

SCHEME & SYLLABUS
BCA



Department of Computer Science
Applications
UICAIS
Sant Baba Bhag Singh University
2017



**Course Scheme (BCA)
Semester 1**

I. Theory Subjects

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ENG121	Communication Skills I	2:0:0	2:0:0	2	2
2	CSA101	Fundamentals of Computer	3:1:0	3:0.5:0	4	3.5
3	CSA103	Office Automation	3:1:0	3:0.5:0	4	3.5
4	ECE105	Digital Electronics and Microprocessor	3:1:0	3:0.5:0	4	3.5
5	CSA105	DOS and Windows Operating System	3:1:0	3:0.5:0	4	3.5
6	PT101/ PT103/ PT105	Physical Training (NSO/NCC/NSS)	0:0:2	NC	2	NC

II. Practical Subjects

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
7	CSA107	Office Automation Lab	0:0:4	0:0:2	4	2
8	CSA109	DOS & Windows Operating Systems Lab	0:0:4	0:0:2	4	2
9	ENG123	Communication Skills -I (Practical)	0:0:2	0:0:1	2	1

Total Credits: 21

Total Contact Hours: 30



Semester 2

I. Theory Subjects

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSA133*	Introduction To Programming Language	4:1:0	4:0.5:0	5	4.5
2	CSA134*	Operating System	4:1:0	4:0.5:0	5	4.5
3	ENG114	Communication Skills II	2:0:0	2:0:0	2	2
4	MAT108	Statistical Techniques in Computer Science	5:0:0	5:0:0	5	5
5	CSA102	Introduction To Web Development	4:1:0	4:0.5:0	5	4.5
6	PT102/ PT104/ PT106	Physical Training (NSO/NCC/NSS)	0:0:2	NC	2	NC

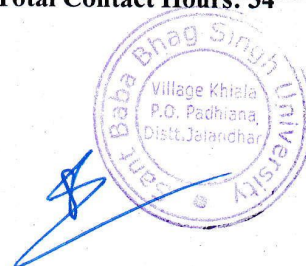
II. Practical Subjects

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
8	CSA137*	Introduction To Programming Language (Lab)	0:0:4	0:0:2	4	2
9	CSA104	Introduction To Web Development (Lab)	0:0:4	0:0:2	4	2
10	ENG116	Communication Skills - II (Practical)	0:0:2	0:0:1	2	1

* Subjects taken from B.Sc.(IT) semesters 1 and 2

Total Credits: 25.5

Total Contact Hours: 34



Semester 3

I. Theory Subjects

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSA201	Data Communication	4:0:0	4:0:0	4	4
2	MAT203	Mathematical Techniques in Computer Science	5:0:0	5:0:0	5	5
3	CSA203	Internet Fundamentals	4:0:0	4:0:0	4	4
4	CSA205	Fundamentals of Database Management Systems	4:0:0	4:0:0	4	4
5	CSA130*	Object Oriented Programming	4:1:0	4:0.5:0	5	4.5
6	PT201/ PT203/ PT205	Physical Training (NSO/NCC/NSS)	0:0:2	NC	2	NC

II. Practical Subjects

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
7	CSA207	Fundamentals of Database Management Systems (Lab)	0:0:4	0:0:2	4	2
8	CSA136*	Object Oriented Programming (Lab)	0:0:4	0:0:2	4	2

* Subjects taken from B.Sc.(IT) semester 2

Total Credits: 25.5

Total Contact Hours: 32



Semester 4

I. Theory Subjects

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSA202	Fundamentals of Computer Graphics	4:0:0	4:0:0	4	4
2	CSA231*	Fundamentals of Software Engineering	4:0:0	4:0:0	4	4
3	CSA232*	Concept of Computer architecture	4:0:0	4:0:0	4	4
4	EVS101	Environmental Science	3:0:0	3:0:0	3	3
5	CSA204	Programming in PHP	4:0:0	4:0:0	4	4

II. Practical Subjects

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
8	CSA206	Fundamentals of Computer Graphics(Lab)	0:0:4	0:0:2	4	2
9	CSA208	Programming in PHP (Lab)	0:0:4	0:0:2	4	2

* Subjects taken from B.Sc.(IT) semesters 3 and 4

Total Credits: 23

Total Contact Hours: 27



Semester 5

I. Theory Subjects

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSA301	Java Programming	4:0:0	4:0:0	4	4
2	CSA303	Software Testing and Quality Assurance	4:0:0	4:0:0	4	4
3	CSA305	Multimedia Systems	4:0:0	4:0:0	4	4
4	CSA335*	Fundamentals of Data Structures	4:0:0	4:0:0	4	4
5	SSE303	Human Values and Professional Ethics	3:0:0	3:0:0	3	3

II. Practical Subjects

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
6	CSA307	Java Programming (Lab)	0:0:4	0:0:2	4	2
7	CSA337*	Fundamentals of Data Structures (Lab)	0:0:4	0:0:2	4	2
8	CSA309	Minor Project	0:0:6	0:0:3	6	3

* Subjects taken from B.Sc.(IT) semester 5

Total Credits: 26

Total Contact Hours: 33



Semester 6

I. Theory Subjects

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSA302	Fundamentals of E-Commerce	4:0:0	4:0:0	4	4
2	CSA304	Computer Peripherals & Interfaces	4:0:0	4:0:0	4	4
3	CSA306	Data Warehousing and Mining	4:0:0	4:0:0	4	4
4	CSA308	Advanced Java Programming	4:0:0	4:0:0	4	4
5	MGT336	Introduction to Human Resource Management	4:0:0	4:0:0	4	4

II. Practical Subjects

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
8	CSA310	E-Commerce (Lab)	0:0:4	0:0:2	4	2
9	CSA312	Advanced Java Programming (Lab)	0:0:4	0:0:2	4	2
10	CSA314	Major Project	0:0:6	0:0:3	6	3

Total Credits: 27

Total Contact Hours: 34



Course Code	ENG121
Course Title	Communication Skills-I
Type of Course	Theory
L T P	2:0:0
Credits	2
Course pre-requisite	NA
Course Objectives	The objective of this course is to : 1.assist the students to acquire proficiency, both in spoken and written language 2. to develop <u>comprehension</u> , improve writing skills, and enhance skills in spoken English.

UNIT-I

Basics of Communication Skills:

Communication, Process of Communication, Types of Communication-Verbal and Non verbal communication, Channels of Communication- Upward, Downward, Horizontal, Barriers to Communication, Role of Communication in society.

UNIT-II

Listening Skills:

Listening Process, Hearing and Listening, Types of Listening, Effective Listening, Barriers of Effective Listening, Note Taking

Reading Skills:

Purpose of reading, Process of reading, reading skills Models and strategies, scanning, skimming, SQ3R, Approaches of Reading, Comprehension passages for practice.

UNIT III

Writing Skills:

Purpose of writing, Effective writing, Types of writing, Business Correspondence, Precise writing, Memo writing, minutes of meeting.

UNIT-IV

Speaking Skills:

Speech process, Skills of effective speaking, Role of audience, Feedback Skill, Oral Presentation.

Text and Reference Books:			
Sr No	Author(s)	Title	Publisher
1.	BhupenderKour	Effectual Communication Skills	S.K. Kataria and Sons
2.	R. Datta Roy and K.K. Dheer	Communications Skills	Vishal Publishing Company

3	The Essence of Effective Communication	Ludlow and Panthon	Prentice Hall of India
4	Essentials of Business Communication	Pal and Rorualling	S. Chand and Sons. New Delhi



Course Code	CSA101
Course Title	Fundamentals of Computers
Type of Course	Theory(Compulsory)
L T P	3 1 0
Credits	3.5
Course Prerequisites	Basic knowledge of computers
Course Outcome (CO)	The objective of the study is to provide insight knowledge of computer organization and techniques

SYLLABUS

UNIT I: Introduction To Computer System: Introduction, Characteristics of Computers, And Evolution of Computers. The computer Generation Basic Computer Organization: Classification Of Computers: Notebook Computers , Personal Computers, Workstation, Mainframe Systems, Supercomputer, Minicomputer, Microcomputer, Clients and servers
Processor and Memory: The Central Processing Unit. The Main Memory, Memory Buses, I/O Buses. Secondary Storage Devices, Cache Memory, Virtual Memory

UNIT II: Input Output Devices: Input Devices: Keyboard , Point and Draw Devices, Data Scanning Devices, Digitizer, Electronic Card Reader, Voice Recognition Devices, Vision Input Device. **Output Devices :** Monitors , Printer , Plotter, Screen Image Projector, Voice Response System

UNIT III: Computer Software: Definition of software, Types of software, Compilers, Interpreters, Assemblers, Linkers, Loaders. Software developing Steps.
Operating Systems: Introduction, Main functions of operating system, Types of operating system

UNIT IV: Data Communication and Computer Networks
 Data Transmission mode, Data transmission media, What is computer Network, Network types Network Topologies, Communication Protocol, OSI Model
The Internet: Definition, Brief history, Basic services, Email, File Transfer Protocol, Telnet, Usenet News, Internet Search Tools, Gopher, Archie, World Wide Web, Web Browser, Internet and its applications.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Fundamentals Of Computers	V. Rajaraman.	Prentice Hall India Pvt., Limited.
2.	Fundamentals Of Computers	P.K.Sinha	Kalyani Publisher
3.	Microprocessor	B.Ram	DhanpatRai.
4.	Fundamentals of Information Technology	ChetanSrivastava	Kalyani Publishers
5.	Information Technology	Satish Jain	BPB Publications
6.	Foundations of computers	P.K. Sinha and p. Sinha	BPB Publications

Course Code	CSA103
Course Title	Office Automation
Type of Course	Theory(Compulsory)
L T P	3 1 0
Credits	3.5
Course Prerequisites	Basic knowledge of computers
Course Outcome (CO)	The objective of study is to make students efficient in the working of MS-Word, MS-Excel, Power Point & MS Access

SYLLABUS

UNIT I: Introduction to Word processor, Uses of Ms- Word. Introduction to Ms-Word Windows: Title bar, Menu bar, Toolbar, Standard Toolbar, Formatting toolbar, The Ruler bar, Insertion point, Scroll Bars.

Dialog Boxes, Drop-down lists, tabs. Basic Text Editing: Cut, Copy, Paste, Undo, Redo, Delete
Formatting: Character formatting by using Font dialog box. Paragraph Formatting by using Keeping text together, Adding borders and shading page and section formatting page setup Numbering pages.

Searching and Proofreading Tools: Find and replace Searching for special character Proofreading tools, Custom dictionary, Grammar Checking, Writing style, Thesaurus Dictionary

UNIT II: Working with Tables and Columns: History of table, creating a table, entering text in a table using table tools. Changing column's width with Auto fit, Gridlines, Merging Cells Table Formatting:-Sorting tables, copying tables, deleting tables. Mail merge

UNIT III: Introduction to Spreadsheet

Spreadsheet overview, starting excel, creating spreadsheet, excel menu. Working with Formulas and Functions: Introduction using basic formulae, advance formulae, designing formulae
 Formatting: Types of formatting: Using borders, color and patterns, Conditional formatting
Creating and Formatting Charts: Introduction to charts. Creating charts, formatting charts, exploring charts.

UNIT IV: Introduction to Power point: Designing PowerPoint Presentations and addition of animations

Introduction to Access: Creation of files in MS-Access, Design a simple database, Manage the data in a table, Design a form, Generate a report.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1	Teach yourself office 97/2000 for windows	Corey Sandler, Tambadgett, Jan Weingarten	BPB
2	Microsoft Office 2000	COMPLETE	BPB
3	Mastering Word 2000	Mansfield	BPB
4	Essential Ms-Word 2000	B. Marmel	BPB
5	Ms-Access	VarshaVarmaShekhar	Comdex course kit

Course Code	ECE105
Course Title	Digital Electronics and Microprocessor
Type of Course	Theory(Compulsory)
L T P	3 1 0
Credits	3.5
Course Prerequisites	Students should know about the various electronics components and physics concepts
Course Outcome (CO)	Demonstrate the operation of simple digital gates, identify the symbols, truth table for gates; change binary, hexadecimal, octal numbers to their decimal equivalent and vice versa, demonstrate the operation of a flip-flop. Convert digital into analog and vice versa.

SYLLABUS

UNIT I: Fundamental concepts: Introduction, Digital Signals, Basic Gates and derived Gates: AND, OR, NOT, NAND, NOR, Ex-OR, Ex-NOR, Boolean Algebra

Number System and codes: Introduction to number systems, Decimal, Binary, Octal, Hexadecimal, And Conversation from one number system to another number system. Binary Arithmetic: Addition, Subtraction, Multiplication, Division, Half adder, full adder. 1's and 2's compliment of Binary Number. Codes : BCD Code, Excess-3 Code, Gray Code Error detecting and correcting codes

UNIT II: Combinational Logic Design: Standard Representation of logical functions, SOP, POS Forms, K-map Representation of logical functions, and Simplification of logical functions using K-map. Multiplexer, De-multiplexer. Encoder, Decoder

Flip Flops: 1-Bit Memory Cell, Clocked S-R Flip Flop, J-K Flip Flop, Master Slave Flip Flop, D-type Flip Flop, T-type Flip Flop

UNIT III: Sequential Logic Design: Registers, Shift Register, Counter, Synchronous and asynchronous Counter, examples of each

Timing Circuits and Converters: 555 Timer, Digital To Analog Converter, Analog To Digital Converter

UNIT IV: Fundamental of Microprocessor: Introduction to assembler and assembly language programming, basic instructions, I/O Buses, Microprocessor architecture, 8085 Microprocessor. Organization and Operation

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Modern Digital Electronics	R.P. Jain	McGraw-Hill Science/Engineering/Math
2.	Microprocessor	B.RAM	DhanpatRai
3.	Digital Electronics and Logic Design	B. Somanathan Nair	PHI Learning Pvt. Ltd.
4.	Digital Electronics and Microprocessor 8085	V. Vijayendran	Motilal books
5.	Digital Electronics	Malvino and Leach	PHI

Course Code	CSA105
Course Title	DOS and Windows Operating System
Type of Course	Theory(Compulsory)
L T P	3 1 0
Credits	3.5
Course Prerequisites	Basic knowledge of computer operation
Course Outcome (CO)	This course will help to use operating system DOS, Windows and run its commands

SYLLABUS

UNIT I: Disk Operating System: Introduction of DOS, History. Files and Directory, Types of files. Configuration of DOS (config.sys) Booting Procedure of DOS

Study of Commands: Internal commands:- Append, cls, ver, vol, date, time, type, md, cd, comp, rd, edit, rename, dir, copy, copy con, pipe

External commands :- attrib, diskcopy, scandisk, format, deltree, xcopy, disccomp, edit, erase, help, backup, chkdsk, deltree.

Batch file concept & study of Autoexec.bat file.

UNIT II: Introduction To Windows Operating System: Introduction of Windows O.S., History, versions of Windows OS, files and Folders, Architecture of windows O.S., Study of windows directories.

Basics of windows: Desktop, My computer, Recycle bin, my network places, Quick launch tool bar.

UNIT III: Features of MS-WINDOWS: GUI, Multitasking, multi- user, network etc. Important files of windows and their locations (For e.g. DLL, INI etc.)

Windows Explorer: Opening windows explorer, Copying, pasting, moving, deleting, send to files, Controlling and customizing the toolbars Use of address bar, history list. Working with files and folders

Windows Accessory: Calculator, Character map, Notepad, WordPad, Paint, System tools and minor troubleshooting using different files, Windows registry files.

UNIT IV: Using Local Networks: Network, LAN. Finding computers and files on network Sharing and managing files, folders and printers, Adding and sharing Internet connection

Installation of Windows

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1	MS-Dos 6.22	Russell A Stultz	BPB Publication
2	Teach yourself Windows 2000	Brain Underdahl .	Wiley Publishers
3	Maximizing Windows	Peter Norton	Teachmedia
4	Advanced MS-Dos Programming	Ray Duncan	BPB
5	DOS for Dummies	Dan Gookin	John Wiley & Sons

CSA107 Office Automation Lab

L T P
0 0 4

1. Introduction of Office & Internet usage
2. Introduction to MS Word.
3. Prepare time-table in Word.
4. Prepare Document by applying Formatting attribute.
5. Creating, Opening, Closing a word document.
6. Saving and Editing a word document
7. Insert header and footer in the document.
8. Introduction of PowerPoint.
9. Prepare Presentation in Powerpoint by applying Formatting Tools.
10. Presentation views in powerpoint
11. Create duplicate slides in powerpoint.
12. Make a master slide.
13. Apply animation to slides.
14. Insert background in powerpoint.
15. Introduction of Excel
16. Prepare Marksheet in Excel
17. Prepare Bill in Excel
18. Design a chart of population.
19. Apply conditional formatting in Excel
20. Sort the data in ascending and descending order in excel sheet.
21. Introduction to Access database
22. To manage data in tables using Access
23. To generate a report in access database

CSA109 DOS and Windows Operating System Lab

L T P
0 0 4

1. Study of computer fundamentals
2. Introduction to Internet usage
3. Introduction to windows & familiarity with controls.
4. Study and use of desktop, my computer, recycle bin, my network places, Quick launch tool bar.
5. Use of address bar, history list
6. Working with files and folders
7. Sharing and managing files
8. Use of calculator, notepad, paint
9. Working with printers
10. Adding and sharing Internet connection
11. DOS Command like append, cls, ver, vol, date, time, type, md, cd, comp, rd, edit, rename, dir, copy, copy con, pipe, attrib, diskcopy, scandisk, format, deltree, xcopy, disccomp, edit etc.
12. Execute DOS Command using examples.



ENG123 Communication Skills-1 (Practical)

L T P
0 0 2

UNIT-I

Speaking and Discussion Skills:

Oral Presentation, Planning and organizing content for presentation, Use of audio /Visual Aids, Making Slides for presentation , Group Discussion ,Debate, Extempore speaking, Interview Skills, Mock interview, Mock Dialogues (Pair Speaking), Cue Card Speaking, Meeting/ Conferences.

UNIT-II

Listening Skills:

Listening to any recorded material and asking oral/written questions for listening comprehension.

Reading Skills:

Active Reading of passages for Reading comprehensions, paraphrase, Summary writing.

UNIT III

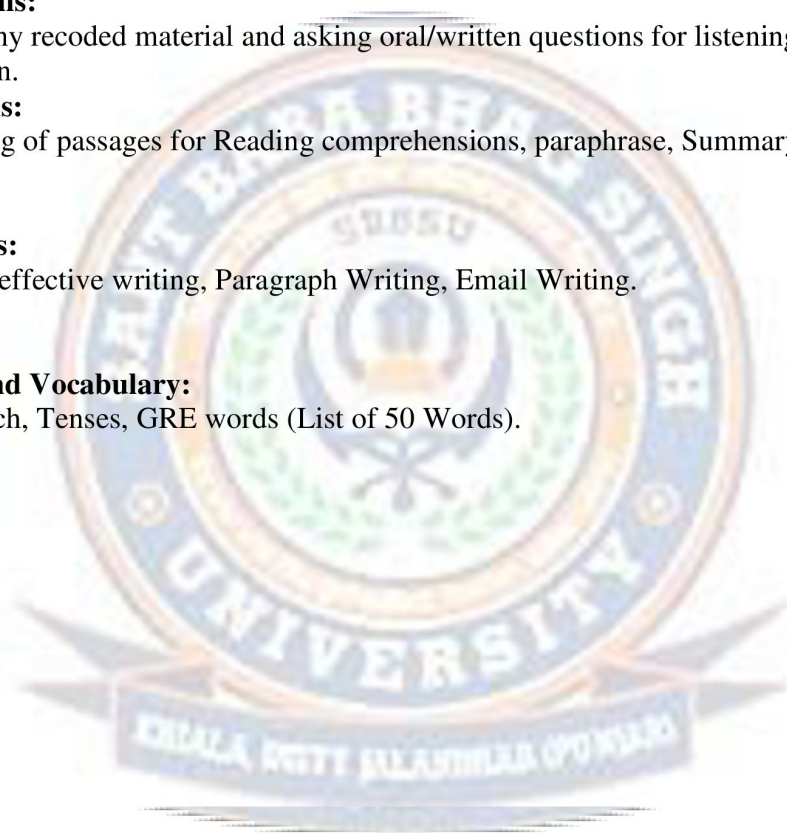
Writing Skills:

Guidelines of effective writing, Paragraph Writing, Email Writing.

UNIT-IV

Grammar and Vocabulary:

Parts Of Speech, Tenses, GRE words (List of 50 Words).



Course Code	CSA133
Course Title	Introduction to Programming Language
Type of Course	Core
L T P	4 1 0
Credits	4.5
Course Prerequisites	Basic Knowledge about Computers
Course Outcome (CO)	To gain experience about structured programming. To help students to understand the implementation of Programming language. To understand various features in Programming Language.

SYLLABUS

UNIT I: Fundamentals of computer: Computer generations, History of languages, high- level, Low level, Assembly languages etc. Definition and properties. Principles of flowcharts. Flowcharting symbols, Algorithms.

Introduction To Programming Language: character Set, Constants, Types of constants, Variables and Keywords, data types. Instructions: Type Declaration Instruction, Arithmetic Instructions.

UNIT II: Control structures: Decision making structures :If, If-else, Nested If –else, Switch. Loop Control structures : While, Do-while, for, Nested for loop. Other statements : Break, Continue, goto, Exit

Arrays and Pointers: Arrays Initialization, Types of Array. Initializing Two Dimensional & Multidimensional Arrays, Introduction to Pointers. Pointers and Functions.

UNIT III: Storage Classes and Character Strings: Automatic, Register, Static, External (Local and Global), Strings, Standard library String Functions: strlen (), strcpy (), strcat(), strcmp()

Functions: Definition, Passing values between functions, call by value, call by reference, Recursion

UNIT IV: Structures And Unions: Declaring structure and its variables, Arrays of structures. Introduction to Unions.

Input/Output: Getchar (), putchar (), printf (), scanf (), puts (), gets () Introduction to files and its operations.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Programming in C	Byron Gottfried, Jitender Chhabra	Schum out line series
2.	Let us C	Yaswant Kanetkar	BPB Publication
3.	A structured Programming approach using C	Behrouz Forouzan	Thomas learning
4.	Computer Fundamentals	Pradeep K. Sinha & Priti Sinha	BPB Publication

Course Code	CSA134
Course Title	Operating System
Type of Course	Theory(Compulsory)
L T P	4 1 0
Credits	4.5
Course Prerequisites	Basic computer knowledge and OS DOS Windows
Course Outcome (CO)	The objective of this course is to help students become familiar with the fundamental concepts of operating systems and provide students with sufficient understanding of operating system design.

SYLLABUS

UNIT I: Introduction: Importance of Operating system. Basic concepts and terminology. An Operating system Resource manager. Operating Systems functions, Services provided by operating system, Types of operating systems, An Operating system- Process and system calls. Operating system architecture. Processor and user modes, Virtual Machine.

UNIT II: Memory management: Physical and virtual address space, Single Contiguous Allocation, Partitioned Allocation, Fragmentation, Paging, Segmentation, Virtual memory and Demand paging, Page replacement algorithms.

Processor Management: Process, Process control block, State Model, Non-pre-emptive and pre-emptive scheduling, Process Scheduling Algorithms, Deadlocks- detection and prevention.

UNIT III: Information Management: Directory structure, File operations, A Simple File System, General Model of a File System, File allocation methods.

UNIT IV: OS and Security: Security breaches, types of attacks, attack prevention methods, security policy and access control, OS design considerations for security, access, policy and access control, OS design considerations for security, access control lists and OS support, internet and general network security, Policy mechanism, Program, network and system threats, Authentication.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Operating System	William Stallings	Prentice Hall
2.	Operating System	Godbole	Tata McGraw-Hill Education
3.	Operating System Concepts	A. Silberschatz, P.B. Galvin, G. Gagne	John Wiley Publication
4.	Modern Operating Systems	Andrew Tannenbum	Pearson Education
5.	Operating System	Michael E., Donovan	Tata McGraw Hill

Course Code	ENG114
Course Title	Communication Skills-II
Type of Course	Theory(Compulsory)
L T P	2 0 0
Credits	2
Course Prerequisites	
Course Outcome (CO)	After completion of this course students will be able to: 1.formulate an effective communication strategy for any message, in any medium, and in any situation. 2. write clearly, concisely, and convincingly. 3. develop skills of effective communication - both written and oral. 4. acquaint with application of communication skills in outside world.

SYLLABUS

UNIT I: Grammar:Parts of Speech, Use of appropriate tense, Voice , Reported Speech, Sentence Structure; Simple, Compound, Complex, Vocabulary-One word substitution.

UNIT II: Writing Skills: Application for employment , Resume Writing , Paragraph Writing Construction-Kinds of Paragraphs, Preparing of Matter for meeting : Notice, agenda ,Conference

UNIT III: Speaking Skills:Effective oral Presentation, Slide making, Use of audio Visual aids

UNIT IV: Oral Communication and its Application:

Group Discussion, Customer Care Relations (PR Skills), Interview Skills (Conducting and appearing for interviews),Telephone handling manners .

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Business Communication	K. K. SinhaGalgoti	Galgotia Publishing Company
2.	Media and Communication Management	C. S. Rayudu -	Himalaya Publishing House, Bombay.
3.	Essentials of Business Communication	Rajendra Pal and J. S. Korlhalli -	Sultan Chand & Sons, New Delhi
4.	Business Communication	K. K. SinhaGalgoti	Galgotia Publishing Company

Course Code	MAT108
Course Title	Statistical Techniques in Computer Science
Type of Course	Theory(Compulsory)
L T P	5 0 0
Credits	5
Course Prerequisites	Basic knowledge of mathematics and statistics
Course Outcome (CO)	Students will learn about graphical methods, measures of central tendency, dispersion, probability , time series

SYLLABUS

Unit 1

Introduction of Statistics: Definitions of Statistics. Importance of statistics. Advantages and Limitations. Scope of Statistics: Computer Science, Industry, Economy, Social Science.

Unit II

Data Condensation and Graphical Methods: Collection of Data, Types of Data Attributes and variables, Construction of Frequency, Cumulative and Relative. Frequency distributions. Graphical representation of Frequency distribution: Histogram, Frequency Polygon, Frequency Curve and Cumulative Frequency curves (Ogive curves)

Unit III

Measures of Central Tendency: Concept of central tendency. Arithmetic Mean, Median, Mode. Merits and Demerits. Measures of Dispersion: Concept of Dispersion.: Range: Definition, Formulae and Computation for ungrouped and grouped data. Standard Deviation: Definition, Formulae and Computation for ungrouped and grouped data. Variance: Definition, Formulae and Computation for ungrouped and grouped data. Coefficient of variance: Definition, Formulae and Computation for ungrouped and grouped data.

Unit IV

Probability: Permutation and combination, Sample space, Events and Types of events. Classical definition of probability and axioms of probability. Theorems on Probability. Definition of Correlation, Types of Correlation, Karl Pearson's coefficient of correlations for ungrouped data and problems. Definition of Regression. Regression equations and problems. Analysis of Time Series: Definition and components of time series, Measures of trends Moving average method and least square method and problems.

RECOMMENDED BOOKS

Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Fundamentals of Statistics	A.M. Gun, M.K.Gupta, B. Dasgupta	The World Press Private Limited.
2.	Statistical Methods	S.P. Gupta	McGraw Hill Education.
3.	Business Statistics	S. Shaha	B. S. Shah Prakashan
4.	Modern Elementary Statistics	J.E. Freund	Prentice-Hall
5.	Fundamentals of Applied Statistics	Gupta and Kapoor	Sultan Chand & Sons
6.	Fundamentals of Statistics	S C Gupta	Himalaya Publishing House Pvt. Ltd

Course Code	CSA102
Course Title	Introduction to Web Development
Type of Course	Core
L T P	4 1 0
Credits	4.5
Course Prerequisites	Knowledge of Computers and Internet
Course Outcome (CO)	Create an HTML Documents, and establish adequate formatting for presentation purposes. To build web applications using CSS and Javascript.

SYLLABUS

UNIT I: Introduction to Web Designing & HTML documents: Web page, Website, Web browser, www. Developing web Documents-Web design process. Publishing documents: Web publishing. Maintaining documents: maintenance phases of web page. Overview of HTML. Rules of HTML documents. Structure of HTML documents.

UNIT II: HTML Markup tags: Tags-Definition, Classification of Tags.Basic Tags-HTML, Head, title, body. Paragraph Tags, List tags, Horizontal Rule Tag, Headings Tags, Blockquote Tags, Address Tags, FONT Tag, PRE tag, DIV tags, SPAN tag & other formatting tags.

Linking in HTML: U.R.L. concept. Hyperlink (Anchor) Tag & its attributes.

Creating Email Hyperlinks.

Images in HTML:

Introduction: Image & image formats. tag & its attributes.

Using Images as links. Image Map- Client side & Server side Image maps.

Tables in HTML:

Introduction to Tables.Table Tags: TABLE, TR, TH, TD & all Attributes. Rowspan, Colspan, Cellspacing, Cellpadding. Table examples

UNIT III: Frames in HTML: Overview of frames. FRAMESET & FRAME tags & its attributes.

Simple frame Examples.

Forms in HTML: Introduction to forms. FORM tag & its attributes (Action, Method, Name) Simple form examples. Applications of Forms.

Form controls: Text Field, Password Field, Multiline Text Area, Drop Down List ,Check Box, Radio Buttons, Scrolled List, Reset Button, Submit button, File Field etc

UNIT IV: Cascading Style Sheets: Declaration, Types of CSS: External CSS, Internal CSS, Inline CSS. Applications of CSS

Java Script: Introduction, Adding script to documents, Data types, operators.

Variables, Input and Output statements.

Looping statements: While, Do-While, For loop.

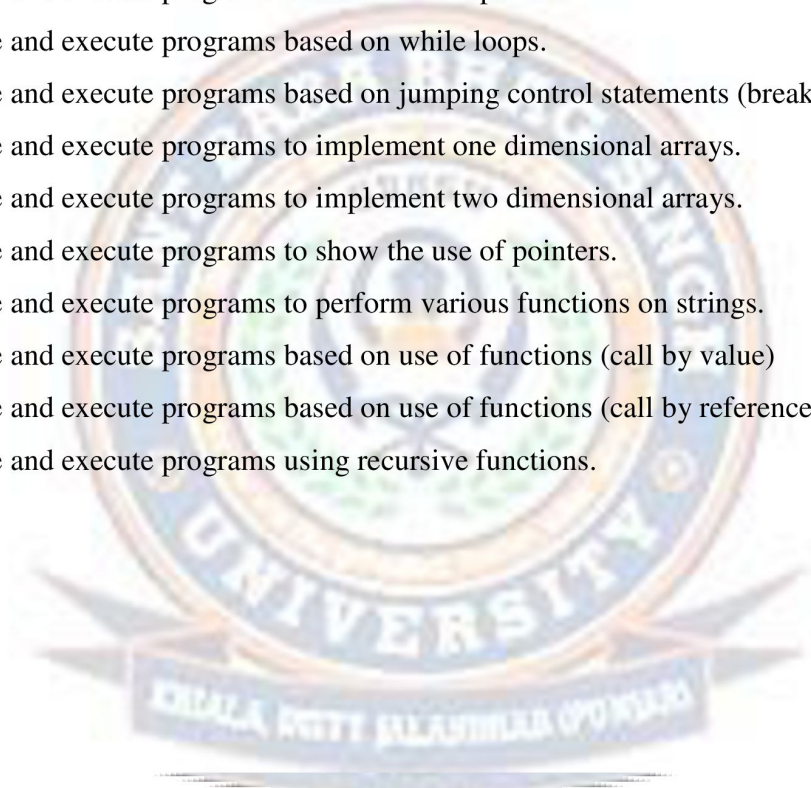
RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Web Technologies	Achyut S. Godbole, AtulKahate	Tata McGraw Hill
2.	Web Tech. & Design	C.Xavier	New Age
3.	Multimedia & Web Technology	Ramesh Bangia	Firewall Media

CSA137 Introduction to Programming Language Lab

L T P
0 0 4

Objectives: To help students to understand the implementation of language. This Programming language helps in solving a problem.

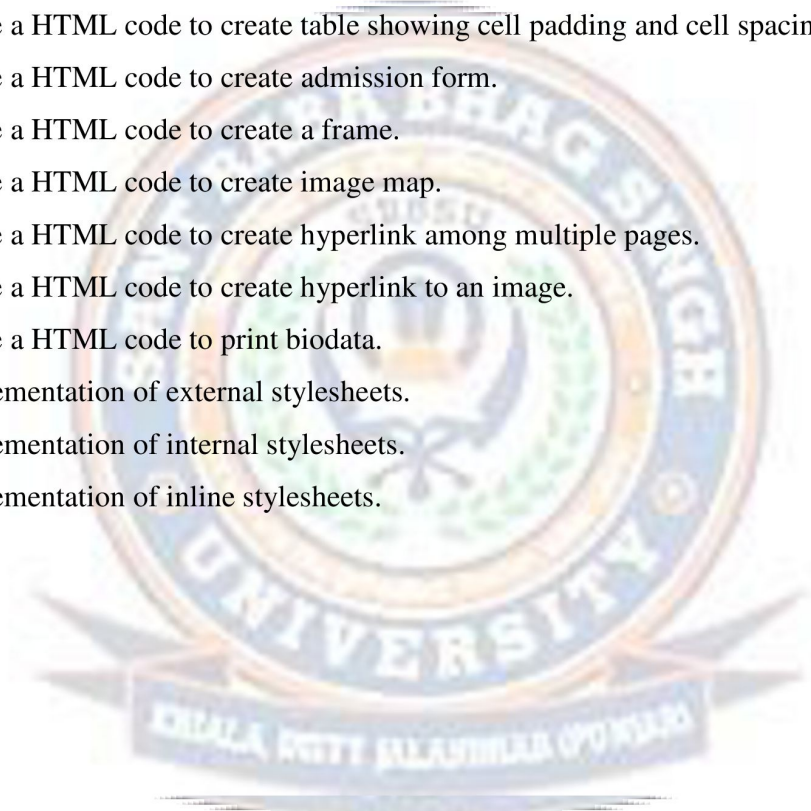
- 1) Write and execute program to show the working of input/output statements.
- 2) Write and execute programs to show the use of different types of operators (arithmetic, relational, logical, conditional).
- 3) Write and execute programs based on conditional control statements (if, if-else)
- 4) Write and execute programs based on switch-case statements.
- 5) Write and execute programs based on for loops
- 6) Write and execute programs based on while loops.
- 7) Write and execute programs based on jumping control statements (break, continue).
- 8) Write and execute programs to implement one dimensional arrays.
- 9) Write and execute programs to implement two dimensional arrays.
- 10) Write and execute programs to show the use of pointers.
- 11) Write and execute programs to perform various functions on strings.
- 12) Write and execute programs based on use of functions (call by value)
- 13) Write and execute programs based on use of functions (call by reference)
- 14) Write and execute programs using recursive functions.



CSA104 Introduction to Web Development Lab

L T P
0 0 4

1. Write a HTML code that displays various formatting tags.
2. Write a HTML code to create ordered list.
3. Write a HTML code to create unordered list
4. Write a HTML code to create definition lists
5. Write a HTML code to create table having n rows and n columns.
6. Write a HTML code to create table showing cell padding and cell spacing
7. Write a HTML code to create admission form.
8. Write a HTML code to create a frame.
9. Write a HTML code to create image map.
10. Write a HTML code to create hyperlink among multiple pages.
11. Write a HTML code to create hyperlink to an image.
12. Write a HTML code to print biodata.
13. Implementation of external stylesheets.
14. Implementation of internal stylesheets.
15. Implementation of inline stylesheets.



ENG116 Communication Skills-II Practical

L T P
0 0 2

UNIT-I: Grammar:

To recognize part of speech of particular word in given sentence, To use appropriate tense , Exercise on- Voice, Reported speech and Sentence Structure, Vocabulary-One word substitution.

UNIT-II: Writing Skills:

Job Application, Resume Writing, Paragraph Writing, Preparing of Matter for meeting: Notice, agenda, Conference.

UNIT III: Speaking Skills: How to deliver an effective power point Presentation, Slide making, Effective use of audio Visual aids

UNIT-IV: Oral Communication and its Application:

Group Discussion, Mock Interview (Conducting and appearing for interviews), and Role plays. Conducting a successful official meeting.



Course Code	CSA201
Course Title	Data Communication
Type of Course	Theory(Compulsory)
L T P	4 0 0
Credits	4
Course Prerequisites	Fundamentals of data and computer communications
Course Outcome (CO)	The objective of this course is to provide the students with the conceptual foundation for study of data communications. Also provide the knowledge about computer network related concepts.

SYLLABUS

UNIT I: Fundamentals of communication: Data communication networks and open system standards, ISO, The OSI Model & TCP/IP Protocol, The layers and their functions. Signals: Digital signals, Analog signals. Data transmission: Asynchronous and Synchronous transmissions.

Data Communication System and its components, Data Flow, Computer network and its goals, Types of computer networks: LAN, MAN, WAN, Wireless and wired networks, broadcast and point to point networks, Network topologies.

UNIT II: Physical Layer:

Types of Signals, Multiplexing: Frequency Division, Time Division, Wavelength Division, Transmission Media: Twisted pair, Coaxial cable, Fiber optics, Wireless transmission (radio, microwave, infrared), Circuit Switching, Message Switching, Packet Switching & their comparisons.

UNIT III: Data Link Layer: Design issues, Framing, Error detection and correction codes: checksum, CRC, hamming code, Data Link Layer Protocols: Sliding Window (Go Back N, Selective Repeat), Framing, Ethernet, Wireless LANs, Data transmission: Asynchronous and Synchronous transmissions.

Duties of network and transport layer: Routing algorithms, subnetting, IP addressing, hubs/repeaters, switches, bridges, routers.

UNIT IV: Elements of transport protocols: addressing, connection establishment and release, flow control and buffering, multiplexing and de-multiplexing, crash recovery

Application Layer: World Wide Web (WWW), Domain Name System (DNS), E-mail, File Transfer Protocol (FTP), network security

RECOMMENDED BOOKS

Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Computer Networks, 4th Edition,	Andrew S. Tanenbaum	Pearson Education
2.	Data Communication & Networking, 4th Edition,	Behrouz A. Forouzan	Tata McGraw Hill.
3.	Computer Networking, 3rd Edition	James F. Kurose and Keith W. Ross	Pearson Education
4.	Internetworking with TCP/IP, Volume-I	Douglas E. Comer	Prentice Hall, India

Course Code	MAT203
Course Title	Mathematical Techniques in Computer Science
Type of Course	Theory(Compulsory)
L T P	5 0 0
Credits	5
Course Prerequisites	Basic knowledge of mathematics
Course Outcome (CO)	This course will provide students with knowledge of numbers set theory, mathematical logic, matrices and determinants geometry and relations

SYLLABUS

UNIT I: Set Theory: Definition and types of sets. Equal sets, subsets, universal sets, Venn diagram. Set operations. Properties of set union and intersections. (with Venn diagrammatic proofs only)

UNIT II: Mathematical Logic: Propositions. Logical connectives and compound statements Truth values and truth table. Statement pattern and logical equivalence. Tautology, contradiction, contingency. Validity of arguments. Predicates

UNIT III: Matrices and Determinants: Definition and types of matrices. Equality of Matrices and transpose of matrices.
Algebra of matrices : addition, subtraction of matrices, scalar, Multiplication of matrix and multiplication of matrices
Definition of Determinant, Adjoint of matrices, Inverse of matrices

UNIT IV: Graph Theory: Definition and types of graphs. Incidences and degree of vertices Isomorphism of graphs. Connected and disconnected graphs. Walks, paths and circuits. Directed graph. Trees, Binary Tree. Elementary results (Properties or Theorems) of graphs, connected graphs and Trees (Without proof)

RECOMMENDED BOOKS

Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Elements of Discrete Mathematics	C.L. Liu	Mcgraw-Hill
2.	Discreet Mathematics	Olympia Nicodemi	West Publishing Company
3.	Mathematical Structures for Computer Science	AlonDoerr and K. Levasieur	Tata. McGrawHillPublishing Company
4.	A first step in graph theory	Ragunathan, Nimkar&Solapurkar	Tata McGraw Hill
5.	Graphs theory with applications to computer science	NarsingDeo	Prentice-Hall of India Pvt.Ltd
6.	Basic Mathematics	Mittal and Agarwal	PragatiPrakashan (Meerut)

Course Code	CSA203
Course Title	Internet Fundamentals
Type of Course	Theory(Compulsory)
L T P	4 0 0
Credits	4
Course Prerequisites	Basic Knowledge of html
Course Outcome (CO)	The objective of this course is to make students familiar with the internet and its applications

SYLLABUS

UNIT I: The Internet: Introduction to networks and Internet, history, Internet, Intranet and Extranet, Working of Internet, Internet Congestion, Modes of connecting to internet, Internet Service Providers, Internet address, standard address, domain name, DNS, IPv6, modems, Web browser, search engines and Meta search engines, Telnet and FTP, HTTP, TCP/IP, Internet tools. Introduction to Web Portal and its types.

UNIT II: Electronic Mail: Introduction, advantages and disadvantages, User ids, Passwords, E-mail addresses, message components, message composition, mailer features, E-mail inner workings, E-mail management, MIME types, Newsgroups, chat rooms, mailing lists, secure mails, SMTP, POP.

UNIT III: HTML and Web Designing: HTML Basic concepts, STRUCTURE OF HTML documents, HTML elements- Core attributes, Language attributes, Core events, Block level events, Text level events. Introduction to DHTML.
XML basics, features of XML, declaration, XML elements, naming rules, XML Schema.

UNIT IV: Web Servers: Introduction to web servers: PWS, IIS, Apache, Microsoft Personal Web Server, Accessing & using these servers.

Internet security and privacy: Introduction, Software Complexity, Attacks, security and privacy levels, security policy, accessibility and risk analysis, Encryption schemes, Secure web document, Digital Signatures, Firewalls, Intrusion detection systems.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Fundamentals of Internet and World Wide Web	Raymond Greenlaw and Ellen Hepp	TMH
2.	Internet & World Wide Programming	Deitel, Deitel & Nieto	Pearson Education
3.	Network Firewalls	Kironjeetsyan	New Rider Publications
4.	Internet 101	Alfred Gkossbrenner	McGraw-Hill

Course Code	CSA205
Course Title	Fundamentals of Database Management System
Type of Course	Theory(Compulsory)
L T P	4 0 0
Credits	4
Course Prerequisites	Computer fundamentals and record keeping
Course Outcome (CO)	This course covers fundamentals of database architecture, database management systems, and database systems. Principles and methodologies of database design, and techniques for database application development.

SYLLABUS

UNIT I: Database Management System

Introduction, Basics of data and information, characteristics.

Definition of DBMS, File processing system vs DBMS, Advantages and Disadvantages of DBMS, DBMS Architecture, Users of DBMS, Components and functions of DBMS, Responsibilities of Data Base Administrator

UNIT II: Data Models: Introduction, Data Models: Relational Model, Network Model, Hierarchical Model, Schema, Subschema, DBMS Languages DDL, DML, Classification of Database Management System.

UNIT III: Relational Databases: Introduction. Terms: Relation, Tuple, Attribute, Cardinality, Degree, Keys: Super Key, Candidate Key, Primary Key, Foreign Key.

Relational Algebraic Operations: Select, Project, Union, Difference, Intersection, Cartesian Product, Natural Join.

Relational Database Design Introduction, Anomalies of normalized database. Normalization, Normal Form: 1NF, 2NF, 3NF

UNIT IV: Transaction Management: Transactions, ACID properties, Concurrency Control, Locking Techniques, types of locks, Deadlocks, deadlock detection, wait for graphs.

Database Protection:

Recovery : Recovery concepts, undo, redo, deferred update, immediate update, shadow paging.

Security: Types of security, database protection, authentication, authorization, access control security solutions.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Database System Concepts	Henry Korth and A. Silberschatz	McGraw-Hill
2.	File Structure	Michael J. Folk, Greg, Riccardi	Pearson Education
3.	An Introduction to Database System	Bipin Desai	West Publishing Company
4.	Database Management System	Raghu Rama Krishan, J Gehrke	McGraw-Hill

Course Code	CSA130
Course Title	Object Oriented Programming
Type of Course	Core
L T P	4 1 0
Credits	4.5
Course Prerequisites	Basics of Programming
Course Objectives (CO)	Perform object oriented programming to develop solutions to problems. Demonstrate adeptness of object oriented programming in developing solutions to problems demonstrating usage of data abstraction, encapsulation, and inheritance.

SYLLABUS

UNIT I: Introduction

Introduction, Concepts of Object Oriented programming paradigm, Relation to other paradigms (Functional, Data decomposition), Benefits of OOPs, Applications of OOPs, Structure of a simple program, Abstraction, Encapsulation, Inheritance, Polymorphism, information hiding , Difference between Procedural and Object oriented Programming

UNIT II: Basic Terms

Tokens, Keywords, Identifiers, Constant, Variables, Data types, I/O statements, Operators, Manipulators, Control statements

Functions

Structure of function, Function declaration and definition, Call by value, Call by reference, Return by reference, Inline function, Default arguments, Function Overloading

UNIT III: Classes and Objects

Object & classes, attributes, methods, class declaration, State, identity and behavior of an object, Constructors and destructors: instantiation of objects, Default parameter value, object types, garbage collection, dynamic memory allocation, Static Variables and Static Functions, Pointers

UNIT IV: Inheritance and Polymorphism

Inheritance, Types of Inheritance, Class hierarchy, derivation – public, private & protected, Aggregation, composition, classification hierarchies, Abstract Class, Friend Class, Friend function, Polymorphism, Categorization of polymorphism techniques, Method polymorphism, Polymorphism by parameter, Operator overloading.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Object Oriented Programming with C++	E. Balaguruswamy	Tata Mc. Graw Hill
2.	Object Oriented Programming using C++	R.Lafore	Galgotia Publications
3.	Mastering C++	A.R.Venugopal, Rajkumar, Ravishanker	TMH

CSA207 Fundamentals of Database Management System Lab

L T P
0 0 4

Objectives: To educate students with fundamental concepts of Data Base Design, Data Models, Different Data Base Languages (SQL/Oracle).

1. Steps for Installation of ORACLE.
2. Implementation of create table commands, inserting data into tables.
3. Create a program to view data in table.
4. Create a program for sorting of data in table.
5. Create a program for elimination of duplicate rows in a table.
6. Create a program to update the contents of a table.
7. Execute delete operations in a table.
8. Create a program to modify structure of a table.
9. Create a program for implementation of Transaction control statements: commit and rollback.
10. Create a program to implement aggregate functions: count, sum, max, min, avg.
11. Create a program for implementation of data control languages: Granting and revoking permissions in a table.
12. Introduction to PL/SQL.
13. How to apply Conditional Controls in PL/SQL.

CSA136 Object Oriented Programming Lab

L T P

0 0 4

Objectives: Acquire knowledge about the basic concept of writing a program. Understanding the practical use of functions, classes, objects, inheritance and polymorphism.

1. Write and execute simple program to show the working of input/output statements.
2. Write and execute programs to show the use of different types of operators.
3. Write and execute programs based on use of functions.
4. Write and execute programs to demonstrate function call by value and call by reference.
5. Write and execute programs to demonstrate inline functions.
6. Write and execute programs to demonstrate function overloading.
7. Write and execute programs to show concept of classes using public, private, protected members.
8. Write and execute programs to demonstrate use of constructor (parameterized and unparameterized constructor, copy constructor, multiple constructors in a class, constructors with default parameters).
9. Write and execute programs to demonstrate use of destructor.
10. Write and execute programs to demonstrate use of static variables and static functions.
11. Write and execute programs to illustrate different types of inheritance.
12. Write and execute programs to illustrate different access specifiers in inheritance (public, private, protected).
13. Write and execute programs to show the use of pointers to classes.
14. Write and execute programs to show the use of this pointer.
15. Write and execute programs to show the use of friend function.
16. Write and execute programs to show the concept of friend class.
17. Write and execute programs to demonstrate method overloading in classes using different parameters and different return types.
18. Write and execute programs to show the use of virtual function and pure virtual function.
19. Write and execute programs to demonstrate operator overloading in classes with different operators.
20. Write and execute programs using concept of dynamic memory allocation.

Course Code	CSA202
Course Title	Fundamentals of Computer Graphics
Type of Course	Core
L T P	4 0 0
Credits	4
Course Prerequisites	Knowledge of C++ programming
Course Outcome (CO)	This course is designed to provide a comprehensive introduction to computer graphics leading to the ability to understand contemporary terminology, progress, issues, and trends.

SYLLABUS

Unit I:

Introduction to Computer Graphics: Definition, Advantages of computer graphics, Applications of computer graphics, Graphics Hardware, Display devices, Raster Scan and Random Scan.

Unit II:

Raster Scan Graphics: Points, Lines and Line segment, Line drawing algorithms, Digital Differential Algorithm, Bresenham's Line Drawing Algorithm, Midpoint Circle Generation Algorithm, Scan line Polygon Filling Algorithm.

Unit III:

Transformation: Two Dimensional Transformation, Matrix Representation, Translation, Rotation, Scaling, Reflection, Shear

Clipping & Windowing: Viewing transformation, 2-D clipping, Simple Visibility Algorithm, End point codes, Midpoint Subdivision Algorithm, Cohen Sutherland Line Clipping Algorithm, Polygon Clipping Algorithm (Sutherland-Hodgman algorithm), Windowing Transformation

Unit IV:

Three Dimensional Viewing: Viewing Coordinates, 3D Viewing Pipeline, Projections, Types of Projections- Perspective Projection-Transformation matrix, Applications, Anomalies and types of perspective projections, Parallel Projection-Transformation matrix, Applications and types of parallel projections, Comparison of perspective and parallel projections, 3D Clipping, Fractals and their classification

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Computer Graphics	Donald Hearn & M. Pauline Baker	PHI
2.	Computer Graphics	Hill Jr	PrenticeHall
3.	Computer Graphics	Steven Harrington	McGraw-Hill

Course Code	CSA231
Course Title	Fundamentals of Software Engineering
Type of Course	Core
L T P	4 0 0
Credits	4
Course Prerequisites	Knowledge about computer software
Course Outcome (CO)	To define <i>software engineering</i> and explain its importance. To discuss the concepts of software products and software processes.

SYLLABUS

UNIT I: Introduction: Definitions, Characteristics of Software, Software Engineering vs other engineering disciplines, Software Myths, Software Life Cycle Models, Selection of Software Process models, Waterfall and Spiral model, Scheduling & Planning, Software configuration management.

Requirement: Requirement Analysis And Specification, SRS Document

UNIT II: Software Design: Software design, Abstraction, Modularity, Software architecture, Effective modular design, Cohesion and Coupling, Architectural design and procedural design, Data flow oriented design.

User Interface Design: User Interface design, Human factors, Human computer interaction, Computer interface design, Interface design, Interface standards.

UNIT III: Programming Standards: Programming languages and coding, Language classes, Code documentation, Code efficiency, Need for structured programming, Coding standards, Coding Guidelines, Maintainability of programs.

Testing Techniques: Software testing, White Box Testing, Black Box testing, Unit, Integration, Validation and system testing, Quality Control, Software Maintenance & Reuse

UNIT IV: Trends In Software Engineering: Reverse Engineering and Re-engineering, Case Study of CASE tools.

Object Oriented Modeling using UML.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Software Engineering – A Practitioner’s Approach	Roger S Pressman	McGraw Hill
2.	Software Engineering	Sommerville	Pearson Education
3.	An integrated approach to Software Engineering	PankajJalote	Springer

Course Code	CSA232
Course Title	Concept of Computer Architecture
Type of Course	Core
L T P	4 0 0
Credits	4
Course Prerequisites	Knowledge of Computer hardware
Course Outcome (CO)	The main objective of computer organization course is to introduce the main concepts and components of computer organization and architecture.

SYLLABUS

UNIT I: Introduction to Computer Organization, functional units of computer, Computer Design and Computer Architecture, Von Neumann Architecture. Flynn's Classification- SISD, SIMD, MIMD, MISD

Register Transfer and Microoperations– Digital computer, Introduction to Registers, Register Transfer Language

UNIT II: Micro operations: Introduction to micro operations, Types of micro operations-- Logical

Operations, Shift operations, Arithmetic operations, binary adder/subtractor.

Common Bus System : Introduction to Common Bus System, Types of Buses (Data Bus, Control Bus, Address Bus), computer registers.

Computer Instructions– Instruction, Instruction code, addressing schemes, direct, indirect addresses, opcode and operands, Types of Instructions, Instruction Cycle, fetch and decode,

UNIT III: CPU Organization Instruction formats, zero address, one address, two address, three address instructions, Addressing modes. Interrupt: Introduction to Interrupt, classification, Interrupt Cycle.

Control Unit: Function and types,

UNIT IV: Stack Organization: Stack operations, Implementation of stack, Memory Stack and Register Stack

I/O Organization: I/O Interface, Concept of I/O bus

Memory organization: Types of memory, Memory Hierarchy, RAM and ROM,

Cache Memory: Cache Memory, reading and writing into cache, Locality of Reference, Hit Ratio), Page Replacement Algorithms (LRU and FIFO).

RECOMMENDED BOOKS

Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Computer System architecture	Morris Mano	Pearson Education
2.	Computer Organization & Architecture	William Stallings	PHI
3.	Prospective in Computer Architecture	Rao,P.V.S	Prentice Hall of India

Course Code	EVS101
Course Title	Environmental Science
Type of Course	Core
L T P	3 0 0
Credits	3
Course Prerequisites	Knowledge of chemistry
Course Outcome (CO)	Evaluate local, regional and global environmental topics related to resource use and Management. Propose solutions to environmental problems related to resource use and Management. Describe threats to global biodiversity, their implications and potential solutions

Syllabus

UNIT I: Introduction: Definition and scope and importance of multidisciplinary nature of environment. Need for public awareness.

Natural Resources: Natural Resources and associated problems, use and over exploitation, case studies of forest resources and water resources.

UNIT II: Ecosystems: Concept of Ecosystem, Structure, interrelationship, producers, consumers and decomposers, ecological pyramids-biodiversity and importance. Hot spots of biodiversity

UNIT III: Environmental Pollution: Definition, Causes, effects and control measures of air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear hazards. Solid waste Management: Causes, effects and control measure of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies. Disaster Management : Floods, earthquake, cyclone and landslides

UNIT IV: Social Issues and the Environment From Unsustainable to Sustainable development, Urban problems related to energy, Water conservation, rain water harvesting, watershed management. Resettlement and rehabilitation of people; its problems and concerns. Case studies. Environmental ethics: Issues and possible solutions. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust..

Recommended Books			
Sr. no.	Name	Authors	Publications
1.	Environment Biology.	K. C. Aggarwal	Nidhi Publications.
2.	Environment Protection and Laws	Jadhav, H &Bhosale, V.M	Himalaya Publications
3.	Principle of Environment Science	Cunninghan	Wiley
4.	Waste Water Treatment	Rao M. N. &Datta A.K.	Oxford & IBH Publications

Course Code	CSA204
Course Title	Programming in PHP
Type of Course	Core
L T P	4 0 0
Credits	4
Course Prerequisites	Programming in C++, Database System
Course Outcome (CO)	Learn to design and develop Web-based applications using PHP technology that meet commercial programming standards.

SYLLABUS

Unit I:

Basics of PHP-Introducing PHP-features, advantages, operators, statements, installation, Syntax, Variables, PHP data types, PHP print, Constants, String, Operators, Arrays, PHP forms-handling, validation, form required, form URL.

Unit II:

Advanced PHP-file handling, multi array, data and time function, include, file create and write, file open and read, cookies, session, filters, Exception, error handling, uploads.

MYSQL Database-database, create database, connect, and create tables, insert data, insert multiple, select data, delete data, update data.

Unit III:

Introduction to CSS -introduction, syntax, types of CSS, borders, Margins, background, padding, colours, text, fonts, background, images, buttons, icons, links, CSS Box model.

Unit IV:

HTML –introduction, editors, basic, elements, attributes, heading, paragraphs, styles, comments, lists, blocks, classes, Images, tables, forms input type, form elements, form input attributes, responsive, frames, JavaScript, entities, symbols, head, layouts, HTML5 intro, HTML media audio and video.

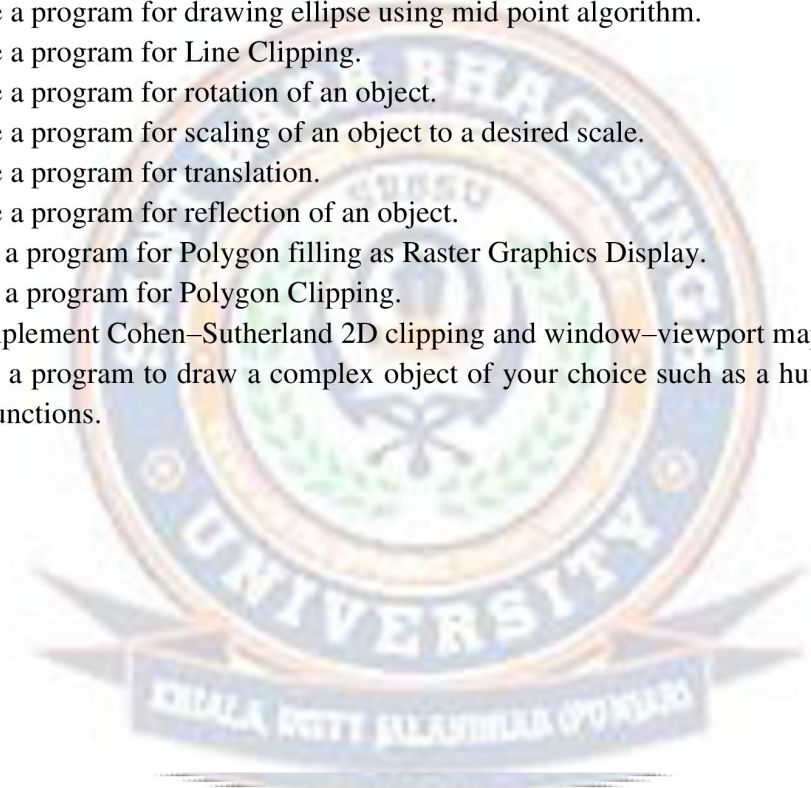
RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	PHP: The Complete Reference	Steven Holzner	McGraw Hill
2.	Learning PHP MYSQL and Java Script	Robin Nixon	O'Reilly

CSA206 Fundamentals of Computer Graphics Lab

L T P
0 0 4

Objectives: This course is designed to provide a comprehensive introduction to computer graphics leading to the ability to understand contemporary terminology, progress, issues, and trends.

1. Write a program for 2D line drawing using Bresenham's algorithm.
2. Write a program for 2D line drawing using DDA algorithm.
3. Write a program for circle drawing using Bresenham's algorithm.
4. Write a program for drawing ellipse using mid point algorithm.
5. Write a program for Line Clipping.
6. Write a program for rotation of an object.
7. Write a program for scaling of an object to a desired scale.
8. Write a program for translation.
9. Write a program for reflection of an object.
10. Write a program for Polygon filling as Raster Graphics Display.
11. Write a program for Polygon Clipping.
12. To implement Cohen-Sutherland 2D clipping and window-viewport mapping.
13. Write a program to draw a complex object of your choice such as a hut using simple graphic functions.



CSA208 Programming in PHP (Lab)

L T P
0 0 4

Outcome: To become familiar with the operation of PHP and Acquire knowledge about the basic concept of writing a program in PHP.

1. Introduction to Web technologies, Web browsers
2. Integrated Development Environment
3. Working with html tags
4. Working with Images and Styles in Web page
5. Table, list and linking with multiple pages.
6. Animation Frames and Forms
7. Control Structures and User interface.
8. Cascading Style Sheet
9. CSS with images and styles
10. Insert menus in Web-page Using Menu Maker.
11. Introduction to Open-Source Technologies
12. WAMP server (Apache, MySql, Php).
13. Basics of PHP and some other stuff. Basics of PHP and some other stuff.
14. MySql.
15. Handling Databases
16. Data Definition language and Data Manipulation Language.
17. PhpMyadmin
18. Connectivity of Php and MySql and handling Sessions
19. Array and String Handling.
20. Creating Automated Dynamic Web-Site
21. Content Management Systems
22. Page Post Blog and Feed
23. Plugins and Gadgets (all in one seo, google xml sitemapm editor extender, tiny contactform, ulimatega etc.)
24. More on Content management System and Learning Management System
25. Developing a web application using Php ,Html,CSS,Wordpress.

Course Code	CSA301
Course Title	Java Programming
Type of Course	Core
L T P	4 0 0
Credits	4
Course Prerequisites	Object Oriented Programming
Course Outcome (CO)	To teach the basic concepts and techniques which form the object oriented programming paradigm and Fundamental features of an object oriented language like Java: object classes and interfaces, exceptions and libraries of object collections.

SYLLABUS

Unit I:

Java Evolution and basics of Java: - Java History; Java Features; How Java Differs from C and C++; Java and Internet, Java and World Wide Web, Web Browsers; Hardware and Software Requirements; Java Support Systems, Java Environment, Constants; Variables; Data Types, Operators, Expressions; Operator Precedence; Mathematical Functions, Looping Statements, Jumping Statements, Arrays; Jagged Arrays; Strings; String functions: Vectors;

Unit II:

Classes, Objects And Methods: - Introduction, Defining a Class; Adding Variables; Adding Variables; Adding Methods; Creating Objects; Accessing Class Members; Constructors; Methods Overloading; Static Members; Nesting of Methods; Inheritance, Extending a class, Visibility Control, Wrapper Classes.

Packages and Interfaces: Introduction, System Packages, Using System Packages, Creating and using Packages, Defining Interfaces; Extending and Implementing Interfaces. Inheritance and Polymorphism: Introduction, Types of inheritance and their implementation, Polymorphism: run-time and compile time polymorphism, implementation of polymorphism.

Unit III:

Managing Errors And Exceptions: - Introduction; Types of Errors; Exceptions; Exception Handling using Try, Catch and Finally block: Throwing Our Own Exceptions.

Threads: Introduction to threads, Concepts of Multitasking and Multithreading, Life cycle of a thread, Implementation of threads and its methods.

Unit IV:

Applet Programming: - Introduction; How Applets Differ from Applications; Applet Life Cycle; Creating an Executable Applet; Passing Parameters to Applets; Aligning the Display; More about HTML Tags; Displaying Numerical Values; Getting Input from the User.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Java-2 The Complete Reference	Patrick Naughton and HerbertzSchildt	TMH
2.	Dynamic Web Publishing	Shelley Powers	Techmedia
3.	Beginning Java-2	Ivor Horton	SPD Publication
4.	Java Servlet Programming	Jason Hunter	O'Reilly

Course Code	CSA303
Course Title	Software Testing & Quality Assurance
Type of Course	Theory(Compulsory)
L T P	4 0 0
Credits	4
Course Prerequisites	Concepts of Software Engineering
Course Outcome (CO)	Learning about testing techniques and how to attain the quality

SYLLABUS

UNIT I: Software Engineering introduction, software development models. Testing and its concepts: significance and potentials

Testability and features of test cases.

UNIT II: Software Testing Techniques: White box testing, Black Box Testing, Static analysis, symbolic testing, program mutation testing, functional program testing, regression testing, data flow testing.

Software Testing Strategies: Approach, issue, integration, incremental, system, alpha, beta testing.

UNIT III: Comparative evaluation of techniques: testing tools, dynamic analysis tools, test data generators, debugger and test drivers.

Technical Metrics for Software: Quality factors, framework, metrics for analysis, design, testing source code

UNIT IV: Quality Assurance: Concepts, importance and essence, FTR, structured walk through technique, Software reliability, validation, safety and hazard analysis, feature affecting quality of software, SQA plan

Quality Models: ISO 9000, SEI CMM and their relevance, COCOMO

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1	Learnig Software Testing with Test Studio	RawaneMadi	Shroff and Pactt
2	Exploratory Software Testing: Tips, Tricks, Tours and Techniques to guide Test Design	James A. Whittaker	Addison Wesley
3	Mobile Software Testing	Narayanan Palani	
4	Software Testing and Quality Assurance	Naik and Tripathi	Wiley

Course Code	CSA305
Course Title	Multimedia System
Type of Course	Theory(Compulsory)
L T P	4 0 0
Credits	4
Course Prerequisites	Computer fundamentals, concepts of Networking
Course Outcome (CO)	This Course introduces the multimedia systems and their applications to students. This course covers the different compression standards used in multimedia, some current technology and related issues.

SYLLABUS

UNIT I: Multimedia System: Multimedia elements, Multimedia applications, Global structure, Evolving Technologies for Multimedia systems

Multimedia: Media & Data Streams

Medium, Multimedia: media & data streams, Main properties of a multimedia system, Traditional data stream characteristics, Data stream characteristics for continuous media, Information units

UNIT II: Sound / Audio: Basic sound concepts. Music: MIDI basic concepts, MIDI devices, MIDI messages, MIDI. Software. Speech: Speech generation, Speech Analysis, Speech Transmission

Image And Graphics: Digital Image Representation, Image Formats, Graphics Formats, Computer Image Processing: Image Synthesis, Image Analysis, Image Transmission, Image File Formats: BMP, JPEG, TIFF, PNG.

UNIT III: Video & Animation

Basic concepts, Television (Conventional systems, Enhanced definition systems, High Definition system), Computer based Animation

Data Compression

Storage space, Coding requirements, Source Entropy & Hybrid coding, Basic compression techniques (Runlength & Huffman encoding, Introduction to following compression techniques: JPEG, H.261, (PX64), MPEG, DVI

UNIT IV: Optical Storage Media & Retrieval Technologies

Basic Technology, Video Disk & other WORMS, CD ROM, CD ROM Extended Architecture, Compact Disk Magneto optical

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1	Multimedia System Design	P. K. Andleigh, KiranThakrar	
2	Multimedia Computing Communication & Application	Ralf Steinmetz, &KlaraNashtedt	Pearson Education
3	Multimedia Fundamentals, Volume 1, Media Coding and Content Processing	Steinmetz	Pearson Education
4	Multimedia Communication Systems Techniques, Standard and Networks	Bojkovic&Milovanov icRao	PHI

Course Code	CSA335
Course Title	Fundamentals of Data Structures
Type of Course	Core
L T P	4 0 0
Credits	4
Course Prerequisites	Knowledge of Programming Language
Course Outcome (CO)	This course is intended as an introduction to data structures, algorithms, and more advanced programming techniques. Students will be able to solve real-world problems by reasoning about data structure choices, choose appropriate implementations, and analyze the costs associated with those choices. Students will learn to write, debug, and test large programs systematically.

SYLLABUS

UNIT I: Introduction to Data Structure and its Characteristics

Data Structure and its terminology, types of data structure, operations on data structure, Time & Space Complexity, big Oh Notation.

Array: Introduction. Linear array. Representation of linear array in memory. Traversing linear array. Inserting and Deleting

UNIT II: Stacks and Queues

Introduction and primitive operations on stack; Stack application; Infix, postfix, prefix expressions; Evaluation of postfix expression; Conversion between prefix, infix and postfix, introduction and primitive operation on queues, D- queues and priority queues

Linked List

Introduction to linked lists; Sequential and linked lists, operations such as traversal, insertion, deletion searching, Two way lists and Use of headers

UNIT III: Tree: Introduction and terminology; Traversal of binary trees; Recursive algorithms for tree operations such as traversal, insertion, deletion; Binary Search Tree, Heap, AVL Tree, B- Tree, B⁺ Tree.

Graph: Introduction, Traversal of Graph- Breadth First Search, Depth First Search.

UNIT IV: Sorting & Searching

Sorting Techniques: Bubble sort, Insertion sort, selection sort, merge sort, heap sort, radix sort, Searching Techniques: linear search, binary search and hashing

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Fundamentals of Data structures	E.Horowitz and S.Sahani	Galgotia Book source Pvt. Ltd.
2.	Data Structures & Algorithms	R.S.Salaria	Khanna Book Publishing Co. (P) Ltd.
3.	Data Structures using C and C++	Y.Langsam et. Al.,	PHI

Course Code	SSE303
Course Title	Human Values & Professional Ethics
Type of Course	Core
L T P	3 0 0
Credits	3
Course Prerequisites	Nil
Course Outcome (CO)	To help the students to discriminate between valuable and superficial in the life. To help develop the critical ability to distinguish between essence and form, or between what is of value and what is superficial, in life – this ability is to be developed not for a narrow area or field of study, but for everyday situations in life, covering the widest possible canvas. To help students develop sensitivity and awareness; leading to commitment and courage to act on their own belief.

SYLLABUS

UNIT I: Introduction – Need, Basic Guidelines, Content and Process for Value Education
Understanding the need, basic guidelines, content and process for Value, Education. Self Exploration- its content and process; Natural Acceptance and Experiential Validation- as the mechanism for self exploration. Continuous Happiness and Prosperity- A look at basic Human Aspirations, Right understanding, Relationship and Physical Facilities- the basic requirements for fulfillment of aspirations of every human being with their correct priority Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario.

UNIT II: Understanding Harmony in the Human Being – Harmony in Myself! Understanding human being as a co-existence of the sentient „I and the material “Body” Understanding the needs of Self (“I”) and “Body” – Sukh and Suvidha, Understanding the Body as an instrument of Understanding the characteristics and activities of “I” and harmony in “I”

UNIT III: Understanding Harmony in the Family and Society- Harmony in Human, Human Relationship Understanding harmony in the Family- the basic unit of human interaction, Understanding values in human-human relationship, Trust (Vishwas) and Respect (Samman) as the foundational values of relationship Understanding the meaning of Vishwas; Difference between intention and competence Understanding the meaning of Samman, Difference between respect and differentiation; the other salient values in relationship
Understanding Harmony in the Nature and Existence – Whole existence as Co-existence Understanding the harmony in the Nature, Interconnectedness and mutual fulfillment among the four orders of nature recyclability and self-regulation in nature Understanding Existence as Co-existence (Sah-astitva) of mutually interacting units in all-pervasive space Holistic perception of harmony at all levels of existence

UNIT IV: Implications of the above Holistic Understanding of Harmony on Professional Ethics Natural acceptance of human values, Definitiveness of Ethical Human Conduct, Basis for Humanistic Education, Humanistic Constitution and Humanistic, Universal Order Competence in professional ethics: Ability to utilize the professional competence for augmenting universal human order ,Ability to identify the scope and characteristics of people-friendly and ecofriendly production systems ,Ability to identify and develop appropriate technologies and management patterns for above production systems.

RECOMMENDED BOOKS

Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Small is Beautiful: a study of economics as if people mattered	E.F. Schumacher	Blond & Briggs, Britain.
2.	Science and Humanism	PL Dhar, RR Gaur	Commonwealth Purblishers
3.	Human Values	A.N. Tripathy	New International Age Publishers



CSA307 Java Programming Lab

L T P
0 0 4

Objectives: This subject aims to introduce students to the Java programming language. Upon successful completion of this subject, the students should be able to create Java programs that leverage the object-oriented features of the Java language, such as encapsulation, inheritance and polymorphism; use data types, arrays and other data collections; implement error-handling techniques using exception handling.

1. Implementation of Operators and Mathematical Functions
2. Implementation of Decision making, Branching and Looping Statements
3. Implementation of classes.
4. Implementation of Arrays, Strings and Vectors.
5. Implementation of inheritance.
6. Implementation of packages and interfaces.
7. Implementation of threads.
8. Using exception handling mechanisms.
9. Implementation of Applets.
10. Implementation of mouse events, and keyboard events.
11. Implementing basic file reading and writing methods.
12. Connecting to Database using JDBC.



CSA337 Fundamentals of Data Structures Lab

L T P
0 0 4

Objectives: The objective of this course is to teach students various data structures and to explain them algorithms for performing various operations on these data structures. It demonstrates familiarity with major algorithms and data structures. It helps in choosing the appropriate data structure and algorithm design method for a specified application.

1. Implementation of 1D Array
2. Implementation of Matrix using 2D Array
3. Implementation of singly linked lists
4. Practicing types of Linked list (double, circular)
5. Implementation of linked list operations
6. Implementation of Stack using Array
7. Implementation of Stack using Linked List
8. Implementation of stack operations
9. Implementation of Queue (Circular queue) using Array
10. Implementation of Queue (Circular queue) using Linked List
11. Implementation of queue operations
12. Implementation of Binary Tree
13. Implementation of Pre-order, Post-order and in-order traversal of tree
14. Implementation of BFS and DFS



CSA309 Minor Project

L T P
0 0 6

The student will submit a minor project that can be based on any subject a candidate has studied throughout his/her UG programme like:

Software Engg

Programming in C/C++

Computer Graphics

Java Programming

Data Base Management Systems

and any other related subjects.



Course Code	CSA302
Course Title	Fundamentals of E-Commerce
Type of Course	Core
L T P	4 0 0
Credits	4
Course Prerequisites	Nil
Course Outcome (CO)	It explains the main concepts related to e-commerce. Enable students to understand the enabling technologies for e-commerce.

SYLLABUS

UNIT I: Introduction to E-Commerce: The Scope of Electronic Commerce, Definition of ElectronicCommerce, Electronic E-commerce and the Trade Cycle, Electronic Markets, Electronic Data Interchange, Internet Commerce, E-Commerce in Perspective.

Business Strategy in an Electronic Age: Supply Chains, InterOrganizational Value Chains, Competitive Strategy, Competitive Advantage using E -Commerce, Business Strategy, Introduction to Business Strategy, Strategic Implications of IT, Technology, Business Environment, Business Capability, Exiting Business Strategy, Strategy Formulation & Implementation Planning, E-Commerce Implementation, E-Commerce Evaluation, Electronic Data Interchange (EDI).

UNIT II: Introduction to HTML: HTML Fundamentals HTML Browsers, HTML tags, Elements and Attributes, Structure of HTML code, Lists , Ordered List , Unordered List Definition, List Nesting List ,Block Level Tags ,Block formatting, Heading, Paragraph, Comments, Text alignment, Font size , Text Level Tags , Bold, Italic, Underlined, Strikethrough, Subscript, superscript , Inserting graphics, Scaling images, Frameset, Forms

UNIT III: Internet and Extranet: Automotive Network Exchange, The Largest Extranet, Architecture ofthe Internet, Intranet and Extranet.

Electronic Payment Systems : Electronic Payments & Protocols, SecuritySchemes in Electronic payment systems, Electronic Credit card system on the Internet, Electronic Fund transfer and Debit cards on the Internet, Stored – value Cards and E- Cash, Electronic Check Systems, Prospect of Electronic Payment Systems, Managerial Issues.

UNIT IV: Public Policy: From Legal Issues to Privacy : EC- Related Legal Incidents, Legal Incidents,Ethical & Other Public Policy Issues, Protecting Privacy, Protecting Intellectual Property, Taxation Policies, Consumer & Seller Protection In EC.

Security: Cryptography, Public Key and Private Key Cryptography, Digital Signatures, Digital Certificates

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	E-Commerce	David Whiteley	Tata McGraw Hill
2.	Electronic Commerce	Eframi Turban, Jae Lee, David King	Pearson Education
3.	E-commerce	Laudon, K.C. and Traver, C.G	Prentice Hall

Course Code	CSA304
Course Title	Computer Peripherals and Interfaces
Type of Course	Theory(Compulsory)
L T P	4 0 0
Credits	4
Course Prerequisites	Basic knowledge of computer system
Course Outcome (CO)	This course will provide knowledge about functional and operational details of various peripheral devices.

SYLLABUS

UNIT I: System Resources: Interrupt, DMA Channel, I/O Port Addresses, I/O buses- ISA, EISA, Local bus, VESA Local bus, PCI bus, PCI Express, Accelerated graphics port bus.

UNIT II: I/O Interfaces and Drivers: I/O Interfaces: USB and IEEE1394, Parallel to SCSI converter, Testing of serial and parallel port, ~~USB~~ Mouse/Keyboard Interfaces, Role of device drivers, Design & Integration of Peripheral devices to a computer system as a Case Study

IDE & SCSI Interfaces: IDE origin, IDE Interface ATA standards ATA1 to ATA7. ATA feature, ATA RAID and SCSI RAID, SCSI Cable and pin Connector pin outs SCSI V/s IDE Advantages and limitation.

UNIT III: Video Hardware: Video display technologies, DVI Digital signals for CRT Monitor, LCD Panels, Video adapter types, Integrated Video/ Motherboard chipset, Video RAM, Video driver and multiple Monitor, Graphic accelerators. Advanced 3D Technologies, TV Tuner and Video Capture upgrades.

UNIT IV: Future Trends: An analysis of recent progress in the Peripheral and Bus systems with their cost and performance.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Microprocessors and Interfacing	Douglas V. Hall	Tata McGraw Hill
2.	The intel microprocessors	Barry B. Brey&C.R.Sarma	Pearson
3.	Microcomputer buses & links	Del Corso, H.Kirman, JD Nicond	Academic Press
4.	Computer Organization and design	P. Pal Chandhari	Prentice Hall of India Pvt. Ltd

Course Code	CSA306
Course Title	Data Warehousing and Mining
Type of Course	Theory(Compulsory)
L T P	4 0 0
Credits	4
Course Prerequisites	Knowledge of Database Management Systems
Course Outcome (CO)	To develop an understanding of the strengths of data mining techniques and business applications of data mining. To know basics of warehousing

SYLLABUS

UNIT I: Data Warehousing: Definition, OLAP technologies – Multi Dimensional modelling, data warehouse architecture, Data warehouse implementation, Data preprocessing - Concept & description.

Mining: Basics of data mining, related concepts, Data Mining Issues, Data Mining Metrics, Data mining techniques.

UNIT II: Data Mining Algorithms: Data Mining techniques – classification, A Statistical Perspective on Data Mining, Similarity Measures, Decision Trees, Neural Networks, Genetic Algorithms.

UNIT III: Mining Functionalities:

Clustering: similarity and distance measures, Hierarchical Algorithms, Partitional Algorithms, Clustering Large Databases, K-Means Clustering algorithm, Advanced mining methods.

Association Rules: Basic Algorithms, Parallel and Distributed Algorithms, Incremental Rules, Advanced Association Rule Techniques, Measuring the Quality of Rules.

Data Processing: Data Cleaning, Data Integration and Transformation, Data Reduction, Discretization and concept of Hierarchy Generation.

UNIT IV: Mining Concepts: Data mining primitives, Query language, Designing GUI based on a data mining query language, Architectures of data mining system Application and Trends in Data Mining: Applications, Systems products and research prototypes, Additional themes in data mining, Trends in data mining.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1	Data Warehousing Fundamentals	Paulraj Ponnian	John Wiley
2	Data Mining Concepts and Techniques	Han, Kamber	Morgan Kaufmann
3	Data Mining Introductory and Advanced Topics Data Mining Concepts and Techniques	M.H. Dunham	Pearson Education

Course Code	CSA308
Course Title	Advanced Java Programming
Type of Course	Core
L T P	4 0 0
Credits	4
Course Prerequisites	Java Programming
Course Outcome (CO)	This course will help students to learn about advance topics of java like swing, Servlet, Java Beans, JSP.

SYLLABUS

Unit I:

JDBC Fundamentals: Establishing Connectivity and working with connection interface, Working with statements, Creating and Executing SQL statements, Working with ResultSet Object &ResultSetMetaData, SQL Exception class.

Unit II:

Java AWT: Java AWT package Containers (Component, Container, Panel, Window, Frame, Canvas), Basic User Interface components (Labels, Buttons, Check Boxes, Radio Buttons, Choice, Text Fields, Text Areas, Scrollbars), Layouts (Flow Layout, Grid Layout, Border Layout, Card Layout).

Java Swing: JApplet, Icons & Labels Button & Label, TextField & Buttons, CheckBoxes, Radio buttons, Combo Box & Lists, Scroll panes, Trees, Tables, Menu Bars & Menus, Dialog Boxes, File Dialog

Event Handling: Event delegation Approach, ActionListener, AdjustmentListener, MouseListener and MouseMotionListener, WindowListener, KeyListener

Unit III:

Java Server Pages: JSP , Advantage of JSP Technology (Comparison with ASP / Servlet) ,JSP Architecture , JSP Access Model ,JSP Syntax Basic (Directives, Declarations, Expression, Scriptlets, Comments) JSP Implicit Object , Object Scope ,Synchronization Issue ,Exception Handling ,Session Management.

Servlets: Introduction, Life cycle of servlet, Handling HTTP Get Request Handling HTTP Post Request

Unit IV:

JavaBeans: Introduction & Advantages of JavaBeans, Application Building Tools Bean Development Kit, JAR Files, Developing Simple Bean Using the JDK. The Java Bean API

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	The Complete Reference JAVA 2	Herbert Schildt	TMH
2.	The Complete Guide to JAVA Database Programming	Matthew Siple	Osborne/McGraw-Hill

Course Code	MGT336
Course Title	Introduction to Human Resource Management
Type of Course	Core
L T P	4 0 0
Credits	4
Course Prerequisites	Nil
Course Outcome (CO)	In this course, students will learn the basic concepts and frameworks of human resource management (HRM), and understand the role that HRM has to play in effective business administration.

SYLLABUS

UNIT I: Human Resource Management - Definition - Objectives - Functions - Scope - Importance - HRM in India - Evolution of HRM - Computer Application in Human Resource Management - Quality of a good Human Resource Managers - Human Resource Planning - Job Analysis, Job description and Job Specification.

UNIT II: Recruitment and Selection - Sources of Recruitment - Selection Process - Test Types - Interview Types - Career Planning - VS Man Power Planning and succession Planning - Career Planning - Process - Career Development - Placement and Induction.

Training - Methods of Training - Executive Development - Performance Appraisal - Methods of Performance Appraisal - Transfers - Promotion - Wage & Salary Administration - Wage

UNIT III: Boards and Pay Commission - Wage Incentive - Fringe Benefits - Employees Welfare - Safety and Health Measures - Grievance Procedures - Redressal of Grievances.

Industrial Relations - Meaning & Characteristics Industrial Relations - Parties to Industrial relations - Nature of Trade Unions - Problems of Trade Union - Measures to Strengthen Trade

UNIT IV: Union Movement in India - Causes for Industrial Disputes - Settlement of Industrial Disputes.

Collective - Bargaining - Features - Pre-requisite of Collective Bargaining - Agreement at different levels - Workers Participation in Management - Objectives for Successful Participation.

RECOMMENDED BOOKS			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1.	Human Resource Management	Dr. C.B. Gupta	Sultan and Sons.
2.	Personnel & Human Resource Management	P. SubbaRao	Himalaya Publishing House.
3.	Human Resource Management	Pattanayak	PHI

CSA310 Fundamentals of E-Commerce Lab

L T P
0 0 4

Objectives: This subject aims to introduce students to the basic concepts of website development. It will also provide knowledge about different e-commerce websites.

Development of web site of any organization, Informative web sites.

Web site must contain

- links to home pages
- features/ products of company /organization
- employee information
- administration information
- company polices



CSA312 Advanced Java Programming Lab

L T P
0 0 4

Objectives: Upon successful completion of this subject, the students should be able to create Java programs that leverage the object-oriented features of the Java language, like swing, servlet, java beans and JSP.

1. Implementation of simple frame using swing.
2. Implementation of button, radio button, check box, combo box etc. to a frame using swing.
3. Implementation of displaying information about available font using swing.
4. Creating simple “Hello World” Servlet application.
5. Implementation of data servlet, session servlet, counters servlet etc.
6. Implementation of java beans.
7. Using exception handling mechanisms.
8. Implementation of simple JSP page
9. Implementation of response object in JSP
10. Implementation of exception handling using JSP.
11. Implementation of session management using JSP



CSA314 Major Project

L T P
0 0 6

Guidelines for project work

1. Student can opt any programming language/software, Foxpro, C, C++, VC++, Oracle, VB, Java etc. package for project work.
 2. An individual or group of maximum 3 (three) students can work on single project
 3. Project should strictly developed in lab and student should get it checked from guide time to time.
 4. Student should get the Synopsis of project approved from guide well in advance
 5. The project work should covers
- Cover page
 - Certificate
 - Declaration
 - Acknowledgment
 - Index
 - Introduction of project
 - Data flow diagram
 - Source code
 - Result/output
 - Limitations
 - Conclusion
 - Bibliography

Student should submit one copy of project to the college.