4-DAYS

IT Infrastructure and Operations

up to 90% SkillsFuture Funding

Course Code: TGS-2024046011 (SCTP)
TGS-2025060543 (Non-SCTP)

@ASK Training is a Private Education Institution (PEI) accredited by the Ministry of Education (MOE) and also a Continuing Education and Training Centre (CETC) accredited by SkillsFuture Singapore (SSG), offering a diverse range of courses from Infocomm Technology (ICT) to Digital Marketing, with up to **90% funding.**

Course Description

This course equips participants with the practical networking knowledge and hands-on skills required to build, operate, secure, and troubleshoot modern networks while preparing for the CompTIA Network+ (N10-009) examination. Participants explore network types, topologies, and the OSI model to build a strong conceptual foundation, then apply that knowledge to configure SOHO environments and validate connectivity using structured CompTIA troubleshooting methods and command-line tools.

The course covers Ethernet standards, copper and fiber media, connector types, and safe physical installation practices for rack-based deployments in server rooms and datacenters. Participants deploy networking devices, configure switching features, VLANs, routing (including dynamic routing principles), and IPv4/IPv6 addressing and subnetting, while testing and resolving host and network faults. Service configuration includes DHCP, DNS, NTP, and common application services, alongside high availability through redundancy and load balancing. Security is embedded throughout, addressing risk concepts, attacks, IAM, segmentation, ACLs, content filtering, wireless security, WAN/VPN access, and modern approaches such as automation, cloud, and Zero Trust. This exam-focused practice enhances readiness and confidence.

Prerequisites

- Completed the Advanced Hardware and Software Troubleshooting course and Advanced Network Administration awarded by @ASK Training
- Mature candidates (≥ 30 years old with 8 years' work experience in an ICT-related field); OR
- Candidates with other qualifications will be considered on a case-by-case basis

LEARNING OUTCOMES

- Explain common network types and characteristics, and compare the functions of each OSI model layer.
- Configure a basic SOHO network and apply CompTIA's troubleshooting methodology to diagnose and resolve connectivity issues.
- Summarize Ethernet standards and differentiate copper vs. fiber-optic cabling and connector types.
- Plan rack-based physical installations for server rooms/datacenters and deploy and troubleshoot Ethernet cabling.
- Deploy networking devices and explain common network interfaces.
- Configure common Ethernet switching features and troubleshoot transceiver and switching issues.
- Explain IPv4 and IPv6 addressing schemes and IPv4 forwarding.
- Configure IP networks and subnets, test host IP configurations using appropriate tools, and troubleshoot IP networks and hosts.
- Compare and contrast core routing concepts, including dynamic routing principles.
- Install and troubleshoot routers, and explain tiered switching architecture and VLAN implementation.
- Compare and contrast transport protocols and use command-line tools to scan and validate network ports.
- Explain network addressing and name resolution services, and configure and troubleshoot DHCP and DNS.
- Explain the importance of time synchronization and the role of NTP, and describe common network services (web, file/print, database, email, and voice).
- Explain how high availability is provisioned using redundancy and load balancing.
- Explain the purpose of configuration and change management documentation, and use discovery/monitoring and event management tools to identify assets and maintain network availability.
- Use packet analysis and traffic metrics to troubleshoot network performance issues.
- Explain common security concepts, including how to distinguish risk, vulnerability, threat, and exploit.
- Summarize common attack types and their network impact, and explain the importance of audits and regulatory compliance.
- Explain identity and access management concepts and differentiate authentication and directory management protocols/standards.

LEARNING OUTCOMES

- Implement defense-in-depth controls by enforcing device compliance and applying security rules (e.g., ACLs and content filtering) to manage network traffic.
- Explain the importance of network segmentation, including the use of trusted and untrusted zones.
- Describe the security implications of IoT/IIoT and explain the importance of physical security controls.
- Summarize key wireless standards and capabilities.
- Install, configure, and troubleshoot secure wireless networks.
- Summarize WAN provider and Internet access types for enterprise connectivity.
- Compare and contrast VPN topologies and protocols, and explain remote host access and management methods.
- Explain data center and storage network architectures and summarize core cloud concepts.
- Summarize how software, coding/automation, and Zero Trust principles are applied in modern network environments.

COURSE OUTLINE

Learning Unit 1:
Explaining Network Topologies

Learning Unit 2:
Supporting Cabling and Physical Installations

Learning Unit 3:
Configuring Interfaces and Switches

Learning Unit 4:
Configuring Network Addressing

Learning Unit 5:
Configuring Routing and Advanced Switching

Learning Unit 6:
Implementing Network Services

Learning Unit 7:
Explaining Application Services

Written Assessments

- Candidates are to answer all questions and receive a minimum grade of 50% and above (out of 100%) to demonstrate competencies in Learning Units (LU) 1 to 7.

- Candidates are to conduct a thorough analysis of the IT infrastructure situation and propose solutions and receive a minimum grade of 50% and above (out of 100%) to demonstrate competencies in Learning Units (LU) 1 to 7.

COURSE OUTLINE

Learning Unit 8:
Supporting Network Management

Learning Unit 9:
Explaining Network Security Concepts

Learning Unit 10:
Applying Network Security Features

Learning Unit 11:
Supporting Network Security Design

Learning Unit 12:
Configuring Wireless Networks

Learning Unit 13:
Comparing Remote Access Methods

Learning Unit 14:
Summarizing Cloud Concepts

Written Assessments

- Candidates are to answer all questions and receive a minimum grade of 50% and above (out of 100%) to demonstrate competencies in Learning Units (LU) 1 to 7.

- Candidates are to conduct a thorough analysis of the IT infrastructure situation and propose solutions and receive a minimum grade of 50% and above (out of 100%) to demonstrate competencies in Learning Units (LU) 1 to 7.

Course Fees & Funding

S$1,600
(exclusive of 9% GST)

PROGRAMME FEE AFTER ELIGIBLE SSG SUBSIDIES:

From **S$203.20**

(inclusive of 9% GST) after 90% SSG Subsidies

Self-Sponsored	Course Fee before Subsidy and GST	Eligible Funding		Nett Fees Payable incl. 9% GST
Singapore Citizens **40 years old and above**	**S$1,600.00**	**90%**	SkillsFuture Funding	**S$203.20**
Singaporean Citizens, PRs or LTVP+ Holders **21 years old and above**		**70%**	SkillsFuture Funding	**S$523.20**

Company-Sponsored	Course Fee before Subsidy and GST	Eligible Funding		Nett Fees Payable incl. 9% GST
Small-to-Medium Enterprise (SME) Singaporean Citizens, PRs or LTVP+ Holders ≥ 21 years old	**S$1,600.00**	**90%**	SkillsFuture Funding	**S$203.20**
Non-SME Singaporean Citizens, PRs or LTVP+ Holders ≥ 21 years old		**70%**	SkillsFuture Funding	**S$523.20**
Non-SME Singaporean Citizens ≥ 40 years old		**90%**	SkillsFuture Funding	**S$203.20**

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