

MVN University, Haryana

ANNEXURE- 5

MVN UNIVERSITY

Department of Computer Science and Engineering

Diploma in Engineering

Scheme And Syllabus

MVN University, Haryana

Department of Computer Science and Engineering

Diploma in Computer Science and Engineering

Semester-I

Annexure-5

S.No	Name of subject	Sub code	Teaching Schedule			Total	Credit
			L	T	P		
1	Mathematics-I	AHL003	4	1	0	5	5
2	Physics-I	AHL001	4	1	2	7	6
3	Effective Communication in English-I	AHL005	3	1	0	4	4
4	Fundamental of Computers	CSL001	3	1	2	6	5
5	Chemistry	AHL010	3	1	2	6	5
	Basics of Electrical & Electronics Engineering	EEL010					
6	Engineering Drawing	MEP010	1	0	3	4	2
	Workshop	MEP020					
7	Language Communication-I	AHL007	3	0	0	3	NC
	Total		21	5	9	35	27

Semester-II

S.No	Name of subject	Sub code	Teaching Schedule			Total	Credit
			L	T	P		
1	Physics-II	AHL002	4	1	2	7	5
2	Mathematics-II	AHL004	4	1	0	5	5
3	Effective Communication in English-II	AHL006	3	1	0	4	4
4	Introduction to C	CSL002	3	1	2	6	5
5	Chemistry	AHL010	3	1	2	6	5
	Basics of Electrical & Electronics Engineering	EEL010					
6	Engineering Drawing	MEP010	1	0	3	4	2
	Workshop	MEP020					
7	Language Communication-II	AHL008	3	0	0	3	NC
	Total		21	5	9	35	27

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Department of Computer Science and Engineering

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Semester-III

Annexure-5

S.No	Name of subject	Sub code	Teaching Schedule			Total	Credit
			L	T	P		
1	Data Structures using C	CSL031	3	1	2	6	5
2	Operating System	CSL033	3	1	2	6	5
3	Software Engineering	CSL035	3	0	0	3	3
4	Computer Networks	CSL037	3	0	0	3	3
5	Discrete Structures	CSL039	3	1	0	4	4
6	Math III	AHL 033	4	1	0	5	5
7	Language Communication-III	AHP031	1	0	2	3	NC
8	VAC-I	CSV031	0	0	2	2	NC
	Total		20	4	8	32	25

Semester-I V

S.No	Name of subject	Sub code	Teaching Schedule			Total	Credit
			L	T	P		
1	Web Programming	CSL032	3	1	2	6	5
2	Object Oriented Programming with C++	CSL034	3	1	2	6	5
3	Computer Architecture and Organization	CSL036	3	1	0	4	4
4	Data Base Management System	CSL038	3	0	2	5	4
5	Advanced Networking	CSL042	0	0	4	4	2
6	Language Communication-IV	AHP032	1	0	2	3	NC
7	Basics of EVS	AHL 034	2	0	0	2	2
8	Minor Project	CSP032	0	0	4	4	2
	Total		15	3	16	34	24

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Semester-V

Annexure-5

S.No	Name of subject	Sub code	Teaching Schedule			Total	Credit
			L	T	P		
1	Core Java	CSL061	3	1	2	6	5
2	Computer Graphics	CSL063	3	1	0	4	4
3	Computer Hardware and Maintenance	CSL065	3	0	2	5	4
4	Basics of .Net Technology	CSL067	3	0	2	5	4
5	Language Communication-V	AHL061	2	0	0	2	NC
6	VAC-II	CSV061	0	0	2	2	NC
7	Project-I	CSP061	0	0	4	4	2
8	Industrial Training viva	CST042	0	2	0	2	2
	Total		14	4	12	30	21

Semester-VI

S.No	Name of subject	Sub code	Teaching Schedule			Total	Credit
			L	T	P		
1	Advanced .Net Technology	CSL062	3	0	2	5	4
2	Multi Media Technology	CSL064	3	0	2	5	4
3	Graph Theory	CSL066	3	0	0	3	3
4	Advanced Java	CSL068	3	0	2	5	4
5	Relational Data Base Management System	CSL072	0	0	4	4	2
6	Seminar	CSS062	0	2	0	2	2
7	Language Communication-VI	AHL062	2	0	0	2	NC
8	Project-II	CSP062	0	0	4	4	2
	Total		14	2	14	30	21

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Department of Computer Science and Engineering

Diploma in Computer Science and Engineering

Semester-I

Annexure-5

S.No	Name of subject	Sub code	Teaching Schedule			Total	Credit
			L	T	P		
1	Mathematics-I	AHL003	4	1	0	5	5
2	Physics-I	AHL001	4	1	2	7	6
3	Effective Communication in English-I	AHL005	3	1	0	4	4
4	Fundamental of Computers	CSL001	3	1	2	6	5
5	Chemistry	AHL010	3	1	2	6	5
	Basics of Electrical & Electronics Engineering	EEL010					
6	Engineering Drawing	MEP010	1	0	3	4	2
	Workshop	MEP020					
7	Language Communication-I	AHL007	3	0	0	3	NC
	Total		21	5	9	35	27

Semester-II

S.No	Name of subject	Sub code	Teaching Schedule			Total	Credit
			L	T	P		
1	Physics-II	AHL002	4	1	2	7	5
2	Mathematics-II	AHL004	4	1	0	5	5
3	Effective Communication in English-II	AHL006	3	1	0	4	4
4	Introduction to C	CSL002	3	1	2	6	5
5	Chemistry	AHL010	3	1	2	6	5
	Basics of Electrical & Electronics Engineering	EEL010					
6	Engineering Drawing	MEP010	1	0	3	4	2
	Workshop	MEP020					
7	Language Communication-II	AHL008	3	0	0	3	NC
	Total		21	5	9	35	27

CSL001	Fundamental of Computers	L	T	P	Cr
		3	1	2	5

Objective

Today is the era of Computer. This subject focuses on the introduction to Computers.

Theory

Note: Total five questions are to be attempted from Sections A & B.

SECTION – A

Unit 1: Introduction to Computer

Elements of computer system, computer hardware and software; data – numeric data, alpha numeric data; contents of a program, processing.

Unit 2: Computer and Devices

Computer organization, block diagram of a computer, CPU, memory, Input devices; keyboard, mouse etc; output devices; VDU and Printer, Scanner, Plotter, Electrical requirements, inter-connections between units, connectors and cables.

Unit 3: Memory Hierarchy

Secondary storage; magnetic disks – tracks and sectors, optical disk (CD and DVD Memory), primary and secondary memory: RAM, ROM, PROM etc., Capacity; device controllers, serial port, parallel port, system bus, Exercises on file opening and closing; memory management; device management and input – output (I/O) management with respect of windows.

SECTION – B

Unit 4: Operating system and its installation

Installation concept and precautions to be observed while installing the system and software. Introduction about Operating Systems such as MS-DOS and Windows, Special features, various commands of MS- Word and MS-Excel.

Unit 5: Networking

Basics of Networking – LAN, WAN, Topologies.

Unit 6: Introduction to Internet

About the internet – server types, connectivity (TCP/IP, shell); applications of internet like: e-mail and browsing, Various Browsers like WWW (World wide web); hyperlinks; HTTP (Hyper Text Transfer Protocol); FTP (File Transfer Protocol).

Text books

- 1- Fundamentals of Computers and Programming with C by A. K. Sharma Dhanpat Rai publications
- 2- Fundamentals of Computer by V Rajaraman; Prentice Hall of India Pvt. Ltd., New Delhi
- 3- Computers Today by SK Basandara, Galgotia publication Pvt Ltd. Daryaganj, New Delhi

Reference books

- 1 Beginning MS-Office 2010 by Guy Hart-Davis; Apress 2010
- 2 Internet for Every One by Alexis Leon and Mathews Leon; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi
- 3 Computer Fundamentals by P K Sinha; BPB Publication, New Delhi

Fundamental of Computer Lab:

List of Practical's:

Working with MS- Office:

MS-Word: Word Basics, Commands, Formatting, Text and Documents, Sorting, Mail Merge etc.

- 1- To prepare your Resume using MS Word

MS-EXCEL: Basic, Formatting, Functions, Creating Charts, Working with Graphics, Using worksheet as Databases.

- 1- To prepare the list of marks obtained by students in different subjects and show with the help of chart/graph.
- 2- Also find the average, minimum and maximum marks in each subject.

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MS-POWER POINT: PowerPoint Basics, Creating Presentations, Slide show, working with Graphics.

1- Prepare a presentation explaining the facilities/infrastructure available in your college/institute.

MS-ACCESS: Creating tables, Creating Queries, Creating Forms and Report.

1- Create a database of books in the library and manipulate the database using different forms and reports.

Books:

1- Text: TATA MCGRAW HILL MS office book

2- Ref: MS-Office 2010

CSL002	Introduction to C	L	T	P	Cr
		3	1	2	5

Objective

This subject focuses better understanding and deeper knowledge of the basic features of the C programming language.

Theory

Note: Total five questions are to be attempted from Sections A & B.

SECTION – A

Unit 1

Introduction to any Operating System [Unix, Linux, Windows], Programming Environment, Write and Execute the first program, Introduction to the Digital Computer; Concept of an algorithm; termination and correctness. Algorithms to programs: specification, top-down development and stepwise refinement. Introduction to Programming, Use of high level programming language for the systematic development of programs. Introduction to the design and implementation of correct, efficient and maintainable programs, Structured Programming, Trace an algorithm to depict the logic, Number Systems and conversion methods

Unit 2

Standard I/O in “C”, Fundamental Data Types and Storage Classes: Character types, Integer, short, long, unsigned, single and double-precision floating point, storage classes, automatic, register, static and external, Operators and Expressions: Using numeric and relational operators, mixed operands and type conversion, Logical operators, Bit operations, Operator precedence and associativity.

Unit 3

Conditional Program Execution: Applying if and switch statements, nesting if and else, restrictions on switch values, use of break and default with switch, Program Loops and Iteration: Uses of while, do and for loops, multiple loop variables, assignment operators, using break and continue, Modular Programming: Passing arguments by value, scope rules and global variables, separate compilation, and linkage, building your own modules.

SECTION – B

Unit 4

Arrays: Array notation and representation, manipulating array elements, using multidimensional arrays, arrays of unknown or varying size, Structures: Purpose and usage of structures, declaring structures, assigning of structures, Pointers to Objects: Pointer and address arithmetic, pointer operations and declarations, using pointers as function arguments, Dynamic memory allocation, defining and using stacks and linked lists.

Unit 5

Sequential search, Sorting arrays, Strings, Text files, The Standard C Preprocessor: Defining and calling macros, utilizing conditional compilation, passing values to the compiler

Unit 6

The Standard C Library: Input/output : fopen, fread, etc, string handling functions, Math functions : log, sin, alike Other Standard C functions.

Text Books

- 1- Let Us C by Yaswant Kanetkar : BPB Publication
- 2- Computer Fundamental & C programming by E. Balaguruswamy; MGH

Reference Books

- 1- Fundamentals of Computers and Programming with C by A. K. Sharma Dhanpat Rai publications
- 2- Computer Fundamental & C programming by J.B.Dixit ; University Science Press
- 3- Fundamentals of Computer by V Rajaraman; Prentice Hall of India Pvt. Ltd., New Delhi
- 4- Kernighan and Ritchie, "The C programming Language", PHI. 1999.
- 5- Computers Today by SK Basandara, Galgotia publication Pvt ltd. Daryaganj, New Delhi
- 6- Hutchison, R., "Programming in C", McGraw Hill. 1999
- 7- Johnsonbaugh, R. and Kalin M., "Applications programming in C", PHI. 2000

Introduction of C Lab:

LAB:

Note: At least ten experiments are to be performed during the semester. At least eight experiments should be performed from the list of experiments. Two experiments may either be performed from the given list of experiments or may be designed by the concern faculty in consultation with H.O.D as per the scope of syllabus.

Objective: To understand the concepts of C programming language.

List of Experiments:

- 1-Write a program in C to print any message.
- 2-Write a program in C to check whether entered year is Leap year or not.
- 3-Write a program to check whether a number is even or odd.
- 4-Write a program in C find the Factorial of any number.
- 5-Write a program to print table of any number.
- 6-Write a program to find largest of three numbers.
- 7-Write a program to sort any 10 numbers using bubble sort.
- 8-Write a program to search an element from a given set of array using Linear Search
- 9-Write a program in C Transpose of 2D Array.
- 10- Write a program to make use of structure.

List of Value added Experiments:

1. WAP in C Print the given pattern

1

12

123

1234

12345

2. 1

22

333

4444

55555

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Department of Computer Science and Engineering

Diploma in Computer Science and Engineering

Semester-III

Annexure-5

S.No	Name of subject	Sub code	Teaching Schedule			Total	Credit
			L	T	P		
1	Data Structures using C	CSL031	3	1	2	6	5
2	Operating System	CSL033	3	1	2	6	5
3	Software Engineering	CSL035	3	0	0	3	3
4	Computer Networks	CSL037	3	0	0	3	3
5	Discrete Structures	CSL039	3	1	0	4	4
6	Math III	AHL 033	4	1	0	5	5
7	Language Communication-III	AHP031	1	0	2	3	NC
8	VAC-I	CSV031	0	0	2	2	NC
	Total		20	4	8	32	25

Semester-I V

S.No	Name of subject	Sub code	Teaching Schedule			Total	Credit
			L	T	P		
1	Web Programming	CSL032	3	1	2	6	5
2	Object Oriented Programming with C++	CSL034	3	1	2	6	5
3	Computer Architecture and Organization	CSL036	3	1	0	4	4
4	Data Base Management System	CSL038	3	0	2	5	4
5	Advanced Networking	CSL042	0	0	4	4	2
6	Language Communication-IV	AHP032	1	0	2	3	NC
7	Basics of EVS	AHL 034	2	0	0	2	2
8	Minor Project	CSP032	0	0	4	4	2
	Total		15	3	16	34	24

CSL031	Data Structures using C	L	T	P	Cr
		3	1	2	5

Objective

This subject focuses on the Algorithms used in Computers. It provides knowledge about basic algorithms and their complexities and elaborates various searching and sorting techniques used in computer science.

Theory

Note: Total five questions are to be attempted from Sections A& B.

SECTION – A

Unit 1: Introduction

Algorithms and their complexities calculation, Data Structures: Concept, Overview, operations, and Implementation, abstract data types.

Arrays: Definition, Terminology, One dimensional array, Memory Allocation, Operations, and applications, Multidimensional Arrays - Two dimensional arrays, Recursion

Unit 2: Sorting and searching techniques

Sorting techniques- Bubble sort, Insertion sort, selection sort, quick sort, comparison of various sorting techniques.

Searching techniques- Linear and binary search

Unit 3: Stack and queues

Stacks: Definition, Representation of Stack, Operations on Stacks, Applications of Stack, Evaluation of Arithmetic Expressions.

Queues: Definition, Representation of Queues, operations on queues, priority Queue Structures.

Unit 4: Linked lists

Linked Lists: Definition, single Linked List, operations on single linked list, Circular Linked List and operations, Double Linked List and operations, Static and dynamic memory allocations

SECTION – B

Unit 5: Trees

Trees: Basic Terminologies, Definition and Concepts, Representation of Binary Tree, Binary search tree (BST) and operations on BST, Tree traversal, Introduction of AVL and B-trees.

Unit 6: Graphs

Graphs: Introduction, Graph Terminologies, Representation of Graphs, Graph traversal, minimum spanning tree, finding shortest path in graph.

Text books

- 1- Schaum's outlines Data Structures with C by Seymour Lipschutz, Tata McGraw Hill

Reference books

- 1- G. L. Baluja, Data Structure Through C: A Practical Approach, Dhanpat Rai & Co..
- 2- Langsem, Augenstein, Tenenbaum, Data structures using C and C++, Prentice Hall of India/Pearson education, ISBN 81-203-1177-9.
- 3- ISRD Group, Data structures using C, Tata McGrawHill, 2006, ISBN 0-07-059102-4

LAB:

Note: At least ten experiments are to be performed during the semester. At least eight experiments should be performed from the list of experiments. Two experiments may either be performed from the given list of experiments or may be designed by the concern faculty in consultation with H.O.D as per the scope of syllabus.

Objective: To understand the concepts of various data structures, searching, and sorting techniques .

List of Experiments:

Note: C/C++ can be used to implement the following programs.

- 1- Implementation of 1D and 2D array using static memory allocation.
- 2- Implementation of 1D and 2D array using dynamic memory allocation with the help of pointer.
- 3- Implementation the factorial calculation using recursion
- 4- Implementation of linear and binary search.
- 5- Implementation of Bubble sort and Quick
- 6- Implementation of Heap sort
- 7- Implementation of Merge sort
- 8- Implementation of PUSH and POP operation into STACK
- 9- Implementation of Queue and priority queue
- 10- Implementation of creation, insertion, deletion, and searching operation in linked list.
- 11- Implementation of Binary Search tree and its operations
- 12- Implementation of Graph traversal.
- 13- Implementation of Minimum spanning tree in graph.

CSL033	Operating System	L	T	P	Cr
		3	1	2	5

Objective

This subject focuses on the system software called operating system which is an essential part of computer. It focuses on various functions of operating system, problems, and their solutions.

Theory

Note: Total five questions are to be attempted from Sections A & B.

SECTION – A

Unit 1: Introduction

Evolution of operating systems. Types of operating systems. Different Views of the operating systems, operating system concepts and structure.

Processes:

The Process concept, systems programmer's view of processes. The operating system services for process management, Scheduling algorithms. Performance evaluation.

Unit 2: Memory Management

Memory Management without swapping of paging, swapping, virtual memory page replacement algorithms, modeling paging algorithms, design issues for paging systems, segmentation.

Unit 3: Inter-process Communication and Synchronization

The need for interprocess synchronization, mutual exclusion, semaphores, hardware support for mutual exclusion, queuing implementation of semaphores, classical problems in concern programming critical region and conditional critical region, monitors, message deadlocks.

SECTION – B

Unit 4: File Systems

File systems, directories, file systems implementation, security protection mechanism.

Input/Output

Principles of I/O Hardware: I/O devices, device controllers direct memory access. Principles of I/O Software: Goals, interrupt handlers, device drivers, device independent I/O software, User space I/O software.

Unit 5: Disks

Disk hardware, scheduling algorithms, Error handling, trace-at-a-time caching, RAM Disk.

Clocks: Clock hardware, memory mapped terminals, I/O software.

Terminals: Terminal hardware memory mapped terminals, I/O software.

Processes and Processors in Distributed Systems: Thread, system models, processor allocation scheduling.

Distributed File Systems: Design, implementation, and trends.

Unit 6:

Case study of UNIX operating system.

Text books

1- Operating system principles, Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, John Wiley & Sons, 2006.

Reference books

1- Deitel H.M., "An Introduction to Operating system". Addison Wesley Publishing Company 1984.

2- Milenkovic, M., "Operating Systems – concepts and Design", McGraw Hill International Edition Computer Science Series 1992.

3- Peterson, J.L. Abraham Silberschatz. " Operating System Concepts " Addison Wesley publishing Company 1989.

4- Tanenbaum, A.s. "Modern Operating System", Prentice Hall of India Pvt. Ltd. 1995.

LAB:

Note: At least ten experiments are to be performed during the semester. At least eight experiments should be performed from the list of experiments. Two experiments may either be performed from the given list of experiments or may be designed by the concern faculty in consultation with H.O.D as per the scope of syllabus.

Objective: Provides the implementation details of operating system.

List of Experiments:

Note: UNIX must be used to perform the following experiments.

1- Perform the following

- a)Log into the system
- b)Use vi editor to create a file called myfile.txt which contains some text.
- c)correct typing errors during creation.
- d)Save the file
- e)logout of the system

2- Perform the following

- a)Log into the system
- b)open the file created in session 1

- c)Add some text
- d)Change some text
- e)Delete some text
- f)Save the Changes
- g)Logout of the system

3- Perform the following

- a)Log into the system
- b)Use the cat command to create a file containing the following data. Call it mytable use tabs to separate the fields.

2908	Ashish	19.65
9320	Rajesh	29.27
3430	Sita	36.15
1230	Raju	21.89

- c)Use the cat command to display the file, mytable.
- d)Use the vi command to correct any errors in the file, mytable.
- e)Use the sort command to sort the file mytable according to the first field. Call the sorted file my table (same name)
- f)Print the file mytable
- g)Use the cut and paste commands to swap fields 2 and 3 of mytable. Call it my table (same name)
- h)Print the new file, mytable
- i)Logout of the system.

4- Perform the following

- 1)
 - a)Login to the system
 - b)Use the appropriate command to determine your login shell
 - c)Use the /etc/passwd file to verify the result of step b.
 - d)Use the who command and redirect the result to a file called myfile1. Use the more command to see the contents of myfile1.
 - e)Use the date and who commands in sequence (in one line) such that the output of date will display on the screen and the output of who will be redirected to a file called myfile2. Use the more command to check the contents of myfile2.
- 2)
 - a)Write a sed command that deletes the first character in each line in a file.
 - b)Write a sed command that deletes the character before the last character in each line in a file.

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c)Write a sed command that swaps the first and second words in each line in a file.

5- Perform the following

- a)Pipe your /etc/passwd file to awk, and print out the home directory of each user.
- b)Develop an interactive grep script that asks for a word and a file name and then tells how many lines contain that word.
- c)Repeat
- d)Part using awk

6- Perform the following

- a)Write a shell script that takes a command –line argument and reports on whether it is directory, a file, or something else.
- b)Write a shell script that accepts one or more file name as arguments and converts all of them to uppercase, provided they exist in the current directory.
- c)Write a shell script that determines the period for which a specified user is working on the system.

7- Perform the following

- a)Write a shell script that accepts a file name starting and ending line numbers as arguments and displays all the lines between the given line numbers.
- b)Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.

8- Perform the following

a)Write a shell script that computes the gross salary of a employee according to the following rules:

i)If basic salary is < 1500 then HRA =10% of the basic and DA =90% of the basic.

ii)If basic salary is >=1500 then HRA =Rs500 and DA=98% of the basic

The basic salary is entered interactively through the key board.

b)Write a shell script that accepts two integers as its arguments and computers the value of first number raised to the power of the second number.

9- Perform the following

a)Write an interactive file-handling shell program. Let it offer the user the choice of copying, removing, renaming, or linking files. Once the user has made a choice, have the program ask the user for the necessary information, such as the file name, new name and so on.

b)Write shell script that takes a login name as command – line argument and reports when that person logs in

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c) Write a shell script which receives two file names as arguments. It should check whether the two file contents are same or not. If they are same then second file should be deleted.

10- Perform the following

a) Write a shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions.

b) Develop an interactive script that ask for a word and a file name and then tells how many times that word occurred in the file.

c) Write a shell script to perform the following string operations:

i) To extract a sub-string from a given string.

ii) To find the length of a given string.

11- Perform the following

Write a C program that takes one or more file or directory names as command line input and reports the following information on the file:

i) File type

ii) Number of links

iii) Read, write and execute permissions

iv) Time of last access

(Note : Use stat/fstat system calls)

12- Perform the following

Write C programs that simulate the following unix commands:

a) mv

b) cp

(Use system calls)

13- Perform the following

Write a C program that simulates ls Command

(Use system calls / directory API)

CSL035	Software Engineering	L	T	P	Cr
		3	0	0	3

Objective

To define software engineering and its importance and to introduce the notion of professional responsibility

Theory

Note: Total five questions are to be attempted from Sections A & B.

SECTION – A

Unit 1:

Introduction: Software engineering definition and paradigms, A generic view of Software Engineering, Requirements analysis, Statement of system scope, isolation of top level processes and entities and their allocation to physical elements, refinement and review. Analyzing a problem, creating a software specification document, review for correctness, consistency and completeness .Software Crisis, Software Processes & Characteristics, Software life cycle models, Waterfall, Prototype, Evolutionary and Spiral Models

Unit 2:

Software Requirements analysis & specifications: Requirement engineering, requirement elicitation techniques like FAST, requirements analysis using DFD, Data dictionaries & ER Diagrams, Requirements documentation, Nature of SRS, Characteristics & organization of SRS.

Unit 3:

Software Project Management Concepts: The Management spectrum, The People the Problem, The Process, The Project.

Software Project Planning: Size Estimation like lines of Code & Function Count, Cost Estimation Models, COCOMO-I and COCOMO II, Risk Management.

SECTION – B

Unit 4:

Software Design: Cohesion & Coupling, Classification of Cohesiveness & Coupling, Function Oriented Design, Object Oriented Design, design principal, Strategy.

Software Implementation : Relationship between design and implementation; Implementation issues and programming support environment; Good coding style, and review of correctness and readability.

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Unit 5:

Software Testing: Verification & Validation, Testing Process, Design of Test Cases, Objectives of testing, Types of Testing, Functional Testing, Structural Testing, Test Activities, Unit Testing, Integration Testing and System Testing.

Unit 6:

Software Maintenance: Management of Maintenance, Maintenance Process, need of maintenance, type of maintenance, Reverse Engineering, Software Re-engineering

Text book

- 1- Software Engineering **Publisher:** New Age International Pvt Ltd Publishers **Author:** K K Aggarwal, Yogesh Singh **Edition:** Paperback 1st Ed.
- 2- Software Engineering by pressmen(5th Edition)

Reference book

- 1- Nasib Singh Gill, "Software Engineering: Software Reliability, Testing and Quality Assurance".
- 2- Software Engineering by IAN Sommerville , Addison-Wesley, 2007

CSL037	Computer Networks	L	T	P	Cr
		3	0	0	3

Objective

This subject introduces the student to the world of networking. It provides knowledge about network topologies, architectures, protocols, devices, etc.

Theory

Note: Total five questions are to be attempted from Sections A & B.

SECTION – A

Unit 1: Introduction to Computer Networks: Network Topologies: Bus-, Star-, Ring-,Hybrid -, Tree -, Complete -, Irregular –Topology; Types of Networks : Local Area Networks, Metropolitan Area Networks, Wide Area Networks.

Unit 2: Model: Internet ,Layering architecture of networks, OSI model, TCP/IP model.

Unit 3: Local Area Networks: Introduction to LANs, Features of LANs, Components of LANs, Usage of LANs, IEEE 802 standards, LAN interconnecting devices: Hubs, Switches, Bridges, Routers, Gateways.

SECTION – B

Unit 4: Network layer: IP protocol, routing algorithms: Distance Vector Routing and Link State, congestion control algorithms, IP Addressing.

Unit 5: Transport layer: Elements of Transport Protocols UDP, TCP.

Application Layer: Domain Name System, Email, FTP, NNTP, HTTP, Telnet.

Unit 6: Introduction to Network Management: Remote Monitoring Techniques: Performance Management, Quality of Service, Security management: Firewalls, VLANs, Proxy Servers, Introduction to Network Operating Systems

Text books

1-Data Communications and Networking (4th edition), Behrouz A. **Forouzan**, T.M.H.

Reference books

1- Computer Networks (3rd edition), Tanenbaum Andrew S., International edition, 1996.

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- 2- Data Communications, Computer Networks and Open Systems (4th edition), Halsall Fred, 2000, Addison Wesley, Low Price Edition.
- 3- Business Data Communications, Fitzgerald Jerry,.
- 4- Computer Networks – A System Approach, Larry L. Peterson & Bruce S. Davie, 2nd Edition
- 5- Computer Networking – ED Tittel , 2002, T.M.H.

CSL039	Discrete Structures	L	T	P	Cr
		3	1	0	4

Objective

This subject enhances the ability to formulate and solve applied problems, to analyze and interpret algorithms and functions and to use them effectively. The goal is to make a student learn how to think about discrete mathematical models.

Theory

Note: Total five questions are to be attempted from Sections A & B.

SECTION – A

Unit 1:

SET THEORY:

CONCEPT OF SETS: Notation ,Subset ,Superset ,Empty set , Universal set ,OPERATION ON SETS: Union , Intersection , Complementation ,Difference ,Symmetric difference ,power set ,Cartesian product of finite number of sets ,Cardinality of a set – Finite and infinite sets

Unit 2:

RELATION:

Binary relation as a subset of Cartesian product , Reflexive, symmetric & transitive relations, Equivalence relation.

Unit 3:

FUNCTIONS:

Definition of function , Domain, Co-domain & Range of a function, Related problems.

SECTION – B

Unit 4:

RECURRENCE RELATION:

Linear recurrence relations with constants coefficients, Homogeneous solutions , Particular solutions , Total solutions, Problems

Unit 5:

GRAPH THEORY:

Introduction to graph ,Subgraph ,Walk, Paths and Circuits ,Euler graphs, Graph algorithms : Minimal Spanning tree algorithm .

Unit 6:

Propositional Calculus

Introduction to propositional Calculus: Basic operations: AND(\wedge), OR(\vee), NOT(\sim), Truth value of a compound

Text Book:

1- Elements of Discrete Mathematics, C.L Liu, 1985, McGraw Hill

Reference Books:.

1- Mathematical Structures for Computer Science, Judith L. Gersting, 1993, Computer Science Press.

2- Schaums Outline series: Theory and problems of Probability by S. Lipschutz, 1982, McGraw-Hill Singapore

3- Applied Discrete Structures for Computer Science, Doerr and Levasseur, (Chicago: 1985, SRA

4- Discrete Mathematics and Structures by Satinder Bal Gupta, University science press.

AHL033	Math III	L	T	P	Cr
		4	1	0	5

Objective

To introduce various Algebra, Integral, calculus, and statistics methods.

Theory

Note: Total five questions are to be attempted from Sections A & B.

SECTION-A

UNIT – I

Multiple Integrals & Beta and Gamma functions: Beta and gamma functions and relationship between them. Dirichlet's integral , Double integral, change of order of integration, double integral in polar coordinates, triple integral , change of variables.

UNIT – II

Vector Calculus: Differentiation of vectors, Scalar and Vector point functions, Gradient, Divergence, Curl, Directional derivatives, Properties. Integration of vector functions, Line integrals.

UNIT – III

NUMERICAL METHODS:

Interpolation and Curve Fitting: Introduction to interpolation, Lagrange approximation, Newton polynomials, least squares lines, curve fitting.

SECTION-B

UNIT – IV

Solution of Algebraic Equations: Bisection method, Regula-falsi method, Newton-Raphson method and secant methods.

UNIT – V

Solution of Linear Systems: Gauss elimination method, UV factorization, Iterative method- Gauss seidal and Jacobi's method.

UNIT – VI

Statistics: Concepts of discrete and continuous data -Presentation of data , Cumulative frequency Mean, Median, Mode, Standard Deviation, Variance, and Coefficient of Variation for raw and classified data.

Text books

1- Higher Engineering Mathematics by B.S. Grewal; Khanna Publishers, Delhi

Reference books

1- Numerical Methods by B.S. Grewal; Khanna Publishers, Delhi

2- Numerical Methods by Jain, Iyenger, Jain

AHP031	Language Communication-III	L T P	Cr
		1 0 2	NC

UNIT-1: PHONETICS

- Revision of Speech Sounds
- Phonetic Transcription of Words-III
- Syllable Identification in polysyllabic words
- Words Commonly Mispronounced- III
- Word Stress-I

UNIT-2: READING PRACTICE

- Reading newspaper articles
- Reading magazine articles
- Reading short stories

UNIT-3: ORAL PRACTICE

- Extempore Speeches
- Role Plays and Simulations
- Debate
- Group Discussions
- Classroom Presentations

UNIT-4: STUDY SKILLS

- Commonly Misspell Words-III
- Dictation
- Looking up a dictionary
- Learning pronunciation from a dictionary (Practical implementation of IPA symbols)
- Learning meanings of words from the dictionary
- Crosswords

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CSV031	VAC-I	L T P	Cr
		0 0 2	NC

Any technical subject can be taught which is suitable according to current industrial need and which is not being taught as part of current curriculum decided by a departmental committee which is headed by head of the department.

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CSL032	Web Programming	L	T	P	Cr
		3	1	2	5

Objective

Subject provides basic knowledge about the programming requirement for the web. It provides basic knowledge about internet, www, html, and scripting language.

Theory

Note: Total five questions are to be attempted from Sections A & B.

SECTION-A

Unit 1

History of the Internet and Application, Modes of Connecting to Internet, Internet Service Providers (ISPs), Working of Internet, Internet Congestion, Domain Name Space, Internet address.

Unit 2

E-Mail System, Protocols of Email, -mail management, Mime types, Newsgroups, mailing lists, chat rooms, Internet tool. Introduction of WWW, Miscellaneous Web Browser details, searching the www: Directories search engines and meta search engines, search fundamentals,

Unit 3

History and introduction of HTML, HTML Basic tag , image, Hyperlink, formatting of page ,table, list, frame, form, Meta tags, Dynamic Hypertext Markup Language, HTML tool: Front page.

SECTION- B

Unit 4:

Introduction of CSS, CSS - Selector Type, Values, Formatting Text and Fonts, Directory Structure, Common Tags, Exploring CSS Class and ID Attributes.

Unit 5:

Introduction to Filters and Transitions, Introducing the Document Object Model (DOM), Website design consideration. JavaScript Introduction, Variable, If-Else, Switch, Operators, Popups.

Unit 6:

JavaScript: Functions, Loops , Forms, Events, and Event Handling . Introduction of VB scripts.

Text Book

- 1- Fundamentals of the Internet and the World Wide Web, Raymond Greenlaw and Ellen Hepp – 2001, TMH
 - 2- HTML & XHTML: The Definitive Guide by Chuck Musciano, Bill Kennedy, 2000, 4th Edi.
- Reference books:
- 3- All-in-one Desk Reference for Dummies by Andy Harris

Reference Books:

- 1- Complete idiots guide to java script,. Aron Weiss, QUE, 1997
- 2- Internet and Web Technologies – Raj Kamal 2002, T.M.H

LAB:

Note: At least ten experiments are to be performed during the semester. At least eight experiments should be performed from the list of experiments. Two experiments may either be performed from the given list of experiments or may be designed by the concern faculty in consultation with H.O.D as per the scope of syllabus.

Objective: To understand the concepts of various web technologies.

List of Experiments:

- 1- Introduction with web.
- 2- Creating email account and handling
- 3- To demonstrate the use of list using HTML tag.
- 4- To demonstrate the use of links using HTML tags.
- 5- To demonstrate the use of image links using HTML tags.
- 6- To demonstrate the use of different shapes using HTML tags.
- 7- To demonstrate the use of table using HTML tag.
- 8- To demonstrate the use of frame using HTML tag.
- 9- Simple java script programs
- 10- Use of control statements in java script.

CSL034	Object Oriented Programming with C++	L	T	P	Cr
		3	1	2	5

Objective

Subject provides basic knowledge about object oriented system, about classes, inheritance, polymorphism and various aspects of object oriented programming.

Theory

Note: Total five questions are to be attempted from Sections A & B.

SECTION – A

Unit 1:

Introduction to the concepts of object oriented programming. Basics of a Typical C++ Environment, Illustrative Simple C++ Programs. Header Files and Namespaces, library files. Encapsulation (Information Hiding), Access Modifiers: Controlling access to a class, method, or variable (public, protected, private, package), Other Modifiers, Polymorphism: Overloading,, Inheritance, Overriding Methods, Abstract Classes, Reusability, Class’s Behaviors.

Unit 2:

Introduction, Structure Definitions, Accessing Members of Structures, Class Scope and Accessing Class Members, Separating Interface from Implementation, Controlling Access Function And Utility Functions, Initializing Class Objects: Constructors, Using Default Arguments With Constructors, Using Destructors, Classes : Const(Constant) Object And Const Member Functions, Object as Member of Classes, Friend Function and Friend Classes, Using This Pointer.

Unit 3:

Dynamic Memory Allocation with New and Delete, Static Class Members, Container Classes And Integrators, Proxy Classes, Function overloading. Fundamentals of Operator Overloading, Restrictions On Operators Overloading.

SECTION – B

Unit 4:

Operator Functions as Class Members vs. as Friend Functions, Overloading, <<, >> Overloading Unary Operators, Overloading Binary Operators. Introduction to Inheritance, Base Classes And Derived Classes, Protected Members, Casting Base- Class Pointers to Derived- Class Pointers, Using Member Functions, Overriding Base – Class Members in a Derived Class, Public, Protected and Private Inheritance, Using Constructors and Destructors in derived Classes, Implicit Derived –Class Object To Base- Class Object Conversion, Composition Vs. Inheritance.

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Unit 5:

Introduction to Virtual Functions, Abstract Base Classes And Concrete Classes, Polymorphism, New Classes And Dynamic Binding, Virtual Destructors, Polymorphism, Dynamic Binding. Files and Streams, Creating a Sequential Access File, Reading Data From A Sequential Access File, Updating Sequential Access Files, Random Access Files, Creating A Random Access File, Writing Data Randomly To a Random Access File, Reading Data Sequentially from a Random Access File.

Unit 6: Templates and Exception Handling:

Function Templates, Overloading Template Functions, Class Template, Class Templates and Non-Type Parameters, Templates and Inheritance, Templates and Friends, Templates and Static Members. Introduction, Basics of C++ Exception Handling.

Text Books

1- Object oriented Programming with C++ by E Balagurusamy, 2001, Tata McGraw-Hill

Reference Books

1. C++ How to Program by H M Deitel and P J Deitel, 1998, Prentice Hall
- 2 Computing Concepts with C++ Essentials by Horstmann, 2003, John Wiley,
- 3 The Complete Reference in C++ By Herbert Schildt, 2002, TMH
- 4 Object Oriented Programming in Turbo C++ by Robert Lafore ,1994, The WAITE Group Press.
- 5 Programming with C++ By D Ravichandran, 2003, T.M.H
- 6 Object Oriented Programming *Using C++* by J.B. Dixit.

LAB:

Note: At least ten experiments are to be performed during the semester. At least eight experiments should be performed from the list of experiments. Two experiments may either be performed from the given list of experiments or may be designed by the concern faculty in consultation with H.O.D as per the scope of syllabus.

Objective: To understand the concepts of object oriented programming techniques.

List of Experiments:

- 1- WAP :-Raising a number n to a power p is the same as multiplying n by itself p times. Write a function called power () that takes a double value for n and an int value for p, and returns the result as double value. Use a default argument of 2 for p, so that if this argument is omitted, the number will be squared. Write a main () function that gets values from the user to test this function.
- 2- WAP :-A point on the two dimensional plane can be represented by two numbers: an X coordinate and a Y coordinate. For example, (4,5) represents a point 4 units to the right

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- of the origin along the X axis and 5 units up the Y axis. The sum of two points can be defined as a new point whose X coordinate is the sum of the X coordinates of the points and whose Y coordinate is the sum of their Y coordinates. Write a program that uses a structure called point to model a point. Define three points, and have the user input values to two of them. Then set the third point equal to the sum of the other two, and display the value of the new point.
- 3- WAP :-Create the equivalent of a four function calculator. The program should request the user to enter a number, an operator, and another number. It should then carry out the specified arithmetical operation: adding, subtracting, multiplying, or dividing the two numbers. (It should use a switch statement to select the operation). Finally it should display the result. When it finishes the calculation, the program should ask if the user wants to do another calculation. The response can be 'Y' or 'N'.
- 4- WAP :-A phone number, such as (212) 767-8900, can be thought of as having three parts: the area code (212), the exchange (767) and the number (8900). Write a program that uses a structure to store these three parts of a phone number separately. Call the structure phone. Create two structure variables of type phone. Initialize one, and have the user input a number for the other one. Then display both numbers.
- 5- WAP :-Create two classes DM and DB which store the value of distances. DM stores distances in metres and centimeters and DB in feet and inches. Write a program that can read values for the class objects and add one object of DM with another object of DB.
Use a friend function to carry out the addition operation. The object that stores the results maybe a DM object or DB object, depending on the units in which the results are required. The display should be in the format of feet and inches or metres and centimetres depending on the object on display.
- 6- WAP :-Create a class rational which represents a numerical value by two double values- NUMERATOR & DENOMINATOR. Include the following public member Functions:
a. constructor with no arguments (default).
b. constructor with two arguments.
c. void reduce() that reduces the rational number by eliminating the highest common factor .
d. Overload + operator to add two rational number.
e. Overload >> operator to enable input through cin.
f. Overload << operator to enable output through cout
Write a main () to test all the functions in the class.
- 7- WAP :-Consider the following class definition
class father {

protected : int age;

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```
public;

father (int x) {age = x;}

virtual void iam ( )

{ cout << "I AM THE FATHER, my age is : "<< age<< endl;}

};
```

Derive the two classes son and daughter from the above class and for each, define iam () to write our similar but appropriate messages. You should also define suitable constructors for these classes.

Now, write a main () that creates objects of the three classes and then calls iam () for them. Declare pointer to father. Successively, assign addresses of objects of the two derived classes to this pointer and in each case, call iam () through the pointer to demonstrate polymorphism in action.

- 8- WAP :-Write a program that creates a binary file by reading the data for the students from the terminal. The data of each student consist of roll no., name (a string of 30 or lesser no. of characters) and marks.
- 9- WAP :-A hospital wants to create a database regarding its indoor patients. The information to store include
- a) Name of the patient
 - b) Date of admission
 - c) Disease
 - d) Date of discharge
- Create a structure to store the date (year, month and date as its members). Create a base class to store the above information. The member function should include functions to enter information and display a list of all the patients in the database. Create a derived class to store the age of the patients. List the information about all the to store the age of the patients. List the information about all the pediatric patients (less than twelve years in age).
- 10- WAP :-Make a class Employee with a name and salary. Make a class Manager inherit from Employee. Add an instance variable, named department, of type string. Supply a method to toString that prints the manager's name, department and salary. Make a class Executive inherit from Manager. Supply a method to String that prints the string "Executive" followed by the information stored in the Manager superclass object. Supply a test program that tests these classes and method

CSL036	Computer Architecture and Organization	L T P	Cr
		3 1 0	4

Objective

This subject focuses on better understanding and deeper knowledge of the basic computer architecture and organization, it emphasizes on the basic circuits and techniques used in CPU, memory, and input/output communication to/from computer.

Theory

Note: Total five questions are to be attempted from Sections A & B.

SECTION – A

Unit 1

Review of Basic Computer Architecture and Microprocessors; Von Neumann architecture: principles, instruction sets, instruction format, addressing modes.

Unit 2

CISC versus RISC architectures, Storage system and their technology: memory hierarchy, main memory organization and operations, cycle time, bandwidth and interleaving; cache memory: addressing mapping, block size, replacement and store policy.

Unit 3

virtual memory: page table , TLB; I/O fundamentals: handshaking, buffering, programmed I/O, interrupts-driven I/O; Buses: types, bus protocols, arbitration,

SECTION – B

Unit 4

Direct Memory Access, Pipelining: principles, Instruction pipelines, Pipelines difficulties and solutions, Introduction to SIMD, MIMD.

Unit 5

subroutine call and return mechanism; Control unit: hardwired, micro-programmed, micro instruction mapping, micro program sequencer.

Unit 6

Architecture of 8086, Instruction set of 8086, Assembly/machine language programming (8086).

Text Books

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- 1- Morris Mano, "Computer System Architecture", Prentice Hall, 2007.

Reference Books

- 1- Patterson, D. A. and Hennessy, J. L. Computer Organization and Design: The Hardware / Software Interface. 2nd Edition, (ISBN 1-558-604-91X), Morgan Kaufmann 1998.
- 2- William Stallings, Computer Architecture & Organization: Design for Performance, Prentice Hall, 2000
- 3- J. Van de Goor, Computer Architecture and Design , 1989.
- 4- John P Hayes, "Computer Architecture and Organization", Prentice Hall
- 5- David A Patterson, "Computer Architecture A Quantitative Approach", Pearson Education Asia

CSL038	Database Management system	L	T	P	Cr
		3	0	2	4

Objective:

The design methodology for databases and verifying their structural correctness implementing databases and applications software primarily in the relational model using querying languages, primarily SQL, and other database supporting software applying the theory behind various database models and query languages.

Theory:

Note: Total five questions are to be attempted from Sections A & B.

SECTION A

Unit 1:

Introduction to database Management System; Various views of data, data Models, Introduction to Database Languages. Advantages of DBMS over file processing systems. Introduction to Client/Server architecture, three levels architecture of Database Systems.

Unit 2 :

E-R Diagram (Entity Relationship), mapping Constraints, Keys, Reduction of E-R diagram into tables.

Unit 3 :

Structured query language – with special reference of (SQL of ORACLE).

SECTION B

Unit 4

integrity constraints, Functional dependencies, Modification anomalies, Normalisation: 1st , 2nd , 3rd and 4th Normal forms , BCNF (Boyce – code normal forms).

Unit 5 :

Introduction to transaction, properties of transaction and life cycle of transaction, Introduction to Concurrency, Why concurrency Needed, Concurrency control Techniques (Two phase locking protocol, Timestamp based locking protocol, Validation Based protocols) and Recovery Concept.

Unit 6 :

Case Study of MS office access.

Text Books:

- 1- Database System Concepts by A. Silberschatz, H.F. Korth and S. Sudarshan, 3rd edition, 1997, McGraw-Hill, International Edition.
- 2- Introduction to Database Management system by Bipin Desai, 1991, Galgotia Pub.

Reference Books:

- 1- Fundamentals of Database Systems by R. Elmasri and S.B. Navathe, 3rd edition, 2000, Addison-Wesley, Low Priced Edition.
- 2- Introduction to Database Management System by Satinder Bal Gupta and Aditya Mittal
- 3- An Introduction to Database Systems by C.J. Date, 7th edition, Addison-Wesley, Low Priced Edition, 2000.

LAB:

Note: At least ten experiments are to be performed during the semester. At least eight experiments should be performed from the list of experiments. Two experiments may either be performed from the given list of experiments or may be designed by the concern faculty in consultation with H.O.D as per the scope of syllabus.

Objective: To understand the concepts of database, operation of database and various queries.

List of Experiments:

Note: Create a database and write the programs to carry out the following operation:

Create tables and specify the Questionnaires in SQL

- 1- Add a record in the database
- 2- Delete a record in the database
- 3- Modify the record in the database
- 4- To implement the restrictions on the table
- 5- List all the records of database in ascending order.
- 6- To implement the structure of the table.
- 7- To Implement Oracle function.
- 8- To implement the concept of grouping of Data
- 9- To implement the concept of Joins

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CSL042	Advanced Networking	L T P	Cr
		0 0 4	2

Objective

To enable the students in advanced concept on networking.

the present syllabus of NETWORK ADMINISTRATOR is taught in the curriculum of this lab.

AHP032	Language Communication-IV	L	T	P	Cr
		1	0	2	NC

UNIT-1: PHONETICS

- Phonetic Transcription of Words-IV
- Words Commonly Mispronounced- IV
- Word Stress-II

UNIT-2: READING PRACTICE

- Reading newspaper articles
- Reading story books
- Reading magazines

UNIT-3: ORAL PRACTICE

- Group Discussion
- Debate
- Role Plays and Simulations
- Mock Interview
- Classroom Presentations

UNIT-4: STUDY SKILLS

- Commonly Misspell Words-IV
- Dictation
- Looking up a dictionary
- Learning pronunciation from a dictionary (Practical implementation of IPA symbols)
- Learning classification and context of words from the dictionary
- Crosswords

AHL034	Basics of EVS	L	T	P	Cr
		2	0	0	2

Objective:

This subject focuses on better understanding and of the basic EVS.

SECTION-A

UNIT-I

The Multidisciplinary Nature of Environmental studies: – Definition of environment; multidisciplinary nature of environmental studies; need for public awareness; concept of ecomark.

UNIT-II

Ecosystems :- Concept; ecosystem characteristics (structure and functions of ecosystem: food chains, food webs and ecological pyramids); primary production; ecosystem regulation; some types of ecosystem-forest ecosystem, grassland ecosystem.

UNIT-III

Natural resources: – Renewable and non-renewable resources, natural resources and associated problems:

- a) **Forest resource:** Use and over-exploitation, deforestation.
- b) **Food resources:** World food problems, changes caused by agriculture and over-grazing, fertilizer-pesticide problem, water logging.
- c) **Land resources:** Land as a resource, land degradation, soil erosion and desertification, water logging.

SECTION-B

UNIT-IV

Environmental Pollution: – Definition, cause, effects and control measures of different types of pollutions-air pollution; water pollution; soil pollution; thermal pollution, solid waste management- causes; role of an individual in prevention of pollution.

UNIT-V

Social issues and environment:– Urban problems related to energy; water conservation; rain water harvesting; global warming, acid rain; ozone layer depletion, waste-land reclamation.

UNIT-VI

Environmental legislation:- Air (prevention and control of pollution) Act; water (prevention and control of pollution) Act; Forest conservation Act; public awareness.

Text Book:

- 1- Kaushik Anubha, C.P. Kaushik, Perspective in Environmental Studies, New Age.International (P) Ltd. Publishers
- 2- Joseph Benny, Environmental Studies, Tata McGraw Hill Publishing Company Ltd., New Delhi

Reference Books:

- 1- Ubaroi, N.K., Environment Management, Excel Books, New Delhi
- 2- Rajagopalan R, Environmental Studies, Oxford University Press, New Delhi

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CSP032	Minor Project	L T P	Cr
		0 0 4	2

A technical / research problem to be handled by the candidate and submit a report.

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Department of Computer Science and Engineering

Diploma in Computer Science and Engineering

Semester-V

Annexure-5

S.No	Name of subject	Sub code	Teaching Schedule			Total	Credit
			L	T	P		
1	Core Java	CSL061	3	1	2	6	5
2	Computer Graphics	CSL063	3	1	0	4	4
3	Computer Hardware and Maintenance	CSL065	3	0	2	5	4
4	Basics of .Net Technology	CSL067	3	0	2	5	4
5	Language Communication-V	AHL061	2	0	0	2	NC
6	VAC-II	CSV061	0	0	2	2	NC
7	Project-I	CSP061	0	0	4	4	2
8	Industrial Training viva	CST042	0	2	0	2	2
	Total		14	4	12	30	21

Semester-VI

Annexure-5

S.No	Name of subject	Sub code	Teaching Schedule			Total	Credit
			L	T	P		
1	Advanced .Net Technology	CSL062	3	0	2	5	4
2	Multi Media Technology	CSL064	3	0	2	5	4
3	Graph Theory	CSL066	3	0	0	3	3
4	Advanced Java	CSL068	3	0	2	5	4
5	Relational Data Base Management System	CSL072	0	0	4	4	2
6	Seminar	CSS062	0	2	0	2	2
7	Language Communication-VI	AHL062	2	0	0	2	NC
8	Project-II	CSP062	0	0	4	4	2
	Total		14	2	14	30	21

CSL061	Core Java	L	T	P	Cr
		3	1	2	5

Objective:

This course fully covers the basics of the Java Programming Language.

THEORY:

Note: Question No 1 is compulsory and will be of short answer type from entire syllabus. Two questions are to be attempted out of three questions from each Section A & B.

SECTION – A

Unit 1: Introduction to Java:

Features of JAVA, Java virtual machine, Java runtime environment, Variables and data types, Conditional and looping constructs, Fields and Methods, objects & classes, Constructors, Overloading methods, Array, String handling, Packages, Access Modifiers.

Unit 2: Inheritance:

Use and Benefits of Inheritance in OOP, Types of Inheritance in Java, Inheriting Data Members and Methods, Role of Constructors in inheritance, Overriding methods, Polymorphism, Making methods and classes final, Abstract classes and methods, use of super & this, Packages & Interfaces.

Unit 3: Exception Handling and Threads:

Exceptions Overview, Exceptions & Errors, Types of Exception ,use of try, catch, finally, throw, throws in Exception Handling, In-built and User Defined Exceptions, Checked and Un-Checked Exceptions,

Needs of Multi-Threaded Programming, Processes & threads, Thread Life-Cycle, Thread class & Runnable interface, Thread Priorities.

SECTION – B

Unit 4: Collection Framework:

The Collections Framework, The Set Interface, Set Implementation Classes, The List Interface, List Implementation Classes, The Map Interface, Map Implementation Classes, Wrapper classes.

Unit 5: GUI & Java Applets:

Introduction to AWT controls, Delegation model of event handling, layout managers. Introduction to swing. Applet introduction, Life cycle of an applet, Invoking an Applet, Getting Applet Parameters.

Unit 6: Java Streams, Files & I/O

Input Streams, Output Streams, Reading console input, writing console output, reading and writing files.

Text Book:

1. Programming with Java A Primer, E. Balaguruswamy Tata McGraw. Hill Companies

Reference Books

1. Core Java™ 2, Volume II-Advanced Features, 7th Edition by Cay Horetmann, Gary Cornelll Pearson Publisher,2004
2. Professional Java Programming by Brett Spell, WROX Publication
3. Advanced Java 2 Platform, How to Program, 2nd Edition, Harvey. M. Dietal, Prentice Hall
4. Advanced Java, Gajendra Gupta , Firewall Media
5. JAVA: The Complete Reference, Herbert Schildt
6. Core Java™ 2, Volume I, 7th Edition by Cay Horetmann, Gary Cornelll Pearson Publisher.

LAB:

Note: At least fifteen experiments are to be performed during the semester. At least ten experiments should be performed from the given list of experiments. Five experiments may either be performed from the given list of experiments or may be designed by the concern faculty in consultation with H.O.D as per the scope of syllabus.

Objective: To understand the concepts of Java Programming.

List of Experiments:

Note: JAVA must be used to implement the following programs.

1. Write a program to find the area of rectangle.
2. Write a program to print n terms of the Fibonacci series.
3. Write a program to find largest and smallest number in an array.
4. Write a program to multiply two matrices.

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5. Write a program to implement constructor overloading.
6. Write a program to implement different types of inheritance.
7. Write a program to implement method overriding.
8. Write a program to implement multiple inheritance using interfaces.
9. Write a program to implement run time polymorphism.
10. Write a program to catch more than two exceptions.
11. Write a program to create a user defined exception "NegativeAgeException" that will be thrown by program if input age given by user is negative.
12. Write a java program to implement multithreading.
13. Write a program using ArrayList and LinkedList collections.
14. Write a program using TreeSet and HashSet collections.
15. Write a program using HashMap and TreeMap collections.
16. Write a program to develop a simple calculator.
17. Write a program to read data from a file and to write data into a file.

CSL063	Computer Graphics	L T P	Cr
		3 1 0	4

Objective:

Computer Graphics is the illustration field of Computer Science. This subject focuses on the the design, modeling, analysis, and applications of computer-related systems.

Theory

Note: Total five questions are to be attempted from Sections A & B.

SECTION – A

Unit-1 Introduction to Computer Graphics:

What is Computer Graphics, Computer Graphics Applications, Computer Graphics Hardware and software: CRT, Raster Scan Display, Random Scan Display, Color CRT monitors, Shadow Mask, Graphics file formats: Basics, advantages, disadvantages– BMP – GIF – JPEG – TIFF – PCX

Unit-2 Line, circle, and polygon:

Two dimensional Graphics Primitives: Points and Lines, Line drawing algorithms: DDA, Bresenham's algorithm; Circle: Symmetry of circle, Bresenham's circle drawing, midpoint circle drawing algorithm;

Polygons – Types of polygons, inside –outside test, Filled area algorithms: Scan line: Polygon filling algorithm, boundary filled algorithm, flood fill algorithm, Aliasing and anti aliasing effects.

Unit-3 2D Transformation:

Scaling, Reflection, Shearing, Rotation, Translation, Rotation about an arbitrary point

Windowing: Two/Three Dimensional Viewing:

The 2-D viewing pipeline, windows, viewports, window to view port mapping

SECTION – B

Unit-4 Line Clipping:

4 bit code algorithm, Sutherland-Cohen algorithm

Polygon clipping: Sutherland – Hodgeman Polygon clipping algorithm.

Unit-5 Viewing in 3D:

Projections, types of projections

Hidden surface removal:

Introduction to hidden surface removal. The Z- buffer algorithm, area sub-division algorithm

Unit-6 Curves and Surfaces:

Introduction to Bezier curves, Bezier surfaces, B-Spline methods

Illumination: Illumination models, What is an image? shadows, transparency

Text Books :-

- 1.Computer graphics, Hearn and Baker, PHI
- 2.Computer Graphics, Foley, PE-LPE,

Reference Books

- 1.Procedural Elements of Computer graphics, Rogers, McGraw Hill
- 2.Computer graphics, Harringtons S., McGraw Hill.
- 3.Computer Graphics , Schaum Series.

CSL065	Computer Hardware and Maintenance	L	T	P	Cr
		3	0	2	4

Objective:

The main objective of this subject is to understand the overall basic computer hardware structure, including the peripheral devices and their maintenance.

Theory

Note: Total five questions are to be attempted from Sections A & B.

SECTION – A

Unit 1 Introduction to Computer Hardware:

Block Diagram of a computer, Processor, Memory, I/O Devices, Motherboard, Supporting Cards, Display, Power Supply, Disk Drivers and BIOS.

Unit 2 Memory: RAM, ROM, Mass storage media. Functional description of commonly used chips, units of storage bit, Byte, Kilobyte, Megabyte, Memory Management-segmentation/portioning, parity checking.

Unit 3 Floppy/CD/DVD/Hard Disks: Operational Principle and sector information, medium density, high-density, floppy disks, hard disks, hard disk configuration, disk formatting and data integrity. Type of CDs, Types of DVDs.

SECTION – B

Unit 4 Peripherals:

Keyboard, Mouse, Table, Light Pen, Printer, Plotter.

Unit 5 Display System: Understand the principle, operation and application of various display devices, working of CRTs, LED's AND LCD's, Types of CRT, its characteristic, LED characteristics: power requirement, light output, resolution, speed color, size etc.

Unit 6 Tools and Aids for PC Maintenance: Test and measuring equipment like Cathode Ray Oscilloscope, Multimeter. Study of ammeter, digital multi-meter and how they are used. Tools used in maintenance like vacuum cleaner, brush, forceps, screwdriver set, Cutter, pliers, and stripper, cleaning solutions.

Text Book:

1. "Computer System Architecture", M. Morris Mano, Prentice Hall, 1976.
2. "Computer Organization", M. Morris Mano, Prentice Hall.
3. "Electronic Display Devices", Richard A Perez (TPR Publications, USA).

Reference Books

1. “*Computer Organization and Architecture*”, William Stallings
2. “*Computer System Architecture*”, John. P. Hayes.
3. “*Structure Computer Organisation*”, S. Andrew Tanenbaum, , Prentice-Hall, India.

CSL067	Basics of .Net Technology	L	T	P	Cr
		3	0	2	4

Objective: The main objective of the including this subject in curriculum is to aware students about .net technology and inspiring them to learn new programming language C#.

Note: Question No 1 is compulsory and will be of short answer type from entire syllabus. Two questions are to be attempted out of three questions from each Section A& B.

SECTION-A

Unit-1 Introduction: Evolution to .net technology, .net framework, various components of .net frameworks, function of .net framework, Common Type System (CTS), Common Language Specification (CLS), common language runtime (CLR), managed code and unmanaged code, compilation in .net, base classes of .net framework,

Unit-2 Introduction to C#: Introduction, A simple C# program, namespaces, program structure, variables, data types, value type, reference type, declaration and initialization of variables, constant variables, scope of a variable, boxing and unboxing.

Unit-3 Classes and objects: Basic principles of OOP, defining class, different types of classes: static class, private class, public class, creating objects, accessing class members, constructors, different types of constructors, destructor, this keyword, nesting of class, properties and indexers.

SECTION-B

Unit-4 Inheritance and polymorphism: Introduction, defining inheritance, different types of inheritance, visibility control, multiple inheritance, defining interface, implementing interface, interfaces and inheritance, overriding methods, abstract class, abstract method, sealed class, sealed method, polymorphism.

Unit-5 Managing errors and exceptions: Introduction, debugging, types of errors, exceptions, syntax of exception handling code, multiple catch statements, using finally statement, nested try block, throwing own exception, exception for debugging.

Unit-6 Windows forms and web based application development on .net: Introduction, creating windows forms, customizing a form, creating and running simple Windows application, web based application on .net.

Text Books:

1. C# 2005 Programming Black Book By dreamtech & Kogent Solution Inc.

Suggested Readings:

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1. G. Andrew Duthie : Microsoft ASP .Net With C#. Net step by step, PHI Publication
2. C#.Net Programming Wrox Publication.
3. Schildt : Complete Reference C#, TMH Publication.
4. E. Balguru swami, "Programming in C# :", TMH.

Basics of .Net Technology Lab:

Programs:

1. Write a program that stores student details with functions accessing the details.
2. Write a program that implements different types of classes in C#.
3. Write a program that implements different types of constructors in C#.
4. Write a program that uses properties and indexers as class members in C#.
5. Write a program to show inheritance in C#.
6. Write a program that implements sealed method and sealed class.
7. Write a program to that shows the importance of interfaces.
8. Write a program to implement run time polymorphism in C#.
9. Write a program for implementing exception handling in C#.
10. Write a program to create a simple windows form based application in C#.
11. Write a program to create a simple website that requires user to fill the various details.

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CSV061	VAC-II	L T P	Cr
		0 0 2	NC

Any technical subject can be taught which is suitable according to current industrial need and which is not being taught as part of current curriculum decided by a departmental committee which is headed by head of the department.

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CSP061	Project-1	L	T	P	Cr
		0	0	4	2

A technical / research problem to be handled by the candidate and submit a report.

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CST042	Industrial Training	L	T	P	Cr
		0	2	0	2

Any technical topic can be taught which is suitable according to current industrial need and which is not being taught as part of current curriculum decided by a departmental committee which is headed by head of the department.

CSL062	Advanced .net Technology	L	T	P	Cr
		3	0	2	4

Objective: The main objective of the including this subject in curriculum is to impart a deep insight of C# programming language and encourage them to create applications using .net technology.

Note: Question No 1 is compulsory and will be of short answer type from entire syllabus. Two questions are to be attempted out of three questions from each Section A & B.

SECTION-A

Unit-1 Introduction to .net framework: Introduction, The Origin of .Net Technology, Common Language Runtime (CLR), Common Type System (CTS), Common Language Specification (CLS), Microsoft Intermediate Language (MSIL), managed and unmanaged code, Just-In-Time Compilation, Framework Base Classes.

Unit-2 Introduction to C#: Defining classes and objects in C#, basic OOP properties: inheritance, polymorphism, abstraction. Properties and indexers, data types and variable declaration, implicit and explicit type casting, different types of classes: abstract class, partial class, sealed class, static class, private class.

Unit-3 Delegates and events: Introducing delegates in C#, delegate declaration, creating delegates, using delegates, multicast delegates, event in C#: declaration and defining events, event handler, using events and delegates.

SECTION-B

Unit-4 Threading and collection in C#: Introduction, threading namespace, creating and starting a thread, scheduling a thread, synchronizing thread, thread pooling, Collection in C#: Introduction, base classes of collection in C#, importance of IList and IDictionary, Using ArrayList and Hashtable, Understanding IEnumerable and IEnumerator, working with generic collection classes.

Unit-5 Overview of ADO.Net: Introduction to ADO.net, Architecture of ADO.Net, Comparison with ADO, characteristics of ADO.net, ADO.net Data access: SQL basics, Base classes of ADO.net, .Net Data provider, Data Adapter, Data Set, Data Row, Data Column, Data Relation, command, Data Reader, connectivity to database.

Unit-6 Introduction to ASP .Net: understanding role of Web Server and Web Browser, Anatomy of ASP .NET Page, HTTP Protocol, HTTP Request structure, Get and Post methods, HTTP Response Structure, types of server controls: HTML control, web server control, validation controls, page navigation option: response redirect, server transfer, web caching, state management, web services: web

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services architecture, creating web services, using web services, Authentication (windows based, Forms Based), Authorization users and roles, impersonation.

Text Books:

2. G. Andrew Duthie : Microsoft ASP .Net With C#. Net step by step, PHI Publication
3. C# 2005 Programming Black Book By dreamtech & Kogent Solution Inc.

Suggested Readings:

4. Herbert Schildt : Complete Reference C#, TMH Publication.
5. E. Balguru swami, "Programming in C# :", TMH.
6. C#.Net Programming Wrox Publication

Advanced .net Technology Lab:

Programs:

1. Write a program to implement delegates and events in C#.
2. Write a program to implement ArrayList and Hashtable in C#.
3. Write a program in C# to implement the concept of threading.
4. Write a simple windows form application program in C#.
5. Write a program to display the feedback form in C#.
6. Create a user control that contains a list of colors. Add a button to the Web Form which when clicked changes the color of the Form to the color selected from the list.
7. Write a simple program in C# that shows database connectivity with SQL database.
8. Create a user control that receives the user name and password from the user and validates them. If the user name is "Radiant" and the password is "asp.net" then the user is authorized, otherwise not.
9. Write a program that gets user input such as the user name, mode of payment, appropriate credit card. After the user enters the appropriate values the Validation button validates the values entered.
10. Write a simple ASP.NET program to display the following Web Controls:
 - A button with text "click me". The button control must be in the centre of the form.
 - A label with a text hello
 - A checkbox.
11. Write a program containing the following controls:
 - A ListBox
 - A ComboBox
 - A Button
 - An Image
 - A Label

CSL064	Multi Media Technology	L	T	P	Cr
		3	0	2	4

Objective:

This course fully covers the basics of multimedia technology.

THEORY:

Note: Question No 1 is compulsory and will be of short answer type from entire syllabus. Two questions are to be attempted out of three questions from each Section A & B.

SECTION–A

Unit -1: Introduction: Introduction to Multimedia, Multimedia Information, Multimedia Objects, Multimedia in business and work. Convergence of Computer, Communication and Entertainment products.

Stages of Multimedia Projects: Multimedia hardware, Memory & storage devices, Communication devices, Multimedia software's, presentation tools, tools for object generations, video, sound, image capturing, authoring tools, card and page based authoring tools.

Unit-2: Multimedia Building Blocks: Text, Sound MIDI, Digital Audio, audio file formats, MIDI under windows environment Audio& Video Capture.

Unit-3: Data Compression: Huffman Coding, Shannon Fano Algorithm, Huffman Algorithms, Adaptive Coding, Dictionary based Compression, LZ77, LZW compression,

SECTION–B

Unit-4: Speech Compression & Synthesis

Digital Audio concepts, Sampling Variables, Loss less compression of sound, loss compression & silence compression.

Unit-5: Images :

Multiple monitors, bitmaps, Vector drawing, lossy graphic compression, image file formats , JPEG Compression, Zig Zag Coding,

Unit- 6:Video :Video representation, Colors, Video Compression, MPEG standards, MHEG Standard Video Streaming on net, Video Conferencing, Multimedia Broadcast Services,.

Text:

1. Tay Vaughan, "Multimedia, Making IT Work", McGraw Hill.

Reference:

1. Buford, "Multimedia Systems", Addison Wesley.
2. Mark Nelson, "Data Compression Hand Book", BPB.
3. Sleinreitz, "Multimedia System", Addison Wesley.

List of Experiments:

1. Write a program to justify a text entered by the user on both the left and right hand side. For example, the text "An architect may have a graphics program to draw an entire building but be interested in only ground floor", can be justified in 30 columns as shown below. An architect may have a Graphics programs draw an Entric building but be interested in only ground floor.
2. Study the notes of a piano and stimulate them using the key board and store them in a file.
3. Write a program to read a paragraph and store it to a file name suggested by the author.
4. Devise a routine to produce the animation effect of a square transforming to a triangle and then to a circle.
5. Write a program to show a bitmap image on your computer screen.
6. Create a web page for a clothing company which contains all the details of that company and at-least five links to other web pages.
7. Write a program by which we can split mpeg video into smaller pieces for the purpose of sending it over the web or by small capacity floppy diskettes and then joining them at the destination.

CSL066	Graph Theory	L	T	P	Cr
		3	0	0	3

Objective: Today is the era of Computer. To discuss different Graph theory to represent real world problems and to study various ways to design solve the problems.

Theory

Note: Question No 1 is compulsory and will be of short answer type from entire syllabus. Two questions are to be attempted out of three questions from each Section A & B.

SECTION–A

Unit -1:

Graphs, Sub graphs, some basic properties, various example of graphs & their sub graphs, walks, path & circuits, connected graphs, disconnected graphs and component, euler graphs, various operation on graphs, Hamiltonian paths and circuits, the traveling sales man problem.

Unit- 2:

Trees and fundamental circuits, distance diameters, radius and pendent vertices, rooted and binary trees, on counting trees, spanning trees, fundamental circuits, finding all spanning trees of a graph and a weighted graph, algorithms of prime ,Kruskal and Dijkstra Algorithms.

Unit -3:

Cuts sets and cut vertices, some properties, all cut sets in a graph, fundamental circuits and cut sets , connectivity and separability, network flows.

SECTION–B

Unit-4:

Planer graphs, combinatorial and geometric dual: Kuratowski graphs, detection of planarity, geometric dual, Discussion on criterion of planarity, thickness and crossings.

Unit -5:

Vector space of a graph and vectors, basis vector, cut set vector, circuit vector, circuit and cut set subspaces, Matrix representation of graph – Basic concepts; Incidence matrix, Circuit matrix, Path matrix, Cut-set matrix and Adjacency matrix.

Unit-6:

Coloring, covering and partitioning of a graph, chromatic number, chromatic partitioning, chromatic polynomials, matching, covering, four color problem. Discussion of Graph theoretic algorithm wherever required.

Text Book:

1. Deo, N, Graph theory with applications to Engineering and Computer Science, PHI

References:

1. Gary Chartrand and Ping Zhang, Introduction to Graph Theory, TMH
2. Robin J. Wilson, Introduction to Graph Theory, Pearson Education
3. Harary, F, Graph Theory, Narosa
4. Bondy and Murthy: Graph theory and application. Addison Wesley.
5. V. Balakrishnan, Schaum's Outline of Graph Theory, TMH
6. Geir Agnarsson, Graph Theory: Modeling, Applications and Algorithms, Pearson Education

CSL068	Advanced Java	L	T	P	Cr
		3	0	2	4

Objective: Java is a computer programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible.

THEORY

Note: Question No 1 is compulsory and will be of short answer type from entire syllabus. Two questions are to be attempted out of three questions from each Section A & B.

SECTION–A

Unit-1: Core Java:

Introduction to Java, Data types, variables, operators, Arrays, Control Statements, Classes & Methods, Packages, Inheritance, Exception handling, Multithreading, AWT & Applet Programming, utility classes and I/O streams.

Unit-2: Collections and Event handling in Java:

Collection: Collection Interfaces, Concrete Collections and the Collections Framework. **Event handling:** Event-Driven Programming in Java, Event- Handling Process, Event-Handling Mechanism, The Delegation Model of Event Handling, Event Classes, Event Sources, Event Listeners, Adapter Classes as Helper Classes in Event Handling.

Unit-3: Networking:

Networking Programming, Networking Basics, Client-Server Architecture, Socket Overview, Networking Classes and Interfaces, Network Protocols, Developing Networking Applications in Java.

SECTION–B

Unit-4: Java Database Connectivity(JDBC):

JDBC Product, Types of Drivers, Two-Tier Client/Server Model, Three-Tier Client/Server Model, Basic Steps of JDBC, Creating and Executing SQL Statement, The Result Set Object, Working with Database MetaData.

Unit-5: Servlets:

Servlet Interaction & Advanced Servlets, Life cycle of Servlet, Java Servlet Development Kit, javax.servlet package, Reading Servlet Parameters, Reading Initialization Parameters, The javax.servlet.http Package, Handling HTTP.

Unit-6: Java Server Pages and RMI

JSP Technologies, Understanding the Client-Server Model, Understanding Web server software, Configuring the JSP Server, Handling JSP Errors, JSP Translation Time Errors, JSP Request Time Errors, Creating a JSP Error Page.

RMI: RMI Architecture, Designing RMI application, Executing RMI application.

TEXT :

1- Programming with Java A Primer, E. *Balaguruswamy* Tata McGraw. Hill Companies.

REFERENCE BOOK:

1. JAVA: The Complete Reference, Herbert Schildt .
2. Professional Java Programming by Brett Spell, WROX Publication.
3. Advanced Java 2 Platform, How to Program, 2nd Edition, Harvey. M. Dietal, Prentice Hall.
4. Advanced Java, Gajendra Gupta , Firewall Media
5. Core Java™ 2, Volume II-Advanced Features, 7th Edition by Cay Horetmann, Gary Cornell Pearson Publisher, 2004

List of programs:

1. Write a program to create a Fabonacci series in java.
2. Write a program to calculate the result of a student using multiple Inheritance.
3. Write a program to implement Multithreading in Java
4. Write a program to add two numbers given by the user in two textboxes and show their sum in the third textbox using applets in java.
5. Write a program to pass parameters in Applet.
6. Write a program to calculate the square of a number. The number is given by the user. Program also shows the concept of Inheritance.
7. Write a program to access or modify the database using JDBC-ODBC driver.

CSL072	Relational Database Management Systems Lab	L 0	T 0	P 4	Cr 2
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LAB:

Note: At least ten experiments are to be performed during the semester. At least eight experiments should be performed from the list of experiments. Two experiments may either be performed from the given list of experiments or may be designed by the concern faculty in consultation with H.O.D as per the scope of syllabus.

Objective: To understand the concepts of database, operation of database and various queries.

List of Experiments:

Note: Create a database and write the programs to carry out the following operation:

I. Create a database and write the programs to carry out the following operation:

1. Create tables and specify the Questionnaires in SQL
2. Add a record in the database.
3. Delete a record in the database.
4. Modify the record in the database.
5. To Implement the restrictions on the table
6. List all the records of database in ascending order.
7. To Implement the structure of the table.
8. To Implement Oracle function.
9. To implement the concept of grouping of Data
10. To implement the concept of Joins

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CSS062	Seminar	L	T	P	Cr
		0	2	0	2

Any technical topic can be taught which is suitable according to current industrial need and which is not being taught as part of current curriculum decided by a departmental committee which is headed by head of the department.

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CSP062	Project-II	L	T	P	Cr
		0	0	4	2

A technical / research problem to be handled by the candidate and submit a report.