

Department/ Program: ND Computer Science	Course Code: CPT 123	Contact Hours: 4 hours/week
Subject/Course: Computing Hardware & Maintenance		Theoretical: 1 hours/week
Year: One Semester: Two	Pre-requisite:	Practical: 3 hours /week

General Objectives:

The course provides the knowledge and skills to begin Upgrade & Maintenance :-

1. Personal Computer Components
2. Laptops and Portable Devices
3. Printers and Scanners
4. To understand the concept of upgrading and maintenance for PC.
5. To understand the limitation of a PC and scope for upgrading.
6. To understand technical specifications for PC upgrading.

	Theoretical Content			Practical Content		
	General Objective: To understand the concept of upgrading and maintenance for PC					
Week/s	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
1	<p>Identify the names, purposes and characteristics of storage devices</p> <p>Identify the names, purposes and characteristics of motherboards</p> <p>Identify the names, purposes and characteristics of power supplies, for example: AC adapter, ATX, proprietary, voltage</p>	Show the student all the hardware mentioned in the learning outcome and discuss their purposes..	<p>Computer system, power adapter. Various storage devices to be provided (Hard disc, cd rom, floppy Disket etc)</p>	Student should be able to identify and know the purposes of the components in the learning outcomes	Open a computer system and show the student the various component to be discussed	Computer hardware and software tools
2	Identify the names purposes and characteristics of processor / CPUs, memory, display devices, input devices of adapter cards, ports and cables, cooling systems.	Show the student all the described components and explain their installation, function and de-installation	computer system, peripheral devices as described in the learning outcome, cables, screw drivers.	Student should be able to identify, explain, add and remove the components described in the learning outcome.	Open computer system and describe learning outcomes. Show how to add and remove components as described in the	computer system, peripheral devices as described in the learning outcome, cables, screw

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	<p>Install, configure, optimize and upgrade personal computer components</p> <p>Add, remove and configure internal and external storage devices</p> <p>Install display devices Add, remove and configure basic input and multimedia devices</p>				learning outcome	drivers.
3	<p>Identify tools, diagnostic procedures and troubleshooting techniques for personal computer components</p> <p>Recognize the basic aspects of troubleshooting theory</p> <p>Identify and apply basic diagnostic procedures and troubleshooting techniques</p> <p>Recognize and isolate issues with display, power, basic input devices, storage,</p>	<p>Show student the various tools how to diagnose and troubleshoot the computer.</p> <p>Show the student how to recognise the basic aspects of trouble shooting and apply basic trouble shooting techniques</p>	computer system, troubleshooting tools	Student should be able identify tools and troubleshoot.	<p>Show student the various tools how to diagnose and troubleshoot the computer.</p> <p>Show the student how to recognise the basic aspects of trouble shooting and apply basic trouble shooting techniques</p>	computer system, troubleshooting tools

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	<p>memory, thermal, POST errors</p> <p>Apply basic troubleshooting techniques to check for problems.</p>					
4	<p>Recognize the names, purposes, characteristics and appropriate application of tools</p> <p>Perform preventive maintenance on personal computer components</p> <p>Identify and apply basic aspects of preventive maintenance the</p> <p>Identify and apply common preventive maintenance techniques for devices such as input devices and batteries</p>	<p>Show the student to recognise and apply the tools.</p> <p>Explain how to apply preventive maintenance</p>	Computer system, maintenance tools	Student should be able to maintain the various hardware components using the application tools.	Assist the student to recognise and apply the tools.	Computer system, maintenance tools

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5	<p>Understand :</p> <p>The need for PC maintenance.</p>	<p>An introduction in PC maintenance.</p> <p>To explain:</p> <p>Typical hazards threatening the normal operation of PC. E.g. static electricity, power fluctuation, power surge, dusty environment, excessive ambient temperature, viruses</p> <p>The need for computer backups</p>	<p>PC connected to an OHP.</p> <p>Power Point presentation of Lectures.</p> <p>On line lecture notes.</p> <p>Smart/White board</p>	<p>The ability to:</p> <p>Assess a computer maintenance requirement.</p> <p>Appropriate hardware tools.</p> <p>Protect the computer components from static electricity.</p> <p>Clean computer from dust.</p> <p>Clean the computer systems from the viruses.</p> <p>Perform system backup.</p>	<p>To help:</p> <p>Student with their maintenance assessment of a computer.</p> <p>To choose appropriate hardware tools.</p> <p>How to clean a computer from dust.</p> <p>How to clean a computer from viruses.</p> <p>How to Perform system backup.</p>	<p>PC connected to an OHP.</p> <p>Power Point presentation of Lectures.</p> <p>On line lecture notes.</p> <p>Smart/White board</p>

6	Understand : The need for PC upgrade.	Explain: Technological changes in computer hardware. User demand for a higher processing power. The emergence of complicated software package.	PC connected to an OHP. Power Point presentation of Lectures. On line lecture notes. Smart/White board	The ability to: Assess the require computing power for a new application software.	Provide advice on student assessment of new required computing power.	Access to a variety of computer components Internet access to obtain the latest information on hardware and software upgrade.
General Objective: To understand the limitation of a PC and scope for upgrading						
Week/s	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
7	Understand: The process of hardware upgrading. How to choose hardware components for upgrading.	Explain: How to open the case of a PC. How to make a list of components to upgrade. How to get prepared for a component change (obtaining the required hardware/software tools and components). How to check and verify the specifications of new components against the new requirements.	PC connected to an OHP. Power Point presentation of Lectures. On line lecture notes. Smart/White board	The ability to: Open a computer case and identify components for upgrading. List the current computer components specifications. To choose components that matches the new hardware/software requirements. Verify specifications against requirements.	Show student how to: Open a computer case and identify components for upgrading. List the current computer components specifications. To choose components that matches the new hardware/software requirements. Verify specifications	Access to a variety of computer components Internet access to obtain the latest information on hardware and software upgrade.

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					against requirements.	
General Objective: To understand technical specifications for PC upgrading						
Week/s	Specific Learning Outcomes	Teacher's activities	Resources	Specific Learning Outcomes	Teacher's activities	Resources
8	Understand : How to replace the computer case.	Explain: How to choose a suitable case which meets specifics requirements. How to dismantle the old computer. How to assemble the upgraded components and the unupgraded components in the new case.	PC connected to an OHP. Power Point presentation of Lectures. On line lecture notes. Smart/White board	The ability to : Choose appropriate new PC cases which match the new requirements. Assemble and disassemble personal computers.	Provide advise and assistance on choosing computer case. To provide advise and assistance on Assemble and disassemble a personal computers.	Access to a variety of computer components Internet access to obtain the latest information on hardware and software upgrade. Sample of different computer cases.

9	<p>Understand :</p> <p>How to replace the computer case.</p>	<p>Explain:</p> <p>How to choose a suitable case which meets specific requirements.</p> <p>How to dismantle the old computer.</p> <p>How to assemble the upgraded components and the unupgraded components in the new case.</p>	<p>PC connected to an OHP.</p> <p>Power Point presentation of Lectures.</p> <p>On line lecture notes.</p> <p>Smart/White board</p>	<p>The ability to :</p> <p>Choose appropriate new PC cases which match the new requirements.</p> <p>Assemble and disassemble personal computers.</p>	<p>Provide advise and assistance on choosing computer case.</p> <p>To provide advise and assistance on Assemble and disassemble a personal computers.</p>	<p>Access to a variety of computer components</p> <p>Internet access to obtain the latest information on hardware and software upgrade.</p> <p>Sample of different computer cases.</p>
10	<p>Understand:</p> <p>How to replace the computer power supply.</p>	<p>Explain:</p> <p>How to choose a suitable power supply which meets specific requirements.</p> <p>How to dismantle the old power supply computer.</p> <p>How to assemble the new power supply.</p>	<p>PC connected to an OHP.</p> <p>Power Point presentation of Lectures.</p> <p>On line lecture notes.</p> <p>Smart/White board</p>	<p>The ability to :</p> <p>Choose appropriate new PC power supplies which match the new requirements.</p> <p>Assemble and disassemble computer power supply.</p>	<p>To provide advise and assistance on choosing computer power supply.</p> <p>To provide advise and assistance on Assemble and disassemble a computers power supply.</p>	<p>Access to a variety of computer components</p> <p>Internet access to obtain the latest information on hardware and software upgrade.</p> <p>Sample of different computer power supply.</p>

11	<p>Understand :</p> <p>How to replace the computer mainboard.</p>	<p>How to choose a suitable mainboard which meets specific requirements.</p> <p>How to dismantle the old mainboard computer.</p> <p>How to assemble the new mainboard.</p>	<p>PC connected to an OHP.</p> <p>Power Point presentation of Lectures.</p> <p>On line lecture notes.</p> <p>Smart/White board</p>	<p>Choose appropriate new PC cases which match the new requirements.</p> <p>Assemble and disassemble personal computers.</p>	<p>To provide advise and assistance on choosing computer mainboard.</p> <p>To provide advise and assistance on Assemble and disassemble a personal computers.</p>	<p>Access to a variety of computer components</p> <p>Internet access to obtain the latest information on hardware and software upgrade.</p> <p>Sample of different computer mainboard.</p>
12	<p>Understand :</p> <p>How to replace the computer CPU.</p>	<p>Explain:</p> <p>How to choose a suitable CPU which meets specific requirements.</p> <p>How to dismantle the CPU.</p> <p>How to assemble the new CPU.</p>	<p>PC connected to an OHP.</p> <p>Power Point presentation of Lectures.</p> <p>On line lecture notes.</p> <p>Smart/White board</p>	<p>The ability to :</p> <p>Choose appropriate new PC cases which match the new requirements.</p> <p>Assemble and disassemble personal computers.</p>	<p>To provide advise and assistance on choosing computer case.</p> <p>To provide advise and assistance on Assemble and disassemble a personal computers.</p>	<p>Access to a variety of computer components</p> <p>Internet access to obtain the latest information on hardware and software upgrade.</p> <p>Sample of different computer CPU.</p>

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13	<p>Understand :</p> <p>How to replace the computer mass storage.</p>	<p>Explain:</p> <p>How to choose a suitable mass storage which meets specific requirements.</p> <p>How to dismantle the mass storage.</p> <p>How to assemble the new mass storage.</p>	<p>PC connected to an OHP.</p> <p>Power Point presentation of Lectures.</p> <p>On line lecture notes.</p> <p>Smart/White board</p>	<p>The ability to :</p> <p>Choose appropriate new PC cases which match the new requirements.</p> <p>Assemble and disassemble personal computers.</p>	<p>To provide advise and assistance on choosing computer case.</p> <p>To provide advise and assistance on Assemble and disassemble a personal computers.</p>	<p>Access to a variety of computer components</p> <p>Internet access to obtain the latest information on hardware and software upgrade.</p> <p>Sample of different computer mass storage.</p>
14	<p>Understand :</p> <p>How to replace the computer display unit.</p>	<p>Explain:</p> <p>How to choose a suitable display unit which meets specific requirements.</p> <p>How to dismantle the display unit.</p> <p>How to assemble the new display unit.</p>	<p>PC connected to an OHP.</p> <p>Power Point presentation of Lectures.</p> <p>On line lecture notes.</p> <p>Smart/White board</p>	<p>The ability to :</p> <p>Choose appropriate new PC cases which match the new requirements.</p> <p>Assemble and disassemble personal computers.</p>	<p>To provide advise and assistance on choosing computer case.</p> <p>To provide advise and assistance on Assemble and disassemble a personal computers.</p>	<p>Access to a variety of computer components</p> <p>Internet access to obtain the latest information on hardware and software upgrade.</p> <p>Sample of different computer display unit.</p>

15	<p>To understand :</p> <p>How to replace the computer modems.</p>	<p>To explain:</p> <p>How to choose a suitable modems which meets specifics requirements.</p> <p>How to dismantle the old modems.</p> <p>How to assemble the new modems</p>	<p>PC connected to an OHP.</p> <p>Power Point presentation of Lectures.</p> <p>On line lecture notes.</p> <p>Smart/White board</p>	<p>The ability to :</p> <p>Choose appropriate new PC cases which match the new requirements.</p> <p>Assemble and disassemble personal computers.</p>	<p>To provide advise and assistance on choosing computer case.</p> <p>To provide advise and assistance on Assemble and disassemble a personal computers.</p>	<p>Access to a variety of computer components</p> <p>Internet access to obtain the latest information on hardware and software upgrade.</p> <p>Sample of different computer modems.</p>
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