

Training Schedule

Computer Hardware Assembly and Maintenance (663)

(Theory 40 hrs, Practical- 80 hrs)

S.No	Schedule	Topic Name	Instructions to the trainer (Theory)	Instructions to the trainer (Practical)	Learning Outcomes The learner will be able to :
1	Day 1	Introduction to computer (5 hrs (Th) + 0 hrs (Pr))	<ul style="list-style-type: none"> • Explain characteristics of a computer. • Discuss various generations of Computers and their peculiar features. • Explain various types of computers. • Discuss various applications of computers. 		<ul style="list-style-type: none"> • Explain the role and applications of computers.
2	Day 2	Components of a computer (1 hr (Th) + 4 hrs (Pr))	<ul style="list-style-type: none"> • Identify major hardware components of a computer. • Drawing the block diagram of a computer and list the functions of each component – input, output and storage devices. • Discuss about software and its type. 	<ul style="list-style-type: none"> • Explain the role of the various components in the system case by opening the system. 	<ul style="list-style-type: none"> • Identify the components of (inside and outside) a system unit of a computer and explain the role of the various components.
3	Day 1	Data representation in a computer (1 hr (Th) + 4 hrs (Pr))	<ul style="list-style-type: none"> • Discuss the various forms (text, graphics, audio etc) in which data can be stored. • Explain the concept of bits, bytes, nibble and other units of memory. 	<ul style="list-style-type: none"> • Show the different types of files (image, audio, video) on the computer system. • Use Properties of the various 	<ul style="list-style-type: none"> • Distinguish between the different data formats. • Compare the amount of storage of two or more data formats.

			<ul style="list-style-type: none"> Explain the four number systems- decimal, binary, octal and hexadecimal. 	files to explain the type of file, location and the units of memory explaining the concept of storage.	
4	Day 2	Conversion from one number system to another (1 hr (Th) + 4 hrs (Pr))	<ul style="list-style-type: none"> Give sufficient practice to the learners for number conversions. Explain ASCII and EBCDIC. 	<ul style="list-style-type: none"> Demonstrate different conversions <ul style="list-style-type: none"> - Decimal to Binary - Decimal to Octal - Decimal to Hexadecimal 	<ul style="list-style-type: none"> Describe the various conversions with respect to the computer system.
5	Day 1	Components in the system unit , CPU and motherboard (5 hrs (Th) + 0 hr (Pr))	<ul style="list-style-type: none"> Explain the CPU in detail. Explain functions of control unit, bus and registers. Explain cache memory, primary memory and its types – RAM and ROM 		<ul style="list-style-type: none"> Describe the various types of memory
6	Day 2	Motherboard, Drives and Ports (1 hr (Th) + 4 hrs (Pr))	<ul style="list-style-type: none"> Explain the importance of motherboard in a computer system. Explain different types of cards and their usage- Display adaptor card, graphics card and NIC 	<ul style="list-style-type: none"> Identify different types of drives- HDD, CD drive, tape drive. Identify SMPS, CPU fan, heat sink and connectors 	<ul style="list-style-type: none"> Identify various types of ports and also the peripheral devices that can be attached through different ports using different types of cables
7	Day 1	Tools for assembling / dis-assembling a computer (1 hr (Th) + 4 hrs (Pr))	<ul style="list-style-type: none"> Discuss the various tools that will be required to assemble/ dis-assemble a computer 	<ul style="list-style-type: none"> Demonstrate / show the following : various tools that will be required to 	<ul style="list-style-type: none"> Explain various tools that will be required to assemble/ dis-assemble a computer and

			<ul style="list-style-type: none"> Explain the precautions that should be taken while assembling / disassembling a computer 	<p>assemble/ dis-assemble a computer</p> <ul style="list-style-type: none"> Various components, tools and required accessories to assemble a computer 	identify tools.
8	Day 2	Assembling / dis-assembling a computer (1 hr (Th) + 4 hrs (Pr))	<ul style="list-style-type: none"> Explain the advantage of assembling a computer and how it is different from company assembled computer. Explain the care to be taken while dis-assembling a computer. 	<ul style="list-style-type: none"> Demonstrate the step wise procedure to assemble a computer. After demonstration, the learners should also do the same. Demonstrate step by step procedure to dis-assemble a computer 	<ul style="list-style-type: none"> Assemble and dis-assemble a computer.
9	Day 1	Preparing system for Installation (1 hr (Th) + 4 hrs (Pr))	<ul style="list-style-type: none"> Explain BIOS in detail with BIOS CMOS memory. Explain the process of booting and its types. Explain cable select system. 	<ul style="list-style-type: none"> Show the steps to invoke BIOS settings. Make changes wherever possible to explain the BIOS settings. 	<ul style="list-style-type: none"> Invoke BIOS settings. Adopt remedial measures with respect to BIOS settings.
10	Day 2	Operating system Installation (1 hr (Th) + 4 hrs (Pr))	<ul style="list-style-type: none"> Explain FAT and NTFS file system 	<ul style="list-style-type: none"> Demonstrate and install Windows 7 OS Demonstrate and install Ubuntu OS 	<ul style="list-style-type: none"> Install an Operating System
11	Day 1	Basics of Networks (1 hr (Th) + 4 hrs (Pr))	<ul style="list-style-type: none"> Discuss various types and benefits and classification of 	<ul style="list-style-type: none"> Demonstrate the use of modem, RJ-45, NIC, 	<ul style="list-style-type: none"> Describe network terminologies Identify the networking

			<p>networks</p> <ul style="list-style-type: none"> • Explain various network terminologies – workstation , server, intranet, interspace • Explain various transmission media and their features 	<p>Hub, Switch repeater, bridge, router , gateway and satellite working of networks</p> <ul style="list-style-type: none"> • Compare various transmission media 	<p>devices such as modem, RJ- 45, NIC, Hub, Switch repeater, bridge, router , gateway</p>
12	Day 2	<p>Switching Techniques, topologies and Network Models (3 hrs (Th) + 2 hrs (Pr))</p>	<ul style="list-style-type: none"> • Explain various switching technologies and various network topologies, • Explain various layers of OSI Network Models and TCP/ IP network model • Discuss various network protocols. 	<ul style="list-style-type: none"> • Interpret the role of various layers of OSI network model, 	<ul style="list-style-type: none"> • Describe switching technologies and network topologies,
13	Day 1	<p>Network Configuration (1 hr (Th) + 4 hrs (Pr))</p>	<ul style="list-style-type: none"> • Explain the importance of configuring an Operating system • Explain wired network/Wireless network • Highlight the importance of Linux OS for networking 	<ul style="list-style-type: none"> • Demonstrate step by step procedure to configure Windows OS for networking and installation of wired network/ wireless network • Demonstrate the process to configure Linux OS for networking 	<ul style="list-style-type: none"> • Configure Windows OS / Linux OS for networking • Install wired network/ wireless network
14	Day 2	<p>Configuring Network Application and Connecting Smart Devices (1 hr (Th) + 4 hrs (Pr))</p>	<ul style="list-style-type: none"> • Explain how to enable file sharing in a network • Explain how to connect devices like TV, Wi-Fi, 	<ul style="list-style-type: none"> • Demonstrate the process to configure Outlook Express for e-mail accounts 	<ul style="list-style-type: none"> • Configure Outlook Express for e-mail accounts • Connect devices like TV, Wi-Fi, smart phones etc.,

			<p>smart phones etc., to your desktop.</p> <ul style="list-style-type: none"> • Highlight the advantage of configuring Outlook Express. • Discuss the need to configure a browser. 	<ul style="list-style-type: none"> • Demonstrate how to configure a browser (IE 8) 	to the desktop.
15	Day 1	Problem Diagnosis , Troubleshooting and Maintenance (1 hr (Th) + 4 hrs (Pr))	<ul style="list-style-type: none"> • Explain the process of system recovery. 	<ul style="list-style-type: none"> • Demonstrate some of the commonly used options of the control panel. 	<ul style="list-style-type: none"> • Use Control panel to make changes to the system.
16	Day 2	Problem Diagnosis , Troubleshooting and Maintenance (1 hr (Th) + 4 hrs (Pr))	<ul style="list-style-type: none"> • Discuss and explain hardware troubleshooting of a computer-monitor, printer, CD, Video etc. • Discuss and explain software troubleshooting along with basic network troubleshooting tools- pinging, traceroute, ifconfig, netstat etc. • Discuss some common problem and their solutions. • Discuss how to secure the system. 	<ul style="list-style-type: none"> • Demonstrate troubleshooting of various devices of a computer. • Demonstrate software troubleshooting along with basic network troubleshooting tools- pinging, traceroute, ifconfig, netstat etc. • Demonstrate the process of securing a system. 	<ul style="list-style-type: none"> • Troubleshoot peripheral devices, software and basic network errors.
17	Day 1	New Trends in Computing (5 hrs (Th) + hr (Pr))	<ul style="list-style-type: none"> • Explain the concept of virtualization and how it can 		<ul style="list-style-type: none"> • Describe virtualization and cloud computing and how it can be

			<p>be achieved at various levels</p> <ul style="list-style-type: none"> • Discuss advantages and disadvantages of virtualization • Explain cloud computing- it's essential characteristics, services, deployment models and advantages. 		<p>achieved at various levels</p>
18	Day 2	Mobile, grid and green computing (5 hrs (Th) + 0 hr (Pr))	<ul style="list-style-type: none"> • Explain mobile computing , its applications , advantages and disadvantages. • Discuss grid computing and green computing. 		<ul style="list-style-type: none"> • Describe mobile computing, grid computing and green computing, its applications, advantages and disadvantages.
19	Day 1	Engaging with customers (1 hrs (Th) + 4hrs (Pr))	<ul style="list-style-type: none"> • Explain how to understand their requirements and propose possible solutions. • Discuss generic and professional skills. 	<ul style="list-style-type: none"> • Demonstrate how to interact with customers. 	<ul style="list-style-type: none"> • Interact efficiently with customers. • Analyze the requirements of the customers and propose possible solutions.
20	Day 2	Coordinate with Colleagues (3 hrs (Th) + 2 hrs (Pr))	<ul style="list-style-type: none"> • Discuss how to interact with superiors and colleagues. • Discuss the importance of teamwork, multitasking, effective communication and decision making. 	<ul style="list-style-type: none"> • Learners should practice for communicating clearly. • Learners do projects / tasks along with team members 	<ul style="list-style-type: none"> • Apply essential skills like teamwork, multitasking, effective communication and decision making while coordinating with colleagues.

21 - 22	Day 1 Day 2	Project - Assembling a Personal Computer and Installing Operating system (10 Hrs (pr))	<p>The learners should give a presentation or practically assemble / dis-assemble a computer.</p> <p>The learners should install any one operating system (Linux, Windows) and configure it for networking.</p> <p style="text-align: center;">Or</p> <p>Give a case study where 3 to 4 fixed amounts have been given and learner is asked to identify various components that he/she should use to assemble a computer in the prescribed cost. The learner should perform a comparative analysis of the various components before settling for the best with respect to the given cost.</p> <p>Next, learner should make a presentation highlighting his/her choice of components.</p> <p>The teacher and learners should ask questions to gain an insight of the process followed by the learner.</p>
23 - 24	Day 1 Day 2	Project (10 hours (Pr))	<p>Form team of 8-10 learners and ask them to enact a role play demonstrating how to deal with customers.</p> <p>The teams formed above should enact a role play emphasis on team work and cordial work environment at their work place.</p>