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SMARTBTR INSTITUTE OF TECHNOLOGY INTERNATIONAL

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Course Title : DCA (Diploma in Computer Application)

Course Duration: 6 months

Course Fees: INR. : Rs. 4,500 **Eligibility:** 10+2 Passed

Prerequisites: No experience required

TOPICS

1. Introduction to Computer System
2. 2 Basic Computer Concept
3. 3 Computer Organisation
4. 4 Windows OS: Windows 7, Windows 10
5. 5 Microsoft Office 2007 (MS Word , MS Excel , MS PowerPoint)
6. 6. Internet & its usage Multimedia,
7. 7.Photoshop Adobe Premiere Adobe InDesign
8. 8 PC Assembly & Maintenance
9. 9 Basic networking Concept
10. 10 Introduction to Programming
11. 11 Database Management
12. 12 Internet and Email
13. 13 Computer Graphics and Operating Systems

Session-1: Introduction to Computer System

- Overview of Computer Systems (Definition and components of a computer system , Importance of computer systems in various fields) ,
- Hardware Components: (Central Processing Unit (CPU) , Memory: RAM (Random Access Memory) and ROM (Read-Only Memory) , Storage Devices: Hard Disk Drives (HDD), Solid State Drives (SSD) , Input Devices: Keyboard, Mouse , Output Devices: Monitor, Printer
- Software Components: (System Software: Operating Systems (e.g., Windows, macOS, Linux) , Application Software: Examples (e.g., Microsoft Office, Adobe Photoshop) , Utility Software: Antivirus, File Management Tools ,
- Basic Computer Operations: (Booting Process , Using the Desktop, Taskbar, and Start Menu , File Management: Creating, Saving, Copying, and Deleting Files and Folders ,
- Number Systems: , Binary, Decimal, and Hexadecimal Number Systems , Conversion between different number systems ,
- Introduction to Networking: (Basic Networking Concepts: LAN (Local Area Network), WAN (Wide Area Network), Internet , Importance of Networking in Computer Systems

Session-2: Basic Computer Concept

- Computer Architecture: (Basic concepts of computer architecture , Understanding the motherboard and its components , The role of buses in a computer system ,
- Data Representation: (Understanding how data is represented in computers (bits, bytes) , Character encoding systems (ASCII, Unicode) ,
- Peripheral Devices: (Types of peripheral devices (input, output, storage) , How peripheral devices connect to the computer (USB, Bluetooth) ,
- Operating System Functions: (Process management and scheduling , Memory management , File system management , Security and access control)
- Software Development Basics: (Introduction to software development lifecycle (SDLC) , Basic concepts of programming languages and compilers ,
- Computer Security: Basic principles of computer security , Common threats (viruses, malware, phishing) , Introduction to cybersecurity practices (firewalls, encryption) ,
- Basic Troubleshooting: (Common computer problems and solutions , Diagnostic tools and techniques)

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SESSION 3: Computer Organisation

- Introduction to Computer Organization: (Definition and importance of computer organization , Difference between computer organization and computer architecture) ,
- Basic Computer Components: (Central Processing Unit (CPU): structure and function , Memory Hierarchy: registers, cache, main memory (RAM), secondary storage , Input/Output Devices: basic understanding of peripherals ,
- Data Representation: (Binary number system , Representation of data and instructions) ,
- Processor and Control Unit: (Basic structure and functions of the CPU , Control unit operations ,
- Memory Organization: (Memory types and hierarchy , Basic concepts of RAM and ROM , Cache memory and its importance) ,
- I/O Organization: (I/O devices and their types , Basic concepts of input/output operations) ,
- Basic Assembly Language Concepts: (Introduction to machine language and assembly language , Simple examples of assembly language instructions)

SESSION 4: Windows OS

- Introduction to Windows OS: Overview of Windows operating system , Different versions of Windows (e.g., Windows 7, Windows 10) ,
- Graphical User Interface (GUI): Desktop environment , Start Menu, Taskbar, and System Tray ,
- File Management: Using File Explorer to navigate files and folders , Copying, moving, renaming, and deleting files ,
- System Settings and Control Panel: Accessing and configuring system settings , Control Panel overview and common settings ,
- User Accounts and Security: (Creating and managing user accounts , User access control and permissions
- Networking and Internet Connectivity: Connecting to networks (Wi-Fi, Ethernet) , Browsing the internet using web browsers (e.g., Internet Explorer, Microsoft Edge) ,
- System Maintenance and Troubleshooting: Disk cleanup and defragmentation , Using Task Manager to monitor system performance ,
- Software Installation and Management: Installing and uninstalling applications , Updating software and drivers ,
- Backup and Recovery: Creating system backups , Restoring system from backups ,
- Accessibility Features: Overview of accessibility options for users with disabilities

SESSION 5: Microsoft Office 2007 (MS Word , MS Excel , MS PowerPoint)

- Microsoft Office 2007: Essential Topics
- MS Word 2007:
- Introduction to MS Word interface
- Creating, opening, and saving documents
- Basic text formatting (font style, size, color)
- Paragraph formatting (alignment, indentation, line spacing)
- Inserting and formatting images and shapes
- Working with tables and columns
- Headers and footers
- Spell check and grammar check
- Printing documents
- MS Excel 2007:
- Introduction to MS Excel interface
- Creating, opening, and saving workbooks
- Entering and formatting data in cells
- Basic mathematical operations (sum, average, etc.)
- Using formulas and functions (SUM, AVERAGE, MAX, MIN)
- Working with multiple worksheets
- Page layout and printing options

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- **MS PowerPoint 2007:**
- Introduction to MS PowerPoint interface
- Creating and saving presentations
- Adding and formatting text
- Inserting and formatting images, shapes, and SmartArt
- Using slide layouts and templates
- Adding and formatting charts and graphs
- Applying transitions and animations
- Slide show setup and navigation
- Adding speaker notes
- Printing presentations and handouts

SESSION 6: Internet and Multimedia

- Introduction to the Internet , Overview of the Internet and its importance : (History of the Internet and its evolution , History of the Internet and its evolution , Basic concepts: World Wide Web, websites, web browsers) ,
- Internet Connectivity: (Types of internet connections (e.g., dial-up, broadband, Wi-Fi) , Setting up and configuring internet connections ,
- Web Browsing: (Using web browsers (e.g., Internet Explorer, Mozilla Firefox, Google Chrome) , Navigating websites: URL, links, bookmarks , Browsing securely: HTTPS, SSL, secure websites ,
- Search Engines and Online Resources: (Using search engines (e.g., Google, Bing) effectively , Accessing and evaluating online resources (websites, articles, blogs)
- Email Communication: (Understanding email basics: composing, sending, replying, forwarding emails , Email etiquette and best practices , Managing email accounts and folders ,
- Multimedia Basics: (Understanding multimedia: text, images, audio, video , Multimedia file formats (e.g., JPG, PNG, MP3, MP4) , Multimedia applications and tools) ,
- Image Editing and Management: (Introduction to image editing software (e.g., Adobe Photoshop, GIMP) , Basic image editing techniques: cropping, resizing, adjusting colors)

SESSION 7: Photoshop Adobe , Adobe InDesign

- Adobe Photoshop: Introduction to Photoshop interface , Basic tools and their functions (e.g., selection tools, brush tool, text tool) , Image editing techniques (cropping, resizing, retouching) , Layers and layer masks , Color adjustments and filters , Working with text and typography , Saving and exporting images in different formats ,
- Adobe InDesign: (Introduction to InDesign interface , Creating and setting up documents (e.g., brochures, flyers, magazines) , Text formatting and styling , Working with images and graphics , Layout and design principles , Adding and formatting tables , Exporting and printing documents)

SESSION 8: PC Assembly & Maintenance

- Introduction to PC Hardware: Overview of computer hardware components (CPU, motherboard, RAM, storage devices, etc.) , Understanding the role of each component in a computer system ,
- Safety Precautions: (Proper handling of sensitive electronic components , Electrostatic discharge (ESD) precautions , Safety measures when working with power sources ,
- Tools and Equipment: (Essential tools for PC assembly and maintenance (screwdrivers, pliers, antistatic wrist strap) , Equipment needed for troubleshooting and testing (multimeter, diagnostic software) ,
- PC Assembly: (Step-by-step guide to assembling a desktop PC , Installing the motherboard, CPU, RAM, and expansion cards , Connecting power supply, storage devices, and peripherals , Cable management techniques ,

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- BIOS/UEFI Setup: (Accessing and navigating the BIOS/UEFI interface , Configuring basic settings (date/time, boot order, etc.) , Updating BIOS/UEFI firmware ,
- Operating System Installation: (Installing an operating system (e.g., Windows) on a newly assembled PC , Partitioning drives and formatting disks , Device driver installation) ,
- Hardware Troubleshooting: (Identifying common hardware issues (e.g., faulty RAM, overheating) , Troubleshooting techniques and diagnostic tools , Resolving hardware conflicts and compatibility issues) ,
- PC Maintenance: (Regular cleaning and dusting of internal components , Monitoring system temperatures and fan speeds , Preventive maintenance practices to prolong the life of PC components) ,
- Upgrades and Repairs:((Adding or upgrading hardware components (RAM, storage, graphics card) , Replacing faulty or outdated components , Performing routine maintenance tasks like thermal paste replacement) ,
- Backup and Data Protection: Importance of regular data backups , Methods for backing up data (external drives, cloud storage) , Data recovery techniques in case of hardware failure or data loss

SESSION 9: Basic networking Concept

- Introduction to Networking:
- (Definition of a computer network , Definition of a computer network , Purpose and importance of networking ,
- Types of Networks: (Local Area Network (LAN) , Wide Area Network (WAN) , Metropolitan Area Network (MAN)) ,
- Network Devices: Router: Device for connecting multiple networks together , Switch: Device for connecting multiple devices within a network , Modem: Device for connecting to the internet ,
- Network Topologies: (Star Topology: Devices connected to a central hub or switch
- IP Addressing: , Networking Protocols: (TCP) , (IP) , (HTTP) , (FTP) , Network Security , Wireless Networking

SESSION 10: Introduction to Programming

- Programming is the process of instructing computers to perform tasks by providing them with a set of instructions. These instructions, written in a specific programming language, enable computers to execute operations, solve problems, and process data.
- Key Concepts:
- Algorithms: Algorithms are step-by-step procedures or instructions for solving problems. They form the foundation of programming by breaking down complex tasks into manageable steps.
- Programming Languages: Programming languages are formal languages used to communicate instructions to computers. Examples include Python, Java, C++, and JavaScript. Each language has its syntax and rules for writing code.

SESSION 11: Database Management:

- What is a Database? , Relational Databases , Database Management System (DBMS) , Data Models , Database Design Principal ,
- Querying Data: SQL (Structured Query Language , Data Manipulation: Data manipulation involves inserting, updating, deleting, and retrieving data from a database using SQL commands or programming interfaces.

SESSION 12: Internet and Email

- Introduction to Email and Internet, Email Basics (Setting up and managing email accounts , Composing, sending, and receiving emails , Understanding email etiquette and best practices) ,
- Internet Fundamentals , Online Communication Tools, Privacy and Security (Protecting personal information online,

Recognizing and avoiding online threats like malware and scams , Understanding the importance of data privacy and secure browsing habits) ,

- Social Media Awareness (Understanding the role of social media platforms in online communication and networking , Practicing responsible and safe social media usage) , Utilizing email for tasks such as sending links and attachments.

SESSION 13: Computer Graphics and Operating Systems

- Introduction to Computer Graphics: (Definition and importance of computer graphics , Applications of computer graphics in various fields) ,
- Graphics Hardware and Software: (Overview of graphics hardware (e.g., GPUs, monitors) , Introduction to graphics software and tools (e.g., Adobe Photoshop, Blender)) ,
- Basic Concepts and Techniques: (Understanding pixels, resolution, and color models (RGB, CMYK) , Basic drawing techniques (lines, shapes, text) , Image manipulation (scaling, rotating, cropping)) ,
- Operating Systems :
- Introduction to Operating Systems: (What is an operating system (OS)? , Importance of OS in computer systems , Examples of popular operating systems (Windows, macOS, Linux) ,
- Basic Functions of an Operating System: (Managing hardware resources (CPU, memory, storage) , Providing user interfaces (GUI, command-line interface) , Handling file management and I/O operations ,
- Types of Operating Systems: (Single-user vs. multi-user operating systems , Single-tasking vs. multi-tasking operating systems , Real-time operating systems (RTOS)

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