

Changing Lives Through Technology

What is a Computer Networking?

A computer network is a system that connects numerous independent computers in order to share information (data) and resources. The integration of computers and other different devices allows users to communicate more easily.

A computer network is a collection of two or more computer systems that are linked together. A network connection can be established using either cable or wireless media. Hardware and software are used to connect computers and tools in any network

Why study Computer Networking?

Computer Networking is an important skill for people who work in a technical field. Having a strong understanding of computer networking can help you demonstrate knowledge that makes you a stronger candidate for certain positions. It gives you an edge and an opportunity to make a career in almost any sector you can imagine: financial services, education, transportation, manufacturing, oil and gas, mining and minerals, technology, government, hospitality, health care, retail etc.

In today's world, all technology is connected, which creates a demand for network technologies to be developed and maintained. Even our phones make use of network technology, resulting in a mobile phone to access content through the internet and private cloud networks. Global companies need computer networking to share data and information across the globe to deliver services.

Becoming a Networking Engineer will enhance your chances of being employed in the Information technology industry. You will have access to new technology, you will be valuable to your organization, you will have opportunities for advancement and you will be in demand. Highlighting yourself as someone who strives for positive change, as well as an eagerness to learn the latest technologies could take you a long way in your career.

Studying **ITS** (Information Technology Specialist) Networking with G-CITI Campus through Distance Learning, will enable candidates who complete this course and successfully complete the online exam to demonstrate foundational networking knowledge and skills, including TCP/IP, networking services, networking topologies, and troubleshooting in wired and wireless environments.

Why study ITS Databases at G-CITI Campus?

G-CITI Campus is a South African Accredited and Global / International IT College, that offers both qualifications and certifications in IT Training. With over 10 000 students completing a wide variety of Global / International Certifications, G-CITI Campus has become the leading IT College to obtain credentials in preparation for the 4th Industrial Revolution and the Digital Economy.

Computer Networking Course Distance Learning

IT SPECIALIST EXAM OBJECTIVES

Our innovative approach to learning and skills development will help students go beyond what they have signed up for! Providing a holistic approach to learning and Job Readiness, we ensure a quality level of the services we offer With its course offerings, G-CITI Campus offers a range of partners, such as CompTIA, Microsoft, Adobe, ITS, Cert Nexus and Cisco, G-CITI Campus offers both online learning subscriptions, exam vouchers and simulation labs to enable students to learn online, conduct digital assessments and conduct vendor certifications online.

Boosting your technical skills by understanding the world of networking and how it applies to your business and job role, or the career of your dreams, is one of the many reasons to upskill in this field. All of the modules on the course speak directly to the skills that employers are actively seeking within the Networking Development sector.

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Also, we have a range of ITS Certificates where the networking is part of a family of certifications. See more certifications on our website: www.gciticampus.academy under **Distance Learning**

Potential Career Opportunities in Computer Networking

- Network Administrator
- Wireless Network Engineer
- Network Architect

COST OF THE COURSE

WAS R 4 990.00 | NOW R 2 950.00 Deposit: R 2000.00 Balance: R 950.00 (To be paid before undertaking final exam) Use the banking Details below for any payment

Bank Name: FNB Account Name: Genesis CITI Account Nr: 62563325755 Account Type: Cheque Branch: Epping Branch Code: 200810

Deposit Reference: ID Number

G METRIX

K LearnKey

What is included in the course fees

Please, be aware that all course materials are only offered online. In other words, you will not be receiving any hard copies of the textbook, and you will need to access all the required content through your online classroom, where you'll be able to find the following course content:

- A digital textbook (PDF) focused on all the content you'll need to pass the exam successfully
- Videos and Learning material to ensure you are covered to understand practical concepts

TECHNOLOGY

- Practice files OR quizzes to accompany the step-by-step exercises in your textbook
- A PDF summary of everything you've covered in the textbook
- A study guide and exercise files to help you with your exam prep
- A set of mock exams to be covered before undertaking global exams.

This Course Fee includes your Certiport exam voucher.

CERTNEXUS

IT SPECIALIST EXAM OBJECTIVES



Networking

1. Networking Fundamentals

1.1 Define network concepts

• Internet, intranet, extranet, client-server, peer-to-peer, transmission types (unicast, multicast, broadcast), network devices including IoT

1.2 Define cloud and virtualization concepts

• Hypervisors, virtual machines, virtual switches

1.3 Describe remote access methods

• Virtual Private Network (VPN), Remote Desktop

2. Network Infrastructures

2.1 Define the characteristics of local area networks (LANs)

 Perimeter networks (security zones, DMZ), VLANs, wired LAN and wireless LAN

2.2 Define the characteristics of wide area networks (WANs)

• DSL, site-to-site, cable modem, satellite, cellular (3G, 4G, 5G)

2.3 Identify wireless networking methods and characteristics

• Types of wireless networking standards and their characteristics (802.11, Bluetooth), types of network security (WPA, WPA2, WEP, 802.1X, and others), point-to-point (P2P) wireless, ad hoc networks, wireless bridging, wireless interference

2.4 Compare and contrast network topologies and access methods

• Star, mesh, ring, bus, logical and physical topologies

3. Network Hardware

3.1 Describe characteristics of switches

 Number and type of Ethernet ports (access vs. trunk), number of devices supported, managed or unmanaged switches, VLAN capabilities, Layer 2 and Layer 3 switches and security options, potential for single point of failure, switching types and MAC table, capabilities of hubs vs. switches (collision domain, broadcast domain, half- and full-duplex), prevention of switch loops by using spanning tree protocol

3.2 Describe characteristics of routers

• Potential for network bottlenecks, directly connected routes, static routing, dynamic routing (routing protocols), default routes, routing table and how it selects best route(s), port forwarding, Quality of Service (QoS), network segmentation, convergence

3.3 Describe characteristics of physical media

• Cable types and their characteristics, including media segment length and speed; fiber optic, twisted pair shielded or unshielded (CAT5-CAT7 cabling); configuration (crossover vs. straight-through); susceptibility to electromagnetic interference (EMI), cross-talk, and interception



4. Protocols and Services

4.1 Describe the Open Systems Interconnection (OSI) model

• Identification and purpose of each layer; examples of devices, protocols, and applications at each layer; MAC address

4.2 Describe the Transmission Control Protocol (TCP) model

• Identification and purpose of each layer; examples of devices, protocols, and applications at each layer

4.3 Describe IPv4 concepts

• Classful vs. classless addressing, subnetting (purpose and why to use), characteristics of IPv4 addressing (subnet mask, default gateway, sockets, broadcast), private addresses (Class A (including loopback), Class B, and Class C)

4.4 Describe IPv6 concepts

• Characteristics of IPv6 addressing (subnet mask, default gateway, sockets, abbreviation), transitioning from IPv4 to IPv6 (tunneling protocols, tunnel brokers, dual IP stack), address types (link-local vs. global), multicast groups (all routers/all nodes), loopback

4.5 Identify well-known ports

• HTTP, HTTPS, FTP, SMTP, IMAP, DNS, RDP, SSH

4.6 Describe name resolution concepts

• Static name resolution (HOSTS file, LMHOSTS file), dynamic name resolution (DNS, WINS), DNS resource records (A, AAAA, MX, PTR, SRV, CNAME, SOA), forward vs. reverse lookups, steps in the name resolution process

4.7 Identify the roles of networking services

• Dynamic Host Configuration Protocol (DHCP), Network Address Translation (NAT) (dynamic vs. static, public vs. private, port address translation), firewalls

5. Troubleshooting

- 5.1 Given a scenario, describe the troubleshooting process in a smallmedium business network
 - Steps in the troubleshooting process, etiquette/professional conduct
- 5.2 Given a scenario, use the appropriate hardware troubleshooting tools
 - Appropriate tool selection, multimeter, cable tester, toner, time-domain reflectometer (TDR), optical TDR (OTDR)

5.3 Given a scenario, use the appropriate Windows software tools to troubleshoot a problem

- Appropriate tool selection, syntax (ping, ipconfig, tracert, pathping, nslookup, hostname, netstat, arp), local loopback IP, protocols
- 5.4 Given a scenario, use the appropriate Linux software tools to troubleshoot a problem
 - Appropriate tool selection, syntax (ping, ip addr, traceroute, tracepath, dig, host, netstat, arp)



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