

**1.1 COMMUNICATION SKILLS & BUSINESS
CORRESPONDENCE**

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RATIONALE

Language is the most commonly used medium of self-expression in all spheres of human life – personal, social and professional. A student must have a fair knowledge of English language and skills to communicate effectively to handle the future jobs in industry. The objective of this course is to enable the diploma holders to acquire proficiency, both in spoken (oral) and written language. At the end of the course, the student will be able to develop comprehension skills, improve vocabulary, use proper grammar, acquire writing skills, correspond with others and enhance skills in spoken English.

DETAILED CONTENTS

1. **Communication** (12 Periods)
 - Introduction and Definition of Communication, Process of Communication
 - Objectives of Communication
 - Media and Modes of Communication
 - Channels of Communication
 - Barriers to Communication
 - Listening Skills
 - Body language

2. **Correspondence** (16 Periods)
 - Certificate Writing
 - Medical Experience
 - Provisional Pass Certificate
 - Character Certificate etc.
 - Resume/Curriculum vitae writing/ Biodata
- **Letter**
 - Business Letters
 - Personal letters
 - Notice writing..

3. **Translation** (06 Periods)
 - Glossary of Technical and Scientific Terms (English and Hindi)
 - Translation from Hindi to English

4. **Comprehension** (06 Periods)

Unseen passages of literacy, scientific, data/graph based for comprehension exercises

5. **Writing a paragraph of 100-150 words from given outlines** (06 Periods)

Topic may include noise pollution, deforestation, wild life, green house effect, desertification, water pollution, poverty, illiteracy, population explosion, effect of television etc.

6. **Drafting** (12 Periods)
- Report Writing
 - Memos, Circulars, Notes and Notices
 - E-mail
 - Press Release
 - Agenda and Minutes of Meetings
 - Applying for a Job
7. **Personality development-** (06 Periods)
- Personality development and its traits.
 - Leadership skills.
 - Types of personality.
 - Public speaking.
 - Stress management.
 - Inter personal skills.

List of Practical

1. How to seek information from an Encyclopedia.
2. Listening pre-recorded English Language Program
3. Paper Reading before an audience (reading unseen passage)
4. Study of Spelling Rules.
5. Essential of a good speech to respond and comprehend visual, oral themes and situations or stimulus and practice before select gathering
6. Exercise on use of different Abbreviations
7. Greetings for different occasions
8. Introducing oneself, others and leave taking.
9. Exercises on writing sentences on a topic.
10. Practice on browsing information on Internet
11. Group Discussion
12. Mock Interviews
13. Telephone Etiquette-demonstration and practice.
14. Situational conversion with feedback through video recording.
15. Presentation on a given theme (using power point)
16. Exercises leading to personality development like mannerism, etiquettes and body language etc.
17. Reading Unseen Passage.
18. Writing (Developing) and paragraph.
19. Exercises on writing notices and telephonic messages

NOTE

1. A communication laboratory may be set up consisting of appropriate audio-video system with facility of playing CDs/DVDs and a video camera for recording the performance of each student with play back facility. A set of CDs from any language training organization e.g. British Council etc. may be procured for use of students.
2. Elements of body language will be incorporated in all practicals

RECOMMENDED BOOKS

1. English and Communication Skills, Book-II By Kuldip Jaidka, Alwainder Dhillon and Parmod Kumar Singla, Prescribed by NITTTR, Chandigarh & Published By Abhishek Publication, 57-59, Sector-17, Chandigarh
2. Essentials of Business Communication by Pal and Rorualling; Sultan Chand and Sons
3. The Essence of Effective Communication, Ludlow and Panthon; Prentice Hall Of India
4. A Practical English Grammar by Thomson and Marlinet
5. Spoken English by V Sasikumar and PV Dhamija; Tata McGraw Hill
6. English Conversation Practice by Grount Taylor; Tata McGraw Hill
7. Developing Communication Skills by Krishna Mohan and Meera Banerji; MacMillan India Ltd., Delhi
8. Business Correspondence and Report Writing by RC Sharma and Krishna Mohan; Tata McGraw Hill Publishing Company Ltd. New Delhi
9. Communication Skills by Ms R Datta Roy and KK Dhir; Vishal Publication, Jalandhar

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allocation
1	12	12
2	16	24
3	06	8
4	06	8
5	06	8
6	12	12
7	06	8
Total	64	80

1.2 FUNDAMENTALS OF COMPUTER

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Periods/Weeks 5 - -

Rationale

Computer has great influence on all aspects of life. Almost all work places and living environment are being computerized. In order to prepare students to work in these environments, it is essential that they are exposed to various aspects of Computer. This exposure will enable the students to enter their professions with confidence, live in a harmonious way and contribute to the productivity.

DETAILED CONTENTS

- Unit -1 (4 Periods)
Information Technology – its concept and scope
- Unit -2 (10 Periods)
Elements of a computer system, its usefulness and applications, block diagram of a computer, CPU, memory, data – numeric data, alpha numeric data, processing of data.
- Unit -3 (16 Periods)
Basic Structure of Computers : Computer Types, Functional Unit, Basic Operational concepts, computer hardware and software.
- Unit -4 (12 Periods)
Input devices: keyboard, scanner, mouse, Joystick, OMR, OCR, MICR etc ;
Output devices: VDU, Printer, Plotter and speakers etc.
- Unit -5 (14 Periods)
Primary and Secondary Storage (Auxiliary Storage): Primary storage: RAM, ROM, Registers, Cache. Secondary storage: magnetic disks – tracks and sectors, optical disk (CD, CD-RW and DVD Memory)
- Unit -6 (12 Periods)
Operating systems : Need of operating system, major functions of Operating System, Introduction of MS-DOS, Windows, Linux, Mac, Mobile OS – Android.
- Unit -7 (8 Periods)
Number System: Binary, Octal, Decimal, Hexadecimal and conversion between two different number systems. Basic concepts of ASCII and ISCII.
- Unit - 8 (4 Periods)
Basics of Networking – LAN, MAN, WAN and various Topologies.

RECOMMENDED BOOKS

1. Fundamentals of Computer by V . Rajaraman; Prentice Hall of India Pvt. Ltd., New Delhi
2. Computers Today by SK Basandara, Galgotia Publication Pvt ltd. Daryaganj, New Delhi.
3. Computer Fundamentals by PK Sinha; BPB Publication, New Delhi
4. Fundamentals of Information Technology by Leon and Leon;Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi
5. Fundamentals of Information Technology by Vipin Arora, Eagle Parkashan, Jalandhar
6. Introduction to computers and Information System by Tiwari, H.N. & Jain, H.C. Sun India Publication.

SUGGESTED DISTRIBUTION OF MARKS

S. No	Time Allotted for Lectures (Periods)	Marks Allotted (%)
1	04	05
2	10	10
3	16	15
4	12	10
5.	14	15
6	12	10
7	08	10
8	04	5
Total	80	80

1.3 OFFICE APPLICATIONS

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Rationale The objective of the course is to make students efficient in performing, managing document related work using MS Office.

DETAILED CONTENTS

Unit –1

Office Packages: Introduction to office packages: Word Processing Spreadsheet, Presentation, Database. Comparison of various office suites like MS-Office, Open-Office, Libre Office etc.

Unit –2

MS Word Basics: Introduction to MS Office, Introduction to MS Word, Features & area of use. Working with MS Word, Menus & Commands, Toolbars & Buttons, Shortcut Menus, Wizards & Templates, Creating a New Document, Different Page Views and layouts, Applying various Text Enhancements, Working with -Styles, Text Attributes, Paragraph and Page Formatting, Text Editing using various features ; Bullets, Numbering, Auto formatting, Printing & various print options

Unit –3

Advanced Features of MS-Word: Spell Check, Thesaurus, Find & Replace; Headers & Footers, Inserting – Page Numbers, Pictures, Files, Auto texts, Symbols etc., Working with Columns, Tabs & Indents, Creation & Working with Tables including conversion to and from text, Margins & Space management in Document, Adding References and Graphics, Mail Merge, Envelops & Mailing Labels. Importing and exporting to and from various formats.

Unit –4

MS Excel: Introduction and area of use, Working with MS Excel, Toolbars, Menus and Keyboard Shortcuts, concepts of Workbook & Worksheets, Using Wizards, Various Data Types, Using different features with Data, Cell and Texts, Inserting, Removing & Resizing of Columns & Rows, Working with Data & Ranges, Different Views of Worksheets, Column Freezing, Labels, Hiding, Splitting etc., Using different features with Data and Text, Cell Formatting including Borders & Shading,

Unit –5

Advanced Features of MS Excel: Multiple Worksheets: Concept, Creating and Using Multiple Worksheets; Use of Formulas, Calculations & Functions, Various types of Functions, Cell Referencing, Absolute and Relative Addressing, Working with Different Chart Types, Chart Wizard, Printing of Workbook & Worksheets with various options, Database: Creation, Sorting, Query and Filtering a Database; Creating and Using Macros;

Unit –6

MS PowerPoint: Introduction & area of use, Working with MS PowerPoint, Creating a New Presentation, Working with Presentation, Using Wizards; Slides & its different views, Inserting, Deleting and Copying of Slides; Working with Notes, Handouts, Columns & Lists, Adding Graphics, Sounds and Movies to a Slide; Working with PowerPoint Objects, Designing & Presentation of a Slide Show, Printing Presentations, Notes, Handouts with print options.

LIST OF PRACTICALS

1. Exercise on Ms-Word .
2. Exercise on Ms-Excel .
3. Exercise on Ms-Power Point .

RECOMMENDED BOOKS

1. MS OFFICE COMPLETE BPB PUBLICATION.
2. MS Office Professional 2013 Plain & simple by Katherine Murray, Microsoft Press .
3. MS Office Professional 2013 step by step. by Beth Melton & Mark Dodge, Microsoft Press.
4. MS Office 2010 by Ramesh Bangia.

1.4 PROGRAMMING FUNDAMENTALS WITH C

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Rationale

Computers play a vital role in present day life, more so, in the professional life of Technician, Engineers. People working in field/ computer industry use computers in solving problems more easily and effectively. In order to enable the students use the computers effectively in problem solving, this course offers the modern programming language C along with exposition to various applications of computers. The knowledge of C language will be reinforced by the practical exercises.

DETAILED CONTENTS

Unit –1	08 Periods
Basic Programming concepts – Algorithm, Flowcharts. Modular Programming structured programming.	
Unit –2	08 Periods
Overview of C : Introduction, Importance of ‘C’, Sample ‘C’ Programs. Basic structure of ‘C’ programs, programming style.	
Unit –3	10 Periods
Constants, Variables and Data types : ‘C’ Tokens, Keywords, and Identifiers, Constants, Variables. Data types. Declaration of variables, assigning values to variables. Defining symbolic constants ,Operators and expression: Arithmetic operators, Relational operators, Logical operators. Assignment operators, increment and decrement operators. Conditional operators, Bitwise operators, special operators, type conversion in expressions, operator precedence and associativity, Built-in Mathematical functions.	
Unit –4	16 Periods
Managing Input and Output statements: I/O syntax, Programs based on I/O, Arithmetic operations. Branching and Looping : Decision making with IF statement, simple IF statement, IF - ELSE statement, & nesting of IF - ELSE statements. The Switch statement, Ternary operator, Break, Continue, Exit & GOTO Statement, WHILE statement, Do-While & For Loop.	
Unit –5	10 Periods
Arrays: One dimensional arrays, Two-dimensional arrays, initialize& Declaring single dimensional arrays & Multidimensional arrays, Handling of character, strings, string functions, Declaring and Initializing string variables, reading string from terminal, writing string to screen, arithmetic operations on characters.	

User defined functions: Need for user-defined functions, a multi-functional program, Return values and their types, calling a function, Types of functions, recursion, functions with arrays. Pointers : Understanding pointers, accessing the address of variables, declaring and initializing pointers, accessing a variable through its pointer.

LIST OF PRACTICALS

1. Programming exercises on executing and editing a C program.
2. Programming exercises on defining variables and assigning values to variables.
3. Programming exercises on arithmetic and relational operators.
4. Programming exercises on arithmetic expressions and their evaluation
5. Programming exercises on formatting input/output using printf and scanf.
6. Programming exercises using if statement.
7. Programming exercises using if – Else.
8. Programming exercises on switch statement.
9. Programming exercises on do – while statements.
10. Programming exercises on for – statement.
11. Programs on one-dimensional array.
12. Programs on two-dimensional array.
13. (i) Programs for putting two strings together.
(ii) Programs for comparing two strings.
14. Simple programs using pointers.

RECOMMENDED BOOKS

1. Programming in C by Schaum Series, McGraw Hills Publishers, New York
2. Application Programming in C by RS Salaria, Khanna Book Publishing Co(P) Ltd. New Delhi
3. Let us Exploring C by Yashwant Kanetkar – BPB Publications, New Delhi
4. Programming with C Language by C Balaguruswami, Tata McGraw Hill, New Delhi
4. Programming in C by Stefin G. Coachin
5. Programming in C by R Subburaj, Vikas Publishing House Pvt. Ltd., Jangpura, New Delhi
6. Elements of C by M.H. Lewin, Khanna Publishers, New Delhi
7. Programming in C by Stephen G Kochan
8. Programming in C by BP Mahapatra, Khanna Publishers, New Delhi
9. Programming in C by Suresh Srivastava

SUGGESTED DISTRIBUTION OF MARKS

Unit No.	Time Allotted (Hrs)	Marks Allotted
1	08	10
2	08	10
3	10	10
4	16	20
5	10	15
6	12	15
Total	64	80

1.5 INTERNET & WEB DESIGNING

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Rationale

This course will enable the students to understand the basics of Internet, its connectivity and its application. In addition, this course develops competency amongst the students to develop professional websites using HTML, DHTML and, Dreamweaver.

DETAILED CONTENTS

Unit –1

08 Periods

Internet - Evolution, Protocols, Interface Concepts, Internet Vs Intranet, Growth of Internet, Application and use of internet in various fields of Science and Technology. Connectivity - Telephone line, Cable, leased line, Types and functions of modems, IP addressing, Internet domains , domain name server, Protocols, TCP/ IP protocols, Internet service providers.

Unit –2

08 Periods

Word Wide Web (WWW) – Introduction of Web Browsers and its functions, Concept of Search Engines, Searching the Web, HTTP, URLs, Web Servers, Web Protocols. Space on Host Server for Website, E-MAIL - Basics of Sending & Receiving. FTP & its usages. Telnet Concept, Internet chatting - Voice chat, Text chat, video chat. Video conferencing, E- commerce.

Unit –3

16 Periods

HTML: Introduction, content creation, creating HTML document using a Text Editor, Saving HTML document, Editing a HTML document, Viewing HTML document in a Web Browser, Switching between text editor and web browser windows to reflect changes. Web Page Authoring Using HTML: Basic concept of tags and attributes, Difference between Container tag and Empty tag. Structural Tags of HTML: <HTML>, <HEAD>,<TITLE>,<BODY>; Attributes of<BODY> (BGCOLOR,BACKGROUND, LINK, ALINK, VLINK), Inserting Breaks: Line break
,Page break<P> Attributes of<P>(ALIGN), Section break<HR>; Attributes of<HR> (WIDTH, ALIGN,SIZE, NOSHADE,COLOR), Formatting Tags of HTML:<SMALL>,<BIG>, , <I>,<U>,,<BLOCKQUOTE>, <PRE>, <SUB>,<SUP>,<STRIKE>,<ADDRESS>, Adding Comments in HTML(<!-- -->), Heading tag (<H1> to <H6>);Attributes of Heading tag(ALIGN), tag; Attributes of (SIZE,COLOR,FACE).

Unit –4

12 Periods

Creating Lists: Ordered List:,, Attributes of(TYPE, START,VALUE); Unordered Lists:, , Attributes of(TYPE -Disc, Circle, Square); Definition List: <DL>,<DT>,<DD> Creating Links: Internal linking using<ANAME>and<A HREF>; External linking using <A HREF>; E- Mail linking using <A HREF>; Concept

of URL; Absolute Links & Relative Links Inserting Images: Inserting inline Images using ; Attributes of (SRC,ALIGN, WIDTH, HEIGHT, ALT, BORDER) Adding Music :Adding music using<A HREF>,adding music using <EMBED>; Attributes of<EMBED>(SRC,WIDTH, HEIGHT,LOOP, AUTOSTART, HIDDEN) Creating Tables: Creating Table using <TABLE>; Attributes of<TABLE> (BORDER, BGCOLOR, BACKGROUND, CELLSPACING,CELLPADDING, WIDTH, HEIGHT) Creating rows and columns in table using <TR>,<TD>, <TH>;Attributes of <TR>, <TD>, <TH> (ALIGH,VALIGN, COLSPAN,ROWSPAN)Adding headings for a table using<CAPTION>;Attribute of<CAPTION> (ALIGN) Frames: Dividing the window into two or more frames using<FRAME>and<FRAMESET>, Use of percentage dimensions and relative dimensions while dividing the window; use of <NOFRAMES>, </NOFRAMES>;Attributes of<FRAME> (SRC, NAME, FRAMEBORDER, MARGINHEIGHT, MARGINWIDTH, SCROLLING, NORESIZE); Attributes of<FRAMESET> (ROWS,COLS, BORDER, FRAMEBORDER); Forms: <FORM>, Attributes of<FORM> Tag(NAME, ACTION, METHOD), Creating Form Interface elements- text box, password box, check box, radio button, submit button, reset button, hidden, file using the<INPUT>; Attributes of<INPUT> applicable with different interface elements (NAME,SIZE, VALUE, ALIGN, MAXLENGTH, CHECKED, TYPE); multiline text are using<TEXTAREA>, Attributes of<TEXTAREA>(NAME, ROWS,COLS, WRAP); dropdown list of scroll list using <SELECT> and<OPTION>; Attributes of <SELECT> (NAME, SIZE, MULTIPLE/SINGLE)

Unit –5

12 Periods

Document Object Model Concept and Importance of Document Object Model, Dynamic HTML documents; Introduction to Cascading Style Sheet(CSS): Creating inline, embedded and external cascading style sheets using <STYLE>,<DIV>, and <LINK>;Attribute of<DIV> and (STYLE);Attributes of<LINK> (REL,TYPE,HREF); Font Properties: FONT-FAMILY,FONT-STYLE, FONT-SIZE, FONT-VARIANT,FONT-WEIGHT and COLORText Properties: COLOR, WORD-SPACING, LETTER-SPACING,TEXT- DECORATION, VERTICALALIGN,TEXT-TRANSFORM;TEXT-ALIGN,TEXT-INDENT, LINE-HEIGHT;Background Properties: BACKGROUND-COLOR, BACKGROUND- IMAGE, BACKGROUND-REPEAT; Margin Properties: MARGINS (all values); Padding Properties: PADDING (all values); Border Properties: BORDER (all values); Positioning: Absolute and Realtive Additional Features: Assigning Classes; XML-extensible Markup Language: Introduction, Features, Advantages;Structure of XML: Logical Structure, Physical Structures; XML Markup: Element Markup i.e.<foot>hello</foo>, Attribute Markup i.e.<element.name property="value">)Naming Rules: used for elements, attributes and descriptors; Comments of XML;Entity Declarations: <!ENTITY name "replacement text">; Element Declaration : <!ELEMENT name. content>; EmptyElements: <!ELEMENT empty. element EMPTY>;Unrestricted Elements: <!ELEMENT any. Element ANY>;Element Content Model :Element Sequences i.e. <!ELEMENT counting(first, second, third, fourth)>, Element Choices <!ELEMENT choose (this.one Is that.one)>, Combined Sequences and Choices; Element Occurrence Indicators :-?, %, + Character Content: PCDATA (Parseable Character data) <!ELEMENT text(#PCDATA), Document Type Declaration(DTD) and Validation; Developing a DTD: Modify and existing XML, Developing a DTD from XML Code, either automatically or manually; Viewing XML in Internet Explorer, Viewing XML using the XML Data Source Object;

Unit –6

08 Periods

Dreamweaver: Basic features of Dreamweaver and implementation of Dreamweaver functions / Utility. Introduction to Client side Scripting and Server side Scripting,

Introduction to JSP, ASP and PHP. Use all the HTML tags using Dreamweaver to make website.

LIST OF PRACTICALS

1. Configuring computer system to access Internet
2. Using E-mail
3. Using WWW for accessing relevant information
4. Using Telnet
5. Using FTP
7. Creating Web pages using HTML
8. Create Tables, lists using HTML
9. Insert Background picture using HTML tags
10. Design a Website using Dreamweaver

RECOMMENDED BOOKS

1. Internet and multimedia, E- commerce and web designing by R. Goel and Ramesh Chandra JPC 477/ 23, Ansari road DaryeGanj- 110002
2. Internet 6- in- 1 by Kraynak and Habraken, Prentice Hall of India Pvt. Ltd; New Delhi
3. Using the Internet IV edition by Kasson, Prentice Hall of India Pvt. Ltd; New Delhi
4. Using the World Wide Web, (IIndedition) by Wall, Prentice Hall of India Pvt. Ltd; New Delhi
5. HTML-\$ for World Wide Web by Castro Addison Wesley (Singapore) Pvt. Ltd; New Delhi
6. Teach yourself HTML 4.0 with XML, DHTML and Java Script by Stephanic, Cottrell, Bryant; IDG books India Pvt. Ltd; New Delhi
7. INTERNET FOR EVERYONE - ALEXIS LEON AND MATHEWS LEON, VIKAS PUBLISHING HOUSE PVT. LTD., NEW DELHI
8. INTERNET FOR DUMMIES - PUSTAK MAHAL, NEW DELHI
9. A BEGINNERS GUIDE TO HTML AVAILABLE AT: [HTTP://WWW.NCSA.UIUC.EDU/GENERAL/INTERNET/WWWL HTMLPRIMERALL. HTML](http://www.ncsa.uiuc.edu/general/internet/www/htmlprimerall.html)

SUGGESTED DISTRIBUTION OF MARKS

Unit No.	Time Allotted (Hrs)	Marks Allotted
1	08	10
2	08	15
3	16	20
4	12	15
5	12	10
6	08	10
Total	64	80

Rationale

The course provides the students with an understanding of human computer interface existing in computer system and the basic concepts of operating system and its working. The students will also get hand-on experience and good working knowledge to work in DOS and Windows environments. The aim is to gain proficiency in using various operating systems after undergoing this course.

DETAILED CONTENTS

1. **Brief Introduction to System Software** (04 Period)
Compiler, Assembler, Loader, Operating system, Linking, Loading and Executing a Program.
2. **Overview of Operating Systems** (14 Period)
Definition of Operating Systems, Functions of Operating System, Types of Operating Systems – Batch Processing, Time Sharing, Multiprogramming, Multiprocessing and Real Time Systems, Distributed Systems, Importance of Operating System, Mac, Mobile OS – Android, Basic commands of DISK OPERATING SYSTEM (DOS) and Linux, working with windows.
3. **Process Management Functions** (08 Period)
Introduction of Process, Job Scheduler, Scheduling Criteria, Process Scheduler, Scheduling algorithms, Process synchronization, Critical section.
4. **Dead Locks** (12 Period)
Introduction and necessary conditions of dead lock, Dead lock avoidance, Dead lock detection, Dead lock Recovery.
5. **Memory Management Function** (15 Period)
Introduction, Logical and Physical address space, Virtual memory, Swapping, Single contiguous memory management, Fixed partition, Contiguous allocation, Paging, Segmentation, Demand paging, Page replacement algorithms, Thrashing
6. **I/O Management Functions** (15 Period)
Dedicated Devices, Shared Devices, Virtual Devices, Storage Devices, Buffering, Spooling.
7. **File Management** (12 Period)
File concept, Access Methods, Directory Structure, Protection, File system structure, allocation methods, Directory implementation.

LIST OF PRACTICALS

1. Demonstration of all the controls provided on Control Panel, and exercises using Windows.
2. Practical exercises involving various internal and external DOS commands
3. Practical exercises involving various UNIX/LINUX commands

LIST OF RECOMMENDED BOOKS

1. Operating systems by John J Donovan; Tata McGraw Hill, New Delhi
2. Operating System Concept by Ekta Walia, Khanna Publishers, New Delhi
3. System programming by Dhamdhare
4. Unix operating system by Vijay Mukhi
5. MS DOS by Peter Norton, BPB Publications
6. Microsoft Windows Manual
7. First Course in Computers by Sanjay Saxena; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi
8. Operating System by Galvin, silberchatz , Wiley Publication

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time allotted (Period)	Marks Allotted (%)
1	04	04
2	14	16
3	08	08
4	12	18
5	15	14
6	15	10
7	12	10
Total	80	80