FAKULTI TEKNOLOGI DAN KEJURUTERAAN

PROGRAM	**Diploma in IT System Support**
COURSE NAME	**Computer Hardware and Networking**
COURSE CODE	**DTC 5013**
CREDIT HOUR	**3**
SYNOPSIS	In this lesson, students will learn the basics of repair and maintenance of computers and networks. The focus will be on the computer and network hardware, software, computer history, basic network and basic Internet network. Students will also gain skills and experience practically.
COURSE STRUCTURE	
CHAPTER	**TOPICS**
1	**Personal Computer Components** 1.1 Identify the basic principles of using a personal computer. Determine the names, purposes and characteristics of 1.1.1 storage device 1.1.2 motherboards 1.1.3 power supplies 1.1.4 processor / CPUs 1.1.5 Memory 1.1.6 The display 1.1.7 Input devices 1.1.8 adapter cards 1.1.9 ports and cables 1.1.10 The cooling system 1.2 Install, configure, optimize and upgrade personal computer components 1.2.1 Add, remove and configure internal and external storage devices 1.2.2 Install display devices 1.2.3 Add, remove and configure basic input and multimedia devices

2	**Laptops and Portable Devices** 2.1 Install, configure, optimize and upgrade laptops and portable devices 2.1.1 Configure power management 2.1.2 Demonstrate safe removal of laptop-specific hardware such as peripherals, hot-swappable devices and non-hot-swappable devices 2.2 Identify tools, basic diagnostic procedures and troubleshooting techniques for laptops and portable devices 2.2.1 Use procedures and techniques to diagnose power conditions, video, keyboard, pointer and wireless card issues 2.3 Perform preventive maintenance on laptops and portable devices 2.3.1 Implement software security preventive maintenance techniques such as installing service packs and patches and training users about malicious software prevention technologies
3	**Operating Systems** 3.1 Identify the fundamentals of using operating systems 3.1.1 Identify differences between operating systems (e.g., Mac, Windows, Linux) and describe operating system revision levels including GUI, system requirements, application and hardware compatibility 3.2 Identify names, purposes and characteristics of the primary operating system components including registry, virtual memory and file system 3.2.1 Describe features of operating system interfaces 3.2.2 Identify the names, locations, purposes and characteristics of operating system files 3.2.3 Identify concepts and procedures for creating, viewing, managing disks, directories and files in operating systems 3.3 Install, configure, optimize and upgrade operating systems 3.3.1 Identify procedures for installing operating systems 3.3.2 Identify procedures for upgrading operating systems 3.3.3 Install / add a device including loading, adding device drivers and required 3.3.4 Identify procedures and utilities used to optimize operating systems 3.4 Perform preventive maintenance on operating systems 3.4.1 Describe common utilities for performing preventive maintenance on operating systems for example, software and Windows updates (e.g., service packs), scheduled backups / restore, restore points

	3.5 Identify tools, diagnostic procedures and troubleshooting techniques for operating systems 3.5.1 Identify basic boot sequences, methods and utilities for recovering operating systems 3.5.2 Identify and apply diagnostic procedures and troubleshooting techniques 3.5.3 Recognize and resolve common operational issues such as blue screen, system lock-up, input / output device, application install, start or load and Windows-specific printing problems 3.5.4 Explain common error messages and codes 3.5.5 Identify the names, locations, purposes and characteristics of operating system utilities
4	**Printers and Scanners** 4.1 Identify the fundamental principles of using printers and scanners 4.1.1 Identify differences between types of printers and scanner technologies 4.1.2 Identify names, purposes and characteristics of printer and scanner components and consumables 4.1.3 Identify the names, purposes and characteristics of interfaces used by printers and scanners including port and cable types 4.2 Identify basic concepts of installing, configuring, optimizing and upgrading printers and scanners 4.2.1 Install and configure printers / scanners 4.2.2 Optimize printer performance for example, printer settings such as ty switching, print spool settings, device calibration, media types and paper orientation 4.3 Identify tools, basic diagnostic procedures and troubleshooting techniques for printers and scanners 4.3.1 Gather information about printer / scanner problems 4.3.2 Review and analyze collected data 4.3.3 Identify solutions to identified printer / scanner problems
5	**Networks** 5.1 Identify the fundamental principles of networks 5.1.1 Describe basic networking concepts 5.1.2 Identify names, purposes and characteristics of the common network cables 5.1.3 Identify names, purposes and characteristics of network connectors 5.2 Install, configure, optimize and upgrade networks 5.2.1 Install and configure network cards (physical address) 5.2.2 Install, identify and obtain wired and wireless connection

	5.3 Identify tools, diagnostic procedures and troubleshooting techniques for networks 5.3.1 Explain status indicators, for example speed, connection and activity lights and wireless signal strength and distinguish types of
6	**Security** 6.1 Identify the fundamental principles of security 6.1.1 Identify names, purposes and characteristics of hardware and software security 6.1.2 Identify names, purposes and characteristics of wireless security 6.1.3 Identify names, purposes and characteristics of data and physical security 6.1.4 Describe importance and process of incidence reporting 6.1.5 Recognize and respond appropriately to social engineering situations 6.1.6 Install, configure, upgrade and optimize security 6.2 Install, configure, upgrade and optimize hardware, software and data security 6.3 Identify tool, diagnostic procedures and troubleshooting techniques for security 6.3.1 Diagnose and troubleshoot hardware, software and data security Issues 6.4 Perform preventive maintenance for computer security 6.4.1 Implement software security preventive maintenance techniques such as installing service packs and patches and training users about malicious software prevention technologies 6.5 Perform preventive maintenance for computer security 6.5.1 Implement software security preventive maintenance techniques such as installing service packs and patches and training users about malicious software prevention technologies

7	**Safety and Environmental Issues** 7.1 Describe the aspects and importance of safety and environmental issues 7.2 Identify potential safety hazards and take preventive action 7.3 Use Material Safety Data Sheets (MSDS) or equivalent documentation and appropriate equipment documentation 7.4 Use appropriate repair tools 7.5 Describe methods to handle environmental and human (e.g., electrical, chemical, physical) accidents including incident reporting 7.6 Identify potential hazards and implement proper safety procedures including ESD precautions and procedures, safe work environment and equipment handling 7.7 Identify proper disposal procedures for batteries, display devices and chemical solvents and cans
References:	1. Vinit Jain and Brad Edgeworth, 2018, Troubleshooting Cisco Nexus Switches and NX-OS, Kindle Edition **2.** Rahul Soni. 2016. Nginx: From Beginner to PRO. 1st Edition. Kindle Edition.