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**RAYS Computer Education**

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**COURSE TITLE**

**DIPLOMA IN COMPUTER APPLICATION (DCA)**

## DETAILED SYLLABUS

SR.NO	NAME OF CHAPTERS & DETAILS	HOURS ALLOTTED
<b>SECTION (A) VOLUME 1</b>		
1	<b>INTRODUCTION TO COMPUTER</b> <ul style="list-style-type: none"><li>❖ Computer's characteristic</li><li>❖ The Evolution of Computers</li><li>❖ The Computer Generation<ul style="list-style-type: none"><li>○ First Generation</li><li>○ Second Generation</li><li>○ Third Generation</li><li>○ Fourth Generation</li><li>○ Fifth Generation</li></ul></li></ul>	
2	<b>INTERNAL ARCHITECTURE OF COMPUTER</b> <ul style="list-style-type: none"><li>❖ Input Unit<ul style="list-style-type: none"><li>○ Keyboard</li><li>○ Point and Draw Devices<ul style="list-style-type: none"><li>▪ Mouse, Trackball, Joystick, Electronic Pen, Touch Screen</li></ul></li><li>○ Data Scanning Devices<ul style="list-style-type: none"><li>▪ Image Scanner, Optical Mark Reader(OMR), Bar code Reader, Magnetic -Ink Character Recognition (MICR)</li></ul></li><li>○ Electronic-card Reader</li><li>○ Voice Recognition Device</li><li>○ Vision-Input System</li></ul></li></ul>	

	<ul style="list-style-type: none"> <li>❖ Output Unit <ul style="list-style-type: none"> <li>○ Monitors</li> <li>○ Printers <ul style="list-style-type: none"> <li>▪ Dot-Matrix Printers, Inkjet Printers, Laser Printers</li> </ul> </li> <li>○ Plotters</li> <li>○ Screen Image Projector</li> </ul> </li> <li>❖ Storage Unit <ul style="list-style-type: none"> <li>○ Primary Storage.</li> <li>○ Secondary Storage</li> </ul> </li> </ul>	
<b>3</b>	<p><b>NUMBER SYSTEM AND CONVERSION</b></p> <ul style="list-style-type: none"> <li>• About Number System</li> <li>• Type of Number System <ul style="list-style-type: none"> <li>○ Decimal Number System</li> <li>○ Binary Number System</li> <li>○ Octal Number System</li> <li>○ Hexadecimal Number System</li> <li>○</li> </ul> </li> <li>• Conversion between one Number System to Another <ul style="list-style-type: none"> <li>○ Decimal to Binary and Binary to Decimal</li> <li>○ Decimal to Octal and Octal to Decimal</li> <li>○ Decimal to Hexadecimal and Hexadecimal to Decimal</li> <li>○ Binary to Octal, Hexadecimal and Octal, Hexadecimal to Binary</li> </ul> </li> </ul>	
<b>4</b>	<p><b>COMPUTER ARITHMETIC</b></p> <ul style="list-style-type: none"> <li>• Why Binary used in Computer</li> <li>• Binary Arithmetic</li> </ul> <p>Binary Addition, Binary Subtraction, Binary Multiplication, Binary Division</p>	
<b>5</b>	<p><b>ABOUT COMPUTER CODES</b></p> <ul style="list-style-type: none"> <li>• BCD Code, Excess-3 Code, EBCDIC Code, ASCII Code</li> </ul>	

6	<p><b>ABOUT BOOLEAN ALGEBRA AND LOGIC GATE</b></p> <ul style="list-style-type: none"> <li>• Fundamental of Boolean Algebra</li> <li>• Boolean Function</li> <li>• Logic Gates <ul style="list-style-type: none"> <li>○ AND Gate, OR Gate, NOT Gate, NAND Gate, NOR Gate</li> <li>○ Boolean Expression to Logic circuits</li> </ul> </li> </ul>	
7	<p><b>PROCESSOR AND MEMORY UNIT</b></p> <ul style="list-style-type: none"> <li>• The Central Processing Unit (CPU) <ul style="list-style-type: none"> <li>○ Control Unit</li> <li>○ Arithmetic Logic Unit</li> <li>○ Instruction Set</li> <li>○ Registers</li> <li>○ Processor Speed</li> </ul> </li> <li>• The Main Memory <ul style="list-style-type: none"> <li>○ About Main Memory.</li> <li>○ Main Memory Organization and Capacity</li> </ul> </li> <li>• RAM, ROM, PROM and EPROM</li> </ul> <p>Cache Memory</p>	
8	<p><b>SECONDARY STORAGE DEVICES</b></p> <ul style="list-style-type: none"> <li>• Classification of Secondary Storage Device</li> <li>• Sequential and Direct access Devices</li> <li>• Magnetic Tape <ul style="list-style-type: none"> <li>○ About Magnetic tape</li> <li>○ Types of Magnetic Tapes</li> <li>○ Advantage and limitations of Magnetic Tapes</li> <li>○ Use of Magnetic Tapes</li> </ul> </li> <li>• Magnetic Disk <ul style="list-style-type: none"> <li>○ About Magnetic Disk</li> <li>○ Types of Magnetic disks</li> <li>○ Advantage and limitations of Magnetic Disk</li> </ul> </li> </ul>	

9	<p><b>CLASSIFICATION OF COMPUTER</b></p> <ul style="list-style-type: none"> <li>❖ Notebook Computers</li> <li>❖ Personal Computers</li> <li>❖ Workstations</li> <li>❖ Mainframe Systems</li> <li>❖ Supercomputers</li> <li>❖ Clients and Servers</li> </ul>	
10	<p><b>COMPUTER SOFTWARE</b></p> <ul style="list-style-type: none"> <li>• What is Software</li> <li>• Types of Software <ul style="list-style-type: none"> <li>○ System Software</li> <li>○ Application software</li> </ul> </li> </ul>	
11	<p><b>COMPUTER/PROGRAMMING LANGUAGES</b></p> <ul style="list-style-type: none"> <li>• About Computer Languages</li> <li>• Some types of Computer Languages <ul style="list-style-type: none"> <li>○ Machine Language <ul style="list-style-type: none"> <li>▪ Advantages and Limitations of Machine Languages</li> </ul> </li> <li>○ Assembly Language <ul style="list-style-type: none"> <li>▪ About Assembler</li> <li>▪ Advantages and Limitations of Assembly Languages</li> </ul> </li> <li>○ High Level Language <ul style="list-style-type: none"> <li>▪ About high level language.</li> </ul> </li> </ul> </li> </ul> <p style="text-align: center;">Advantages and Limitations of High Level Languages</p>	
12	<p><b>OPERATING SYSTEM</b></p> <ul style="list-style-type: none"> <li>• What is an Operating System.</li> <li>• Main function of an operating system</li> <li>• Multiprogramming, Multitasking, Multiprocessing</li> <li>• Some Popular Operating System</li> </ul>	
13	<p><b>THE INTERNET</b></p> <ul style="list-style-type: none"> <li>• About Internet</li> <li>• Basic Services of Internet <ul style="list-style-type: none"> <li>○ Electronic mail</li> <li>○ File Transfer protocol</li> </ul> </li> </ul>	

	<ul style="list-style-type: none"> <li>○ Telnet</li> <li>○ Usenet News</li> <li>○ The World Wide Web</li> <li>● Application of the internet</li> </ul>	
<b>14</b>	<p><b>DATA COMMUNICATION AND COMPUTER NETWORKS</b></p> <ul style="list-style-type: none"> <li>● Basic Elements of a communication System</li> <li>● Data Transmission Modes <ul style="list-style-type: none"> <li>○ Simplex, Half duplex, Full duplex</li> </ul> </li> <li>● Data Transmission Media <ul style="list-style-type: none"> <li>○ Twisted-pair wire, Coaxial Cable, microwave, Satellite, Optical Fibers.</li> </ul> </li> <li>● Digital and Analog Data Transmission <ul style="list-style-type: none"> <li>○ Modulation technique <ul style="list-style-type: none"> <li>▪ AM, FM, PM</li> <li>▪ Modems</li> </ul> </li> </ul> </li> <li>● Network Topologies <ul style="list-style-type: none"> <li>○ Star, Ring, Bus, Mesh</li> </ul> </li> <li>● Network Types <ul style="list-style-type: none"> <li>○ LAN, MAN, WAN</li> </ul> </li> </ul>	
<b>15</b>	<p><b>MULTIMEDIA</b></p> <ul style="list-style-type: none"> <li>● About Multimedia</li> <li>● Multimedia Components <ul style="list-style-type: none"> <li>○ Text, Graphics, Animation, Audio, Video</li> </ul> </li> <li>● Multimedia Applications</li> </ul>	
<b>16</b>	<p><b>COMPUTER VIRUS</b></p> <ul style="list-style-type: none"> <li>● What is virus</li> <li>● Difference between normal program and virus</li> <li>● Classification of viruses</li> <li>● Some common viruses</li> <li>● Prevention</li> </ul>	
<b>17</b>	<p><b>D.B.M.S. / R.D.B.M.S</b></p> <ul style="list-style-type: none"> <li>● About DBMS</li> <li>● About Normalization <ul style="list-style-type: none"> <li>○ Need of Normalization</li> </ul> </li> </ul>	

## VOLUME 2 (LAB)

1	<b>DOS (DISK OPERATING SYSTEM)</b> <ul style="list-style-type: none"><li>• Internal Command</li><li>• External Command</li></ul>	
2	<b>WINDOWS OS 98/XP/2000/</b> <ul style="list-style-type: none"><li>• Introduction to Windows VISTA &amp; Windows 7</li><li>• Features of Windows</li><li>• About My Computer, Web Browser, My document</li><li>• About Desktop Screen saver</li><li>• Notepad</li><li>• Wordpad</li><li>• MS Paint</li><li>• Calculator</li></ul>	
3	<b>INTRODUCTIONS TO MICROSOFT OFFICE</b>	
4	<b>WORD PROCESSING (MS WORD)</b> <ul style="list-style-type: none"><li>• Introduction to Word Processing</li><li>• Introduction to MS Word : Features, Creating, Saving and Opening Documents in Words, Interface, Toolbars, Ruler Menus, Keyboard Shortcut</li><li>• Editing a Document- Moving Scrolling in a document, Opening Multi-document Windows, Editing Text-Selecting , Inserting, Deleting , Moving Text.</li><li>• Previewing documents, Printing documents-print a document from the standard toolbar, Print a document from the menu,</li><li>• Formating Documents : Paragraph formats, Aligning Text and Paragraph , Borders and Shading Headers and Footers, Multiple Columns</li><li>• Advanced Features of MS Word : Find and Replace, Checking grammar and spelling , Formating via find and replace Using the Thesaurus, Using Auto Correct, Auto Complete and Auto text, Word Count, Hyphenating , Mail merge, mailing labels Wizards and Templates, Handling Graphics, Table and Charts, Converting a word document into various formats like Text, Rich Text Format. Wordperfect, HTML etc.</li></ul>	

5	<p><b>WORK SHEET (MS EXCEL)</b></p> <ul style="list-style-type: none"> <li>• Worksheet Basics</li> <li>• Creating worksheet, entering data into worksheet, heading information, data text, alphanumerics, values, saving &amp; quitting worksheet.</li> <li>• Opening and moving around in an exiting worksheet.</li> <li>• Toolbars and Menus, Keyboard Shortcuts'</li> <li>• Working with single and multiple workbook- copying, renaming, moving, adding and deleting, copying entries and moving between workbook'</li>   <li>• Working with formulae &amp; cell referencing</li> <li>• Autosum</li> <li>• Copying Formula</li> <li>• Absolute &amp; Relative Addressing</li> <li>• Working with ranges-creating , editing and selecting ranges</li> <li>• Formatting of worksheet Auto format, changing alignment, character styles, column width, date format , borders &amp; colours, currency sign. \</li> <li>• Previewing &amp; Printing worksheet-page setting, print titles, Adjusting margins , Page break, headers and footers.</li> <li>• Graphs and charts-using wizards, various charts type, formating grid lines &amp; legends , previewing &amp; printing charts</li> <li>• Database-creation, sorting, query &amp; filtering a database</li> <li>• Functions-Database, Date, and Time, Maths &amp; Trigonometry, Statistical, Text and Logical Function</li> <li>• Creating and Using Macros</li> </ul>	
6	<p><b>PRESENTATION GRAPHICS (MS POWERPOINT)</b></p> <ul style="list-style-type: none"> <li>• Features and various versions</li> <li>• Creating presentation using Slider Master and templates in various color schemes.</li> <li>• Working with different views and menus of power point</li> <li>• Working with slider-Make new slider, move, copy, delete, duplicate, lay-outing of slide, zoom in or out of a slide.</li> <li>• Editing and formating text : Alignment, editing, inserting, deleting, selecting, formating of text, find and replace text, bullets, footer, paragraph formating spell cheking.</li> <li>• Printing presentation-Print slides, notes, handouts and outlines</li> <li>• Inserting Objects-Drawing and inserting objects</li> </ul>	



	<ul style="list-style-type: none"> <li>• using cliparts, pictures and charts.</li> <li>• Slide sorter, slide transition effects and other animation effects</li> <li>• Presenting the show making stand, alone Presentation, Pack and go wizards</li> </ul>	
7	<p><b>INTRODUCTION TO MS ACCESS</b></p> <ul style="list-style-type: none"> <li>• Introduction to MS Access</li> <li>• Features of Access</li> <li>• Windows- based application</li> <li>• Large Data management Capacity</li> <li>• Importing and Linking External Files</li> <li>• Wizards and Builders</li> <li>• Built-in Functions</li> <li>• Table</li> <li>• Queries</li> <li>• Forms</li> <li>• Reports</li> </ul> 	