

Introduction to Information & Communication Technologies (ICT)

(DIT Part – I)

Total Marks:	100	Theory Marks: 75	Practical Marks: 25
Total Weeks:	20		
Contact Hours per week:	06		
Total Contact Hours:	120		
Theory Hours:	40		
Practical Hours:	80		

Course Description:

This course is designed for students with little or no computer experience. This course introduces computer concepts, hardware components, basic computer operations and use of software applications to solve problems. Students will have complete understanding of the basic concepts and use of personal computers and application software.

Aims and Objectives:

After successful completion of this course, students should be able to:

- Develop a vocabulary of key terms related to computers and software programs
- Identify the components of a personal computer system
- Demonstrate mouse and keyboard functions
- Demonstrate window and menu commands and how they are used
- Demonstrate how to organize files and documents on a USB/hard drive
- Demonstrate basic maintenance of a computer
- send email messages and navigate and search through the internet.

Module	Course Contents	Allotted Weeks	Contact Hours
01	INTRODUCTION TO COMPUTERS 1.1 History and Evolution of Computers 1.2 Hardware Components: Input Devices, Output Devices, System Unit, Storage Devices, Communication Devices 1.3 Computer Software: System Software, Application Software, Installing and Running 1.4 Programs, Software Development 1.5 Computer Types: Personal Computers, Desktop Computers, Mobile Computing Devices, Embedded Computers, Game Consoles, Servers, Thin Clients, Mainframes, Supercomputers 1.6 Computer Applications: Education, Finance, Government, Health Care, Science, Publishing, Travel, Manufacturing	03 Weeks	18
02	SYSTEM UNIT COMPONENTS 2.1 The Motherboard 2.2 Processor The Control Unit, The Arithmetic Logic Unit, Machine Cycle, The System Clock, Comparison of PC Processors 2.3 Memory Bits, Bytes, Addressing, Types (RAM, ROM, Cache, Flash, CMOS) 2.4 Expansion Slots, Adapter Cards and Drive Bays 2.5 Ports and Connectors USB, VGA, HDMI, Audio, Network, FireWire 2.6 Power Supply	03 Weeks	18

03	INPUT & OUTPUT DEVICES 3.1 What is input? 3.2 Keyboard and Pointing devices Mouse, Joystick, Trackball, Touchpad 3.3 Touch Screen, Pen and Stylus 3.4 Other types of input Game Controllers, Digital Cameras, Voice Input, Scanners, Biometric, Terminals 3.5 What is output? 3.6 Display Devices: CRT Monitors, LCD/LED Monitors 3.7 Printers: Non-Impact/Impact, Inkjet, Laser, Multifunction, Thermal, Plotters & Large format printers 3.8 Other Output Devices: Speakers, Headphones, Multimedia Projectors, Interactive Whiteboards	02 Weeks	12
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04	DIGITAL STORAGE 4.1. Hard Disks Characteristics of a Hard Disk, Internal/External, RAID, NAS 4.2. Flash Storage Solid State Drives, Memory Cards, USB Flash Drives, Express Card Modules 4.3. Optical Storage CDs, DVDs, Blue-ray Disks 4.4. Magnetic Tape Storage 4.5. Cloud Storage	02 Weeks	12
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05	SYSTEM SOFTWARE 5.1. Operating Systems 5.2. OS Functions Starting and Shutting Down a Computer, Providing a User Interface, Managing Programs, Managing Memory, Coordinating Tasks, Configuring Devices, Establishing an Internet Connection, Monitoring Performance, Providing File Management and Other Utilities, Updating Software Automatically, Controlling a Network, Administering Security 5.3. OS Types: Stand-Alone OS, Server OS, Embedded OS; Windows, Linux 5.4. OS Utility Programs: File Manager, Search Utility, Uninstaller, Image Viewer, Disk Cleanup, Disk Defragmenter, Backup and Restore Utilities, Screen Saver, Firewall, Antivirus Programs, Spyware and Adware Removers, File Compression, Media Player, Disc Burning 5.5. Personal Computer Maintenance	03 Weeks	18
06	APPLICATION SOFTWARE 6.1. The need and role of Application Software 6.2. Working with Application Software 6.3. Business Software Word Processing, Spreadsheets, Databases, Presentations, Project Management, Personal Information Manager Software, Business Software for Smartphones, Accounting Software Graphics & Multimedia Software: Computer-Aided Design, Desktop Publishing, Paint/Image Editing Software, Video and Audio Editing Software, Multimedia Authoring, Web Page Authoring Software 6.4. Web Applications	03 Weeks	18

	6.5. Typing Assistance Software (Typing Tutor/Master etc)		
07	THE INTERNET AND THE WORLD WIDE WEB 7.1. Network and the Internet - Connecting to the Internet - Access Providers - How Data Travel on the Internet - Internet Addresses 7.2. The World Wide Web - Browsing the Web - Web Addresses - Navigating Web Pages - Searching on the Web - Types of Web Sites - Web Publishing 7.3. E-Commerce 7.4. Other Services on the Internet: - E-Mail, Instant Messaging, VoIP, FTP, Video Conferencing, Social Media 7.5. Computer Security - Computer Malware and Attacks - Safeguards against Viruses, Worms, Trojan Horses, Malware 7.6. Information Privacy 7.7. Computer Ethics 7.8. Cybercrimes 7.9. Health Concerns of Computer Use	04 Weeks	24

Total	20	120
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Lab Requirements (Hardware / Software)	? A modest PC, preferably with Core i3 generation 3rd or above processor, with at least ? 4GB RAM and 200GB hard disk, LCD, Printer and preferably a scanner ? DSL internet connection with Access Point/Modem/Switch and related cables and connectors - MS Windows 10 or above ? Typing Tutor/Master or any other available typing software ? Other Application Software, may be downloaded from the web
List of Practical	? Opening system box and identifying hardware components (processor, RAM, HDD, slots, ports etc) ? Installing/uninstalling hardware components ? Identifying, connecting, disconnecting cables and external devices like printers, monitors etc ? Troubleshooting hardware issues ? Windows installation and configuration ? Typing Tutor/Master installation ? Other Application Software installation ? Familiarization with Windows icons ? Windows Command Prompt and familiarization with basic DOS commands ? Creating icons and shortcuts ? Playing with Control Panel ? Finding specifications of a computer ? Formatting hard drives ? Creating, copying, moving, deleting files and directories ? Disk defragmentation
	? Disk backup and restore ? User Management on Windows

	? Updating software manually and automatically ? Troubleshooting software issues ? Printer installation and troubleshooting ? Toner replacement, Paper jam resolution ? Connecting and using scanners ? Playing with Windows Task Manager ? Identifying file types and associating default programs for opening ? Zipping and unzipping files ? Disk burning ? Installation of free Antivirus software and scanning files for malware ? Connecting to the internet ? Identifying Access Points, Modems, Switches and cables ? Creating email addresses and sending/receiving emails ? Connecting with and browsing LAN ? Installing and using different web browsers ? Browsing and searching the Web ? Using Google Advanced Search ? Using Video Conferencing software
Reference Material	? Shelly, G. B., & Vermaat, M. E. (2012). Discovering computers fundamentals: your interactive guide to the digital world (Latest ed.). Cengage Learning