators who face intense competition in a market with a decreasing value per bit; yet existing transmission infrastructure has a high cost per bit. This detailed technical course describes how new technologies and techniques are being used to reduce CapEx and OpEx by moving services away from traditional TDM-based to converged packetswitched networks.

Target Audience:

Transmission and network engineers who require an insight into modern digital transmission techniques used within fixed and mobile telecommunications networks. This course will improve an engineer’s understanding of how control and services traffic are handled at OSI protocol layers 1 and 2 in the access, metro and core networks.

Objectives:

- outline the GSM–UMTS–EPS evolutionary process
- identify the key transmission technologies available for use in modern core networks
- state how ATM provides enhanced support for Operation Administration and Maintenance (OAM) and QoS
- identify the key attributes of Multi Protocol Label Switching (MPLS) in the context of Label Switched Paths (LSPs) and Virtual Private Networks (VPNs)
- describe how MPLS can support Internet Protocol (IP) and Ethernet services
- identify key services provided by and the main reasons for deploying Carrier-Based Ethernet
- describe how frame tagging is used within Carrier-Based Ethertnets
- identify the Ethernet technology choices available
- identify the main interventions for Next Generation SDH (NG-SDH)
- identify the six key attributes and architecture model of an Optical Transport Network (OTN)
- describe the architecture and key components of an Automatically Switched Optical Network (ASON)
- explain how Generalized MPLS (GMPLS) and Transport-MPLS (TMPLS) differ from standard MPLS
- explain how Constraint-based Label Distribution Protocol (CR-LDP) and MPLS in the context of Label Switched Paths (LSPs) and MPLS over ATM (TMPLS) differ from standard MPLS
- explain the purpose and concerns affecting the design of Pseudo Wires (PWs)
- describe the operation of PW over IP and PW over MPLS

Prerequisites:

Students should have a working knowledge of fixed or mobile telecommunications networks in terms of the nodes, services and applications that are supported at OSI protocol layers 3 and above. Some knowledge of packet-switched networks and IP routing protocols will be useful.
**Follow-on-Courses:**

Students who attend this course may also be interested in other transmission courses including the SDH Principles or the Digital Microwave Link Planning courses. Many students may be interested in expanding their IP knowledge with courses from the Wray Castle IP suite including TCP/IP Protocol Suite, IP Backbone Traffic.

---

**Content:**

- Broadband Access Technologies
- Next Generation Transmission
- SS7 Engineering

---

**Further Information:**

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

[info@globalknowledge.co.uk](mailto:info@globalknowledge.co.uk)

[www.globalknowledge.co.uk](http://www.globalknowledge.co.uk)

Global Knowledge, Mulberry Business Park, Fishponds Road, Wokingham Berkshire RG41 2GY UK