Computer Sciences
(Allied Required)

B.A. Computer Courses
Semester-I

SEMESTER –I		
CA-1101	**Course Name – Computer Fundamentals and Applications**	**Credits - 4**

Course Objective:

This course introduces students to understand the use of Microsoft tools like word and PowerPoint. And also working of computer with hardware components.

Course Outcome:

On the completion of the course students will be able to:

COCA1101.01: Understand the use of Microsoft tools.
COCA1101.02: Demonstrate use of features to make professional documents.
COCA1101.03: Demonstrate the use of mail merge.
COCA1101.04: Demonstrate that how to prepare presentation with animation and various effects.
COCA1101.05: Identify the hardware components of computer.
COCA1101.06: Understand working of computer system.

Unit	Unit Details	Hours
I	**INTRODUCTION TO COMPUTER** What is Computer? Overview of computer system. Development and type of computer. Characteristics of computer *(Speed, storage, Accuracy, Versatility, Diligence, Reliability, Memory Capability),* BASIC Applications of Computer systems *(Business, Scientific, Medical, Engineering, Educational etc.)* **Components of Computer System:** CPU, VDU, Keyboard, Mouse, Memory, etc. I-P-O Cycle *(Input-Process-Output),* Concept of Hardware and Softwares *(Application and System)*, Classifications of Computers *(PCs, Laptop, Mobile, PDA Digital Diary)* **Input / Output Devices *(peripheral devices)*:-,** Keyboard, Mouse, MICR, OCR, Scanner, Joystick, Bar-code Reader, Plotter, VDU, Printers *(Impact: Line, Dot Matrix. Non-Impact: Ink-Jet, Laser, Multi Functional Device 5 in 1)* Secondary Storage Devices:- Floppy Disk, Hard Disk, Compact Disk, Magnetic Cartridge, Zip Drive, USB Backup, CD-ROM*(CD, VCD, DVD)*, CD-Writer, Thumb Drive. Storage Units *(Bits and Bytes, KB, MB, GB, TB)* Introduction to Software and Computer Languages	10
II	**WORD PROCESSOR - 1** **WORD PROCESSOR BASICS** Introduction, Basic concept & Objectives of WP. Starting of Word processor. Opening/ Closing/ Savings/ Protecting Document. **TYPING AND EDITING** Introduction & Objectives, Action with mouse and through keyboard, selecting text, typing and revising text: Editing Text, Copying and Moving Text (Cut, Paste, *Copy, Move),* Typing Special Characters *(Symbols).* **Features:** Introduction to Word Processing, Screen, Creating, Saving, Importing, Exporting and Inserting files, Formatting Paragraph, Indents and Outdents, Styles, Font formatting, Editing, Selecting, Deleting Text, Using Tabs and Tables, Inserting Page Break, Page Numbers, Objects, Pictures, Book Mark, Symbols and Dates, Headers, Footers, Footnotes and Endnotes, Working with Columns, Pictures, Chart and Graph, Use of mail merge, Word Art, Drawing Toolbar, Creating Macro, Additional Features: Changing the CASE of Text, Creating Bullets & Numbered lists.	10

III	**WORD PROCESSOR – 2**	10
	FORMATTING TEXT	
	Introduction and Objectives of Document and Templates.	
	Font Formatting: Changing Font Type, Size and style, color, underline, other special effects. , Formatting Paragraph: Centered, Right, Justified and Left Alignment, Indenting Text, Tab Stops, Line Spacing, Paragraph Spacing, Borders and Shading., Finding and Replacing: Finding and Replacing Text, Using the Go To Command Using the Spell Check, Grammar and Thesaurus.	
	PAGE DESIGN AND LAYOUT	
	Introduction, Objectives.	
	Page Setup: Paper Size and Orientation, Margins, Headers and Footers, Line Numbering, Tables: Table Creation, Modification, Formatting, Sorting & Numbering Cells, Special Tasks with Tables.	
	OBJECT LINKING AND EMBEDDING	
	Introduction, Objectives, Inserting Objects from other Applications i.e. Clip Art, Spreadsheet.	
	MAIL MERGE	
	Introduction, Objectives, Data Sources & Main documents, Creating merged documents, Merging using ask variable, Starting & Editing the Main document, Printing, Creating merged Envelopes & Labels.	
IV	**PRESENTATION PACKAGE**	10
	Introduction and Basic concepts, Objectives, Types of Business Graphics. How to make an effective presentation. Physical aspects of presentation.	
	INTRODUCING PRESENTATION PACKAGE	
	Introduction, Objective, Presentation Package Views, Starting and Quitting Presentation Package, The Presentation Package Window	
	CREATING A PRESENTATION	
	Introduction, Objectives, Creating / Opening a Presentation, Creating Tables, Making Organization Charts, Save and Close a Presentation, Add a New Slide, Change Slide Layout	
	CUSTOMIZING THE SLIDE SHOW	
	Introduction, Objectives, Create a Blank Presentation, Working with Text, Changing fonts size and color of text, Working with Graphic tools, Align Objects, Group or Ungroup the objects, Slide Show.Working with Master document, different views, Working with Action Buttons.	

Text Book:

Reference Books:
1. Computer Application I, Vimal Pandya, HK Arts College Publications, Ahmedabad. [Gujarati Book]
2. Hand Book – Computer fundamental, Windows, Ms-word, Ms-excel and Ms-power point, Dr. G.N. Jani, Vimal N. Pandya Akshar Publications, Ahmedabad [Gujarati Book]
3. Ms-Office 2000 for everyone by Sanjay Saxena (Vikas Publication House Pvt. Ltd.)

SEMESTER –I		
CA-1102	**Course Name :OS & BUSINESS DATA PROCESSING**	**Credits - 4**

Course Objective:
- To develop skill of computer operations using Windows Operating System and application packages for Office Automation.
- Introduction to Worksheet, Rows, Columns, Cells, and Screen of Worksheet, Work Book, Advantages of Work sheet and how it is useful in Business. Creating, Saving, Importing, Exporting new worksheet, Deleting, and Protecting, Worksheet, Entering Text, Numbers and Formula, Relative and Absolute Referencing, Editing, Deleting, Copying, Moving a data and Formula, Create a custom list, Range names, Search and replace data, Re-arrange cell contents, Inserting, deleting row(s) and column(s), Inserting page break.

Course Outcome:

On the completion of the course students will be able to:

COCA1102.01: Acquire the basic understanding of the Operating system, its types and basics of windows.

COCA1102.02: Acquire the basic understanding of the Linux Operating system.

COCA1102.03: Develop the ability to work with data, filter the data based on condition, format the data.

COCA1102.04: Understand the importance of various functions and create variable reports and charts

COCA1102.05: Implement the functions to solve financial problems and also understand the basics about printing operations.

Unit	Unit Details	Hours

I	➢ **INTRODUCTION TO OPERATING SYSTEM**
	• Overview of different Operating Systems (i.e. WINDOWS, LINUX, UNIX)
	• INTRODUCTION TO WINDOWS
	   ▪ The user interface, Icons, Use of Mouse Moving and Arranging Icons on Screen
	   ▪ Desktop: My Computer, My Documents, Recycle Bin, Browser.
	   ▪ Windows Explorer : Viewing of Files, Folders and its concern operations (Open, Copy, Move, Rename, Delete, Cut, Paste, Create Shortcut, Properties, Print), Searching for Files/Folders
	   ▪ Windows Control Panel: Mouse, Fonts, Date/Time, Display, Printer
	   ▪ Windows Accessories: Notepad, Word Pad, Paint Brush, Calculator
		10

II	➢ **INTRODUCTION TO LINUX** • Features of Linux Operating System • Components of Linux: GUI -> Gnome, KDE • Types of Shells [Only Name] • Command: cp, mv, cat, mkdir, cd, rmdir, passwd, date, time, who, whoami, head, tail, wc, Sort, grep • Online Communication & advanced commands: write, host, ping, telnet, ftp • Editor: vi editor [Introduction: inserting character / word, deleting, modifying, saving, searching, exit]	10
III	➢ **SPREADSHEET -1** • INTRODUCTION TO WORKSHEET: ▪ Introduction to Worksheet :Rows, Columns, Cells, and Screen of Worksheet, Work Book, Advantages of Work sheet and how it is useful in Business.	10

	▪ Creating, Saving, Importing, Exporting new worksheet, Deleting, and Protecting, Worksheet, Entering Text, Numbers and Formula ▪ Relative and Absolute Referencing, Editing, Deleting, Copying, Moving a data and Formula, Create a custom list, Range names, Search and replace data, Re-arrange cell contents, Inserting, deleting row(s) and column(s), Inserting page break. • GETTING STARTED WITH SPREADSHEET: ▪ Getting started with SPREADSHEET: Basic concepts, creating /Opening, Finding a Workbook, Inserting, Deleting, Moving, Saving, Quitting Worksheet. • ENTERING AND EDITING DATA: ▪ Range Names, Navigate Worksheet, Search and Replace Data, Inserting or Deleting Rows & Columns, Save and Protect Workbook. ▪ Adding, Deleting, Moving, Copying Cell Contents, Calculations. • FORMATTING WORKSHEET: ▪ Objectives, Page Set-up, Column Width and Row Height: Using Menu Commands, Using Mouse, Fonts, Alignments, Getting Worksheet Printed, AutoCorrect, AutoSum	

IV	➢ **SPREADSHEET -2**
	• CALCULATIONS IN WORKSHEET:
	▪ Objectives, Basic Properties of a Formula, Order of Precedence of Operators. Entering, Editing a Formula.
	▪ Types of Functions:
	   o Statistical Functions:
	     ✓ AVG(), MIN(), MAX(), COUNT()
	   o Mathematical Functions:
	     ✓ ROUND(), ABS(), FACT(), INT(),SQRT()
	   o Financial Functions:
	     ✓ PMT(),PV()
	   o Logical Function:
	     ✓ IF() & Nested IF()
	   o Date Function:
	     ✓ DATE(), DAY(),DATEVALUE(), MONTH(), NOW(), YEAR(), WEEKDAY()
	   o String Functions:
	     ✓ LEFT(),CONCATENATE(), RIGHT(), LOWER(), UPPER(), EXACT(), FIND() SUBSTITUTE().
	▪ PRINTING WORKSHEET DATA:
	   o Printing Features:
	     ✓ Print Preview, Page setup, Page, Margin, Header /footer Tab.
		10

Text Book:

1. Computer Application I, Vimal Pandya, HK Arts College Publications, Ahmedabad.
2. Hand Book – Computer fundamental, Windows, Ms-word, Ms-excel and Ms-power point, Dr. G.N. Jani, Vimal N. Pandya Akshar Publications, Ahmedabad
   Ms-Office 2000 for everyone by Sanjay Saxena (Vikas Publication House Pvt. Ltd.)
3 Successful Project in Excel, BPB Publications
4 Microsoft Excel functions & formula, BPB Publications

Reference Books:
1. Microsoft Office 2003 The Complete Reference by Curt Simmons, Guy Hart-Davis, Jennifer Kettell, Jennifer Kettell
2. MS Excel Tutor, BPB Publications

	SEMESTER –I	
CA-1201	**Course Name – Internet Technology, Terminology & HTML**	**Credits - 4**

Course Objective:

This course introduces students to understand the concept, to get the detail knowledge Internet , Protocols and HTML

Course Outcome:

On the completion of the course students will be able to:

COCA1201.01: Understand the concepts of markup language.

COCA1201.02: Acquire a basic understanding of the HTML

COCA1201.03: To describe the basic fundamentals of web desiging with HTML

COCA1201.04: To describe and demonstrate the basic fundamentals of HTML tags.

COCA1201.05: To describe the working with HTML tags to create web pages and website

Unit	Unit Details	Hours
I	**Introduction to Internet** Definition of Internet & Intranet. Internet Technology and Protocols : TCP/IP, SMTP, POP3 Usages of Internet through applications Technology Components: Switch, Router, Gateway, Bridge Internet Connectivity: Broad Band, Lease line, Data Card, Wireless, Satellite Function of Internet Service Provider	10
II	**Internet Tools and Multimedia** Current Trends of Internet, what is WWW, URL, FTP, Telnet, HTTP Web Browser, Web Server [IIS – Internet Information Server], Web Client. Usages of Search Engines: Google, Yahoo, AltaVista, Lycos etc. How to use E-mail [Creation of Account, Configuration], Introduction to Social Networking: Face book, Orkut.	10
III	**HTML - Introduction and Categories** History of HTML, HTML Generations, HTML Documents, Anchor Tag, Hyper Links, Head and Body Sections, Header Section, Title, Prologue, Links, Colorful Web, Page, Comment Line, Designing the Body Section, Heading Printing, Aligning the Headings, Horizontal Rule, Paragraph, Tab Settings, Images and Pictures, Embedding PNG Formatted Images Table Handling: Tables, Table Creation in HTML, Width of the Table and Cells, Coloring Cells, Column Specification	10
IV	**HTML – Forms** HTML – Frames, Style Sheets, Adding Pictures and Image Attributes, URL Anatomy	10

Text Book:

1.

Reference Books:

1. Computer Application – II, Vimal Pandya, HK Arts College Publication, Ahmedabad [Gujarati Book]
2. Introduction to Ms -Access , HTML, Networking and Internet , Dr. Gnaanesh N. Jani , Akshar Publications, Ahmedabad [Gujarati Book]

3. Internet Technology and Web Design –ISRD Group
4. World Wide Web design with HTML – C Xavier
5. Computer Fundamentals and Information Technology – By Bharat & Co.
6. Computer Fundamentals – By P.K.Sinha
7. Fundamental of IT for BCA – By S.Jaiswal
8. Internet The Complete Reference - By Young

B.A. Computer Courses
Semester-II

SEMESTER –II		
CA-2101	**Course Name: Data Base Management Systems**	**Credits – 4**

Course Objective:
- Learn database tool for designing and creating elements of a database table
- Understand how to display records (data) based on criteria using SQL
- Build Forms and Reports for data entry and view using standard layout

Course Outcome:

On the completion of the course students will be able to:
- Understand the concepts of Database at primary level for storing, retrieving and manipulating data using navigation facility and SQL
- Explore more for entering, organizing and displaying result using FORMS and REPORTS.

Unit	Unit Details	Hours
I	**Introduction to DBMS:** Introduction DBMS Concepts, DATA PROCESSING – AN IMPORTANT ASPECT OF ANY BUSINESS, Data and Information, Data / Information Processing and Databases, Data – Types and Properties, Data Types, Data Representation, Data Size, Relationship, Data Organization and Grouping: Character, Field, Record, File, Database, Objectives of DBMS, Components of DBMS, Types Of Databases	10
II	Introduction to DBMS Package (Microsoft Access): Introduction of Microsoft Access database, Creating a database (Using Wizard, & Design) and Objects, Fields and data types, Creating a table, Field properties, Save and close a table, Add and save records, Edit records and close a table, Modify fields in a table, Modify columns and rows in data sheet, Validation rule to a field and its properties	10
III	Data Manipulations in DBMS Through SOL: Introduction of SQL, Creating, Modifying and Saving a Query, Insertion of data into a Table (INSERT), Modify the Contents of a Table (UPDATE), Display Records from a table (SELECT), Remove records from a table (DELETE), Ordering and filtering records of a Table, Use of Relational (Comparison), Operators (,<=,>=,#,<>) and Logical Operators(AND, OR, NOT) in query, Use of aggregate (Group) Functions: (AVG, COUNT, MAX, MIN, SUM), Character Functions: (LCASE, UCASE, LEN, STR, MID, LEFT, RIGHT), Date Functions: (DATE, HOUR, DAY, MONTH, YEAR)	10
IV	Creating And Customizing Forms And Reports: Introduction of Form, Creation with Form Wizard, View, Add, Delete and Save records, Save and Close a Form, Change Form Design, Select, Resize, Move and Delete controls, Change Fonts, Size and Color of Text, Showing data from more than one table, Introduction of Report, Create a report, Preview, print and save a report, Report in design view Types of Reports and Forms	10

Text Book:
(i) Microsoft Access 2010: Step by Step by Lambert & Cox, PHI
(ii) Computer Application IV, Vimal Pandya, HK Arts College Publications, Ahmedabad.[Gujarati Book]
(iii) Introduction to MS -Access, Dr. Gnaanesh N. Jani , Akshar Publications, Ahmedabad [Gujarati Book]

Reference Books:

(i)   Microsoft Database Management System, Seema Kedar, Technical Publications
(ii)   Database Management System, Gerald V Post, Tata McGraw Hill
(iii)   The Essence of Database, F. D. Rolland, Pearson
(iv)   Database Management System, Dr. Vimal Pandya, Nirav Prakashan

SEMESTER –II		
CA-2102	**Course Name: Networking and HTML**	**Credits - 4**

Course Objective: This course shall introduce students to understand the various uses and benefits of Network and explore the basic HTML tags for designing and developing Web Pages.

Course Outcome:

On the completion of the course students will be able to:

i.   Get familiar about basic networking terminology widely used in the market for building small computer network

ii.   To familiarize with the different basic html tags and list operations.

iii.   Design and develop web pages using HTML tags and its attributes

Unit	Unit Details	Hours
I	Introduction of Networking Concepts, Advantages and Usages of Computer Networking, Characteristics of Networking, Networking components – Cables, NIC [Network Interface Card - Ethernet Card], Repeater, Bridge, Hub, Switch Router, Access point, Types of Networking - Wired Network : LAN, MAN, WAN, Wi-Fi Network [Names & Definition], Networking Topologies and their advantages / disadvantages - Bus, Ring, Star, Mesh, Tree, Concepts of Servers, Client [Work station], Protocols – TCP / IP, SMTP, Pop3, ICMP [Definition & full form]	10
II	Web browser, Text Editor, File types (Jpg, Png, Tif, BMP, etc.) , Introduction to HTML, HTML document structure, HTML Tags - Adding text in newline (</BR>), Formatting Of text (<B>, <U>,<I>), Creating heading (to), Creating a paragraph(<P>--</P>), Creating a horizontal ruler (<HR>--</HR>), Sub Script, SuperScript, Text, Scrolling text<marquee>---</marquee>), Working with Character entity / Special character, Comment and Center tag, Font tag and body background Attributes	10
III	Working with list - Order list (ol), Unordered list (ul), Definition list (dl), Working with table - Creating table, Specifying caption, Table headings, All table related Tags & attributes (Row Span, Col Span), Working with Images - <img>---</img> & all its Attributes, Working with Links - anchor tag with its entire attribute, HTML e-mail, Text, Image links	10
IV	Working with Frames - ---- & all attribute of Tag (including target attribute), Working with multimedia: Sound & Video, HTML Embed Multimedia - Movie, Music	10

Text Book:

 HTML:A Beginner's Guide; Wendy Willard; Mc Graw Hill

Reference Books:

(i)   Head first HTML with CSS and XHTML; Elisabeth Freeman, Eric Freeman, O'Reilly

(ii)   Building Your Own Website The Right Way using HTML & CSS, Ian Lloyd, Sitepoint

(iii)   Introduction to Networking & Webpage Developing Using HTML, Dr. Vimal Pandya, Nirav Prakashan

SEMESTER –II		
CA- 2201	**Course Name: MULTIMEDIA & FRONTPAGE**	**Credits - 2**

Course Objective:

- To know how to surfing internet, collect data, how to gathered information, how to send information
- Web page designing and developing using Web Page Editor.

Course Outcome:

On the completion of the course students will be able to:

- Now student is aware with web designing, How to create animation, how to create webpage/website easy. How to insert/modify/delete image, text data using tools.
- Student can connect with the digital and printing world.

Unit	Unit Details	Hours
I	What is multimedia? Definitions of multimedia Requirement of multimedia Software, Utilities, tools Features and Advantages of Multimedia Types of Multimedia [Text, Audio, Video, Image, Graphics, Animation] Types of Graphics [Raster, Vector] Image Editing [2D, 3D effects]	8
II	Introduction to Front Page: Screen Layout, Creating, Saving, Importing, Exporting and Inserting files, Formatting Paragraph, Indents and Out dents, Styles, Font formatting, Editing, Selecting, Deleting Text, Using Tabs and Tables, Inserting Page Break, Page Numbers, Objects, Pictures, Book Mark, Symbols and Dates, Headers, Footers, Footnotes and Endnotes, Working with Columns, Pictures, Chart and Graph, Word Art, Drawing Toolbar, etc.	8
III	Introduction, Objectives, Document Templates. Font Formatting: Changing Font Type, Size and style, color, underline, other special effects. Formatting Paragraph: Centered, Right, Justified and Left Alignment, Indenting Text, Tab Stops, Line Spacing, Paragraph Spacing, Borders and Shading. Finding and Replacing: Finding and Replacing Text, Using the Go To Command Using the Spell Check, Grammar and Thesaurus.	7
IV	Introduction, Objectives. Page Setup: Paper Size and Orientation, Margins, Headers and Footers, Line Numbering. Tables: Table Creation, Modification, Formatting, Sorting & Numbering Cells, Special Tasks with Tables. Special Effect : Dynamic Web Templates, Data view etc.	7

Reference Books:
1. Computer Application – IV, Vimal Pandya, HK Arts College Publication, Ahmedabad [Gujarati Book]
2. Successful projects in frontpage, BPB Publication, Heathcote Author.

List of Practicals (Sample Guide line):

1. Special Effect Tags

2. Learn to use BR, HR, CENTER, UNDERLINE, BOLD, H1 – H6 TAGS

3. Mouse Over Effect

4. Sweeping Effect

5. List Tag
6. Create Hyper Link
7. Insert Picture Clip in web page
8. Create Table
9. Create Website regarding Education (Home Page)

B.A. Computer Courses
Semester-III

SEMESTER –III		
CA-3101	**Course Name: Introduction to Cyber Security and Multimedia**	**Credits – 4**

Course Objective:

-
- Understand the importance of Cyber Security and learn staying safe online
- Explore the Photoshop interface and use several tools for images as well
- Selecting parts of images. Students will learn to use layers, layer effects and
- Filters to create special effects. Additionally, they will use painting tools and
- Blending modes to create shading effects and finally to save images in print and web formats

Course Outcome:

On the completion of the course students will be able to:

- Student will get awareness about cyber security and would become smart online, understanding the importance of data privacy and protecting data. They would have explored the features of Multimedia software – Photoshop by creating Brochures, Information Bulleting, Advertisement, Pamphlets designed for the Web as well.

Unit	Unit Details	Hours
I	**Introduction to Cyber Crimes:** Introduction to Cyberspace, Definition of Netizen, Survey of Malware and its existence, Definition of Security hole, Security Patch, Viruses, Worms, Trojan Horses, Bot Networks, Social Engineering, Avoiding Malwares, Spyware, Adware, Keyboard Loggers, Rogue Software and Scareware, Ransomeware, Black Hat Search Engine Optimization, Current and Fulltime Threats, Hackers, Hacker's tools, E-Mail and SPAM, Spoofing, Spammer's tools, SPIM	10
II	**Other Cyber Intrusions and Security:** Cyberbullies, Online Reputation Attacks, Reputation Management, Protecting from Cyberbullies, Phishing, Recognizing Phishing trip, Protection from Phisher's hook up, Online Shopping Basics, Hijackers, Ensuring Safe Shopping, Security Tokens, Cookies, Making cookies work for you, tips for staying Safe and Social, Meeting People Online, Liars, Creeps, Cyberstalkers, Protecting yourself from creeps, Internet Monitoring	10
III	**Multimedia and its tool :** Photoshop Definition, Uses of Multimedia, Software & Hardware Requirement for multimedia. Photoshop: Introduction and basic concepts of Photoshop, Interface (Application Bar, Option Bar, Document Window, Panels and Tools Panel), Screen Modes, Opening existing image also using Adobe Bridge, Selecting Workspace, Creating new Workspace, Deleting Workspace, Bitmap and Vector images, Image Resolution, Editing Image: Rotating, Straightening, Cropping, Adjusting Canvas, Duplicating an image, Selection Tools: Transforming, Drag and Drop, Painting Tool: Gradient Tool, Brush Tool: Creating custom brush tool, Setting brush options, Hardness, Spacing, Angle and Roundness, Retouching: Patch tool, Rubber Stamp, Dodge tool, Blur tool, Sharpen tool, Smudge tool, Burn tool, Layers: Editing layers, Opacity and Blend modes, Adjustment Layers, Inserting and editing image into layer, Reusing layers, Removing layers, Saving layer styles	10

IV	**Extended Use of Photoshop:** Using Channel and Mask : Using the Channels Palette, Select a channel, show/hide channel, Alpha channels, Using Type : Outline Type, Bitmap Type, Creating Type, Entering Text, font family, type size, anti-aliasing, Using Filters : Edge effects, glass surface controls, Lighting Effects Filter/Type/Style., Eye Candy : For creating great effects, Color Modes : Color management system and color management module, Saving and Exporting : To save a file, load, saving file in different format [like JPEG, GIF, PDF, TIFF], Delegation of Output Targets, Understanding Half-toned Cell, Resolution Factor, Printing, device profiles, workflow, etc., Introduction to work with Images for Web.		10

Text Book:
(i) E-Book - Own Your Space, Linda McCarthy, Denise Weldon – Siviy, Page Press, Compliments of Microsoft
(ii) Photoshop CS5 in Simple Steps by Kognet, Dreamtech Press
(iii) Internet Technology and Web Design, ISRD Group, Tata McGraw Hill

Reference Books:
(i) Cyber Security by Godbole, Wiley India
(ii) Computer Security by Gollman Wiley India
(iii) Web Designing and Computer Application – IV, Vimal Pandya, H. K. Arts College, Ahmedabad
(iv) Flash web design - the art of motion graphics, BPB Publication
(v) Web Designing, Computer Jagat Publications
(vi) Multimedia, Computer Jagat Publications
(vii) Adobe Photoshop CS5 Bible, Dayley Dayley, Wiley India
(viii) Multimedia in Practice by Jeffcoate Wiley India

SEMESTER –III		
CA-3102	**Course Name: Open Source and Multimedia**	**Credits – 4**

Course Objective:
- Develop skill of computer operations using Fedora Linux Operating System and its application packages for Office Automation
- Explore multimedia Software Flash Package and its tool to design Brochure, Animated Document, Movie, Video clips etc.

Course Outcome:
On the completion of the course students will be able to:
- Students would be able to create an advertisement to promote the products online also get aware to create websites with animated graphics. Intensive interfaces.

Unit	Unit Details	Hours
I	**OPEN SOURCE SOFTWARE:** Introduction to Concept Of Open Source, Introducing Linux, Exploring Features Of Linux, Overview of Linux Distributions: Ubuntu, Debian, Gentoo, Knoppix, Suse And Opensuse, Yellow Dog Linux, Slackware, Mandrive, Freespire And Xandros, Fedora, Introducing The Fedora Desktop, K Desktop Environment, Gnome Desktop Environment, Working With Files And Directories: Introduction To Linux File And Directory Structure, Basic Linux Commands, Creating, Copying, Removing Files, Linux File Permission, Creating, Removing Directory, Applying Permission On Directories, Working With Storage Media, Working With Applications: Opening, Creating, Saving, Closing Document, Modifying An Existing Document, Add / Remove Software Application, Opening PDF file using Adobe Acrobat, Working with Music and Video, Creating, Selecting and Modifying Objects using Draw, Changing Outline and Fill properties of an Object, Modifying, Rotating and Aligning an Objects, Working with Slides: Inserting new Slides, Adding Text in a Slide, Changing the Text properties, Switching between Slides, Grouping Objects, Moving a Group, Merging and Combining Objects, Saving the Draw document	10
II	**OPEN OFFIC SUITE:** Overview of Internet and Linux – based Mozilla Firefox, Features of Mozilla Firefox, Interface of Mozilla Firefox, Browsing the Internet with Mozilla Firefox, Setting Preferences in Mozilla Firefox, Viewing the History of visited Websites, use of Search Engine, Creating Blog, Introducing and working with E-Mail and Chat, Quitting Mozilla Firefox, Introduction to Open Office Suite, Exploring an Interface of OpenOffice.org Writer, Working with Document: Saving, Closing, Editing Documents in Writer: Find and replace feature, Auto Correct, Word Completion features, Spelling and Grammar Checker, Hyperlinks, Merging Documents, Saving Changes to a document, Formatting the Document: Page Margins, Header and Footers, Tables, Formatting Text in the Document, Working with Graphics, Templates, Printing the Document, Exploring an Interface of OpenOffice.org Impress, Inserting New Slides and text in Slide, Saving the presentation, Opening an existing presentation, Formatting Text, Text Effects, Inserting Objects in a Slide, Applying the Slide Animation Effect, Slide Transition Effect, Moving and Deleting Slides, Running a Slide Show, Printing the Presentation	10

III	**Introduction to FLASH:** Overview of FLASH, FLASH environment, Creating new FLASH document, User interface of FLASH, FLASH workspace, Menu bar, Time line, Property Panel, Motion Editor Panel, Saving files: As uncompressed XML – based format, As Template, Drawing Modes in FLASH, Drawing tools: Stage and Pasteboard, Oval, Rectangle and Polystar, Line tool and it's Properties, Pencil tool and it's Properties, Pen Tool, Brush tool, Lock skill, Align tool, Eraser tool, Adding Color, Stroke, Fill, Bucket tool, Dropper tool, Gap Controls, Transform, Magnifier tool, Hand Tool, Zoom Control, Selection tools: Lasso tool, Magic wand, Arrow tool, Original Fill, Snap, Straighten, Rotate.	10
IV	**Text, Gradients, Symbols, Animation, Tweening, Buttons :** Text Tools : Expanding Textbox, Font, Font size, Font Color Effect,Alignment, Paragraph, Text field, Modifying Text, Gradients: Custom, Linear, Radial, Creating a Static Symbol, Tint, Alpha, Brightness, Editing Symbols, Animation Techniques : Basics of Animation, Introduction to key Frames and Tweens, Types of Frames, Motion, Layer, Skinning, Controller, Shadow, Motion Tweening, Tween Scaling, Rotate, Easing, Creating Shape, Multiple Layers, Buttons : Button Timeline, Up State, Over State, Down State, Introduction to Movie Clip, Actions	10

Text Book:
(i) Linux and OpenOffice Course Kit, Vikas Gupta, Dreamtech Press
(ii) Flash – 3rd Edition, Michael Lennox, Techmedia
(iii) FLASH CS5 in Simple Steps by Kognet, Dreamtech Press
(iv) Computer Application – IV, Vimal Pandya, HK Arts College Publishers, Ahmedabad [Gujarati Book]

Reference Books:
(i) Flash web design-the art of motion graphics, BPB Publication
(ii) Web Designing, Computer Jagat Publications
(iii) Multimedia, Computer Jagat Publications

B.A. Computer Courses
Semester-IV

SEMESTER –IV		
CA- 4101	**Course Name: DTP Application & Internet Technologies**	**Credits - 4**

Course Objective:
- To make students aware to use Google products for instant messaging, sharing documents and data and calendar of activities in group using standard formats.
- Students are qualify to design and develop publishing / printing media concepts.

Course Outcome:

On the completion of the course students will be able to:
- Understand the practical approach of the DTP Software and manage to implement the exercises using PageMaker tools.
- Design and create various media publications such as Newsletters, Brochures and Catalogs including Web publishing.
- Would be able to use Google Applications and obtain basic understanding about internet and it's applications.

Unit	Unit Details	Hours
I	History of Internet, Internet services, Intranet, Internet Vs Intranet, Governance on Internet, Internet Technology and Protocol - OSI Reference model, TCP/IP Protocol, Network protocols, Network components – switches, routers, gateways, Types of Internet connectivity & ISP. Internet Tools and Multimedia, WWW, Evolution of Web, Elements of WWW, Web browsers, Search engine, search criteria, E-mail – concepts, structure, protocols, addresses, security & netiquettes.	15
II	Introduction: *Computing in the Cloud,* Getting Started with Google Apps : *Choosing an Edition of Google Apps, Setting Up Google Apps, Migrating Email to Google Apps, Migrating Contacts to Google Apps, Migrating Calendars to Google Apps, Managing Google Apps Services,* Gmail : *Setting Up Gmail, Things to Know About Using Gmail, Integrating Gmail with Other Software and Services, Integrating Google Contacts with Other Software and Services,* Google Calendar: *Setting Up Google Calendar, Things to Know About Using Google Calendar, Integrating Google Calendar with Other Software,* Google Docs: *Things to Know About Using Google Docs, Integrating Google Docs with Other Software and Services* Google Sites: *Setting Up Google Sites, Things to Know About Using Google Sites.*The Other Services: *Things to Know About Using Google Talk, Things to Know About Using Start Page, Things to Know About Using Message Security and Recovery, Things to Know About Using Google Video.*	15
III	Introduction to DTP, Choosing Hardware requirements for DTP, Choosing Printing House, Choosing Paper quality, Choosing Right Colors, Fonts, Beginning design and general design considerations, Text Organization, Design common Media Publications, Introduction to PageMaker, Working with Publication: Opening, Working with Document, Drawing Tool, Text Tool, Importing and Editing Graphics, Object Linking and Embedding: Setting up and Embedding an OLE object, Text Wrap, Transformation	15

IV	Master Pages, Utilities, Working with Text and Tables, Story Editor, Working with Frames, Working with Layers, Long Document Features, PageMaker Styles and Templates, Links Management, Hyperlinks and HTML, PageMaker's HTML Tools, Hyperlink Tools, Graphics in HTML, Exporting Documents to HTML	15

Reference Books:
1. Internet Technology and Web Design, ISRD Group, TMH Publication
2. Internet and Web Design, Doeacc "O" Level, Firewall Media.
3. Google Apps, Scott Granneman, Pearson Education
4. PageMaker 7 : Trainging Guide, Satish Jain, BPB Publication

Reference Books:
1. Google-The Missing Manual, Sarah Milstein, J.D. Biersdorfer, Matthew Macdonald, Pearson Education

List of Practicals (Sample Guide line):
1. Advertisement (Newspaper)
2. Visiting Card / Business Card
3. Phamphlates / Handbill
4. Letter Head
5. Inquiry Form
6. Banner
7. Brochures
8. 4 page booklet [different types effect : font, font style, bold, italic, underline etc.]

SEMESTER – IV		
CA-4102	**CMS for Website Development**	**Credits-3**

Course Objective:
1)Understand the self – hosted CMS tool ƒ
2)Learn to manage contents and setup a blog on WordPress

Course Outcome:
- Understand and use the open source Content manager - WordPress blogging platform
- Install, setup and customize the WordPress and manage the contents and blogs using WordPress

Unit	Unit Details	Hours
I	**Introduction to CMS:** Introduction to Content Management Systems, Main Features of CMS: Web Content Management System, Component Content Management System, Enterprise Content Management System, Introduction of Blogs.	10
II	**Introduction to WordPress:** Introduction to WordPress, Setting up WordPress, Setting Up Database, Installing WordPress, Overview of Working of WordPress, Dashboard, Exporting and Importing of Site Content, Backup of Site data and files, Upgrading WordPress, Settings: *General, Writing, Reading, Discussion, Media, Privacy, Permalinks*, Configuring and Managing Accounts, Adding Content : *Post, Pages*, Setup and use of Categories, Tags, Internal Linking	10
III	**Advance Features for WordPress:** Working with media : *using Media Library, Audio and Video Files*, Managing Comments, Fighting Spam with Akismet, Syndication : *Setup and Display of RSS Feed, Setup of Subscriptions, use of Google FeedBurner with WordPress*, Widgets and Plug-ins : *Use of Widgets and Plug – ins,* *Differences, Upgrade of Plug – ins*	10
IV	**Customization with WordPress:** Introduction to WordPress Themes, Customized WordPress Theme : *Default Theme, New Theme, Theme Editor, Set up of Menus, Post Frames*, Getting Fancy with Themes : *Customization of Themes with CSS, addition of Favicon, Editing Function file*, Advanced Theme Development : *Anatomy of WordPress theme, Building new Theme, Template Files, Template Tags, Use of Loop*, Custom Post Types and Custom Taxonomies, One Installation and Multiple blogs: *Setup and Administration of Blog Network*, Customization of WordPress : *Integration of Third Party Services, ThirdParty Comment System, AD Integration, Web Fonts* , Tools and Tricks	10

Text Book:

Visual Quick Start Guide – WordPress, Jessica Neuman Beck, Matt Beck, Pearson Publication

Reference Books:

WordPress for Dummies, Lisa Sabin – Wilson, Wiley Publication

B.Sc. Computer Courses
Semester-I

SEMESTER –I		
CA-1501	**Course Name – Problem Solving & C Programming**	**Credits - 4**

Course Objective:

This course introduces students to understand the concept, to get the detail knowledge of C programming language.

Course Outcome:

On the completion of the course students will be able to:

COCA1501.01: Understand the concepts of Algorithm Development, Flow Chart and introduction to programming languages and classification of computer language

COBC1502.02: Acquire a basic understanding of the C Language

COCA1501.03: To describe the basic fundamentals of Console based I/O and related built- in I/O function

COCA1501.04: To describe and demonstrate the basic fundamentals of C language operators and decision making

COCA1501.05: To describe the working with control structure

COCA1501.06: To describe and demonstrate the working with array

COCA1501.07: To understand the use and demonstrate of Character Arrays and Strings

Unit	Unit Details	Hours
I	**Fundamentals of Programming Techniques:** **Tools and Techniques of Problem Analysis:** Algorithm Development and Flow Chart - Examples in Algorithm Development and Flow Chart **Introduction to Programming Languages:** Introduction to Machine level language, Assembly language, Higher level language, Limitations and Features - Classification of Computer Language - Procedural Language and Non Procedural Language. **Introduction of C Language:** History of C, Basic Structure of C, Executing C program - Character set & C Tokens - Identifiers & Keywords - Data Types - Storage Class - Constants and Variables - Type Casting - Comments	10
II	**C Language Operators and Decision Making:** **Console based I/O and related built-in I/O function:** Formatted functions :printf(), scanf() - Unformatted functions: getch(), getchar(), putchar(), getche, putch(), gets(), puts() - Concept of Header files and #include, #define **Operators & Expression:** Types of Operators and Expression, Precedence & Associativity - Decision Making Structure-If, If-else, Nested If-else, Switch	10
III	**Control Structure & Array:** **Loop Control Structure:** While, Do-While, For, Nested loop **Other Statements:** break, continue, goto, exit **Array:** One, Two-Dimensional Arrays - Initialization and working with Array - Introduction to Multidimensional Arrays.	10

IV	**String & Functions:**	10
	Character Arrays and Strings: Initialization and working with String - Comparing and String Handling functions.	
	User Defined Functions: Introduction of UDF - Elements of UDF - Categories of UDF: *No argument no return value - Arguments but no return value - No argument but returns a value - Arguments with return value* – Recursion - Nesting Function - Variable Scope - Visibility and lifetime in function -	

Text Book:

2. Programming in ANSI C. (6ᵗʰ Ed.) – Balaguruswami - Tata McGraw Hill Publication

Reference Books:

1. Programming In C (2ⁿᵈ Ed.) - Ashok N. Kamthane - Pearson Education
2. The C Programming Language - DENNIS M. RITCHIE- AT&T Bell Laboratories Murray Hill, New Jersey
3. Let us C – (15ᵗʰ Ed.) - Yashwant Kanetkar - BPB Publications
4. Programming in C - Reema Thareja - Oxford University Press

SEMESTER –I		
CA-1502L	**Course Name – C Programming Practical**	**Credits - 3**

Course Objective:

This course introduces students to understand the concept, to get the detail practical knowledge of C programming language which includes array and functions.

Course Outcome:

On the completion of the course students will be able to:

COCA1502L.01: Understand the concepts of Algorithm Development, Flow Chart and introduction to programming languages and classification of computer language

COCA1502L.02: Acquire a basic understanding of the C Language

COCA1502L.03: To describe the basic fundamentals of Console based I/O and related built-in I/O function

COCA1502L.04: To describe and demonstrate the basic fundamentals of C language operators and decision making

COCA1502L.05: To describe the working with control structure

COCA1502L.06: To describe and demonstrate the working with array

COCA1502L.07: To understand the use and demonstrate of Character Arrays and Strings

COCA1502L.08: To understand the use and demonstrate User Defined Functions

Unit	Unit Details	Hours
I	1. Find the Simple Interest. Inputs are principal amount, period in year and rate of interest. 2. Find the area and perimeter of square and rectangle. Input the side(s) through the keyboard. 3. Accept any three numbers and find their squares and cubes. 4. Write a program to enter the temperature in Fahrenheit and convert it to Celsius.[C = ((F-32)*5)/9] 5. Write a program to store and interchange two numbers in variables a and b. 6. Write a program to accept an integer and display it in octal and hexadecimal formats. 7. Write a program to enter two numbers and find the smallest out of them. Use conditional operator. 8. Write a program to find the average temperature of five sunny days. Assume the temperature in Celsius. 9. Write a program to enter text with gets() and display it using printf() statement also find the length of the text. 10. Write a program to enter a number and carry out modular division	10

	operation by 2, 3 and 4 and display the remainders.		
II	1. Write a program to check given year is a Leap year or not. 2. Write a C program to find minimum from given 3 numbers (Using Conditional Operator). 3. Write a C program to find the maximum from given three numbers (Using Nested IF). 4. Write a C program to find that the accepted no is Negative, Positive or Zero. 5. Write a C program to find the maximum from given three numbers (Without using Nested if, or Logical Operator, Or Conditional operators). 6. Take marks from the user and print grade accordingly(>=75 marks – Distinction, <75 and >=60 marks – First, <60 and >=50 – Second, <50 and >=35 – Pass, <35 – Fail) using if … else if….else statement and also by using logical operators). 7. Write a program to accept number of seconds and display its corresponding hours, minutes and seconds. 8. Take 2 numbers from the user and print the greater number (Number can be equal). 9. Write a program to check whether the blood donor is eligible or not for donating blood. The conditions laid down are as under. Use if statement.a) Age should be above 18 yrs but not more than 55 yrs. 10. Write a program to calculate bill of a job work done as follows.Use if else statement.a) Rate of typing 3 Rs/pageb) Printing of 1st copy 5Rs/pages & later every copy 3Rs/page.The user should enter the number of pages and print out copies he/she wants.	10	
III	1. Write a program to find sum of N numbers. (Using while loop) 2. rite a program to print 1,2,3,...N where N number scanned by user. (Using while loop) 3. Write a program to find factorial of given number . 4. Write a program to find reverse of a given number. 5. Write a program to find the sum of first 100 odd nos. and even nos. 6. Write a program to find maximum from given N inputs by user. 7. Write a program to find sum of the digits entered by the user. 8. Write a program to generate Fibonacci series up to N numbers. 9. Write a program to find GCD and LCM of given 2 numbers .	10	

	10. Write a program to check whether given number by the user is Palindrome or not.
	
	11. Write a program to check Whether the given number is Prime or not.
	12. Write a C program to find x1+x2+x3+x4+
	13. Write a program to print following pyramid.
	
	      *
	      * *
	      * * *
	      * * * *
	
	14. Write a program that accepts an integer N, if the integer N=4, then print the pyramid:
	
	      1
	     121
	    12321
	     121
	      1	

IV	1. Write a program which will take 10 numbers from user and stored it in the array. It will print all the numbers, their sum and average of it. 2. Write a program to find binary of given number. 3. Write a program to sort and array. 4. Write a program to search an element from the array. 5. Write a program to find addition of two matrices of 3*3. 6. Take two strings from the user and check whether the string is palindrome or not. 7. Write a program to find sum, average of two numbers passed to user defined functions called sum(int,int) and average(int,int). 8. Write a program to print Fibonacci series using recursive UDF. 9. Write a program to find length of the given string (without including string.h). 10. Write a program which will accept two strings from the user and print the message that the strings are same or not. 11. Write a program that uses function digit(N,k) that return the value of the kth digit from the right of the number N. For eg. The function call digit (254693,2) should return 9.	10

Text Book:

3. Programming in ANSI C. (6th Ed.) – Balaguruswami - Tata McGraw Hill Publication

Reference Books:
5. Programming In C (2ⁿᵈ Ed.) - Ashok N. Kamthane - Pearson Education
6. The C Programming Language - DENNIS M. RITCHIE- AT&T Bell Laboratories Murray Hill, New Jersey
7. Let us C – (15ᵗʰ Ed.) - Yashwant Kanetkar - BPB Publications
8. Programming in C - Reema Thareja - Oxford University Press

SEMESTER –I		
EG 1306	**Course Name – Computer Basics**	**Credits - 2**

Course Objective:

This course introduces students to understand the concept, to get the detail knowledge of HTML programming.

Course Outcome:

On the completion of the course students will be able to:

COEG1306.01: Understand the concepts of markup language.
COEG1306.02: Acquire a basic understanding of the HTML
COEG1306.03: To describe the basic fundamentals of web designing with HTML
COEG1306.04: To describe and demonstrate the basic fundamentals of HTML tags.
COEG1306.05: To describe the working with HTML tags to create web pages
and website

Unit	Unit Details	Hours
I	- What is HTML - Sample Program - Practical – Write the HTML code at least with 30 lines which make use of following tags - The Italics tag, center tag, paragraph tag, Break tag, font tag and its attributes. - Ordered and Unordered List	8
II	- Introduction of table in HTML - Table - Row - Columns - Cell Content - Table Tag Attributes - Practical - Create a Table - Practical - Create a Students' Result Sheet - Practical - Nested List - Practical - Image Alignment	7
III	- Introduction of Forms in HTML - Form - Input – Tag - Introduction of Frames in HTML	7
IV	- Practical - How to Create Frames - How to Add Images in Frames - Target Frame - Linked Web Pages	8

Text Book:

1. HTML 4.0 In Simple Steps(First Edition-2010) Publisher: DreamTech Press.
   By Kongent Solution

Reference Books:
1. World wide web Design with HTML(First Edition-2010)
   Tata McGraw Hill By C Xavier

B.Sc. Computer Courses
Semester-II

SEMESTER –II		
CA-2501	**Course Name – Advanced C Programming**	**Credits - 4**

Course Objective:

This course introduces students to understand the concept, to get the detail knowledge of Advanced C programming language.

Course Outcome:

On the completion of the course students will be able to:

COCA2501.01: Understand the concepts of Structure and Union and how to use them in C programming

COCA2502.02: Acquire a basic concept of pointers and its functionality.

COCA2501.03: To describe the basic fundamentals of Console based I/O and related built- in I/O function

COCA2501.04: To describe and demonstrate the basic fundamentals dynamic memory allocation and linked list.

COCA2501.05: To describe the various operations on linked list

COCA2501.06: To describe and demonstrate file handling using C programming

COCA2501.07: To understand the use of pre-processors in programming

Unit	Unit Details	Hours

I	• **Structures**
	   Defining a structure -Declaring structure variables.-Accessing a structure variable-Structure Initialization
	   Operations on structure members-Copying and comparing variables-Arrays of structure-Arrays within Structures-Structure within structure
	• **Unions**
	o Defining Unions
		10

II	• **Pointer** Definition and Concept-Advantage of using pointer-Chain of Pointers-Null Pointer -Pointer Arithmetic-Pointer and character strings.-Array of Pointers-Pointers and Functions-Pointers and Structures	10

III	**Dynamic Memory Allocation & Link List**
	   Dynamic Memory Allocation
	   o Memory Allocation Function-malloc(),calloc() and realloc()
	   o free()
	Linked List
	   Concepts-Advantages-Applications of Linked list.-Overview of types of Linked list-Operations on Singly Linked List-Create And Display Linked List, -insert at first,-insert at last,-Insert before/after a specific node-delete at first,-delete at last-Delete a specific node,-Traversal
		10

IV	• **Files**	10
	o Concepts of File Management	
	o Files Functions – fopen(),fclose(),fprintf(),fscanf(),fseek(), ftell(),rewind() ,putc(),getc() ,putw(),getw()	
	o Error handling functions	
	• **Preprocessors**	
	o Types of Preprocessors	
	o Macro substitution directives	
	o File inclusion directives	
	Compiler control directives	

Text Book:
1. Balagurusamy, E. Programming in ANSI C 6th Edition. Tata McGraw-Hill

Reference Books:
1. Introduction to C Programming Publication : Oxford By Reema Thareja.
2. Let Us C 14th Edition.

SEMESTER –II		
CA-2502L	**Course Name – Advanced C Practicals**	**Credits - 3**

Course Objective:

This course introduces students to understand the concept, to get hands on practice for Advanced C programs.

Course Outcome:

On the completion of the course students will be able to:

COCA2502L.01: Understand the concepts of Structure and Union and how to use them in C programming

COCA2502L.02: Acquire a basic concept of pointers and its functionality.

COCA2502L.03: To describe the basic fundamentals of Console based I/O and related built- in I/O function

COCA2502L.04: To describe and demonstrate the basic fundamentals dynamic memory allocation and linked list.

COCA2502L.05: To describe the various operations on linked list

COCA2502L.06: To describe and demonstrate file handling using C programming

COCA2502L.07: To understand the use of pre-processors in programming

Unit	Unit Details	Hours
I	1. Write a program to define structure with tag state with fields' state name, number of districts and total population. Read and display the data. 2. Write a program to create a list of books details. The details of a book include title, author, publisher, publishing year, number of pages, and price. 3. Define a structure called Item with members: Item_code ,Item_name, Price. Create an array of five Items. Create a function which accepts the Item array and modifies each element with an increase of 10% in the price. 4. Create a program that compare two given dates. To store a date use a structure that contains three members namely day, month and year. If dates are equal then display a message as same otherwise not same. 5. Define a structure that can describe a Hotel. It should have members that include name, address, grade, room charges, grade and no of rooms. Write a function to print out all hotel details with room charges less than a given value. 6. Write a program to accept records of different states using array of structures. The structure should contain char state and number of int engineering colleges, int medical colleges, int management colleges and int universities. Calculate total colleges and display the state, which is having highest number of colleges. 7. Write a program to accept records of different states using array of structures. The structure should contain char state, int population, int literacy rate and int suitable data. Display the state whose literacy rate is highest and whose per capita income is highest. 8. Define a structure employee with members employee name, basic pay, dearness allowance, house rent, net salary. Declare an array of 5 employees. Write a function which calculates the net salary of employees and prints all employee details in descending order of their net salary. 9. Define a structure with tag population with fields Men and Women. Create structure with in structure using state and population structure. Read and display the data.	10

II	1. Write a program to create, initialize, assign and access a pointer variable. 2. Write a program in C to demonstrate the use of &(address of) and *(value at address) operator 3. Program to demonstrate example of double pointer (pointer to pointer). 4. Program to demonstrate example of NULL pointer. 5. Write a program to calculate the square and cube of an entered number using pointer of a variable containing the entered number. 6. Write a program to Swap Numbers in Cyclic Order Using Call by Reference. 7. Write a program to create an array that will store integer pointers. (Array of pointers) 8. Write a program to demonstrate an example of pointer to an array	10
III	Create a Singly Linked List with following functionalities: • Insert an element at the end of the list. • Insert an element at the beginning of the list. • Delete an element from the list. • Display all the elements of the list. • Insert an element before key value. • Insert an element after key value. • Sort a list.	10
IV	1) Write a program to display contents of file on the screen. The program should ask for file name. Display the contents in capital case. Also find the size of the file. 2) Write a program to combine contents of two files in a third File. Add line number at the beginning of each line. 3) Write a program to display number 1 to 100. Redirect the Output of the program to text file. 4) Write a program to count numbers of lines, words and characters in a file and write contents of that file in reverse into another file. 5) Write a program to create a file called dictionary.dat that contains the information such as Name, Surname, City and Phone number. 6) Write a program to copy one file to another. While doing so, all extra spaces in a file should be squeezed to one. For eg. If a file contains line "Iam learning converted to "I am learning C". 7) Write a program that counts the frequency of a word from a text file. The program should accept file name as command-line argument. Program should continue to ask word and display its frequency in a file till the Enter key is pressed without entering any word 8) Write a Program to insert the following contents in a file named "File1".	10

Customer No.   Account Type Balance
101   Savings   2000
102   Current   5000
103   Savings   3000
104   Current   10000

Append the contents of "File1" in another file "File2". Also display the contents of File2 on screen.

Text Book:

2. Balagurusamy, E. Programming in ANSI C 6th Edition. Tata McGraw-Hill

Reference Books:

1. Introduction to C Programming Publication : Oxford By Reema Thareja.
2. Let Us C 14th Edition.