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## Course: 503: Network Technologies

Course Content	<p><b>Unit 1. An Introduction to Networks, Network Topologies, and Types</b></p> <ol style="list-style-type: none"><li>1.1 Data Communication [Analog, Digital]</li><li>1.2 Introduction: Networking</li><li>1.3 Information Exchange, Sharing, Preserving &amp; Protecting</li><li>1.4 Hardware and Software Resource Sharing</li><li>1.5 Need Uses and Advantages of Network</li><li>1.6 Clients, Servers, Peers based and Hybrid Networks</li><li>1.7 Server types</li><li>1.8 Network Topologies (Bus, Star, Ring, Star Bus, Star Ring &amp; Physical Mesh)</li><li>1.9 Defining Network Protocols (H/W Protocols, S/W Protocols H/W-S/W Interface)</li><li>1.10 Introduction to Wireless Network, Ad-hoc Wireless and Sensor Wireless Network</li></ol> <p><b>Unit 2. The Layering Models and Data Communication</b></p> <ol style="list-style-type: none"><li>2.1 Introduction to OSI model with all layers</li><li>2.2 Differences between OSI Model &amp; TCP/IP model</li><li>2.3 Data Communication Model, Digital and Analog data and signals, bit rate, baud, bandwidth, Nyquist bit rate</li></ol> <p><b>Unit 3. Networking Hardware</b></p> <ol style="list-style-type: none"><li>3.1 Introduction to Guided Transmission Media-Twisted Pair, Coaxial cable, Optical Fibre</li><li>3.2 Wireless transmission-Radio waves, microwaves, infrared waves, Satellite Communication.</li><li>3.3 Networking devices (repeater, hub, switch, router, bridge, modem)</li></ol> <p><b>Unit 4. Basic of TCP/IP Model</b></p> <ol style="list-style-type: none"><li>4.1 Introduction to TCP/IP Model</li><li>4.2 Network Access Layer – MAC Address</li><li>4.3 Internet Layer – IP Address, IP Subnetting</li><li>4.4 Transport Layer - TCP, UDP, Port number</li><li>4.5 Application Layer</li></ol> <p><b>Unit 5. Network Security: Introductory Concepts and Terminologies</b></p> <ol style="list-style-type: none"><li>5.1 Various Types of Securities</li><li>5.2 Security with Certificates</li><li>5.3 Firewall</li></ol>
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