

SYLLABUS COMPUTER SCIENCE & ENGINEERING

Class		Diploma-CSE	L	T	P	C
Semester/Year		III/II	2	0	0	2
Subject Name		Computer Programming				
Subject Code		DCS20S301				
Paper	English					
	Hindi					
Max. Marks		100				
Course Objective:						
<p>1. To enable student, develop structured solutions to problems and implementing them using Computers. This involves two parts:</p> <p>i) Formulating a solution for a given problem as a well-defined sequence of actions, and</p> <p>ii) Expressing solution in a machine readable form or a programming language. For the second part, we will learn the common units of programming languages. The first part can only be learned through the repeated practice of solving problems.</p>						
Course Outcomes:						
After completion of course, students would be able to :						
CO1. Computationally formulate basic problems and write code snippets to execute them.						
CO2. Demonstrate a basic understanding of Programming.						
CO3. Demonstrate problem-solving skills.						
CO4. Apply logical skills to programming in a variety of languages.						
CO5. Present conclusions effectively, orally, and in writing.						
Unit	Syllabus					Periods
UNIT – I	Introduction to Problem Solving (computational way of thinking); Variables and Representation.					8
UNIT - II	Arithmetic, Relational, Logical and Bitwise Operators; Input, Output, Formatting and File I/O.					10

UNIT - III	Conditional Statements, Repeat Statements, Loops and Nested Loops.	10
UNIT - IV	Arrays and Memory Organization, Strings, Multidimensional Arrays, Functions and Parameter Passing.	12
UNIT - V	Recursion and Recursive solutions, Pointer, Structure.	6

TEXT BOOKS:

1. Let Us C, Yashavant Kanetkar.
2. Problem Solving and Programming in C, R.S. Salaria, Khanna Publishing House.
3. Programming in ANSI C, E. Balagurusamy, Tata McGraw-Hill.

REFERENCE BOOKS:

1. C Programming Absolute Beginner's Guide, Dean Miller and Greg Perry.
2. The C Programming Language, Kernighan and Ritchie, Prentice Hall of India.
3. C Programming & Data Structures, B. A. Fouruzan and R. F. Gilberg, CENGAGE Learning.
4. Outline of Programming with C, Byron Gottfried, Schaum, McGraw-Hill.

SCHOOL OF ENGINEERING

SYLLABUS

COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	III/II	3	0	0	3
Subject Name	Data Structures				
Subject Code	DCS20S302				
Paper	English				
	Hindi				
Max. Marks	100				
Course Objectives:					
1. To provide strong foundation for implementing programming language to formulate, analyze and develop solutions related to various data structures problems.					
Course Outcomes:					
After completion of course, students would be able to:					
CO1. Have a good understanding of Data Structures and its applications in algorithms.					
CO2. Analyse algorithms and a algorithm correctness.					
CO3. Summarize searching and sorting techniques.					
CO4. Describe stack, queue and linked list operation.					
CO5. Have knowledge of tree and graphs concepts.					
Unit	Syllabus				Periods
UNIT – I	Introduction to Data Structures: Basic Terminology, Classification of Data Structures, Operations on Data Structures.				8

UNIT – II	<p>Linear Data Structures- Stacks: Introduction to Stacks, Array Representation of Stacks, Operations on a Stack, Applications of Stacks-Infix-to-Postfix Transformation, evaluating Postfix Expressions.</p> <p>Queues: Introduction to Queues, Array Representation of Queues, Operations on a Queue, Types of Queues- De-Queue, Circular Queue, Applications of Queues-Round Robin Algorithm.</p>	12
UNIT – III	<p>Linked Lists: Singly Linked List, Representation in Memory, Operations on a Single Linked List, Circular Linked Lists, Doubly Linked Lists, Linked List Representation and Operations of Stack, Linked List Representation and Operations of Queue.</p>	12
UNIT – IV	<p>Non Linear Data Structures - Trees: Basic Terminologies, Definition and Concepts of Binary Trees, Representations of a Binary Tree using Arrays and Linked Lists, Operations on a Binary Tree-Insertion, Deletion, Traversals, Types of Binary Trees.</p>	12
UNIT – V	<p>GRAPHS: Graph Terminologies, Representation of Graphs- Set, Linked, Matrix, Graph Traversals.</p>	10
<p>TEXT BOOKS:</p> <ol style="list-style-type: none"> 1. Data Structures, R.S. Salaria, Khanna Book Publishing, New Delhi. 2. Data Structures Using C, Reema Thareja, Oxford University Press India. 3. Classic Data Structures, Samanta Debasis, Prentice Hall of India. 4. Fundamentals of Data Structure in C, Horowitz, Ellis, Sahni, Sartaj, Anderson-Freed, Susan, University Press, India. 		
<p>REFERENCE BOOKS:</p> <ol style="list-style-type: none"> 1. Data Structures: A Pseudo code approach with C, Richard F. Gilberg, Behrouz A. Forouzan, CENGAGE Learning, India. 2. Data Structures and Algorithms: Concepts, Techniques and Applications, G. A. V. Pai, McGraw- Hill Education, India. 		

SYLLABUS

COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	III/II	3	0	0	3
Subject Name	Operating System				
Subject Code	DCS20S303				
Paper	English				
	Hindi				
Max. Marks	100				
Course Objectives:					
<p>1. A general introduction to various ideas in implementation of operating systems, particularly UNIX. Introduce to various options available so as to develop capacity to compare, contrast, and evaluate the key trade-offs between different designs choices.</p>					
Course Outcomes:					
After completion of course, students would be:					
CO1. Able to demonstrate basic knowledge about Operating System.					
CO2. Able to apply OS concepts such as processes, memory and file systems to system design.					
CO3. Able to Scheduling Algorithm.					
CO4. Able to configure OS in an efficient and secure manner.					
CO5. Able to apply Threading concept in Programming.					
Unit	Syllabus				Periods
UNIT – I	Overview of Operating System, basic concepts, UNIX/LINUX Architecture, Kernel, services and systems calls, system programs.				12

UNIT – II	Process Management: Process concepts, operations on processes, IPC, Process Scheduling, Multi- threaded programming. Memory management: Memory allocation, Swapping, Paging, Segmentation, Virtual Memory, various faults.	12
UNIT – III	File management: Concept of a file, access methods, directory structure, file system mounting, file sharing and protection, file system structure and implementation, directory implementation, free- space management, efficiency and performance. Different types of file systems.	12
UNIT – IV	I/O System: Mass storage structure - overview, disk structure, disk attachment, disk scheduling algorithms, swap space management, RAID types.	10
UNIT – V	OS Security: Authentication, Access Control, Access Rights, System Logs.	12

TEXT BOOKS:

1. Operating System Concepts, Ekta Walia, Khanna Publishing House.
2. Modern Operating Systems, Andrew S. Tanenbaum, Prentice Hall of India.

REFERENCE BOOKS:

1. Operating System Concepts, Silberschatz and Galvin, Wiley India Limited.
2. UNIX Concepts and Applications, Sumitabha Das, McGraw-Hill Education.
3. Operating Systems, Internals and Design Principles, Stallings, Pearson Education, India.
4. Operating systems, Deitel & Deitel, Pearson Education, India.

SYLLABUS

COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	III/II	3	0	0	3
Subject Name	Introduction to DBMS				
Subject Code	DCS20S304				
Paper	English				
	Hindi				
Max. Marks	100				
<p>Course objective:</p> <p>1. It covers the development of database-driven applications using the capabilities provided by modern database management system software. The concepts include conceptual modelling, relational database design and database query languages.</p>					
<p>Course Outcomes:</p> <p>After completion of course, students would be able to:</p> <p>CO1. Design a database, database-based applications.</p> <p>CO2. Understand role of database system in designing several information system-based software systems or applications.</p> <p>CO3. Understand Functional Dependency and Functional Decomposition.</p> <p>CO4. Apply various Normalization techniques.</p> <p>CO5. Perform PL/SQL programming using concept of Cursor Management, Error Handling, Package and Triggers.</p>					

Unit	Syllabus	Periods
UNIT - I	Introduction and applications of DBMS, Purpose of data base, Data, Independence, Database System architecture- levels, Mappings, Database, users and DBA.	12
UNIT – II	Data Modeling using the Entity-Relationship Model; The Enhanced Entity-Relationship (EER) model.	10
UNIT - III	The Relational Data Model and Relational Database Constraints; ER/EER to Relational Model map- ping; Relational Algebra and Relational Calculus.	10
UNIT - IV	SQL-99: Schema definition, Constraints, Queries, and Views; Security; Introduction to SQL programming Techniques.	12
UNIT - V	Functional dependencies and normalization for relational databases; Relational database design algorithms and further dependencies.	10

TEXT BOOKS:

1. Fundamentals of Database Systems, Elmasri & Navathe, Pearson Education.
2. Database Management Systems, Raghurama Krishnan, Johannes Gehrke, Tata McGraw-Hill.

REFERENCE BOOKS:

1. Database System Concepts, Abraham Silberschatz, Henry F. Korth, S. Sudarshan, McGraw- Hill, New Delhi, India.
2. Introduction to Database Systems, C.J.Date, Pearson Education.
3. Introduction to SQL, Rick F.Vander Lans, Pearson Education.

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COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	III/II	3	0	0	3
Subject Name	Computer System Organization				
Subject Code	DCS20S305				
Paper	English				
	Hindi				
Max. Marks	100				
Course Objectives: To have a thorough understanding of the basic structure and operation of a digital computer, its architectures and computational designs.					
Course Outcomes Upon completion of the course The students will be able to. CO1. Have a good understanding of functioning of computer system as such and its various Subcomponents. CO2. Understand computing requirement for a specific purpose. CO3. Analyse performance bottlenecks of the computing device. CO4. Choose appropriate computing device for a given use case. CO5. Identify the elements of modern instructions sets and their impact on processor design.					
Unit	Syllabus				Periods
UNIT – I	Structure of Computers: Computer Functional units, Von Neumann architecture, Bus structures, Basic Operational Concepts, Data representation (Fixed and Floating point), Error detecting codes. Register Transfer and Micro Operations: Register transfer, Bus and memory transfers, Arithmetic micro-operations, Logic micro-operations, Shift micro-operations, and Arithmetic logic shift unit.				12

UNIT – II	Micro Programmed Control: Control memory, Address sequencing, and design of control unit. Computer Arithmetic: Addition and Subtraction, Multiplication and Division algorithms, Floating- point arithmetic operation, Arithmetic Pipeline, Instruction Pipeline, RISC Pipeline Vector Processing, Array Processors.	12
UNIT – III	Introduction to Microprocessor Architecture: Instruction Set Architecture design principles from programmer’s perspective. One example microprocessor (Intel, ARM, etc).	10
UNIT – IV	Assembly Language Programming: Simple programs, Assembly language programs involving logical, branch and call instructions, sorting, evaluation of arithmetic expressions, string manipulation, assembler directives, procedures and macros.	10
UNIT – V	Memory and Digital Interfacing: addressing and address decoding, interfacing RAM, ROM, EPROM, programmable peripheral interface, various modes of operation and interfacing to processor, inter- facing keyboard, displays, etc.	10

TEXT BOOKS:

1. Advanced Microprocessors and Peripherals- Architecture, Programming and interfacing, A.K.Ray, K.M.Bhurchandi, Tata McGraw-Hill, New Delhi, India.
2. Computer System Architecture, M. Moris Mano, Pearson/PHI, India.

REFERENCE BOOKS:

1. Microprocessors Interface, Douglas V.Hall,Tata McGraw-Hill.
2. Computer Organization, Carl Hamacher, Zvonks Vranesic, SafeaZaky, McGraw-Hill.
3. Computer Organization and Design: A Hardwar/Software Interface (MIPS Edition) by Patterson and Hennessy.

SYLLABUS

COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	III/II	0	0	0	2
Subject Name	Summer Internship- I				
Subject Code	DCS20S306				
Paper	English				
	Hindi				
Max. Marks	50				
Course Objectives: <ol style="list-style-type: none"> 1. To encourage students to read, study & understand different topics of Computer Science engineering. 2. To make student acquire good oral & written communication skills. 3. To promote the habit of lifelong learning. 					
Course Outcomes: At the end of the course, the student should be able to CO 1: Observe various activities in field. CO 2: Examine the utility of general and specific Software tool for Development. CO 3: Differentiate the construction projects individually and in team. CO 4: Develop the writing and communication skills for various engineering problems. CO 5: Adapt lifelong learning for benefit of society.					
Syllabus					
Each candidate shall have to undergo (2 week) 15 days in-house summer internship at the institute after the completion of their 2 nd Semester exams (in summer vacations). Candidate can choose from various modules which are offered by the institute and after successful completion of internship they have to submit detailed report.					

SYLLABUS COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	III/II	0	0	2	1
Subject Name	Computer Programming Lab				
Subject Code	DCS20S307				
Paper	English				
	Hindi				
Max. Marks	50				

S.No.	List of Experiment
1.	Familiarization with programming environment (Editor, Compiler, etc.).
2.	Programs using I/O statements and various operators.
3.	Programs using expression evaluation and precedence.
4.	Programs using decision making statements and branching statements.
5.	Programs using loop statements.
6.	Programs to demonstrate applications of n dimensional arrays.
7.	Programs to demonstrate use of string manipulation functions.
8.	Programs to demonstrate parameter passing mechanism.
9.	Programs to demonstrate recursion.
10.	Programs to demonstrate use of pointers.
11.	Programs to demonstrate command line arguments.
12.	Programs to demonstrate dynamic memory allocation.
13.	Programs to demonstrate file operations.

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COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	III/II	0	0	2	1
Subject Name	Data Structures Lab				
Subject Code	DCS20S308				
Paper	English				
	Hindi				
Max. Marks	50				

S.No.	List of Experiments
1.	Write a program using recursive and non-recursive functions to perform search operation in a given list of integers using linear search technique.
2.	Search operation in a given list of integers using binary search technique.
3.	Write a program to implement insertion sorting for a given random data.
4.	Write a program to implement bubble sorting for a given random data.
5.	Write a program to implement quick sorting for a given random data.
6.	Write a program to implement selection sorting for a given random data.
7.	Write a program to implement heap sorting for a given random data.
8.	Write a program to implement Hashing tables.
9.	Write a program to implement single linked list.
10.	Write a program to implement double linked list.
11.	Write a program to implement circular linked list.
12.	Write a program to Implement Stack operations using array and linked list.
13.	Write a program to Implement Queue operations using array and linked list.
14.	Write a program to implement Breadth First Search (BFS).
15.	Write a program to implement Depth First Search (DFS).
16.	Write a program to implement a binary tree of integers.
17.	Write a program to find the minimum depth of a binary tree.

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COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	III/II	0	0	2	1
Subject Name	Operating System Lab				
Subject Code	DCS20S309				
Paper	English				
	Hindi				
Max. Marks	50				

S.No.	List of Experiments
1.	Revision practice of various commands like man, cp, mv, ln, rm, unlinks, mkdir, rmdir, etc and many more that were learnt in IT Workshop course and later.
2.	Implement two way process communication using pipes.
3.	Implement message queue form of IPC.
4.	Implement shared memory and semaphore form of IPC.
5.	Simulate the CPU scheduling algorithms - Round Robin, SJF, FCFS, priority.
6.	Simulate Bankers algorithm for Deadlock Avoidance and Prevention.
7.	Simulate all FIFO Page Replacement Algorithm using C program.
8.	Simulate all LRU Page Replacement Algorithms using C program.
9.	Simulate Paging Technique of Memory Management.
10.	Practice various commands/utility such as catnl, uniq, tee, pg, comm, cmp, diff, tr, tar, cpio, mount, umount, find, umask, ulimit, sort, grep, egrep, fgrep cut, paste, join, du, df, ps, who, etc and many more.

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COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	III/II	0	0	2	1
Subject Name	Introduction to DBMS				
Subject Code	DCS20S310				
Paper	English				
	Hindi				
Max. Marks	50				

S.No.	List of Experiment
1.	Case Study-1: Employee database – ‘Create’ employee table, ‘Select’ and display an employee matching a given condition, ‘Delete’ duplicate records, delete rows using triggers, insert and update records, find net salary, etc.
2.	Case Study-2: Visitor Management database.
3.	Case Study-3: Students Academic database.
4.	Case Study-4: Inventory Management System database.
5.	Case study-5: Bank Operations database.
6.	Case Study-6: Bus Operator (Roadways) – Do related activities such as prepare E-R Model, Relational Model, do Normalisation, Create Tables, Insert data, Delete Data, Query database, create stored procedures, etc.

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COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	IV/II	3	1	0	4
Subject Name	Algorithm				
Subject Code	DCS20S401				
Paper	English				
	Hindi				
Max. Marks	100				
Course Objectives:					
The objective of this course is to prepare the student with the algorithmic foundations of computing. A sound grasp of algorithms is essential for any computer science engineer. Almost all programming involves algorithms at some level.					
Course Outcomes:					
At the end of the course, the student should be able to:					
CO1. Apply important algorithmic design paradigms and methods of analysis.					
CO2. Demonstrate a familiarity with major algorithms and data structures.					
CO3. Design basic algorithms for sorting and searching.					
CO4. Understand the basic notions of time and space complexity of algorithms.					
CO5. Implement sorting, searching, tree and graph algorithms in a modern computer programming language.					
Unit	Syllabus	Periods			
UNIT – I	Fundamentals Programming Models. Data Abstraction. Sets, Multisets, Stacks, Queues. Asymptotic and worst-case analysis of algorithms.	8			
UNIT – II	Sorting The sorting problem. Bubble sort, Selection sort, Insertion sort, Merge sort, Quicksort.	8			

UNIT – III	Searching Symbol Tables, Binary Search Trees, Balanced Search Trees. Hash Tables.	8
UNIT – IV	Graphs Definition of a directed and undirected graph. Paths, Cycles, spanning trees. Directed Acyclic Graphs. Topological Sorting. Minimum Spanning Tree algorithms. Shortest Path algorithms: Dijkstra’s algorithm. Flow-based algorithms.	12
UNIT – V	Tree & Strings String Sort. Tries. Substring Search. Regular Expressions. Elementary Data compression.	8

TEXT BOOKS:

1. Introduction to Algorithms, Cormen, Leiserson, Rivest and Stein. MIT Press.
2. Design & Analysis of Algorithms, Gajendra Sharma, Khanna Publishing House.

REFERENCE BOOKS:

1. Algorithms, Sedgewick and Wayne, Pearson.
2. Introduction to Theory of Computation, Sipser Michael, Cengage Learning.

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COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	IV/II	3	1	0	4
Subject Name	Software Engineering				
Subject Code	DCS20S402				
Paper	English				
	Hindi				
Max. Marks	100				
Course Objectives:					
Inculcate essential technology and software engineering knowledge and skills essential to build reasonably complex usable and maintainable software iteratively. Emphasize on structured approach to handle software development. Enhance communication skills.					
Course Outcomes:					
At the end of the course, the student should be able to:					
CO1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.					
CO2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.					
CO3. Communicate effectively with a range of audiences.					
CO4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.					
CO5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.					

Unit	Syllabus	Periods
UNIT - I	Introduction to Software Engineering, Lifecycle, and Process Models - Traditional v/s Agile processes.	8
UNIT - II	Development Activities - Requirements Gathering and Analysis, Design Concepts, Software architecture and Architectural styles, Basic UI design, Effective Coding and Debugging techniques.	12
UNIT - III	Software Testing Basics, Unit, Integration, System and Acceptance Testing, Introduction to various testing techniques (e.g. Stress testing), Writing and executing test cases.	10
UNIT - IV	Quality Assurance, Project Management - Project management concepts, Configuration and Release Management, Version Control and its tools (Git), Release Planning, Change Management, Software Maintenance, and Project Metrics.	12
UNIT - V	Case Study: Introduction; System Requirements; Architectural Alternatives.	10

TEXT BOOKS:

1. An Integrated Approach to Software Engineering, Pankaj Jalote, Springer Verlag.
2. Software Engineering, Nasib Singh Gill, Khanna Book Publishing Co. India.

REFERENCE BOOKS:

1. Software Engineering – A Practitioner’s Approach, 7th Edition, Roger Pressman.
2. Software engineering, Ian Sommerville, Pearson Education.
3. Software Engineering, K. K. Agarval, Yogesh Singh, New Age International Publishers.

SYLLABUS

COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	IV/II	3	0	0	3
Subject Name	Computer Networks				
Subject Code	DCS20S403				
Paper	English				
	Hindi				
Max. Marks	100				
Course Objectives: Understand functioning of computer networks and popular networking protocols.					
Course Outcomes: At the end of the course, the student should be able to CO1. Develop an understanding of computer networking basics. CO2. Develop an understanding of different components of computer networks, various protocols, modern technologies and their applications. CO3. Recognize the technological trends of Computer Networking. CO4. Discuss the key technological components of the Network. CO5. Evaluate the challenges in building networks and solutions to those.					
Unit	Syllabus				Periods
UNIT - I	Introduction to computer networks; Network Models- OSI Reference Model, TCP/IP Model.				8
UNIT - II	Transmission Media – principles, issues and examples; Wired Media – Coaxial, UTP, STP, Fiber Optic Cables; Wireless Media – HF, VHF, UHF, Microwave, Ku Band; Network topologies; Data Link Layer – design issues, example protocols (Ethernet, WLAN, Bluetooth); Switching Techniques.				12
UNIT - III	Network Layer - design issues, example protocols (IPv4); Routing - principles/issues, algorithms (Distance-vector, Link-state) and protocols (RIP, OSPF).				10
UNIT - IV	Transport Layer - design issues, example protocols (TCP); Application Layer Protocols (SMTP, DNS).				8

UNIT - V	Functioning of Network Devices – NIC, Hub, Switch, Router, WiFi Devices; Network Management System and example protocol (SNMP).	10
<p>TEXT BOOKS:</p> <p>1. A. S. Tanenbaum (2003), Computer Networks, 4th edition, Pearson Education/ PHI, New Delhi, India.</p>		
<p>REFERENCE BOOKS:</p> <p>1. Behrouz A. Forouzan (2006), Data communication and Networking, 4th Edition, Mc Graw-Hill, India.</p> <p>2. Kurose, Ross (2010), Computer Networking: A top down approach, Pearson Education, India.</p>		

SYLLABUS

COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	IV/II	2	0	0	2
Subject Name	Web Technologies				
Subject Code	DCS20S404				
Paper	English				
	Hindi				
Max. Marks	100				
Course Objectives: To provide basic skills on tools, languages and technologies related to website development. Learning's from this course may be used in the Mini Project and summer internship.					
Course Outcomes: At the end of the course, the student should be able to CO1. Understand the Protocol, IP Address and WWW. CO2. Develop a dynamic webpage by the use of java script and DHTML. CO3. Write a well formed / valid XML document. CO4. Connect a PHP program to a DBMS and perform insert, update and delete operations on DBMS table. CO5. Write a server side application to catch form data sent from client, process it and store it on database.					
Unit	Syllabus				Periods
UNIT - I	Introduction to www Protocols and programs, secure connections, application and development tools, the web browser, server, setting up UNIX and LINUX web servers, Logging users, dynamic IP, Web Design: Web site design principles, planning the site and navigation.				10
UNIT - II	Web Systems Architecture Architecture of Web based systems- client/server (2-tier) architecture, 3-Tier architecture, Building blocks of fast and				10

	scalable data access Concepts - Caches-Proxies- Indexes-Load Balancers- Queues, Web Application architecture (WAA).	
UNIT - III	<p>JavaScript Client side scripting, What is JavaScript, simple JavaScript, variables, functions, conditions, loops and repetition.</p> <p>Advance scripting JavaScript and objects, JavaScript own objects, DOM and web browser environments, forms and validations.</p>	10
UNIT - IV	<p>DHTML: Combining HTML, CSS and JavaScript, events and buttons, controlling your browser, Ajax: Introduction advantages & disadvantages, Ajax based web application, alternatives of Ajax.</p> <p>XML, XSL and XSLT: Introduction to XML, uses of XML, simple XML, and XML key components, DTD and Schemas, XML with application, XSL and XSLT. Introduction to Web Services.</p>	10
UNIT - V	<p>PHP server side scripting, Arrays, function and forms, advance PHP Databases :Basic command with PHP examples, Connection to server, creating database, selecting a database, listing database, listing table- names creating a table, inserting data, altering tables, queries, deleting database, deleting data and tables, PHP my admin and database bugs.</p>	10
TEXT BOOKS:		
1. Jon Duckett “Beginning Web Programming” WROX.		
REFERENCE BOOKS:		
1. “Web Technologies--A Computer Science Perspective”, Jeffrey Jackson.		
2. “Internet & World Wide WebHow To Program”, Deitel, Deitel, Goldberg, Pearson Education		
3. “Web programming- Building Internet Application”, Chris Bales.		
4. Web Applications: Concepts and Real World Design,Knuckles.		

SYLLABUS

COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	IV/II	2	0	0	2
Subject Name	Linux				
Subject Code	DCS20S405				
Paper	English				
	Hindi				
Max. Marks	100				
Course Objectives: The objective of the course is to make students aware of a multi-user operating system. This course will serve as a foundation course for the higher level course in LINUX. The students are expected to learn the commands while doing practical and emphasis should be given to those switches/options and flags, which are most frequently used in real life.					
Course Outcomes: At the end of the course, the student should be able to: CO1. Understand Operating System concepts. CO2. Use System calls and memory management. CO3. Use LINUX commands and editors. CO4. Carry out LINUX File management and shell programming in LINUX. CO5. Do Network configuration and security management in LINUX.					
Unit	Syllabus				Periods
UNIT - I	Linux Ideas and History Understanding Open Source, Linux Origins, Distributions, and Linux Principles. Linux Usage and Basics Logging in to a Linux System, Switching between virtual consoles and the graphical environment, Elements of the X Window System, Starting the X server, Changing your password, The root user, Changing identities, Editing text files.				12
UNIT - II	Linux Basics and File System Running Commands and Getting Help Running Commands, Some Simple commands, Getting Help, The what's command, The – help Option, Reading Usage Summaries, The man command, Navigating man pages,				14

	<p>The info command, Navigating info pages, Extended Documentation.</p> <p>File System</p> <p>Linux File Hierarchy Concepts, Some Important Directories, Current Working Directory, File and Directory Names, Absolute and Relative Pathnames, Changing Directories, Listing Directory Contents, Copying, Moving, Renaming, Creating and Removing Files & Directories, Using Nautilus, Determining File Content.</p> <p>The Linux File System In-depth Partitions and File system, I-nodes, Directories, Hard Links, Symbolic (or soft) Links, The Seven Fundamental File types, Checking Free Space, mounting & unmounting File system , working with etc / fstabe, Archiving Files, Compressing, Creating, Listing and Extracting File, Other Archiving Tools.</p>	
UNIT - III	<p>Text processing and Standard I/O</p> <p>Text Processing Vi: Opening, Modifying, saving and exiting vi text editor, mode of vi. Viewing file contents, sorting text, Eliminating Duplicate lines, comparing files, compressing the file.</p> <p>Standard I/O and Pipes Standard Input and Output, Redirecting Output to a File, Redirecting STDOUT to a Program(Piping), Combining Output and Errors, Redirecting to Multiple Targets (tee), Redirecting STDIN from a file, Sending Multiple Lines to STDIN.</p>	12
UNIT - IV	<p>Shell Programming and Process</p> <p>Using and configuring the Bash Shell Introduction of Bash shell, Bash Features, Command Line, Command Line Expansion, and Editing, gnome-terminal.</p> <p>Shell Programming</p> <p>Scripting Basics, Creating Shell Scripts, Handling Input/ Output, Control Structures, Conditional Execution, File and string Tests, continue and break, Using positional parameters, Scripting at the command line, Shell Script debugging. Investigating and Managing Process, Listing Processes, Finding Processes, Signals Sending, Signals to Processes, Scheduling Priority, Altering Scheduling Priority, Interactive Process Management tools, Job Control, Scheduling a Process to execute later, Crontab File format. Different run levels.</p>	14

<p>UNIT - V</p>	<p>System Administration: Common Administrative tasks, identifying administrative files – configuration and log files, Role of system administrator, Managing user accounts – adding & deleting users, changing permissions and ownerships, Creating and managing groups, modifying group attributes, Temporary disable user’s accounts, creating and mounting file system, checking and monitoring system performance, file security, password and Permissions, becoming super user using su. Getting system information – host name, disk partitions & sizes, users, kernel. Backup and restore files, linux conf. Utility in GUI, reconfiguration hardware with kudzu.</p>	<p>12</p>
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TEXT BOOKS:

1. Sumitabha Das, UNIX/LINUX: Concepts and Applications, Tata McGraw-Hill, 2008.
2. ISRD Group, Basics of OS, UNIX and SHELL Programming, Tata McGraw-Hill, 2006.
3. Stephen Prata Advanced UNIX -A programmer’s Guide, BPB Publication, 2008.

REFERENCE BOOKS:

1. Kochan S & Wood P, UNIX Shell Programming, Pearson Education, 2008.
2. Sarwar, Koretsky, and Sarwar, UNIX, the Text Book, Pearson Education, 2007.
3. Stevens W R, Rago S.A, Advanced Programming in UNIX Environment, Pearson Education, 2008.
4. Maurice J. Bach, Design of the UNIX Operating System, Pearson Education, 2008.

SYLLABUS

COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	IV/II	0	0	4	2
Subject Name	Visual Basic Programming				
Subject Code	DCS20S406				
Paper	English				
	Hindi				
Max. Marks	50				
<p>Course Objectives: Visual Basic is a leading edge GUI based language because of even driven and object based programming language that will be immediately useful to students as they leave the institutional environment. It is Introduced in this semester as students with little or no programming experience can develop smart systems satisfying professional needs. VB platform provides heavy duty, high performance, capabilities needed for enterprise system development.</p>					
<p>Course Outcomes: At the end of the course, the student should be able to CO1. List the visual programming concepts. CO2. Explain basic concepts and definitions. CO3. Express constants and arithmetic operations. CO4. Distinguish variable and data types. CO5. Code visual programs by using Visual Basic work environment.</p>					

List of Experiments

Lab Part-1

1. Knowledge of IDE of VB, Menu Bar, Tool Bar, Project Explorer, Tool Box, Properties Window, Form Designer, Form Layout, Immediate Window.
2. Concept of Event Driven Programming.
3. Customizing the environment: Editor Tab, Format Tab, General Tab, Docking Tab, and Environment Tab.
4. Working with Form: Loading, Showing & Hiding Form.
5. Controlling one form from another.

Lab Part-2

Experiments based on:

1. Data types of VB.
2. Control Flow Statements and conditional Statements.
3. Array and types of Arrays.
4. Designing Menus and Pop-Up Menus.
5. Use of MsgBox & InputBox.
6. VB Controls.
7. Control Arrays & Collections.
8. Procedures, Subroutines & Functions.
9. Graphics with VB.
10. MDI.

Lab Part-3

Application Development Using VB Like:

1. Exam System
2. Library System
3. Banking System
4. Hospital System
5. Inventory & Stock System
6. Small Gaming Programme.
7. Student Record System.

TEXT BOOKS:

1. Programming with Visual Basic 6.0 Mohammed Azam, Vikas Publication.

REFERENCE BOOKS:

1. Visual Basic 6 by Deitel & Deitel Nietro, Person Education.
2. Visual Basic 6 from the ground up, gary cornell, TMH.
3. Visual Basic 6 in easy steps T.M Andercon willey India.

SYLLABUS
COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	IV/II	0	0	4	2
Subject Name	Mini Project				
Subject Code	DCS20S407				
Paper	English				
	Hindi				
Max. Marks	50				
Course Objectives:					
<ol style="list-style-type: none"> 1. To develop an application of Computer science engineering problems & have a feel of real life situations in planning & development of projects. 2. To impart training of handling various types of Computer Science engineering problems by use software's. 					
Course Outcomes:					
At the end of the course, the student should be able to					
CO1. Recognize various engineering problems and techniques to solve them.					
CO2. Reproduce the solution of the problems upon the need of society.					
CO3. Cooperate to work within group.					
CO4. Develop the writing and communication skills for various engineering problems.					
CO5. Display lifelong learning.					
Syllabus					
Each candidate shall work on a unique project of Computer Science engineering work and shall submit report.					
OR					
Shall submit a detailed report of experimental work / software package on any specific problem of importance.					

SYLLABUS

COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	IV/II	0	0	2	1
Subject Name	Computer Networks Lab				
Subject Code	DCS20S408				
Paper	English				
	Hindi				
Max. Marks	50				

S.No.	List of Experiment
1.	Showing various types of networking cables and connectors, identifying them clearly.
2.	Looking at specifications of cables and connectors of various companies on Internet, find out differences.
3.	Making patch cords using different types of cables and connectors - crimping, splicing, etc.
4.	Demonstration of different type of cable testers, using them for testing patch cords prepared by the students in Lab and standard cables prepared by professionals.
5.	Configuring computing devices (PC, Laptop, Mobile, etc) for network, exploring different options and their impact – IP address, gateway, DNS, security options, etc.
6.	Showing various networking devices – NICs, Hub, Switch, Router, WiFi access point, etc.
7.	Looking at specifications of various networking devices various companies on Internet, find out differences.
8.	Network simulation tool (e.g. Cisco Packet Tracer).
9.	Setting up a small wired LAN in the Lab.
10.	Setting up a small wireless LAN in the Lab.

SYLLABUS

COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	IV/II	0	0	2	1
Subject Name	Web Technologies Lab				
Subject Code	DCS20S409				
Paper	English				
	Hindi				
Max. Marks	50				

S.No.	List of Experiment
1.	Coding Server Client Programs.
2.	Developing Web Application using HTML, JavaScript.
3.	Developing Advanced Web Application Programs using CSS.
4.	Practicing PHP : Basics.
5.	Practicing PHP: Web Application Development.
6.	Practicing PHP: MySQL - tiered Applications.
7.	Developing a fully functional Web Service Application using all the technologies learned in this course.

SYLLABUS

COMPUTER SCIENCE & ENGINEERING

Class	Diploma-CSE	L	T	P	C
Semester/Year	IV/II	0	0	2	1
Subject Name	Linux Lab				
Subject Code	DCS20S410				
Paper	English				
	Hindi				
Max. Marks	50				

S.No.	List of Experiment
1.	Files and Directories: Cat, cd, chgrp, chmod, cp, file, find, grep, head, just, lpq, lpr , lprm, cancel, ls, mkdir, more, page, mv, pwd, rm, rmdir, tail, touch.
2.	File Editors Editors are used to create and amend files. Emacs, ex, edit, gedit, nedit, xemacs, emacs, dtpad, pico, vi.
3.	Manipulating data The contents of files can be compared and altered with the following commands. Awk, cmp, comm, cut, diff, expand, unexpand, gawk, Join, look, perl, paste, sed, sort, split, tr, uniq, wc.
4.	Compressed files Files may be compressed to save space. Compressed files can be created and examined. Compress, uncompressing, zcat, zcmp, zdiff, zmore, gzip, gunzip.
5.	Information Manuals and documentation are available on-line. The following Shell commands give information. Answer book2, apropos, dt help view, man, info, help.
6.	Shell Programming Writing shell scripts for arithmetic operations, file permission. Messages between Users The UNIX systems support on-screen messages to other users and world-wide electronic mail, pine, elm, dtmail, frm, from, dtmail, mesg, parcel, talk, write
7.	Networking Setup a small network in your lab and connect to that network Internet Protocol Service. These commands are used to send and receive files from Campus UNIX hosts and from other hosts and the Internet around the world.

