MAHARASHTRA STATE BOARD OF VOCATIONAL EDUCATION EXAMINATION, MUMBAI - 51

<table>
<tr><td>1</td><td>Name of Course</td><td>C.C.In Information Technology & Computer System Maintenance (101206)</td></tr>
<tr><td>2</td><td>Max. Nos.of Student</td><td>25 Students</td></tr>
<tr><td>3</td><td>Duration</td><td>1 Year</td></tr>
<tr><td>4</td><td>Type</td><td>Full Time</td></tr>
<tr><td>5</td><td>Nos. of Days / Week</td><td>6 Days</td></tr>
<tr><td>6</td><td>Nos. of Hours /Days</td><td>7 Hrs</td></tr>
<tr><td>7</td><td>Space Required</td><td>Theory Class Room – 200 sqft Practical – 1500 sqft</td></tr>
<tr><td>8</td><td>Entry Qualification</td><td>S.S.C. Passed</td></tr>
<tr><td>9</td><td>Objective Of Syllabus/ introduction</td><td>Awareness of Safety precautions
Knowledge of soldering techniques, use of tools in assembly.
Knowledge of Engineering Tools
Knowledge of electronic component used in Various Computer Hardware.
Knowledge of Assembling & maintenance of PC’S.
Basic Computer Networking.
Basic Internet & Multimedia.
Basic Database Processing</td></tr>
<tr><td>10</td><td>Employment Opportunity</td><td>The trainee will either to be able to take up jobs with agencies which maintain and repair such equipments or with working experience will be in a position to start his own independent Business.</td></tr>
<tr><td>11</td><td>Teacher’s</td><td>Diploma in Computer Engg.</td></tr>
<tr><td>12</td><td>Training System</td><td>Training System Per Week
<table>
<tr><td>Theory</td><td>Practical</td><td>Total</td></tr>
<tr><td>18 Hours</td><td>24 Hours</td><td>42 Hours</td></tr>
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<tr><td>13</td><td>Exam. System</td><td>
<table>
<tr><th>Sr. No.</th><th>Paper Code</th><th>Name of Subject</th><th>TH/PR</th><th>Hours</th><th>Max. Marks</th><th>Min. Marks</th></tr>
<tr><td>1</td><td>10120611</td><td>Basic Electronics & Office Automation</td><td>TH-I</td><td>3 hrs</td><td>100</td><td>35</td></tr>
<tr><td>2</td><td>10120612</td><td>Basic Assembling, Maintenance of PC & Computer Networking</td><td>TH-II</td><td>3 hrs</td><td>100</td><td>35</td></tr>
<tr><td>3</td><td>10120613</td><td>Basic Internet, Multimedia & Database Processing</td><td>TH-III</td><td>3 hrs</td><td>100</td><td>35</td></tr>
<tr><td>4</td><td>10120621</td><td>Basic Electronics & Office Automation</td><td>PR-I</td><td>3 hrs</td><td>100</td><td>50</td></tr>
<tr><td>5</td><td>10120622</td><td>Basic Assembling, Maintenance of PC & Computer Networking</td><td>PR-II</td><td>3 hrs</td><td>100</td><td>50</td></tr>
<tr><td>6</td><td>10120623</td><td>Basic Internet, Multimedia & Database Processing</td><td>PR-III</td><td>3 hrs</td><td>100</td><td>50</td></tr>
<tr><td></td><td></td><td>Total</td><td></td><td></td><td>600</td><td>255</td></tr>
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SYLLABUS

Basic Electronics & Office Automation.

Theory & Practical - I

Practical	Theory
Identify AC & DC voltmeters/ Multimeters. Measure DC voltage of a given battery-pack. Measure mains AC voltage.	Electricity, Potential difference, AC & DC voltage, Current, Waveform, measuring devices (meter).
Identify different types of wires used for interconnections (Single stand, multi strand, twisted pair) Test wires and cables. Wiring harness.	Conductors, Insulators and semiconductors, examples and applications. Domestic electrical wiring - requirements
Skin wire ends and tinning. Terminate wire ends with lugs and connectors. Crimping practice with RJ connectors Practice Domestic wiring using different components of wiring.	Testing continuity of wires. Skinning and tinning of wires and cable ends
Identify different types of resistors. Find value of resistors and its tolerance using colour code. Measure resistance-using multimeter. Measure effective value of resistors in series, parallel and series-parallel. Measure branch currents and node voltages of a series-parallel circuit (Kirchoff's law).	Resistors, types, specifications, applications, identification using colour code, Resistors in series, parallel and series parallel. Ohms law and its application, KCL & KVL
Solder single stand wires on to Lug board. Solder single and multiple solder joints. Solder Resistors on to a lug board. Solder Semiconductor device on to a lug board. Solder a given circuit (consisting of resistors and semiconductor diodes on a lug board. Solder a resistor, a semiconductor device and an IC on lug board. Practice de soldering of above soldered components.	Solder joint. Soldering requirement & practice, Common soldering defects. De soldering – Precautions & practice. Application of PCB's. Types of PCBs, specifications. List some Connectors used with PCB
Capacitor – measuring the value, colour code. Measure capacitance using LCR meter.	Capacitor, types, specification, capacitors in series and parallel - applications
Identify of different types of inductors. Measure inductance using LCR meter. Test a step up transformer and finding transformation ratio.	Magnetism. Faradays Laws. Inductance, Inductor-types, specifications, applications.

Testing a step down transformer and finding transformation ratio. Study Electro-magnetic effect using Electric Bell, Solenoid.	Measurement of inductance, Inductance in series and parallel. Inductive reactance. Self & mutual Inductance - properties, applications. Transformer, principle, construction, types, rating and applications. Testing a given transformer.
Identify different types of rectifiers and terminals. Refer to Diode handbook to get a diode for a given application and rating. Testing a given diode. Construct and test a Half wave rectifier. Construct and test a Full wave rectifier. Construct and test a Bridge rectifier. Test LED's. Use LED as output indicator in DC power supplies. Identify different types and packages of transistors. Identify transistors leads/terminals. Testing of transistors, Find a required transistor referring to Transistor data book. Testing amplification of different configurations using pre wired kits. Test cascaded amplifiers using pre wired kits. Familiarization and using CRO & function generator Test harmonic oscillators using pre wired circuits. Construct and test relaxation oscillators using pre wired circuit. Measure parameters of Pulses using oscilloscope.	Semiconductor device. Rectifier diodes, types, specifications and applications. Half wave rectifier, construction, working, output voltage, current rating, and output ripple. Efficiency, limitations, applications. Full wave rectifier, construction, working, output voltage, current rating, and output ripple. Efficiency, limitations, applications. Bridge rectifier, construction, working, output voltage, current rating, output ripple. Efficiency, limitations, applications. LED's, types, specification and applications. Using LED as indicator lamps. Principle of working of a transistor. PNP and NPN transistors. Specification of transistors. Identification of transistors, terminals. Referring to Data book for selecting a transistor. Biasing of transistors – types, advantages, and applications. Types of amplifiers, working and applications. Cascaded amplifiers, types and applications. Oscillators, types, Harmonic-LC, RC, Crystal and relaxation-UJT, Pulse, pulse parameters, implications. Pulse circuits, multivibrators, applications
Construct and test a Thyristor based power supply. Testing op-amp, testing and analyzing results of an OP-Amp. Wire and test a Multistage IC amplifier.	DIAC, SCR, TRIAC- principle of working, specifications, applications. Circuits and application. Differential amplifiers, OP-Amps, principle, characteristics, advantages, applications. List a few commonly used op-amps, Amplifiers in integrated circuit forms. IC oscillators - IC 555

Construct and test a 3-pin Voltage regulator. Construct and test an IC variable output Voltage regulator. Trace circuit of PC SMPS. Fault finding of SMPS used in PC. Troubleshoot SMPS used in PC's. Trace circuit, Fault finding and troubleshoot Power supplies used in PC I/O devices. Test Dry cells. Identify of different types and sizes of button cells. Test button cells. Check the specific gravity of electrolyte. Checking battery using discharge tester. Top-up secondary batteries. Connecting secondary batteries in series/ series parallel. Identify a dead/defective battery in a chain of batteries. Charge batteries. Connect batteries with UPS and test.	Other types of linear IC's and applications. Voltage regulator - zener diode, principle, application, limitations. Shunt and series regulators, applications, limitation. IC voltage regulators-fixed/variable, specifications, testing. Multiple output regulators, package details of some common IC regulator Comparison of linear and Switch mode power supplies. Working of SMPS. Types, specifications and applications. Circuit tracing of SMPS. Faultfinding and Trouble shooting approach of SMPS with emphasis on power supplies used in PC's and its I/O devices. Primary and secondary batteries. Dry cells, specification. Button cells, types and applications - testing. Secondary battery types, specification, construction, Routine maintenance, Electrolyte- specific gravity, charging batteries. Maintenance free batteries. Use of batteries with UPS. Safety precautions

List of Tools, Machinery, Equipments Etc.

Sr. No.	Name of Item	Quantity (Nos.)
1	Basic Analogue Electronics Trainer	4
2	SMPS Trainer	2
3	Insulated Screw Driver (different types)	10
4	Knife double bladed electrician	10
5	Insulated handle thin connector screw driver	10
6	Line tester	10
7	Heavy duty screw driver	10
8	Combination plier	08
9	Long nose plier	10
10	Tweezer	10
11	Phillips type screw driver set	10
12	Wire stripper	10
13	Soldering iron, 20/25watts	10
14	Desoldering pump	10
15	Digital Multimeter-hand held	10
16	Temperature controlled soldering/ desoldering station	04
17	SMD soldering/desoldering station	02
18	Wire gauge set	04
19	Permanent magnet bar	08
20	Solenoid with core	08
21	Electric bell	08
22	Battery storage lead acid 6V & 12 V	04 each
23	Maintenance Free Battery	02
24	Hydrometer	08
25	Battery charger	04
26	Rheostat variable values	08
27	Variable resistance /potentiometer	04
28	DC& AC ammeter 0-50 mA (table model for lab experiments)	04
29	DC& AC ammeter 0-500 mA(table model for lab experiments)	04
30	DC& AC ammeter 0-1mA(table model for lab experiments)	04
31	DC& AC ammeter 0-1 A(table model for lab experiments)	04
32	Analog Multimeter	04
33	LCR meter	04
34	20 MHz Dual Trace Oscilloscope	04
35	Function Generator	04
36	Pulse Generator	04
37	Bread board for connecting various components i.e. diode, resistances, capacitors etc of different dimensions	32

Theory & Practical - II

Basic Assembling, Maintenance of PC & Computer Networking

Practical	Theory
Convert Decimal to Binary and reverse. Convert of Binary to octal and reverse. Convert of Binary to Hexadecimal and reverse. Identify given IC's using digital IC handbook. Verify the truth table of NOT, AND, OR, NAND and NOR gates. Construct a logic circuit using basic gates for a given output logic. Construct a 1's compliment & 2's compliment circuit and verify Construct and verify the truth table of flip-flop Construct and test a serial and parallel shift register Construct and test a 4-bit binary counter	Comparing Analog and Digital signal. Application of Digital electronics. Number system, Binary, octal and hexadecimal. Boolean algebra, D'Morgans theorem. Simplification of logic circuit. Identification of Digital IC's, Types of packages, applications. Basic digital gates and truth tables. 1's & 2's compliment Flip-flop, register & counter Making a logic circuit for any custom requirement
Identify the external I/O and memory devices connected to the PC. Identify the controls of each of these devices including the system (CPU) unit. Disconnect the external I/O and memory devices connected to the PC. Re-connect external I/O and memory devices connected to the PC. Practice windows operating system. Practice using notepad. Practice using paint. Identify system specifications.	Basic blocks of a digital computer. Function of each block. Personal computer organization. Introduction to various generations of PC's. Brief working and usage of I/O and memory devices used in a PC. Working with computer using windows operating system. Obtaining system information
Use device manager to check status of installed devices. Identify and record IRQ. Make a start-up/emergency diskette. Uninstall, Reinstall and make settings for the following devices using Device manager: Keyboard, Mouse, Display, Multimedia, Printer, Modem, Web camera and other such external devices.	Ports on a PC and its specifications. Hardware interface and driver. IRQ and DMA. Making startup/emergency diskette. Installing and setting keyboard and mouse. Installing and setting Display. Installing and setting Printer. Installing and setting multimedia. Installing and setting Modem. Installing and setting web camera and other devices.

Remove SMPS from cabinet, test SMPS for good working condition and refit to cabinet. Identify the internal parts of a PC. Identify cable connections inside a PC. Identify the specifications of motherboard. Identify the components of a motherboard. Remove, identify and refit add-in cards Remove, identify and refit RAM, Processor. Practice CMOS setting. Remove and refit FDD. Remove and refit HDD. Remove and refit CD ROM drive. Partition HDD, Format HDD, Load operasystem. Load multiple Operating system (Windows & Linux). Test working. Assemble PC given all components. Check for working. Identify defect (Hardware/software). Rectify defect. Identify possibility of upgrading a given PC to given specification. Collect and up grade PC. Check working of upgraded PC.	Memory Types and uses. Computer main memory, specifications, compatibility, expandability, types, manufacturers. SMPS used in PC, Specifications, types of connectors, testing. Mother board, types, specifications, components on the motherboard and its functions. BIOS, CMOS setup. FDD, principle of working, types, capacity, connecting to motherboard. Hard disk, types, specifications, manufacturers. Connecting to the motherboard. Jumper setting. Partitioning, formatting. Non dos partitions. Loading operating system. Loading multiple OS. Loading application packages. CDROM drive, principle of working, types, specifications, manufacturers, connecting, jumper setting. COMBO drives. Identifying and Trouble shooting software related problems.
Load maintenance utilities to check system performance. Test and report system performance.	Identifying and Trouble shooting hardware related problems. Disassembling precautions and procedure. Assembling of PC for a given requirement. Upgrading of PC in respect of main memory, HDD, ZIP, DAT and other special devices.
SAFETY: Practice of safety while lifting and shifting fragile and heavy equipments. Check earthing and identify the type of earthing. Practice electrical safety while connecting, switching-on and switching-off of heavy electrical outlet points. Practice first aid in case of physical injury. Practice first aid in case of electrical hazard. MEASUREMENTS: Measure linear dimensions in mm, cm, meters, inch, feet and conversions. Measure internal and external hole diameters using calipers. Use of Micrometer for measurement. MECHANICAL SKILLS: Practice on shearing, Cutting, bending to make rectangular boxes.	SAFETY: Safety of working personal and equipment. Safety while lifting and shifting of fragile and heavy equipments. Safety precautions. Earthing, need and importance of Earthing, Types of earthing, Electrical safety. Electrical safety precautions. First aid in case of physical injury. First aid in case of Electrical hazard. MEASUREMENTS: UNITS of measurement. Standards. Conversion factors. Measuring devices used for coarse and precision measurements. Tolerance and errors in measurement, causes and corrections.

Practice of drilling, Use of bolts & nuts, screws of different types, sizes and shapes. Practice Taping of different sizes. Rivets and Riveting. Find current carrying capacity of wires and cables.	MECHANICAL SKILLS: Shearing, Bending, cutting and Filing. Tools used in sheet metal workshop. Procedure and precautions for making of boxes/metallic housing/bays. Drilling Taping and Riveting. Different types of wires used for electrical and electronic circuits and wiring – its specifications. Wiring standards and types for domestic and industrial wiring.
Practice of Domestic wiring using different components of wiring. Visit to industry for observing industrial wiring type	
Identify the external I/O and memory devices connected to the PC. Identify the controls of each of these devices including the system (CPU) unit. Disconnect the external I/O and memory devices connected to the PC. Re-connect external I/O and memory devices connected to the PC. Practice windows operating system. Practice using notepad. Practice using paint. Identify system specifications. Identify physically devices interfaces installed with a PC. Check status of installed devices using system information and device manager. Practice facilities provided by the device manager. Install a new device (internal/external) to the PC and carryout necessary setting.	Basic blocks of a digital computer. Function of each block. Personal computer organization. Introduction to various generations of PC's. Brief working and usage of I/O and memory devices used in a PC. Working with computer using windows operating system Interfacing I/O device to motherboard. Need and function of driver. Identifying devices installed in the PC. Enabling, disabling, refreshing, checking properties of devices installed. Installing new devices, setting and testing
Identify components of a simple LAN environment. Identify different types of cables used for networking. Identify the protocols installed in an existing LAN setup. Draw LAN diagram Identify the NIC installed & MAC address Install of NIC card. Make UTP cross cable and testing using continuity tester. Establish connection between two computers using a cross cable.	Serial data communication, principle, standards/protocols and devices/ applications. Parallel data communication, principle, standards/protocols and devices/ applications. Features of Networked computers. Components required for networking. Network Topologies. Comparison. Network Protocols, applications. Physical components planning for a small LAN. Network operating systems and features.

Make a UTP straight patch cord and testing using continuity tester. Connect and test a straight cable using a N-port switch and computers. Establish a peer-to-peer connection. Configure a router Add/Delete entries in configuration task. Create work groups. Set IP address and subnet mask. Establish connection. Use of Ping command. Establish sub networks using subnet mask. Share resources in LAN. Fault find and troubleshoot network problems. Trace a network route. Create users, allocate rights and testing. Implement security in LAN. Use Linux commands. Install and uninstall devices using Linux command. Set-up LAN under Linux.	Network cables, types, specifications, standards, application. Peer – to – peer connection. Client –server connection, comparison, applications. What is router, its function, configuration table. Concept of work groups and uses. UTP Cross cable for testing connection between two computers. UTP straight cable and connecting through N-port Switch. Allocation of IP address and Subnet mask. Cabling procedures and introduction to structured cabling. Resource sharing in LAN environment. Creating users in Widows server. Resource sharing and Security. Sharing a single internet connection in LAN, with or without the use of Proxy. Multi user OS. Linux Operating system, OS commands. Installing devices. Setting up LAN in Linux environment.

List Of Tools, Machinery, Equipments

Sr. No.	Name of Item	Quantity (Nos.)
	Hardware	
1	Intel Pentium IV @ 2.0 GHz or higher, 512 MB RAM, Intel Motherboard, 40 GB Hard Disk, 17" Monitor, Keyboard, Mouse, 52X CD ROM Drive, 1.44 MB FDD, Multimedia kit, Network Interface Card or latest configuration	10 (9 Nos. connected in LAN, 8 for Assy & Maint. Practice)
2	ISDN/Broad Band Internet Connection	01
3	20 MHz Dual Trace Oscilloscope	02
4	Digital trainer kit	08
5	Logic Probes/Logic Pulser	08
6	Digital IC tester	04
7	Function Generator	04
8	Pulse Generator	04
9	Digital ICs	As required
10	DC regulated power supply (5 volts and 12 volts)	08
11	Digital Multimeter	17
12	Analog Multimeter	08
13	Digital LCR Meter	03
14	Bread Boards for circuit wiring and testing	20
15	Meggar 500V	02
16	Ammeter (0-10 mA), (0-50mA), (0-100mA) (table model)	02 each
17	Voltmeter (0-1V), (0-10V), (0-30V) (table model)	02 each
18	Different types and makes of Motherboards	10
19	CD Writers	04
20	DVD writer	04
21	External HDD	10
22	Floppy Disk Drive	10
23	CD ROM Drive	08
24	Display card	08
25	Ethernet card	08
26	Computer monitor 15"/17" of different types	04
27	Cabinet with SMPS	08
28	Keyboard and mouse	08 each
29	Thumb drive (latest specification)	08
30	Internal PCI modems of at least four different makes and types	01 each
31	External modems of at least two different makes and types	01 each
32	COMBO drives at least four different makes and types	01 each
33	Dot matrix printer	02
34	Inkjet printer	02

Theory & Practical - III

Basic Internet, Multimedia & Database Processing

Practical	Theory
Accessories Practice on paint, entertainment & games Internet Open web pages using URL and domain name. Save web pages. Store web pages as favorites. Use search engines to find sites offering free Email services. Create Email account. Send Email. Copy received Email. Copy/Print received mail. Send Email with attachment. Open/Download attachments. Set-up for Chat. Practice chatting. Practice chatting with Video. Join News group. Getting connected using FTP. Down loading software's. Upgrading Browser versions. Using Telnet to get connected to remote computer. MS Outlook Express Using features of OUTLOOK Express for sending and receiving Emails. Setting multiple accounts in outlook express to send/receive mails. Maintaining Address book. Connecting to Internet Installing modem in computer. Installing Web Browsers. Setup internet connection using ISP. Setup browser settings.	Basic blocks of a digital computer. Function of each block. Introduction to various generations of PC's. Working with computer using windows operating system. Creating files and folders. Accessories – paint, entertainment, games Internet Networking of Computers. LAN, MAN, WAN. Intranet. Inter connected computers. LAN, MAN, WAN. Intranet. Internet, Web sites, WWW, URL. Internet protocols, HTTP, FTP, client end software – Browsers. Requirements for Internet access, browser, modem, ISP. Getting internet account and settings. Types of browsers, basic principle, features. Setting of browser features, security levels. Getting connected to a web site- site name & its URL, Domain name server. Saving web sites, favorites, printing web pages/sites. Meaning and use of Search engines. Searching tips. Web mail account, Email, providers- free and paid. Creating free Email ID, sending and receiving Email. Sending and receiving attachments using Email. Chatting over Web. News groups. Down loading software's –FTP. Getting connected to a distant computer and Telnet. MS Outlook Setting-up outlook express for sending and receiving mails using multiple ID's. Features provided by Outlook express.
HTML Working with HTML tags. Working with Fonts, colors, Working with Hyper text Links. Develop Unordered Lists, Develop Ordered Lists. Develop Definition Lists , Write different types of Marquee effects. Develop HTML Pages using Tables. Develop User registration forms. Develop Web pages using Forms (2 pages, 3 pages, Multi pages). Open pages in parent windows. Use Embed tag to insert Media. Insert flash file safe mode. Auto play	HTML Source code of Web pages, meaning of HTML, its features and advantages. Programming using HTML.. Using Scripts for active web pages. Use of Java scripts. (Simple scripts only) Use of VB script for interactive pages. (Simple scripts only) Picture formats, animated files and its usage in web pages. Web page design using Front page. Procedure for Hosting of web sites.

Videos and Audio files. Play Audio and Video files from specific time. Hide controls on web page. Set different colors to different Headings. Change paragraph font size and color using styles. Print “Hello World” on web page using Jscript. Validate Password given by the user. Validate User input date. Validate E Mail Address. Register free website and upload pages Setting up the work area.	
Adobe Photoshop Practice use of Photoshop tools. Practice use of palettes. Draw & edit with the pencil tools. Smoothen the path with smooth tool. Draw with the Paint tool. Draw curve segments. Use reshape tool. Draw & edit brushed paths. Practice managing brushes. Create brushes. Create a pattern brush. Practice using the brush libraries. Use rulers, guides & grids. Practice use of selection tools. Practice moving, copying and deleting objects. Practice grouping & ungrouping objects. Practice transforming selected objects. Practice distorting with free transform tool. Practice Punking & Bloating. Create blends. Practice using the pathfinder palette. Practice working with clipping masks. Practice changing vector Graphics into Bitmap images. Practice linking objects to URLS for Internet packages.	Adobe Photoshop Different composition of colors. The colors of the visual spectrum. Evidence of color theory implementation from existing graphics found in print media. Picture formats. Color use and implementation on the web. Introduction to some of the most common graphics and image file formats, and its restrictions to particular hardware/operating system platforms. Image formats and incorporation of compression technique for large storage size of Image files. Creating Vector Graphics. Using tools for publishing artwork on the Web & in print. Exploring new creative options and producing high quality images for print & web. Creating exceptional imagery with easier access to file. streamlined web design. Photo re-touching, colorful image collages, artistic backgrounds. Creation of the optimized images with roll over effects and image mapping. Special effects on images using Layer masking and Vector masking.
MULTIMEDIA –Audio Practice sound Recording in different channels – Mono-stereo. Practice sound editing and giving special effects. Use various formats of sound files. Carryout conversion of analog audio to digital audio. Practice Frequency management. Practice distorting recorded audio using Effects. Multimedia –Video Get acquainted with the arrangement of different Tool Bars, Panels, Tools and View Ports. Draw and visualize simple objects in terms of Top View, Front View and Side View. Create simple objects. Practice Moving,	MULTIMEDIA –Audio Sound recording basics, various formats of sound files, converting analog audio to digital audio. Digital audio editors that include powerful audio processing tools, effects for recording and manipulating audio. Edit files nondestructively down to the sample level with extreme speed and accuracy. Multimedia –Video Introduction to the concept of 3D. Orthographic and Perspective views. Creating basic objects in 3D. Introduction to command panel. Working with “Properties” of 3D objects.

Rotating and Scaling objects. Practice changing dimensions of objects using modifiers, Create different objects using Standard Primitives and Extended Primitives. Make shapes renderable and create splines, Practice manipulation of the shape of the model using Compound Objects. Practice application of Lathe Option for creating symmetrical objects. Apply animation to the models created so far. Practice modeling of real world objects through LPM using Editable Mesh and Editable Poly. Convert a model to an editable mesh and working with Extrude and bevel options.	Editing 3D objects using modifiers. Elements of View Port controller. Creating objects with Standard Primitives and Extended Primitives. Creating objects using “Shapes” panel. Re-shaping of objects using Compound Objects like Boolean, Terrain and Loft. Creating symmetrical objects using Lathe option. Simple Animation of basic objects. Introduction to Particle Systems. Low Polygon Modeling.
Identify the external I/O and memory devices connected to the PC. Identify the controls of each of these devices including the system (CPU) unit. DOS – Internal and external commands DOS- creating simple batch file Practice on formatting of floppy disk with various switch options Creating directory and sub-directories Practice windows operating system.	Personal computer configuration – an introduction Operating system features and functions. Introduction to application programs and packages PC booting sequence. DOS - internal commands and external commands., Autoexec.bat, Config.sys. Differentiate between .bat & .com file Windows OS - Working with computer using windows operating system. Windows files and folders properties. Using resources and file management
Opening an existing and Creating a new database with MS-ACCESS. Identifying the objects supported MS-ACCESS Creating table in Data sheet and design view. Enter data and edit data. Data validation and verification in Access Develop customized form for data entry. Develop Queries and generate report for required output. Generate customized Reports. Setting relationship between tables Setting relation ship between tables and queries or both	Database concepts – data, object and properties: Definition. Elements of database in Access : table, form, query, report. Creating tables in Datasheet and design view, setting field properties. Editing data in table Developing customized form for data entry and editing. Data validation and verification Developing Queries and generating reports Relational Database systems. Its advantages and applications Using Multiple table, data entry, and
Practice use of Visual basic with MS Access as front end. Create a simple application using Access and VB for a given specification. Database back up and retrieval in Access	generating reports Concept of Front end for database. Software’s used as Front-end. Use of Visual basic as front end with access. Development cycle. Steps for developing simple software using Access and VB for a given application. Database back up and retrieval.

List of Tools, Machinery, Equipments Etc.

Sr. No.	Name of Item	Quantity (Nos.)
Hardware		
1	Intel Pentium IV @ 2.0 GHz or higher, 512 MB RAM, Intel Motherboard, 40 GB Hard Disk, 17" Monitor, Keyboard, Mouse, 52-X CD ROM Drive, 1.44 MB FDD, Multimedia kit, Network Interface Card or latest configuration	10
2	Inkjet printer	01
3	Laser printer (B & W)	02
4	Scanner	01
5	8/16 port Hub	02
6	ISDN Line (For Internet)/ cable broadband connection	01
7	UPS 500 VA for each Computer	10
8	Vacuum cleaner	01
9	Computer Tool kit	02
Software		
10	Microsoft Window	As required
11	Adobe Photoshop	As required
12	3D STUDIO Max	As required
13	Anti virus latest version	As required

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