

## DOEACC 'O' LEVEL COURSE STRUCTURE

The structure of the 'O' Level course is:

Paper Code	Subject
M1-R4	IT Tools and Business System
M2-R4	Internet Technology and Web Design
M3-R4	Programming and Problem Solving Through 'C' Language
M4-R4	Elective: (One Module out of the following three modules to be chosen)

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M4.1-R4	Application of .NET Technology
M4.2-R4	Introduction to Multimedia
M4.3-R4	Introduction to ICT Resources
PR	Practical (Based on M1, M2, M3, M4 module syllabus)
PJ	Project

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Duration of the Course    Minimum duration of the 'O' Level course is **One Year**.

## M1-R4: IT TOOLS AND BUSINESS SYSTEMS

### Objective of the Course

The goal of this course is to present overview of IT tools used in day to day use of computers and data base operations. The Course has been designed to provide knowledge on various hardware and software components of computer, operating system, various packages used for different applications, data base concepts & operations and various issues related to IT and application of IT.

At the end of the course the students will be able to:-

- Acquire the foundation level knowledge required to understand computer and its operations.
- Understand the hardware and software components of the computer.
- Understand the basic concept of operating system and get knowledge about various different operating systems.
- Understand to use the packages of word processing, spread sheet and presentation in detail.
- Understand various data base concepts and operations.
- Understand the issues related to IT and IT applications.

### Outline of Course

S. No.	Topic	Minimum number of hours
1.	Computer Appreciation	04
2.	Computer Organization	06
3.	Operating System	13
4.	Word Processing	06
5.	Spreadsheet Package	09
6.	Presentation Package	05
7.	Data Base Operations	13
8.	Information Technology and Society	04
	<b>Lectures</b>	<b>= 60</b>
	<b>Practical/Tutorials</b>	<b>= 60</b>
	<b>Total</b>	<b>= 120</b>

### Detailed Syllabus

#### 1. Computer Appreciation

**04Hrs.**

Characteristics of Computers, Input, Output, Storage units, CPU, Computer System, Binary number system, Binary to Decimal Conversion, Decimal to Binary Conversion, ASCII Code, Unicode.

#### 2. Computer Organization

**06 Hrs.**

Central Processing Unit - Processor Speed, Cache, Memory, RAM, ROM, Booting, Memory- Secondary Storage Devices: Floppy and Hard Disks, Optical Disks CD-ROM,

DVD, Mass Storage Devices: USB thumb drive. Managing disk Partitions, File System Input Devices - Keyboard, Mouse, joystick, Scanner, web cam, Output Devices- Monitors, Printers – Dot matrix, inkjet, laser, Multimedia- What is Multimedia, Text, Graphics, Animation, Audio, Images, Video; Multimedia Application in Education, Entertainment, Marketing. Names of common multimedia file formats, Computer Software- Relationship between Hardware and Software; System Software, Application Software, Compiler, names of some high level languages, free domain software.

### **3. Operating System**

**13 Hrs.**

Microsoft Windows- An overview of different versions of Windows, Basic Windows elements, File management through Windows. Using essential accessories: System tools – Disk cleanup, Disk defragmenter, Entertainment, Games, Calculator, Imaging – Fax, Notepad, Paint, WordPad. Command Prompt- Directory navigation, path setting, creating and using batch files. Drives, files, directories, directory structure. Application Management: Installing, uninstalling, Running applications. Linux- An overview of Linux, Basic Linux elements: System Features, Software Features, File Structure, File handling in Linux: H/W, S/W requirements, Preliminary steps before installation, specifics on Hard drive repartitioning and booting a Linux system.

### **4. Word Processing**

**06 Hrs.**

Word processing concepts: saving, closing, Opening an existing document, Selecting text, Editing text, Finding and replacing text, printing documents, Creating and Printing Merged Documents, Character and Paragraph Formatting, Page Design and Layout.

Editing and Profiling Tools: Checking and correcting spellings. Handling Graphics, Creating Tables and Charts, Document Templates and Wizards.

### **5. Spreadsheet Package**

**09 Hrs.**

Spreadsheet Concepts, Creating, Saving and Editing a Workbook, Inserting, Deleting Work Sheets, entering data in a cell / formula Copying and Moving from selected cells, handling operators in Formulae, Functions: Mathematical, Logical, statistical, text, financial, Date and Time functions, Using Function Wizard.

Formatting a Worksheet: Formatting Cells – changing data alignment, changing date, number, character or currency format, changing font, adding borders and colors, Printing worksheets, Charts and Graphs – Creating, Previewing, Modifying Charts. Integrating word processor, spread sheets, web pages.

### **6. Presentation Package**

**05 Hrs.**

Creating, Opening and Saving Presentations, Creating the Look of Your Presentation, Working in Different Views, Working with Slides, Adding and Formatting Text, Formatting Paragraphs, Checking Spelling and Correcting Typing Mistakes, Making Notes Pages and Handouts, Drawing and Working with Objects, Adding Clip Art and other pictures, Designing Slide Shows, Running and Controlling a Slide Show, Printing Presentations.

### **7. Data Base Operations**

**13 Hrs.**

Data Manipulation-Concept: Database, Relational Database, Integrity. Operations: Creating, dropping, manipulating table structure. Manipulation of Data: Query, Data Entry Form, Reports.

### **8. Information Technology and Society**

**04 Hrs.**

Indian IT Act, Intellectual Property Rights – issues. Application of information Technology in Railways, Airlines, Banking, Insurance, Inventory Control, Financial systems, Hotel

management, Education, Video games, Telephone exchanges, Mobile phones, Information kiosks, special effects in Movies.

### **RECOMMENDED BOOKS**

#### **MAIN READING**

1. P.K. Sinha and P. Sinha, "Foundations of Computing", BPB Publication, 2008.
2. Sagman S, "MS Office for Windows XP", Pearson Education, 2007.
3. ITL Educational Society, "Introduction to IT", Pearson Education, 2009.
4. Miller M, "Absolute Beginners Guide to Computer Basics", Pearson Education, 2009.

#### **SUPPLEMENTARY READING**

1. Turban, Mclean and Wetherbe, "Information Technology and Management" John Wiley & Sons.
2. Mansfield Ron, "Working in Microsoft Office", 2008, Tata McGraw-Hill
3. Balagurusamy E, "Fundamentals of Computers", 2009, Tata McGraw-Hill
4. Mavis Beacon, "All-in-one MS Office" CD based views for self learning, BPB Publication, 2008
5. Perry G, "MS Office 2007", Pearson Education, 2008.
6. D'Suoza & D'souza, "Learn Computer Step by Step", Pearson Education, 2006.
7. Kulkarni, "IT Strategy for Business", Oxford University Press

**Refer: Open Office/ MS Office Environment for practice.**

## M2-R4: INTERNET TECHNOLOGY AND WEB DESIGN

### Objective of the Course

The aim of this course is to provide you the conceptual and technological developments in the field of Internet and web designing with the emphasis on comprehensive knowledge of Internet, its applications and the TCP/IP protocols widely deployed to provide Internet connective worldwide. The World Wide Web with its widespread usefulness has become an integral part of the Internet. Therefore, this course also puts emphasis on basic concepts of web design.

At the end of the course the students will be able to: -

- Review the current topics in Web & Internet technologies.
- Describe the basic concepts for network implementation.
- Learn the basic working scheme of the Internet and World Wide Web.
- Understand fundamental tools and technologies for web design.
- Comprehend the technologies for Hypertext Mark-up Language (HTML).
- Specify design rules in constructing web pages and sites.
- Effectively deal with programming issues relating to VB Script, JavaScript, Java, ASP, Front Page and Flash.
- Figure out the various security hazards on the Internet and need of security measures.

### Outline of Course

S. No.	Topic	Minimum number of hours
1.	Introduction to Internet	02
2.	TCP/IP – Internet Technology and Protocol	03
3.	Internet Connectivity	03
4.	Internet Network	04
5.	Services on Internet (Definition and Functions)	04
6.	Electronic Mail	07
7.	Current Trends on Internet	03
8.	Web Publishing and Browsing	10
9.	HTML Programming Basics	12
10.	Interactivity Tools	08
11.	Internet Security Management Concepts, Information Privacy and Copyright Issues	04
	<b>Lectures</b>	<b>= 60</b>
	<b>Practical/tutorials</b>	<b>= 60</b>
	<b>Total</b>	<b>= 120</b>

### Detailed Syllabus

#### 1. Introduction to Internet

02 Hrs.

Internet, Growth of Internet, Owners of the Internet, Anatomy of Internet, ARPANET and

Internet history of the World Wide Web, basic Internet Terminology, Net etiquette. Internet Applications – Commerce on the Internet, Governance on the Internet, Impact of Internet on Society – Crime on/through the Internet.

**2. TCP/IP – Internet Technology and Protocol** **03 Hrs.**

Packet switching technology, Internet Protocols: TCP/IP, Router, Internet Addressing Scheme: Machine Addressing (IP address), E-mail Addresses, Resources Addresses

**3. Internet Connectivity** **03 Hrs.**

Connectivity types: level one, level two and level three connectivity, Setting up a connection: hardware requirement, selection of a modem, software requirement, modem configuration, Internet accounts by ISP: Telephone line options, Protocol options, Service options, Telephone line options – Dialup connections through the telephone system, dedicated connections through the telephone system, ISDN, Protocol options – Shell, SLIP, PPP, Service options – E-mail, WWW, News Firewall etc.

**4. Internet Network** **04 Hrs.**

Network definition, Common terminologies: LAN, WAN, Node, Host, Workstation, bandwidth, Interoperability, Network administrator, network security, Network Components: Servers, Clients, Communication Media, Types of network: Peer to Peer, Clients Server, Addressing in Internet: DNS, Domain Name and their organization, understanding the Internet Protocol Address. Network topologies: Bust, star and ring, Ethernet, FDDI, ATM and Intranet.

**5. Services on Internet (Definition and Functions)** **04 Hrs.**

E-mail, WWW, Telnet, FTP, IRC and Search Engine

**6. Electronic Mail** **07 Hrs.**

Email Networks and Servers, Email protocols –SMTP, POP3, IMAp4, MIME6, Structure of an Email – Email Address, Email Header, Body and Attachments, Email Clients: Netscape mail Clients, Outlook Express, Web based E-mail. Email encryption- Address Book, Signature File.

**7. Current Trends on Internet** **03 Hrs.**

Languages, Internet Phone, Internet Video, collaborative computing, e-commerce.

**8. Web Publishing and Browsing** **10 Hrs.**

Overview, SGML, Web hosting, HTML. CGL, Documents Interchange Standards, Components of Web Publishing, Document management, Web Page Design Consideration and Principles, **Search and Meta Search Engines**, WWW, Browser, HTTP, Publishing Tools

**9. HTML Programming Basics** **12 Hrs.**

HTML page structure, HTML Text, HTML links, HTML document tables, HTML Frames, HTML Images, multimedia

**10. Interactivity Tools** **08 Hrs.**

ASP, VB Script, JAVA Script, JAVA and Front Page, Flash

**11. Internet Security Management Concepts, Information Privacy and Copyright Issues** **04 Hrs.**

Overview of Internet Security, Firewalls, Internet Security, Management Concepts and Information Privacy and Copyright Issues, basics of asymmetric cryptosystems.

## **RECOMMENDED BOOKS**

### **MAIN READING**

1. Greenlaw R and Hepp E "Fundamentals of Internet and www" 2<sup>nd</sup> EL, Tata McGrawHill,2007.
2. Ivan Bayross, "HTML, DHTML, JavaScript, Perl CGI", 3<sup>rd</sup> Edition, BPB Publications.
3. D. Comer, "The Internet Book", Pearson Education, 2009.

### **SUPPLEMENTARY READING**

1. M. L. Young,"The Complete reference to Internet", Tata McGraw Hill, 2007.
2. Godbole AS & Kahate A, "Web Technologies", Tata McGrawHill,2008.
3. Jackson, "Web Technologies", Pearson Education, 2008.
4. B. Patel & Lal B. Barik, " Internet & Web Technology ", Acme Learning Publishers
5. Leon and Leon, "Internet for Everyone", Vikas Publishing House.

## M3-R4: PROGRAMMING AND PROBLEM SOLVING THROUGH 'C' LANGUAGE

### Objective of the Course

The objectives of this course are to make the student understand programming language, programming, concepts of Loops, reading a set of Data, stepwise refinement, Functions, Control structure, Arrays. After completion of this course the student is expected to analyze the real life problem and write a program in 'C' language to solve the problem. The main emphasis of the course will be on problem solving aspect i.e. developing proper algorithms.

After completion of the course the student will be able to

- Develop efficient algorithms for solving a problem.
- Use the various constructs of a programming language viz. conditional, iteration and recursion.
- Implement the algorithms in "C" language.
- Use simple data structures like arrays, stacks and linked list in solving problems.
- Handling File in "C".

### Outline of Course

S. No.	Topic	Minimum number of hours
1.	Introduction to Programming	04
2.	Algorithms for Problem Solving	10
3.	Introduction to 'C' Language	04
4.	Conditional Statements and Loops	07
5.	Arrays	06
6.	Functions	06
7.	Storage Classes	03
8.	Structures and Unions	06
9.	Pointers	06
10.	Self Referential Structures and Linked Lists	04
11.	File Processing	04
	<b>Lectures</b>	<b>= 60</b>
	<b>Practical/tutorials</b>	<b>= 60</b>
	<b>Total</b>	<b>= 120</b>

### Detailed Syllabus

#### 1. Introduction to Programming 04 Hrs.

The Basic Model of Computation, Algorithms, Flow-charts, Programming Languages, Compilation, Linking and Loading, Testing and Debugging, Documentation

#### 2. Algorithms for Problem Solving 10 Hrs.

Exchanging values of two variables, summation of a set of numbers, Decimal Base to Binary Base conversion, Reversing digits of an integer, GCD (Greatest Common Division) of

two numbers, Test whether a number is prime, Organize numbers in ascending order, Find square root of a number, factorial computation, Fibonacci sequence, Evaluate 'sin x' as sum of a series, Reverse order of elements of an array, Find largest number in an array, Print elements of upper triangular matrix, multiplication of two matrices, Evaluate a Polynomial

### **3. Introduction to 'C' Language**

**04 Hrs.**

Character set, Variables and Identifiers, Built-in Data Types, Variable Definition, Arithmetic operators and Expressions, Constants and Literals, Simple assignment statement, Basic input/output statement, Simple 'C' programs.

### **4. Conditional Statements and Loops**

**07 Hrs.**

Decision making within a program, Conditions, Relational Operators, Logical Connectives, if statement, if-else statement, Loops: while loop, do while, for loop, Nested loops, Infinite loops, Switch statement, structured Programming .

### **5. Arrays**

**06 Hrs.**

One dimensional arrays: Array manipulation; Searching, Insertion, Deletion of an element from an array; Finding the largest/smallest element in an array; Two dimensional arrays, Addition/Multiplication of two matrices, Transpose of a square matrix; Null terminated strings as array of characters, Standard library string functions

### **6. Functions**

**06 Hrs.**

Top-down approach of problem solving, Modular programming and functions, Standard Library of C functions, Prototype of a function: Formal parameter list, Return Type, Function call, Block structure, Passing arguments to a Function: call by reference, call by value, Recursive Functions, arrays as function arguments.

### **7. Storage Classes**

**03 Hrs.**

Scope and extent, Storage Classes in a single source file: auto, extern and static, register, Storage Classes in a multiple source files: extern and static

### **8. Structures and Unions**

**06 Hrs.**

Structure variables, initialization, structure assignment, nested structure, structures and functions, structures and arrays: arrays of structures, structures containing arrays, unions

### **9. Pointers**

**06 Hrs.**

Address operators, pointer type declaration, pointer assignment, pointer initialization, pointer arithmetic, functions and pointers, Arrays and Pointers, pointer arrays, pointers and structures, dynamic memory allocation.

### **10. Self Referential Structures and Linked Lists**

**04 Hrs.**

Creation of a singly connected linked list, Traversing a linked list, Insertion into a linked list, Deletion from a linked list

### **11. File Processing**

**04 Hrs.**

Concept of Files, File opening in various modes and closing of a file, Reading from a file, Writing onto a file

## **RECOMMENDED BOOKS**

### **MAIN READING**

1. Byron S Gottfried "Programming with C" Second edition, Tata McGrawhill, 2007 (Paper back)
2. R.G. Dromey, "How to solve it by Computer", Pearson Education, 2008.
3. Kanetkar Y, "Let us C", BPB Publications, 2007.
4. Hanly J R & Koffman E.B, "Problem Solving and Programm design in C", Pearson Education, 2009.

### **SUPPLEMENTARY READING**

1. E. Balagurusamy, "Programming with ANSI-C", Fourth Edition,2008, Tata McGraw Hill.
2. Venugopal K. R and Prasad S. R, "Mastering 'C'", Third Edition, 2008, Tata McGraw Hill.
3. B.W. Kernighan & D. M. Ritchie, "The C Programming Language", Second Edition, 2001, Pearson Education
4. ISRD Group, "Programming and Problem Solving Using C", Tata McGraw Hill,2008.
5. Pradip Dey , Manas Ghosh, "Programming in C", Oxford University Press, 2007.

## M4.1-R4: APPLICATION OF .NET TECHNOLOGY

### Objective of the Course

The objective of the course is to introduce .NET technology which provides multilanguage environment to develop windows based software development. The focus is on

- .NET Framework
- Programming Language C#
- Visual Basic
- ASP .NET (for web application)

### Outline of Course

S. No.	Topic	Minimum number of hours
1.	The .NET framework	3
2.	C# Basics	11
3.	C# Using Libraries	7
4.	Advanced Features Using C#	7
5.	ASP.NET 2.0	7
6.	Introduction to Programming with Visual Basic.NET	7
7.	File and Database Applications	8
8.	Advanced Programming Constructs	5
9.	.NET Architecture and Advanced Tools	5
	<b>Lectures</b>	<b>= 60</b>
	<b>Practical/tutorials</b>	<b>= 60</b>
	<b>Total</b>	<b>= 120</b>

### Detailed Syllabus

#### 1.The .NET framework 03 Hrs.

Introduction, Common Language Runtime, Common Type System, Common Language Specification, The Base Class Library, The .NET class library Intermediate language, Just-in-Time compilation, garbage collection, Application installation & Assemblies, Web Services, Unified classes.

#### 2. C# Basics 11 Hrs.

Introduction, Data Types, Identifiers, variables & constants, C# statements, Object Oriented Concept, Object and Classes, Arrays and Strings, System Collections, Delegates and Events, Indexes Attributes, versioning.

#### 3. C# Using Libraries 07 Hrs.

Namespace-System, Input Output, Multi-Threading, Networking and Sockets, Data Handling, Windows Forms, C# in Web application, Error Handling.

#### 4. Advanced Features Using C# 07 Hrs.

Web Services, Windows services, messaging, Reflection, COM and C#, localization. Distributed Application in C#, XML and C#, Unsafe Mode, Graphical Device Interface with C#, Case Study (Messenger Application).

## **5. ASP.NET 2.0**

**07 Hrs.**

Features of ASP.NET 2.0, Stages in Web Forms Processing, Introduction to Server Controls, HTML Controls, Validation Controls, User control, Data Binding Controls, Configuration, Personalization, Session State, ADO.NET

## **VB.NET programming language**

## **6. Introduction to Programming with Visual Basic.NET**

**07 Hrs.**

Basic Concepts and a Simple Application  
Using Variables, Constants, Functions  
Processing Decisions  
Looping Structures and Lists

## **7. File and Database Applications**

**08 Hrs.**

File Access, Dialog Boxes, Error Handling, Menus  
Connecting to Databases

## **8. Advanced Programming Constructs**

**05 Hrs.**

Sub Procedures, Function Procedures, Modules  
Arrays, Structures, Collections

## **9. .NET Architecture and Advanced Tools**

**05 Hrs.**

Object-oriented Programming  
Creating Distributed Web Applications  
XML and ADO.NET  
Graphics, Printing, Reporting

## **RECOMMENDED BOOKS**

### **MAIN READING**

1. Joe Mayo, "C# 3.0 Unleashed: With the .NET Framework 3.5", Pearson Education, 2009.
2. Schildt H, "C#: The Complete Reference", Tata McGrawHill, 2007.
3. Powell R & Weeks R, "C# and The .NET Framework", BPB Publications, 2007.
4. Chappell D, "Understanding .NET", Pearson Education, 2007.

### **SUPPLEMENTARY READING**

1. Balagurusamy E, "Programming with C#", Tata McGrawHill, 2008.
2. Abolrous S A, "Learn C# Includes the C# 3.0 Features", BPB Publications, 2008.
3. Kanetkar Y and Dani Asang, "Test Your C# .Net Skills part I & II", BPB Publications, 2008.
4. Mitchell Scott, "Sams Teach Yourself ASP .NET 2.0 in 24 Hours, Complete Starter kit (with CD)", Pearson Education, 2006.
5. Onion Fritz and Keith Brown, "Essential ASP .NET 2.0", Pearson Education, 2007.

## M4.2-R4: INTRODUCTION TO MULTIMEDIA

### Objective of the Course

This course aims to introduce the fundamental elements of multimedia. It will provide an understanding of the fundamental elements in multimedia. The emphasis will be on learning the representations, perceptions and applications of multimedia. Software skills and hands on work on digital media will also be emphasized. On completion of the subject, the students will understand the technologies behind multimedia applications and master the skills for developing multimedia projects. After successfully completing the module student should be able to:

- Summarize the key concepts in current multimedia technology.
- Create quality multimedia software titles.

### Outline of Course

S. No.	Topic	Minimum number of hours
1.	Introduction to Multimedia	08
2.	Computer Fonts and Hypertext	10
3.	Audio fundamentals and representations	10
4.	Image Fundamentals and representations	10
5.	Video and Animation	10
6.	Multimedia Authoring	12
	<b>Lectures</b>	<b>= 60</b>
	<b>Practical/tutorials</b>	<b>= 60</b>
	<b>Total</b>	<b>= 120</b>

### Detailed Syllabus

#### 1. Introduction to Multimedia 08Hrs.

What is multimedia, Components of multimedia, Web and Internet multimedia applications, Transition from conventional media to digital media.

#### 2. Computer Fonts and Hypertext 10 Hrs.

Usage of text in Multimedia, Families and faces of fonts, outline fonts, bitmap fonts International character sets and hypertext, Digital fonts techniques.

#### 3. Audio fundamentals and representations 10 Hrs.

Digitization of sound, frequency and bandwidth, decibel system, data rate, audio file format, Sound synthesis, MIDI, wavetable, Compression and transmission of audio on Internet, Adding sound to your multimedia project, Audio software and hardware.

#### 4. Image fundamentals and representations 10 Hrs.

Colour Science , Colour, Colour Models, Colour palettes, Dithering, 2D Graphics, Image Compression and File Formats :GIF, JPEG, JPEG 2000, PNG, TIFF, EXIF, PS, PDF, Basic Image Processing [ Can Use Photoshop ], Use of image editing software, White balance correction, Dynamic range correction, Gamma correction, Photo Retouching.

## **5. Video and Animation**

**10 Hrs.**

Video Basics , How Video Works, Broadcast Video Standards, Analog video, Digital video, Video Recording and Tape formats, Shooting and Editing Video (Use Adobe Premier for editing), Video Compression and File Formats. Video compression based on motion compensation, MPEG-1, MPEG-2, MPEG-4, MPEG-7, MPEG-21, Animation: Cell Animation, Computer Animation, Morphing.

## **6. Multimedia Authoring**

**12 Hrs.**

Multimedia Authoring Basics, Some Authoring Tools, Macromedia Director & Flash.

**Note: The aim of the syllabus is to provide orientation as regard to uses of Multimedia. Practical Assignments may be handled using Multimedia tools, such as Flash, Dreamweaver, Photoshop etc. or any other open source multimedia tools.**

## **RECOMMENDED BOOKS**

### **MAIN READING**

1. Tay Vaughan, "Multimedia making it work", Tata McGraw-Hill, 2008.
2. Rajneesh Aggarwal & B. B Tiwari, " Multimedia Systems", Excel Publication, New Delhi, 2007.
3. Li & Drew, " Fundamentals of Multimedia" , Pearson Education, 2009.

### **SUPPLEMENTARY READING**

1. Parekh Ranjan, "Principles of Multimedia", Tata McGraw-Hill, 2007
2. Anirban Mukhopadhyay and Arup Chattopadhyay, "Introduction to Computer Graphics and Multimedia", Second Edition, Vikas Publishing House.

## M4.3-R4: INTRODUCTION TO ICT RESOURCES

### Objective of the Course

This course has been designed to provide an introduction to Computer Hardware and Networking troubleshooting & maintenance. The student will be able to troubleshoot problems of PC and replace the defected parts of the computer. Students will understand the basic networking concepts and they will be able to establish and manage small networks.

At the end of the course students will be able to:

- Assemble and disassemble a PC
- Effectively use miscellaneous utilities such as: Compression, CD writing, Antivirus etc.
- Establish and configure a small LAN
- Perform simple network administration operation

### Outline of Course

S. No.	Topic	Minimum number of hours
1.	PC Assembly and Operation	15
2.	Miscellaneous Utilities	15
3.	Networking Concepts	15
4.	Network Administration	15
	<b>Lectures</b>	<b>= 60</b>
	<b>Practical/Tutorials</b>	<b>= 60</b>
	<b>Total</b>	<b>= 120</b>

### Detailed Syllabus

#### 1. PC Assembly and Operation 15 Hrs.

Assembly and Disassembly of PC and its various Parts, Startup Process (Booting), BIOS Setup, CMOS Setup and meaning of its various setting, Installation of Windows XP operating System, Installation of Other Software Packages such as Ms Office etc.

Operation of Printer, Installation of printer driver, Backup and Restore Operations

Troubleshooting PC Problems

#### 2. Utilities 15 Hrs.

Compression Utilities: WinZip, PKZIP, Concept of compression, Defragmenting Hard, disk using defrag, Scan Disk for checking disk space, lost files and recovery, Formatting Hard disk, Floppy Disk, Setting System Date and Time, Antivirus Package

CD Writing Software – Nero etc.

### **3. Networking Concepts**

**15 Hrs.**

What is Networking, Local Area Networking (LANs), Metropolitan Area Network , MAN), Wide Area Network (WAN), Networking Topologies, Transmission media & method of communication, Cabling: straight through and cross over, Study of components like switches, bridges, routers, Wifi router etc., communication Protocols, TCP/IP, IP addressing, MAC address, Subnetting

### **4. Network Administration**

**15 Hrs.**

Installing and configuring the network using Windows NT based System, Administration of Windows NT based network, Creation of user and groups, File Sharing, Printer Sharing

### **RECOMMENDED BOOKS**

#### **MAIN READING**

1. Scott and Mueller, "Upgrading and Repairing PCs", Techmedia, New Delhi
2. Troubleshooting, Maintenance and Repairing PCs, Fifth Edition, by Stephen J. Bigelow, Tata McGraw-Hill Publishing Company Limited, New Delhi.
3. PC Upgrade and Maintenance Guide, 15<sup>th</sup> Edition, by Marks Minasi, BPB Publications
4. Basic of Networking. "NIIT ", Prentice, Hall of India Private Limited.
5. Networking Protocols and Standards. "NIIT ", Prentice, Hall of India Private Limited.
6. William Stallings, "Data and Computer Communication", Prentice, Hall of India Private Limited.