



*Training Course:
Data Network Administration*

*17 - 21 May 2027
Barcelona (Spain)*

Training Course: Data Network Administration

Training Course code: IT234599 From: 17 - 21 May 2027 Venue: Barcelona (Spain) - Training Course Fees: 6300 € Euro

Introduction

To provide facilities for conducting research to its visitors and associate members and provide a forum, both national and international for scientific contacts between researchers from all over the country and abroad.

To achieve speedy attainment of national capability in newly emerging fields of physics and technology through conducting research and development.

The Centre would seek to accomplish its mission by; In-house research and Outreach program. The IT group was started in 2003 with six IT professionals.

Apart from other responsibilities of the group which include providing IT services to NCP users and visitors, software development, Grid node deployment, and management, this group has been involved in conducting IT training and has completed a number of training programs in collaboration with various agencies including the Pakistan Computer Bureau PCB.

Now the IT department has a number of skilled and qualified instructors having very strong technical command over a wide range of subjects. One of these areas is Networks and Communication.

Course Objectives

By the end of this course, participants will be able to:

- Understand fundamental networking concepts and architectures
- Explain and apply OSI and TCP/IP reference models in real network environments
- Configure and manage IP addressing schemes within a network
- Understand switching technologies including VLANs, STP, and redundancy protocols
- Implement basic routing concepts and differentiate between routing protocols RIP, EIGRP, OSPF
- Design and troubleshoot inter-VLAN routing and network segmentation
- Understand wireless networking fundamentals and router operations
- Configure and manage essential network services such as DNS, DHCP, FTP, and Proxy servers
- Understand WAN technologies and their practical applications PPP, Frame Relay, ISDN, ATM, NAT
- Apply network security concepts using Access Control Lists ACLs
- Monitor and manage network performance using tools like SNMP and Syslog
- Develop foundational skills for network troubleshooting and infrastructure management

Target Audience

- Network Engineers
- System Administrators
- IT Support Specialists
- Network Support Technicians
- IT Professionals working in infrastructure and communications

- Junior network engineers and trainees seeking foundational networking knowledge
- IT instructors and technical staff involved in network operations and support

Course Outlines

Day 1: Networking Basics and Concepts

- Introduction to computer networks
- OSI Reference Model
- TCP/IP Layer Model
- IP Addressing fundamentals

Day 2: Switching & Routing

- Spanning Tree Protocol STP
- Rapid Spanning Tree Protocol RSTP
- Virtual LANs VLANs
- Inter-VLAN Routing
- EtherChannel
- Network redundancy protocols HSRP, VRRP, GLBP
- Introduction to Wireless LANs WLANs
- Introduction to routers
- Static vs Dynamic routing
- Distance Vector vs Link State routing
- RIP
- EIGRP
- OSPF
- Access Control Lists ACLs

Day 3: Network Services

- DNS Server
- DHCP Server
- FTP Server
- Proxy Server

Day 4: WAN Technologies

- Network Address Translation NAT
- ISDN
- Frame Relay
- ATM
- PPP

Day 5: Network Management & Monitoring

- Introduction to network monitoring
- Monitoring tools and techniques
- SNMP
- Syslog

Registration form on the Training Course: Data Network Administration

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