

Maharashtra State Board of Vocational Examination, Mumbai 400 051

1	Name of Course	Diploma Course in Computer Network Administrator									
2	Course code	101416									
3	Max no. of Students	25 Students									
4	Duration	2 year									
5	Course Type	Full Time									
6	No. of Days per week	6 days									
7	No. of hours per day	7 Hrs									
8	Space require	Theory Class Room – 200 sqft Three Practical Lab – 500 sqft each									
9	Entry qualification	S.S.C. Pass									
10	Objective of syllabus	To get Knowledge of Computer fundamentals, To Understanding the Computer operation skills, To understand the Networking techniques, To study the system characteristics, analyse the system and its importance									
11	Employment opportunities	To work as a Computer Operator is the offices/Schools, To work as a tutor for computer basics, To work as a Network technician, Network Administrator.									
12	Teachers Qualification	1) For Vocational Subject : B.E.Computer Science/B.E. Computer Engg./ B.E. Computer Technology 2) For Non Vocational Subject : Master Degree in Concern Subject.									
13	Teaching Scheme –										
	Sr.	Subject	Subject Code	Clock Hours / Week					Total		
				Theory	Practical						
	1	English (Communication Skill)	90000001	2 Hrs	1 Hrs				3 Hrs		
	2	Elective – I	--	2 Hrs	1 Hrs				3 Hrs		
	3	Elective – II	--	2 Hrs	1 Hrs				3 Hrs		
	4	Computer Fundamentals & Applications	10140001	3 Hrs	8 Hrs				11 Hrs		
	5	Computer Networking	10140003	3 Hrs	8 Hrs				11 Hrs		
	6	Computer Software Development	10140005	3 Hrs	8 Hrs				11 Hrs		
	Total									42 Hrs	
14	Internship	Two Month Summer Internship from 1 st May to 30 th June is Compulsory.									
15	Examination Scheme – Final Examination will be based on syllabus of both years.										
	Paper	Subject	Subject Code	Theory			Practical			Total	
				Duration	Max	Min	Duration	Max	Min	Max	Min
	1	English (Communication Skill)	90000001	3 Hrs	70	25	3 Hrs	30	15	100	40
	2	Elective – I	--	3 Hrs	70	25	3 Hrs	30	15	100	40
	3	Elective – II	--	3 Hrs	70	25	3 Hrs	30	15	100	40
	4	Computer Fundamentals & Applications	10140001	3 Hrs	100	35	3 Hrs	100	50	200	85
	5	Computer Networking	10140003	3 Hrs	100	35	3 Hrs	100	50	200	85
	6	Computer Software Development	10140005	3 Hrs	100	35	3 Hrs	100	50	200	85
	Total									900	375
16	Teachers – Three Teachers per batch for vocational component. For English, Elective-I & II guest faculty on clock hour basis.										
17	a) For Elective I – Student can choose any one subject Code Subject Name 90000011 Applied Mathematics 90000012 Business Economics 90000013 Physical Biology (Botany & Zoology) 90000014 Entrepreneurship 90000015 Psychology b) For Elective II – Student can choose any one subject Code Subject Name 90000021 Applied Sciences (Physics & Chemistry) 90000022 Computer Application 90000023 Business Mathematics										

Subject Code : 10140001

Computer Fundamentals & Applications– 1st year

Theory	Practical
Detailed Syllabus : 1.0. Introduction 1.1. Basic idea about Computer 1.2. Applications of Computer 1.3. History of Computer generation 1.4. Different phases of computer invention (Analytical Engine to Analog Computer and Digital Computer) 1.5. Computer types and their applications 1.6. Comparative table of capabilities as per the type	Detailed Syllabus 1.0. Computer basics 1. Identification of Keyboard, Printer, Monitor Scanner, Webcam, Microphone, Speaker
2.0. Computer Architecture & Organization 2.1. Concept of Computer as a System 2.2. The structural block diagram of a computer 2.3. Different blocks of a Computer and their functions 2.4. Different input devices and their uses & limitations 2.5. Different output devices giving their uses & limitations 2.6. Memory: definition, types. 2.7. Primary memory and its classification with applications 2.8. Secondary memory devices 2.9. Classification giving specifications of different secondary storage media	2.0. Practice 1. Sample collection of various type of storage devices, specifications and charts
3.0. Data representation & organization 3.1. Data/ information, file, directory 3.2. Binary number system 3.3. Conversion of binary numbers to decimal numbers 3.4. Conversion of decimal numbers to binary numbers 3.5. Binary arithmetic (Binary addition, subtraction) 3.6. Introduction to different number system (Octal and Hexadecimal) 3.7. Data representation using Binary codes, ASCII codes 3.8. Bit, Byte.....	1. Conversion of binary to decimal 2. Conversion of binary to hexadecimal 3. Conversion of binary to octal

Computer fundamentals & Applications– 2nd year

Theory	Practical
Detailed Syllabus : 1.0. Introduction to Softwares 1.1. Basic idea about Softwares 1.2. Types/ Classification of Softwares 1.3. Functions of System Softwares 1.4. Use of Application Softwares 1.5. Applications of Programming Softwares	Detailed Syllabus 1.Study of application software 2.Study of System software
4.0. Computer Hardware & Software 4.1. Definition of Hardware & Software 4.2. Functions of hardware devices 4.3. Types Softwares and their applications 4.4. Introduction to Operating system 4.5. Study of MS DOS environment and DOS commands 4.6. Study of MS Windows environment & Windows default icons 4.7. Windows explorer 4.8. Creating files & folders in Windows O.S. 4.9. Introduction to Unix	1. Study of various dos command 2. Study of various type of printers 3. Study of dos, windows, windows xp. 4. Creation of directory, folders, files
2.0. Windows Accessories 2.1. Study of different features of Windows Accessories 2.2. Note Pad 2.3. Paint Brush 2.4. Word Pad	2.0. Practice 2.1 Create any document in notepad 2.2 Draw different shapes in paint
3.0. Software Installation 3.1. Installation procedure of different Softwares 3.2. Installation of Antivirus Softwares 3.3. Installation of Windows Operating System	1.Installation of antivirus 2.Installation of Windows xp
4.0. Installation of Hardware devices 4.1. Installation of Drivers 4.2. Installation of Printer 4.3. Installation of NIC 4.4. Installation of Modem 4.5. Running Setup programs	4.0. 1.Installation of printer 2. Installation of NIC card 3. Installation of Modem

Reference Books:

1. Computer fundamentals by P K Sinha
2. PC Software For Windows 98 Made Simple by Taxali
3. MS DOS Operating system user manual
4. Windows Operating system user manual

Subject Code - 10140003**Computer Networking – 1st year**

Theory	Practical
Detailed Syllabus : 1.0. Introduction to Computer Architecture 1.1. Over view of Computer Architecture 1.2. Different Elements/parts of a Computer system 1.3. Study of Power Supply & its types 1.4. Different type of Processors with their specifications 1.5. Study of different drivers, controller systems 1.6. Assembling of a Computer system.	1. Study of different Input/Output devices 2. Study of different processors
2.0. Introduction to Computer Networking 2.1. Introduction 2.2. Over view & History of Computer Networks 2.3. Features of Computer Networks 2.4. Merits & Demerits of Computer Network	1. Study of over view of Network
3.0. Network theory: 3.1. Types of networks (LAN, MAN, WAN) 3.2. Network Topologies 3.3. Networking Components in detail (Server, Node, NIC, Bridge, Hub, Router, Switch, Cables, Connectorsetc)	1. Study of different network devices
4.0. Computer Networking Architecture 4.1. Introduction to Networking Architecture 4.2. Concept of Peer to Peer networking 4.3. Explanation of diagram with functions of each element 4.4. Merits and demerits of P2P Networking 4.5. Limitations of P2P Networking 4.6. Client/Server based Networking 4.7. Detailed study of Client/Server based networking with diagram 4.8. Merits and demerits of Client/Server based networking model.	1. Study of different network configurations
5.0. Sharing of data across Network 5.1. Introduction to Access methods 5.2. Types of Access methods 5.3. Concept of BDAM, BSAM, QSAM, BPAM, ISAM, VSAM & OAM.	1. Study of different access methods

Computer Networking – 2nd year

Theory	Practical
Detailed Syllabus : 1.0 OSI Model 1.1. Over view of OSI Model 1.2. Physical layer 1.3. Network layer 1.4. session layer 1.5. Application layer 1.6. presentation layer 1.7 Transport layer 1.8 Data link layer	Study of Network installations
2.0. TCP/IP Model 2.1. Study of TCP/IP model 2.2. Merits and demerits of TCP/IP model 2.3. Factors behind its popularity	Configuration of TCP/ip
3.0. Cables 3.1. Coaxial 3.2. Fiber optic 3.3. Twisted pair	Study of different Cables and their parameters/specifications
4.0. Connector BNC Connector D Type Jack connector XLR	Study of BNC connectors and specifications
5.0. Data communication & networking 5.1. Half duplex 5.2. Full duplex 5.3. Synchronous 5.4. Asynchronous	Study of Duplex systems
6.0. Network Configuration 6.1. Installation of a simple p2p Network 6.2. Installation/Initialization of a Switch/Router /Hub 6.3. Cabling of Network 6.4. TCP/IP configuration	Installation of switch Installation of hub Installation of router
7.0. Client/Server architecture 7.1. Study of Client/Server architecture 7.2. Merits and demerits of Client/Server Network 7.3. Limitations 7.4. Configuration of Servers 7.4.1. File server 7.4.2. Print server 7.4.3. Web server 7.5. Network Administrator, Duties of Administrator, File access methods, File sharing restrictions	Installation of IIS

Text Book:

1. W.Stallings "Data and Computer Communications", 7th Edition, Prentice Hall, 2004

References:

1. Forouzan , "Data Communication & Networking ," 3rd Edition, McGraw Hill, 2003
2. A.S.Tannenbaum,"Computer networks ",4th edition Printice Hall of India

Subject Code : 10140005

Computer Software Development - 1st Year

Theory	Practical
1.0. Introduction 1.1. Introduction, What is software engineering? 1.2. Software Development Life Cycle, Requirements Analysis, Software Design, Coding, Testing, Maintenance etc.	1. Draw use case diagram 2. Draw connectivity diagram 3. Draw class diagram 4. Draw component diagram 5. Draw sequence diagram
2.0. System Requirement & overview 2.1. Software Requirement Specification 2.2. Waterfall Model, Prototyping Model, Iterative Enhancement Model, Spiral Model 2.3. Role of Management in Software Development, Role of Metrics and Measurement. 2.4. Problem Analysis, Requirement Specification, Validation, Metrics, Monitoring and Control.	
3.0. System Design 3.1. System Design concept 3.2. Problem Partitioning & Abstraction 3.3. Top-down and bottom-up design 3.4. Structured Approach, Functional v/s Object-Oriented Approach 3.5. Design specification & verification, metrics, Monitoring & Control	
4.0. Coding 4.1. Coding 4.2. Top-down & Bottom-up 4.3. Structured Programming, Information Hiding & Programming Style 4.4. Internal Documentation, Verification, Metrics, monitoring & control	
3.0. Testing 5.1. Testing and its importance 5.2. Levels of Testing- Functional Testing, Structural Testing, Test Plan 5.3. Test Cases Specification, Reliability assessment.	1.creation of test plan 2.Black box testing 3.White box testing 4Manual testing.
4.0. Software Project Management 6.1. Software Project Management, Cost Estimation, Project Scheduling, Staffing, Software Configuration Management, Quality Assurance, Project Monitoring, Risk Management	1. Creation of project plan

Computer Software Development – 2nd Year

Theory	Practical
MS ACCESS	Creation of database Creation of table Implement primary key on table.
Visual Basic Form Project MDI form Form designer window Form layout window Coding window Properties box Activex controls Toolbox Frame Label Textbox Command button Drive list box Slider Timer Shape Treeview OLE List box Data grid Data list Connectivity OLE Data bound Data grid Data list'	Creation of project Design form using label, textbox, command button. Implement practical on timer control Implement practical on slider . Implement practical on Implement practical on Data control Implement practical on shape control Implement login form. Add different menus. Add separator in form Display treeview control Display data using datagrid control Link document using OLE control Display Explorer structure using drive list box, directory list box,
SOFTWARES Railway reservation system Hospital management system Admission process system	1. Develop a dummy Railway Reservation software model 2. Develop a dummy Hospital/Hotel management software model 3. Develop a dummy School Management/ Admission process software model 4. Develop a dummy Payroll System

Reference Books:

1. System Analysis and Design by Senn.
2. System Analysis and Design by Awad
3. Workbook on System Analysis and Design by Vinod Ku ar Garg
4. Shoolan "Software Engineering Design, Reliability and Manage ent" McGraw Hill 1983
5. Fairley "Software Engineering Concepts" " McGraw--Hill Series, New York, 1985
