



**EVALUATION SCHEME & DETAILED SYLLABUS
FIRST & SECOND SEMESTER
(POST GRADUATE DIPLOMA IN
COMPUTER APPLICATIONS)**





UTTARAKHAND BOARD OF TECHNICAL EDUCATION
JOINT ENTRANCE EXAMINATION AND TRAINING, RESEARCH DEVELOPMENT CELL, DEHRADUN
STUDY AND EVALUATION SCHEME FOR DIPLOMA PROGRAMME

BRANCH NAME–P.G. DIPLOMA IN COMPUTER APPLICATION

SEMESTER –FIRST

Subject Code	Subject	L	T	P	T O T	EVALUATION SCHEME						Total Marks	Credit Point
						Internal			External				
		Period/Weeks		Theory	Practical	Theory		Practical					
				Max Marks	Max Marks	Max Marks	Hrs.	Max Marks	Hrs.				
171001	Communication Skills & Business Correspondence	4	-	2	6	20	30	80	2.30	50	3.0	180	2
171002	Fundamentals of Computer	5	-	-	5	20	-	80	2.30	-	-	100	4
171003	Office Applications	-	-	6	6	-	30	-	-	100	3.0	130	5
171004	Programming Fundamentals with C	4	-	5	9	20	30	80	2.30	50	3.0	180	5
171005	Internet & Web Designing	4	-	4	8	20	30	80	2.30	50	3.0	180	4
171006	Operating Systems	5	-	3	8	20	30	80	2.30	50	3.0	180	5
171051	General Proficiency#	-	-	4	4	-	25	-	-	-	-	25	-
171051	Industrial Exposure (Assessment at Inst. Level)+	-	-	-	-	-	25	-	-	-	-	25	-
TOTAL		22	-	24	46	100	200	400	-	300	-	1000	25

#General Proficiency will comprise of various co-curricular activities like games, hobby clubs, seminars, declamation contests, extension lectures, NCC, NSS, cultural activities and discipline etc.

+Industrial Exposure compulsory at minimum 2 Industries or Departments.

Note: 1- Each period will be 50 minutes. 2- Each session will be of 16 weeks.

3- Effective teaching will be at least 12.5 week + Industrial Visit

Branch Code -17



UTTARAKHAND BOARD OF TECHNICAL EDUCATION
JOINT ENTRANCE EXAMINATION AND TRAINING, RESEARCH DEVELOPMENT CELL, DEHRADUN
STUDY AND EVALUATION SCHEME FOR DIPLOMA PROGRAMME

BRANCH NAME–P.G. DIPLOMA IN COMPUTER APPLICATION

SEMESTER –SECOND

Subject Code	Subject	L	T	P	T O T	EVALUATION SCHEME						Total Marks	Credit Point	
						Internal			External					
						Theory Max Marks	Practical Max Marks	Period/Weeks	Theory		Practical			
									Max Marks	Hrs.	Max Marks			Hrs.
172001	Implementation of Data Structure Using C	4	-	5	9	20	30	80	2.30	50	3.0	180	4	
172002	Desk Top Publishing-II	4	-	4	8	20	30	80	2.30	50	3.0	180	4	
172003	Database Management System with SQL	4	-	4	8	20	30	80	2.30	50	3.0	180	4	
172004	Multimedia Systems	5	-	-	5	20	-	80	2.30	-	-	100	4	
172005	Object Oriented Concepts using C++	5	-	3	8	20	30	80	2.30	50	3.0	180	5	
172006	Software Engineering	6	-	-	6	50	-	80	2.30	-	-	130	4	
172051	General Proficiency#	-	-	4	4	-	25	-	-	-	-	25	----	
172052	Industrial Exposure (Assessment at Inst. Level)+	-	-	-	-	-	25	-	-	-	-	25	---	
TOTAL		28	-	20	48	150	170	480	-	200	-	1000	25	

#General Proficiency will comprise of various co-curricular activities like games, hobby clubs, seminars, declamation contests, extension lectures, NCC, NSS, cultural activities and discipline etc.

+Industrial Exposure compulsory at minimum 2 Industries or Departments.

Note: 1- Each period will be 50 minutes. 2- Each session will be of 16 weeks. 3- Effective teaching will be at least 12.5 week

- **Industrial Training of 4 weeks to be done after 2nd Semester would be evaluated in 3rd semester through Report and Viva voce.**

Branch Code -17

COMMUNICATION SKILLS & BUSINESS CORRESPONDENCE

L	T	P
4	-	2

Subject Code : 171001

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 Practicals

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

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Period 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

RECOMMENDED BOOKS

1. English and Communication Skills, Book-II By Kuldip Jaidka, Alwainder Dhillon and Parmod Kumar Singla, Prescribed by NITTTTR, 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; Mac Millan India Ltd., Delhi
8. Business Correspondence and Report Writing by RC Sharma and Krishna Mohan; Tata Mc Graw Hill Publishing Company Ltd. New Delhi
9. Communication Skills by Ms R Datta Roy and KK Dhir; Vishal Publication, Jalandhar



L	T	P
5	-	-

Subject Code : 171002**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.

Basics of Networking – LAN,MAN, WAN and various Topologies.

SUGGESTED DISTRIBUTION OF MARKS

S. No	Period 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

RECOMMENDED BOOKS

1. Fundamentals of Computer by V . Rajaraman; Prentice Hall of India Pvt. Ltd., New Delhi
2. Computers Today by S.K. Basandara, Galgotia Publication Pvt. Ltd. Daryaganj, New Delhi.
3. Computer Fundamentals by P.K. 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.

L	T	P
-	-	4

Subject Code : 171003

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.

L	T	P
4	-	5

Subject Code : 171004**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, 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 associatively, 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.

Unit –6

(12 Periods)

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

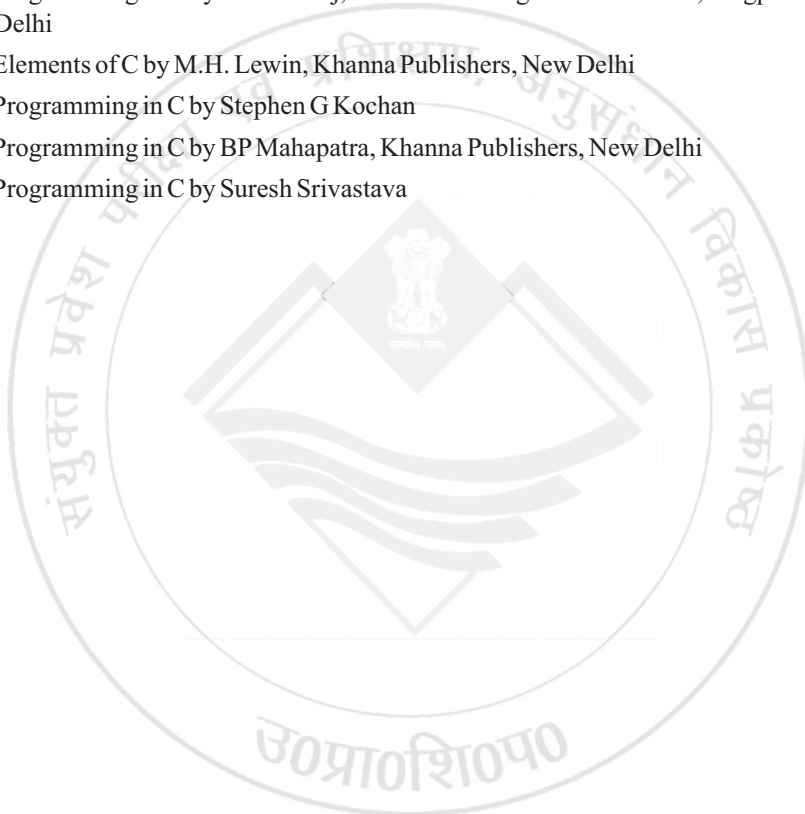
1. Programming exercises on executing and editing a 'C' program.
2. Programming exercises on defining variables and assigning values to variables.
3. Programming exercises on arithmetic and relational operators.
4. Programming exercises on arithmetic expressions and their evaluation
5. Programming exercises 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.

SUGGESTED DISTRIBUTION OF MARKS

Unit No.	Period 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

RECOMMENDED BOOKS

1. Programming in C by Schaum Series, McGraw Hills Publishers, New York
2. Application Programming in C by R.S. 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



L	T	P
4	-	4

Subject Code : 171005**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 Dream weaver.

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<A NAME>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> (ALIGN, 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 COLOR Text Properties: COLOR, WORD-SPACING, LETTER-SPACING, TEXT- DECORATION, VERTICALALIGN, TEXT-TYPE, 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 Relative 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;>`; Empty Elements: `<!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

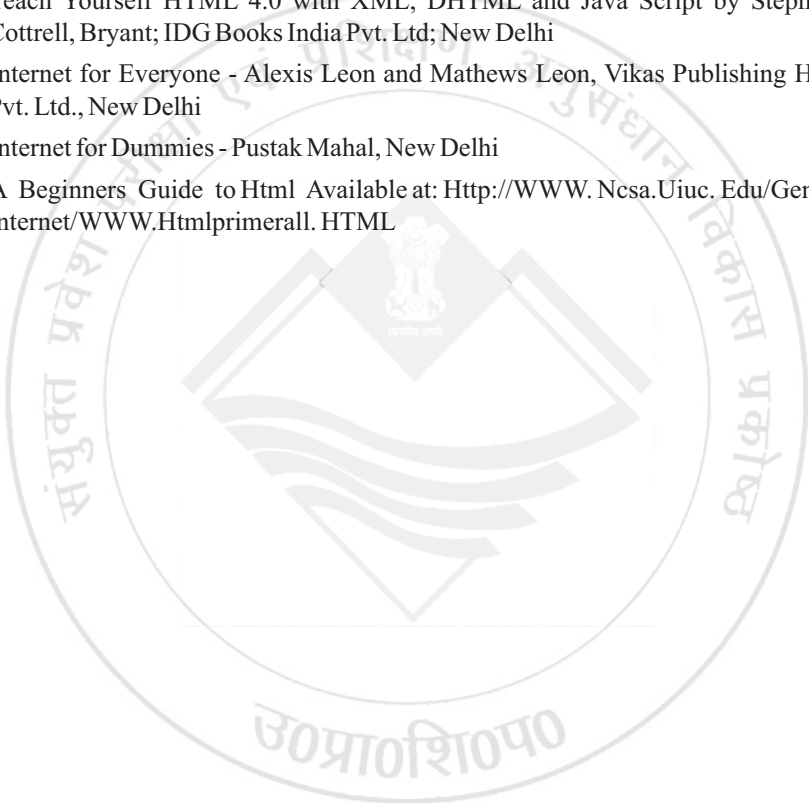
1. Configuring computer system to access Internet
2. Using E-mail
3. Using WWW for accessing relevant information
4. Using Telnet
5. Using FTP
7. Creating Web pages using HTML
8. Create Tables, lists using HTML
9. Insert Background picture using HTML tags
10. Design a Website using Dreamweaver

SUGGESTED DISTRIBUTION OF MARKS

Unit No.	Period 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

RECOMMENDED BOOKS

1. Internet and Multimedia, E-Commerce and Web Designing by R. Goel and Ramesh Chandra JPC 477/ 23, Ansari road Darye Ganj- 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, (IIIndedition) 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/WWW.Htmlprimerall.HTML](http://WWW.Ncsa.Uiuc.Edu/General/Internet/WWW.Htmlprimerall.HTML)



L	T	P
5	-	3

Subject Code : 171006

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 Periods)**
Compiler, Assembler, Loader, Operating system, Linking, Loading and Executing a Program.
- 2. Overview of Operating Systems (14 Periods)**
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 Periods)**
Introduction of Process, Job Scheduler, Scheduling Criteria, Process Scheduler, Scheduling algorithms, Process synchronization, Critical section.
- 4. Dead Locks (12 Periods)**
Introduction and necessary conditions of dead lock, Dead lock avoidance, Dead lock detection, Dead lock Recovery.
- 5. Memory Management Function (15 Periods)**
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 Periods)**
Dedicated Devices, Shared Devices, Virtual Devices, Storage Devices, Buffering, Spooling.

7. File Management

(12 Periods)

File concept, Access Methods, Directory Structure, Protection, File system structure, allocation methods, Directory implementation.

LIST OF PRACTICALS

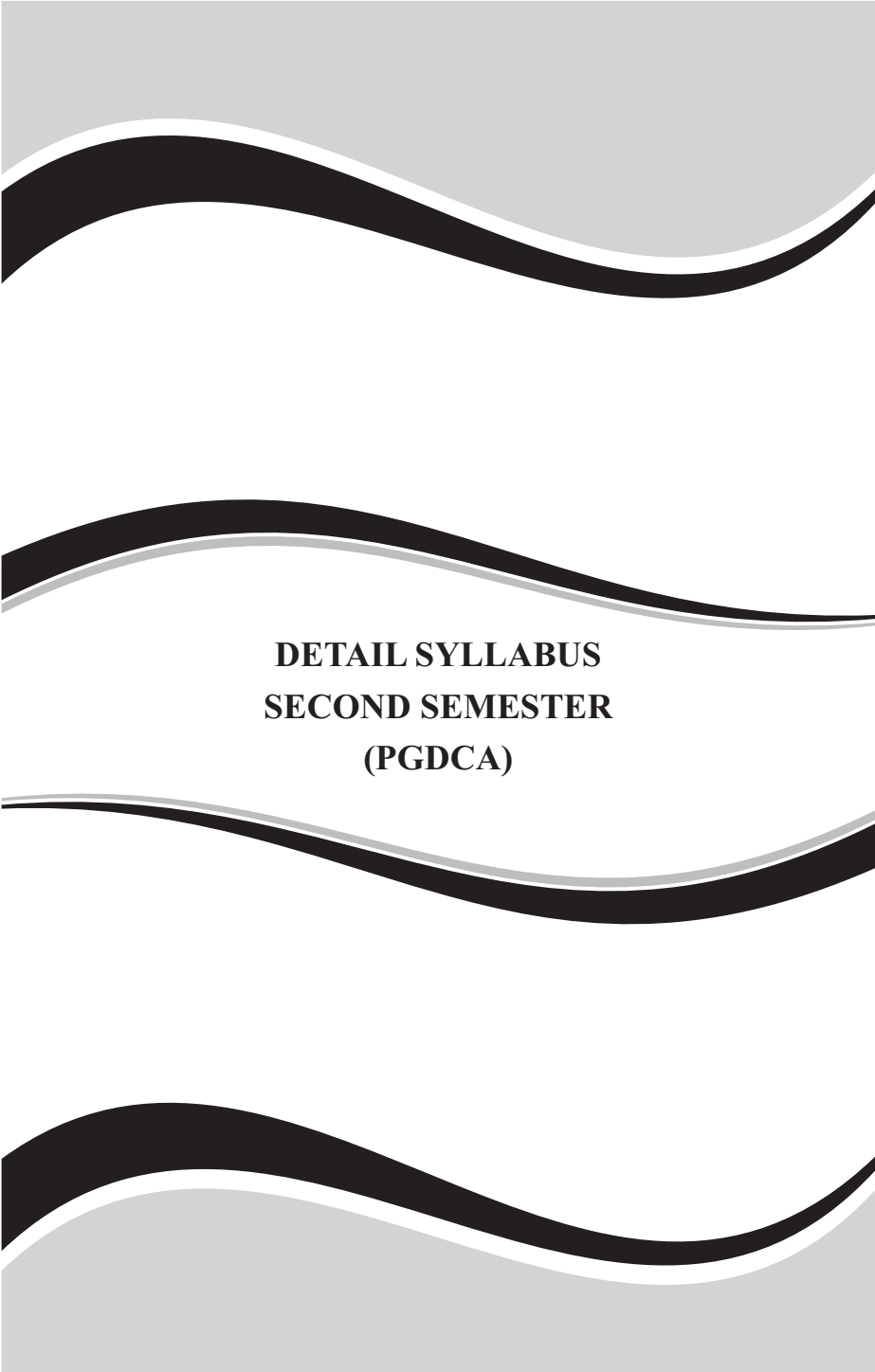
1. Demonstration of all the controls provided on Control Panel, and exercises using Windows.
2. Practical exercises involving various internal and external DOS commands
3. Practical exercises involving various UNIX/LINUX commands

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Period 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

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.

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**DETAIL SYLLABUS
SECOND SEMESTER
(PGDCA)**

IMPLEMENTATION OF DATA STRUCTURE USING C

L	T	P
4	-	5

Subject Code : 172001

Rationale

Data structures are the techniques of designing the basic algorithms for real-life projects. Understanding of data structures is essential and this facilitates the understanding of the language. The practice and assimilation of data structure techniques is essential for programming. The knowledge of 'C' language and data structures will be reinforced by practical exercises during the course of study. The course will help students to develop the capability of selecting a particular data structure.

DETAILED CONTENTS

Unit –1

(10 Periods)

Revision of C fundamentals, Structures and Unions, Declaration of structures, Accessing structure members, Structure Initialization, Arrays of structure, Unions. Introduction to data structure, Primitive data structure, Non primitive data structure, Linear data structure, Non- Linear data structure, operation on data structure, Algorithm analysis & complexity.

Unit –2

(10 Periods)

Concept of Arrays, Single dimensional array, Two dimensional array, Storage strategy of multidimensional arrays, Index Formula for single and multidimensional Array, Operations on arrays with Algorithms (Insertion, deletion), Advantages and disadvantages of Arrays, Recursion .

Unit –3

(12 Periods)

Introduction to stacks, Representation of stacks, Implementation of stacks using Array & Link List, Uses of stacks, Introduction to queues, Implementation of queues, Circular Queues, De-queues.

Unit –4

(12 Periods)

Introduction to linked list and double linked list, Representation of linked lists in Memory, Traversing a linked list, Searching linked list, Insertion and deletion into linked list, Application of linked lists, Doubly linked lists, Traversing a doubly linked lists, insertion and deletion into doubly linked lists.

Unit –5

(12 Periods)

Concept of Trees, Concept and representation of Binary tree, Binary search trees,

Traversing Binary Trees (Pre order, Post order and In order), Introduction to graphs, types of graphs, Breadth first search, Depth first search.

Unit –6

(08 Periods)

Sorting and Searching Introduction, Search algorithm (Linear and Binary), Concept of sorting, Sorting algorithms (Bubble Sort, Insertion Sort, Quick Sort, Selection Sort, Merge Sort, Heap Sort, Radix Sort) and their comparisons, Complexity Analysis of Sorting Algorithms.

LIST OF PRACTICALS

1. Inserting and deleting elements in an array
2. Insertion and deletion of elements in linked list
3. Insertion and deletion of elements in double linked list
4. Stack implementation using arrays
5. Stack implementation using pointers
6. Queue implementation using arrays
7. Queue implementation using pointers
8. Linear search in a given list
9. Binary search in a given list
10. Implementation of binary search tree
11. Implementation of bubble sort algorithm
12. Implementation of insertion sort algorithm
13. Implementation of quick sort algorithm
14. Implementation of selection sort algorithm
15. Conversion from infix and post-fix notation
16. Implementation of factorial of a number using recursion
17. Implementation of Fibonacci series using recursions

SUGGESTED DISTRIBUTION OF MARKS

Unit No.	Period Allotted (Hrs)	Marks Allotted
1	10	120
2	10	120
3	12	16
4	12	15
5	12	15
6	08	10
Total	64	80

RECOMMENDED BOOKS

1. Data Structures Using C and C++ by Rajesh K. Shukla; Wiley-India Pvt. Ltd. Daryaganj, New Delhi
2. Data Structures and Algorithm Using C by R.S. Salaria; Khanna Book Pub. Co. (P) Ltd. New Delhi
3. Data Structure Using C by Manoj Kumar Jambla; Eagle Publishing House, Jalandhar 13/07/2013 Page 25 of 38
4. Expert Data Structures with C by R.B. Patel; Khanna Publishers, New Delhi.
5. Data Structure Through C by Yashwant Kanekar; BPB Publications
6. Data Structure Through C by G.S. Baluja



L	T	P
4	-	4

Subject Code : 172002**RATIONALE**

This course enables students to understand various printing technologies and tools including Photoshop, Page Maker and Corel Draw.

DETAILED CONTENTS**Unit-1****(04 Periods)**

Introduction to Desktop Publishing (DTP), Salient features, applications and advantages.

Unit -2**(16 Periods)**

Photoshop: History & Introduction, the file menu, the tools, Drawing lines & shapes. Inserting picture and shapes, filling colors, text effects, working with layers, filters, Creating design patterns, Photoshop presentations -static & dynamic presentation, WEB & WEB GALLERY using internet explorer in photo shop. Creating animations using image ready, creating animations & presentations . Tips and tricks in Photoshop.

Unit -3**(16 Periods)**

Corel draw –An overview, menus and tools, Drawing –lines, shapes .inserting-pictures, objects, tables, templates, Adding special effects, Exporting drawings, outlining & filling objects, inserting symbols & Clip arts, Working in Corel draw presentation –adjusting the position, resizing, positioning, merging, color shades & shadows .working with advanced effects, special interactive effects. Creating- business cards, pamphlets, banners, news papers, books. Shortcut keys in Corel draw.

Unit -4**(16 Periods)**

Page maker- An introduction, basics menus & tools, Guides & rulers. Drawing tools. Fills & outlines, Working with- text, paragraphs, tabs & indents, graphics, tables. Importing & exporting, story editing & printing. Tips & Shortcut keys , Creating book works-introduction-building booklets, completing the book.

Unit -5**(12 Periods)**

Types of Printing an Introduction-Letterpress printing-lithography-offset printing-different printing process-machines for letterpress, offset, gravure, flexography and

screen printing- printing materials, planning a printing, design factors, color application-film assembly and plate making-binding & finishing, Image editing, color correction, color management, poly master, methods of color proofing ,Different types of font, text file formats, vector & raster graphics, graphics file formats. Page setting, character & paragraph formatting, indentation, alignments, hyphenation, single & double sided documentation.

LIST OF PRACTICALS

1. How to make smooth curved lines in Photoshop?
2. Extract an object from a given picture?
3. Create a new picture. Make it 300 pixels high and 400 pixels wide. The resolution should be 72 pixels/inch.
4. How to create your very own animated beating heart in Photoshop?
5. How to make falling objects that will work as seamless backgrounds and have objects falling at different paces in Photoshop?.
6. How to insert a picture in the existing image background?
7. Create a 3D text in Corel Draw
8. Create an advertisement for a Textile company in Corel
9. Design a business card for a company embed photo in it.
10. Design a banner for a marriage function
11. Open Pagemaker and create a new magazine layout(working on multiple pages) which includes the following setup options:
 - page size - magazine narrow
 - orientation tall
 - 4 page spread
 - numbering - Lower Roman
 - margins 1.25 inches- top, and .75 inches - all other sides.
12. Save the document as class example.
13. On the first page of your magazine spread, select the Text tool from the Pagemaker toolbox and draw a text box. In the text box, on nine individual lines type the word "text attribute."

Use each of these nine lines to illustrate each of the nine text attributes that you can use from the text palette. You might find Figure 6 on page 92 of the optional Pagemaker book useful. On line ten, type the word "The" with a capital "T." Set the font size for the capital "T" at 24 point. Set the font size for the "he" at 12. Use kerning on your text palette to pull the "h" underneath the capital "T"
14. Use<Print Screen> to capture Pagemaker's floating control palette and paste it into the second page of your magazine layout. Select the crop tool from the Pagemaker toolbox and crop the pasted image to include only the control palette.

15. Go to page 3 of your magazine layout. Insert a new text box and in the text box list all the file name rules that you should follow when saving files that will be used on the web
16. Go to page 4 of your magazine layout. Insert a new text box. Enter the following text:
 A title (e.g., AEE 210 Pagemaker Exercise - July 12, 2014)
 Your name
 Your address
 Your email address
 Position the upper left hand corner of the textbox at exactly 2" down and 2" over.
 Make the text box exactly 4" wide.
17. Insert vertical guidelines on page 4 at 2", 4" and 6" and insert horizontal guidelines at 2", 4", 6" and 8".
18. Save your work and close Pagemaker.

SUGGESTED DISTRIBUTION OF MARKS

UNIT No.	Period Allotted (Hrs)	Marks Allotted
1	04	05
2	16	20
3	16	20
4	16	20
5	12	15
Total	64	80

RECOMMENDED BOOKS

1. Adobe Photoshop BPB Publication.
2. Corel Draw X7 The Official Guide by Gary David Bouton.
3. Learning Adobe Page Maker by Greg Bowden.

L	T	P
4	-	4

Subject Code : 172003

Rationale

Database and database systems have become an essential component of everyday life in modern society. This course will acquaint the students with the knowledge of fundamental concepts of DBMS and its application in different areas, storage, manipulation and retrieval of data using query languages. Oracle/MySQL/SQL Server can be used as a package to explain concepts.

DETAILED CONTENTS

Unit-1. Introduction (12 Periods)

Database Systems; Database and its purpose, Characteristics of the database approach, Advantages and disadvantages of database systems. Classification of DBMS Users; Actors on the scene, Database Administrators, Database Designers, End Users, System Analysts and Application Programmers, Workers behind the scene (DBMS system designers and implementers, tool developers, operator and maintenance personnel).

Unit-2. Database System Concepts and Architecture (12 Periods)

Data models, schemas, instances, data base state. DBMS Architecture; The External level, The conceptual level, The internal level, Mappings. Data Independence; Logical data Independence, Physical data Independence. Database Languages and Interfaces; DBMS Language, DBMS Interfaces. Classification of Database Management Systems.

Unit-3. Data Modeling using E.R. Model (Entity Relationship Model) (10 Periods)

Data Models Classification; File based or primitive models, traditional data models, semantic data models. Entities and Attributes, Entity types and Entity sets, Key attribute and domain of attributes, Relationship among entities.

Unit-4. Relational Model: (08 Periods)

Relational Model Concepts: Domain, Attributes, Tuples and Relations. Relational constraints and relational database schemes; Domain constraints, Key constraints and constraints on Null. Relational databases and relational database schemes, Entity integrity, referential integrity and foreign key.

Unit-5. Normalization (08 Periods)

Concept of Normalization, Need of Normalization, Non-loss decomposition and functional dependencies, First, Second and Third normal forms, Boyce Codd normal form (BCNF).

SQL's basic objects, data types, aggregate functions, scalar functions, null values, creating database objects, modifying database objects, removing database objects. Creating Tables, Creating a table with data from another table, Dropping a Table, Inserting values into a table, updating columns of a table, Deleting Rows, Database Security and Privileges, Grant and Revoke Command, Maintaining Database Objects, Commit and Rollback, various types of select commands, various types of join.

LIST OF PRACTICALS

1. Creating, modifying and removing database objects.
2. Working with queries involving joins, correlation, sub-queries, set operators.
3. Creating and using stored procedures and user defined functions.
4. Creating indexes
5. Creating and using views.
6. Using and understanding grant, revoke and deny statements.

SUGGESTED DISTRIBUTION OF MARKS

Unit No.	Period Allotted (Hrs)	Marks Allotted
1	12	10
2	12	15
3	10	15
4	8	10
5	8	10
6	14	20
Total	64	80

RECOMMENDED BOOKS

1. Data Base Management System By Ivan Byross.
2. C.J. Date, "An Introduction to Data Base Systems", 3rd Ed., Narosa Publishers, 1997.
3. Jeffrey D. Ullman, "Principles of Database Systems", 2nd Ed., Galgotia Pub., 1984.
4. D. Kroenke., "Database Processing", Galgotia Publications, 1987.
5. Henry F. Korth, "Database System Concepts", McGraw Hill. Inc., 1997.
6. Naveen Prakash, "Introduction to Database Management", TMH, 1993.
7. Elmisy Nawathy, "Introduction to database System", Pearson Education India.
8. Beginning Microsoft SQL Server 2008 Programming by Robert Vieira, Wrox.
9. Microsoft SQL Server 2008 Bible by Paul Nielsen, Uttam Parui; Wiley India Publication.

L	T	P
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Subject Code : 172004**Rationale**

Multimedia is a new concept emerged in the recent times. This technology is currently being widely used in web pages, motion pictures and interactive presentations, animation etc. Multimedia has made a significant impact in training/education, business presentations, public information access etc. This course intends to introduce and expose multimedia technology and various factors and features of authoring software. It will also help in making the internet application richer in content and presentation.

DETAILED CONTENTS**Unit –1****(15 Periods)**

Introduction to Multimedia, Multimedia Information, Multimedia Objects, Multimedia in business and work. Convergence of Computer, Communication and Entertainment products, Stages of Multimedia Projects, Multimedia hardware, Memory & storage devices, Communication devices, Multimedia softwares, presentation tools, tools for object generations, video, sound, image capturing, authoring tools, card and page based authoring tools.

Unit –2**(13 Periods)**

Multimedia Building Blocks: Text, Sound MIDI, Digital Audio, audio file formats, MIDI under windows environment Audio & Video Capture.

Unit –3**(13 Periods)**

Data Compression Huffman Coding, Shannon Fano Algorithm, Huffman Algorithms, Adaptive Coding, LZ77, LZW compression, Compression, Compression ratio lossless & lossy compression.

Unit –4**(12 Periods)**

Speech Compression & Synthesis: Digital Audio concepts, Sampling Variables, Loss less compression of sound, loss compression& silence compression.

Unit –5**(13 Periods)**

Images: Multiple monitors, bitmaps, Vector drawing, lossy graphic compression, image file formats, animations, Images standards.

Unit –6**(14 Periods)**

Video: Video representation, Colors, Video file formats, Compression, MPEG standards, MHEG Standard Video Streaming on net, Video Conferencing, Multimedia Broadcast Services, Indexing and retrieval of Video Database, recent development in Multimedia.

SUGGESTED DISTRIBUTION OF MARKS

SUGGESTED DISTRIBUTION OF MARKS Unit No.	Period Allotted (Hrs)	Marks Allotted
1	15	20
2	13	15
3	13	15
4	12	10
5	13	10
6	14	10
Total	80	80

RECOMMENDED BOOKS

1. Tay Vaughan, “Multimedia, Making IT Work”, McGraw Hill.
2. Buford, “Multimedia Systems”, Addison Wesley.
3. Mark Nelson, “Data Compression Hand Book”, BPB.
4. Sleinreitz, “Multimedia System”, Addison Wesley.

L	T	P
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Subject Code : 172005**Rationale**

Object orientation is a new approach to understand the complexities of the real world. In contrast to the earlier approaches like procedural etc, object orientation helps to formulate the problems in a better way giving high reliability, adaptability and extensibility to the applications. The students are already familiar with this concept of programming in C which is the basic for C++. This course offers the modern programming language C++ that shall help the students to implement the various concept of object orientation practically. The students will be able to programme in the object oriented technology with the usage of C++.

DETAILED CONTENTS**1. Introduction****(06 Periods)**

Algorithm, Flow charts, Testing & Debugging

2. Language Constructs**(18 Periods)**

Introduction C++ : variables, types and type declarations, user defined data types; increment and decrement operators, relational and logical operators; if then else clause; conditional expressions, input and output statement, loops, switch case, arrays, structure, unions, functions, pointers; preprocessor directives

3. Introduction OOP**(06 Periods)**

Fundamentals of object oriented programming – procedure oriented programming Vs. object oriented programming (OOP). Object oriented programming concepts – Classes, reusability, encapsulation, inheritance, polymorphism, dynamic binding, message passing, data hiding

Fundamentals of object oriented programming – procedure oriented programming Vs. object oriented programming (OOP). Object oriented programming concepts – Classes, reusability, encapsulation, inheritance, polymorphism, dynamic binding, message passing, data hiding

4. Classes and Objects**(10 Periods)**

Creation, accessing class members, Private Vs Public, Constructor and Destructor Objects

5. Member Functions

(06 Periods)

Method definition, Inline functions implementation, Constant member functions, Friend Functions and Friend Classes, Static functions

6. Overloading Member Functions

(06 Periods)

Need of operator overloading, operator overloading, instream / ostream operator overloading, function overloading, constructor overloading

7. Inheritance

(16 Periods)

Definition of inheritance, protected data, private data, public data, inheriting constructors and destructors, constructor for virtual base classes, constructors and destructors of derived classes, and virtual functions, size of a derived class, order of invocation, types of inheritance, single inheritance, hierarchical inheritance, multiple inheritance, hybrid inheritance, multilevel inheritance

8. Polymorphism and Virtual Functions

(06 Periods)

Importance of virtual function, function call binding, virtual functions, implementing late binding, need for virtual functions, abstract base classes and pure virtual functions, virtual destructors

9. File and Streams

(06 Periods)

Components of a file, different operation of the file, communication in files, creation of file streams, stream classes, header files, updating of file, opening and closing a file, file pointers and their manipulations, functions manipulation of file pointers, detecting end-of-file.

LIST OF PRACTICALS

1. Programming exercises on control flow statements in C++
2. Programming exercises on arrays, strings, function and pointers in C++
3. Writing programs to construct classes and deriving objects
4. Writing programs for constructors, destructors, using public and private access specifics
5. Programming exercises on operator overloading, type conversions and inheritance
6. Programming exercises on functional overloading
7. Writing programs on stream computation.
8. Implementation of a mini project in C++
9. Introduction to latest ANSI C++ Compiler and elaboration of short comings of Turbo C++ Compiler

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Period allotted (Period)	Marks Allotted (%)
1	6	08
2	18	15
3	6	06
4	10	08
5	6	06
6	6	06
7	16	15
8	6	6
9	6	10
Total	80	80

LIST OF RECOMMENDED BOOKS

- 1) Mastering C++ by K.R Venugopal and Rajkumar, T. Ravishankar; Tata McGraw Hill Education Pvt Ltd , New Delhi.
- 2) Object Oriented Programming in C++, W/CD by Rajesh K. Shukla, Wiley-India Pvt. Ltd. Daryaganj, New Delhi.
- 3) Object Oriented Programming in C++ by E. Balaguruswamy, Tata McGraw Hill Education Pvt Ltd , New Delhi.
- 4) C++ by Robert Lafore, Galgotia Publications Pvt. Ltd., Daryaganj, New Delhi.
- 5) Object Oriented Programming and C++ by R Rajaram; New Age International (P) Ltd., Publishers, New Delhi.
- 6) Schaum's Outline of Programming with C++ by John R. Hubbard .
- 7) Object Oriented Programming Using C++ by Vipin Arora, Eagle Publication, Jalandhar.
- 8) Object Oriented Programming Using C++ by RS Salaria.
- 9) Object Oriented Programming by D Ravi Chandran Tata McGraw Hill.

L	T	P
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Subject Code : 172006**Rationale**

This subject will enable the diploma students to have awareness about software engineering, various matrices, planning about software, cost estimation, software design etc

DETAILED CONTENTS**Unit –1****(15 Periods)**

The system concepts, characteristics of a system, organization, interaction, inter dependence, integration, control objectives, Introduction system development life cycle (SLDC), Phases of SDLC, identification, Preliminary investigation/study, facts gathering and its techniques(Interviews, questionnaires, Background reading, onsite observation, record gathering etc), types of feasibility- operational, technical, economical, System analysis, System design (Data flow diagram, data dictionary), testing, implementation

Unit –2**(14 Periods)**

Introduction to Software Engineering , size factors. Quality and productivity factors. Management issues, Models: waterfall, spiral, prototyping, fourth generation techniques, software process.

Unit -3**(10 periods)**

Software Metrics Engineering: Size, function and design oriented metrics, Halstead software science, Planning : The development process, an organizational structure, other planning activities

Unit–4**(12 Periods)**

Software Cost Estimations: Cost factors, cost estimations techniques. Staffing level estimation, estimating software maintenance costs, COCOMO.

Unit–5**(14 Periods)**

Software Requirements Definition: Problem analysis, requirement engineering. The software requirements specifications (SRS), formal specifications techniques, characteristics of a good SRS

Unit-6**(15 Periods)**

Software Design and Implementation Issue: Fundamental design concept, design notations, design techniques, structured coding techniques, coding styles, documentation guidelines. Software Quality Assurance. Risk Management.

Unit-7**(16 Periods)**

Software Testing: Introduction of software testing, Importance of software testing and standardization, Testing process, Design of test cases, Functional Testing: Boundary value analysis, Equivalence class testing, Decision table testing, Cause effect graphing, Structural testing, Path testing, Data flow and mutation testing, Unit testing, Integration and system testing, Debugging, Alpha & beta testing, testing tools & standards.

SUGGESTED DISTRIBUTION OF MARKS

Unit No.	Period Allotted (Hrs)	Marks Allotted
1	15	13
2	14	15
3	10	10
4	12	10
5	14	10
6	15	10
7	16	12
Total	96	80

RECOMMENDED BOOKS

1. Software Engineering by Rajib Mall, PHI Publishers, New Delhi.
2. An Integrated Approach to Software Engineering by Pankaj Jalote, Narosa Publishing House Pvt. Ltd., Darya Ganj, New Delhi 110002.
3. Software Engineering, Sangeeta Sabharwal, New Age International, Delhi.
4. Software Engineering by K.K. Aggarwal and Yogesh Singh.
5. Software Engineering – A Practitioner's Approach by R.S. Pressman, Tata McGraw Hill Publishers, New Delhi.



LEARNING OUT COMES

PGDCA - 1ST Year

Sr.	Title of Subject/Unit	Learning Outcomes to be	Means of Assessment
1	Communication Skills & Business	Communicate effectively in both, spoken(oral) and written language in the business environment .	Assignments, Presentation on a given theme, Class test/mid terms, end term written examination and exercise in reading and writing sentences on a topic. Involvement in Group Discussion and mock interviews. Exercises leading to personality development.
2	Fundamentals of Computer	Identify and analyze computer hardware, software, and network components.	Assignments, class tests/Quiz after completing every unit, midterm , presentations and end term exams. Practical work based on computer software and basic operating system.
3	Office Applications	Efficient in performing and managing document related work using MS Office.	Assignment, tutorial, midterm/class test and Project based on basic Word processing, Spread sheet and Presentation Concepts.
4	Programming	Use of computers in solving problems more easily and effectively by using programming C.	Assignments on theory and programming exercises, Class test/ midterm/viva and end term written test. Practical/Project work on various problem solving concepts using C.
5	Internet&Web Designing	Have a Good grounding of Web Application Terminologies and designing of professional websites using HTML, DHTML and Dreamweaver.	Assignments, Class test/ midterm/viva and end term written test. Practical/Project work on creating web pages using HTML, DHTML and Dream weaver.
6	Operating Systems	Good working knowledge to work in DOS and windows environment.	Assignments, Class test/ midterm/viva and end term written test. Practical exercises involving various internal and external DOS commands and various LINUX/UNIX commands.
7	Implementation of Data Structure Using C	Ability to choose appropriate data structure as applied to specified problem definition.	Assignments, Class test/ midterm/viva and end term written test. Practical work on implementation of various data structures using arrays and pointers.

8	Desk Top Publishing-II	Knowledge of various printing technologies and tools including Photoshop, Page Maker and Corel Draw.	Assignments, Class test/ midterm/viva and end term written test. Practice of using various tools using Photoshop, Page Maker and Corel Draw in computer.
9	Database Management System with SQL	Knowledge of fundamental concepts of DBMS and its application in different areas	Assignments, Class test/ midterm/viva and end term written test. Working with queries in SQL.
10	Multimedia Systems	Provide knowledge and skills required to plan, design and implement multimedia systems and technologies	Assignments, Class test/ midterm/viva and end term written test and Presentation.
11	Object Oriented Concepts using C++	Basic object oriented design principles in computer problem solving & use of characteristics of an object oriented programming	Assignments, Class test/ midterm/viva and end term written test. Practical work on Object oriented concepts using C++.
12	Software Engineering	Ability to apply Software engineering principles and	Assignments, Class test/ midterm/viva and end term written test and presentation.