Haryana Engineering College, Jagadhri

Lesson Plan of Computer Science & Engg. Deptt. 4th Semester

Subject : Discrete Mathematics (PC-CS-202A)

Objective of Course : To familiarize the prospective students with the study & understand the various fundamentals of

1. Set Theory and Logics
2. Relations, Digraphs and Lattices
3. Functions and Combinations
4. Algebraic Structures

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Sets and Subsets	Lecture	
Day 2	Venn Diagrams	Lecture	
Day 3	Operations on Sets, Laws of Set Theory	Lecture	
Day 4	Power Sets and Product	Lecture	Assignment 1
Day 5	Partition of Sets, Principle of Inclusion- Exclusion.	Lecture	
Day 6	Logic : Propositions and Logical Operations	Lecture	
Day 7	Truth Tables	Lecture	
Day 8	Equivalence , Implications	Lecture	Assignment 2
Day 9	Laws of Logic, Normal Forms	Lecture	
Day10	Predicates and Quantifiers	Lecture	
Day11	Predicates and Quantifiers	Lecture	
Day12	Mathematical Induction	Lecture	
Day13	Product Sets & Partitions	Lecture	Assignment 3
Day14	Relations and Diagraphs	Lecture	
Day15	Paths in relations and Diagraphs	Lecture	
Day16	Properties of relations	Lecture	
Day17	Equivalence and Partially ordered relations	Lecture	
Day18	Computer presentation of relation and Digraphs	Lecture	Assignment 4
Day19	Manipulation of relations	Lecture	
Day20	Transitive Closure	Lecture	
Day21	Wars hall's Algorithm	Lecture	
Day22	Posets and Hasse Diagrams	Lecture	
Day23	Lattice	Lecture	Assignment 5
Day24	Definitions & types of Functions: Injective, Subjective and Bijective	Lecture	
Day25	Composition, Identity and Inverse	Lecture	
Day26	Permutation and Combination	Lecture	
Day27	Pigeon Hole Principle	Lecture	Assignment 6
Day28	Generating Functions	Lecture	

Day29	Recurrence- Relations	Lecture	Assignment 7
Day30	Algebraic Structures with one binary operation	Lecture	
Day31	Semi groups, monoids	Lecture	
Day32	Groups	Lecture	
Day33	Product and Quotient of Algebraic Structures	Lecture	
Day34	----------------do----------------------	Lecture	
Day35	Isomorphism	Lecture	Assignment 8
Day36	Homomorphism	Lecture	
Day37	Automorphism	Lecture	
Day38	Cyclic Groups	Lecture	
Day39	Normal Sub Group	Lecture	
Day40	------------do-------------	Lecture	
Day41	Codes and Group Codes	Lecture	
Day42	------------do-------------	Lecture	
Day43	Ring Homomorphism	Lecture	Assignment 9
Day44	Ring Isomorphism	Lecture	
Day45	Revision of Unit I	Lecture	
Day46	Revision of Unit II	Lecture	
Day47	Revision of Unit III	Lecture	
Day48	Revision of Unit IV	Lecture	

Outcome of Course:

1. To develop the tool of algebraic treatment of set operations which leads to Boolean Algebra, in which the operations of intersection, union and difference are interpreted as corresponding to the logical operations, "and". "or" and "not", respectively. This is used extensively in the design of digital electronic circuitry, such as that found in calculators and personal computers.

2. Relations and Directed graphs are present in the theory of loop transformations. To study something as basic as the execution ordering of the iterations of a loop nest, we need to know about several ways of partially ordering integer vectors. The most important concept in loop transformations, namely that of dependence, can be viewed as a relation between the members of a certain set.

3. To develop the knowledge of permutations and combinations which are very useful in computer science. It is prerequisite to Graph Theory, Probability etc.

4. To develop the knowledge of semigroups, monoids ,which are used quite intensively in automata theory.

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Haryana Engineering College, Jagadhri

Lesson Plan of Computer Science & Engg. Deptt. 4th Semester

Subject: Internet Technology & Management (PC-CS-204A)

Objective of Course:

1. Describe the important features of the Web and Web browser software
2. Evaluate e-mail software and Web-based e-mail services
3. Use search engines and directories effectively
4. Find, evaluate, and use online information resources
5. Use FTP and other services to transfer and store data
6. Demonstrate the use of real-time chat and briefly describe the history of the wireless Internet
7. Use mailing lists, newsgroups, and newsfeeds 8. Create HTML documents and enhance them with browser extensions

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Introduction to networks and internet,	Lecture	
Day 2	history, Internet, Intranet & Extranet	Lecture	
Day 3	Working of Internet, Internet Congestion, internet culture, business culture on internet	Lecture	
Day 4	Collaborative computing & the internet	Lecture	
Day 5	Modes of Connecting to Internet	Lecture	
Day 6	Internet Service Providers, Internet address	Lecture	
Day 7	standard address	Lecture	
Day 8	domain name, DNS	Lecture	
Day 9	IP.v6.Modems	Lecture	Assignment
Day10	Speed and time continuum	Lecture	
Day11	communications software, internet tools	Lecture	
Day12	Introduction, Miscellaneous Web Browser details	Lecture	
Day13	Miscellaneous Web Browser details	Lecture	
Day14	searching the www, Directories search engines	Lecture	
Day15	meta search engines, search fundamentals	Lecture	
Day16	search strategies, working of the search engines	Lecture	
Day17	Telnet and FTP	Lecture	Assignment
Day18	HTTP, Gophar Commands	Lecture	
Day19	TCP/IP.	Lecture	
Day20	Introduction to Browser, Coast-to-coast surfing	Lecture	
Day21	hypertext markup language	Lecture	

Day22	Web page installation, Web page setup, Basics of HTML	Lecture	
Day23	formatting and hyperlink creation, Using FrontPage Express, Plug-ins.	Lecture	
Day24	internet plateform and mailing systems Introduction, advantages and disadvantages,	Lecture	
Day25	User Ids, Pass words, e-mail addresses, message components, message composition	Lecture	
Day26	mailer features, E-mail inner workings, E-mail management	Lecture	
Day27	MIME types	Lecture	
Day28	Newsgroups, mailing lists	Lecture	Assignment
Day29	chat rooms, secure-mails , SMTP	Lecture	
Day30	PICO	Lecture	
Day31	PINE, Library cards catalog, online ref. works.	Lecture	
Day32	Basic and advanced HTML	Lecture	
Day33	Basics of scripting languages – XML, DHTML	Lecture	
Day34	Java scripts basics	Lecture	
Day35	Introduction to Web Servers: PWS	Lecture	
Day36	IIS, Apache	Lecture	
Day37	Microsoft Personal Web Server. Accessing & using these servers.	Lecture	
Day38	Privacy and security Introduction	Lecture	
Day39	Software Complexity, Attacks	Lecture	
Day40	security and privacy levels, security policy	Lecture	
Day41	accessibility and risk analysis	Lecture	Assignment
Day42	Encryption schemes, Secure Web document	Lecture	
Day43	Digital Signatures	Lecture	
Day44	Firewalls, Intrusion detection systems	Lecture	

Outcome of Course: Students will be able to
   1. Describe how the Internet works
   2. How to use email, newsletter and mailing list
   3. How to design webpage using html and java script

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Haryana Engineering College, Jagadhri

Lesson Plan of Computer Science & Engg. Deptt. 4th Semester

Subject : Operating Systems (PC-CS-206A)

Objectives of Course :

1. To learn the fundamentals of Operating Systems.
2. To learn the mechanisms of OS to handle processes and threads and their communication
3. To learn the mechanisms involved in memory management in contemporary OS
4. To know the components and management aspects of concurrency management

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Introduction to OS. Operating system functions, Different types of O.S.: batch process, multiprogrammed, time-sharing, real-time, distributed, parallel.	Teaching	
Day 2	System Structure: Computer system operation	Teaching	
Day 3	I/O structure, storage structure, storage hierarchy	Teaching	
Day 4	Different types of protections, operating system structure (simple, layered, virtual machine)	Teaching	
Day 5	O/S services, system calls.	Teaching	
Day 6			Test
Day 7	CPU Scheduling: Scheduling criteria, preemptive & non-preemptive scheduling	Teaching	
Day 8	Scheduling algorithms, algorithm evaluation, multi-processor scheduling	Teaching	
Day 9	Threads: overview, benefits of threads, user and kernel threads	Teaching	
Day10	Process Management: Concept of processes, process states, process control	Teaching	
Day11	Co-operating processes, interprocess communication.	Teaching	
Day12	Process Synchronization: background, critical section problem, critical region	Teaching	
Day13	Synchronization hardware, Classical problems of synchronization, semaphores.	Teaching	
Day14			Test
Day15	Deadlocks: Concept of deadlock, deadlock characterization	Teaching	
Day16	Deadlock prevention, deadlock avoidance,	Teaching	
Day17	Deadlock detection, recovery from deadlock.	Teaching	

Day18	Memory Management: background, logical vs. physical address space, contiguous memory allocation	Teaching	
Day19	Paging,	Teaching	
Day20	segmentation, segmentation with paging.	Teaching	
Day21	Concept of fragmentation. Virtual Memory: background, demand paging	Teaching	
Day22	Concept of page replacement, page replacement algorithms , allocation of frames, thrashing	Teaching	
Day23			Test
Day24	File Systems: file concept, file organization and access methods	Teaching	
Day25	Allocation methods, directory structure, freespace management	Teaching	
Day26	I/O Management: I/O hardware, polling, interrupts,	Teaching	
Day27	DMA, kernel I/O subsystem (scheduling, buffering, caching, spooling and device reservation)	Teaching	
Day28	Disk Management: disk structure, disk scheduling (FCFS, SSTF, SCAN,C-SCAN) , disk reliability, disk Performance parameters	Teaching	
Day29	Protection & Security: Goals of protection and security, security attacks, authentication, program threats, system threats, threat monitoring	Teaching	
Day30	Case studies: UNIX file system, Windows file system	Teaching	

Outcomes of Course:

1. To understand the structure and functions of Operating system.
2. To learn about processes, threads and scheduling algorithms.
3. To understand the principle of concurrency.
4. To understand the concept of deadlocks.
5. To learn various memory management schemes.
6. To study I/O management and file systems.
7. To study the concept of protection and security.

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Haryana Engineering College, Jagadhri

Lesson Plan of Computer Science & Engg. Deptt. 4th Semester

Subject : Design & Analysis of Algorithms (PC-CS-208A)

Objective of Course : To introduce advanced data structures & algorithms   concepts involving their implementation for solving complex applications.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Elementary Data Structures,	Lecture	
Day 2	Algorithms & its complexity (Time & Space),	Lecture	
Day 3	Analysing Algorithms, Asymptotic Notations	Lecture	Assignment
Day 4	Priority Queue	Lecture	
Day 5	Quick Sort	Lecture	
Day 6	Merge sort	Lecture	
Day 7	Methods for solving recurrence (Substitution, Recursion tree, Master theorem),	Lecture	
Day 8	Strassen multiplication.	Lecture	
Day 9		Lecture	Test
Day10	Dynamic programming: Elements,	Lecture	
Day11	Matrix-chain multiplication, longest common subsequence,	Lecture	
Day12	Greedy algorithms: Elements,	Lecture	
Day13	Activity- Selection problem,	Lecture	
Day14	Huffman codes,	Lecture	
Day15	Task scheduling problem,	Lecture	Assignment
Day16	Travelling Salesman Problem.	Lecture	
Day17	Binomial heaps.	Lecture	
Day18	Fibonacci heaps,	Lecture	
Day19	Splay Trees.	Lecture	
Day20	Red-Black Trees.	Lecture	
Day21		Lecture	Test
Day22	Review of graph algorithms:	Lecture	
Day23	Traversal Methods(Depth first & Breadth first search).	Lecture	
Day24	Topological sort, strongly connected components,	Lecture	
Day25	Minimum spanning trees- Kruskal's and Prim's Algorithm	Lecture	
Day26	Single source shortest paths, Relaxation,	Lecture	Assignment

Day27	Dijkstra's Algorithm,	Lecture	
Day28	Bellman- Ford algorithm,	Lecture	
Day29	Single source shortest paths for directed acyclic graphs,	Lecture	
Day30	Floyd-Warshall algorithm.	Lecture	
Day31		Lecture	Test
Day32	Computational Complexity: Basic Concepts,	Lecture	
Day33	Polynomial vs Non-Polynomial Complexity	Lecture	
Day34	NP- hard & NP-complete classes	Lecture	
Day35	NP- hard & NP-complete classes	Lecture	
Day36	Flow and Sorting Networks,	Lecture	
Day37	Flow networks,	Lecture	
Day38	Ford- Fulkerson method,	Lecture	Assignment
Day39	Maximum bipartite matching, Sorting Networks,	Lecture	
Day40	Comparison network, Zero- one principle,	Lecture	
Day41	Bitonic sorting network,	Lecture	
Day42	Merging network	Lecture	
Day43		Lecture	Test

Outcome of Course:
1. Learn the basic concepts of data structures and their analysis.
2. Study the concept of dynamic programming and various advanced data structures.
3. Learn various graph algorithms and concepts of computational complexities.
4. Study various Flow and Sorting Networks

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Haryana Engineering College, Jagadhri

Lesson Plan of Computer Science & Engg. Deptt. 4th Semester

Subject : Organizational Behaviour (HM-921A)

Objective of Course :

1. Students will be able to understand about organizational behaviour as a discipline and understanding the concept of individual behaviour.
2. Students will be able to understand the concept and importance of personality, emotions and its importance in decision making and effective leadership.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Concept and importance of organizational behaviour	Lecture	
Day 2	Role of manager in OB	Lecture	
Day 3	Foundations to OB	Lecture	
Day4	Challenges and Opportunities for OB	Lecture	
Day 5	Biographical Characteristics of Learning	Lecture	
Day 6	Concept of abilities and learning	Lecture	
Day 7	Components of learning	Lecture	
Day 8	Learning and Learning Cycle	Lecture	
Day 9	Concept of Values and attitude	Lecture	Assignment
Day 10	types of attitude	Lecture	
Day 11	Attitude and workforce diversity	Lecture	
Day 12	Definition and meaning of personality	Lecture	
Day 13	determinants of personality	Lecture	
Day 14	Personality traits influencing OB	Lecture	
Day 15	Nature and meaning of Emotions	Lecture	
Day 16	Emotions Dimensions	Lecture	
Day 17	Concept of Emotional Intelligence	Lecture	
Day 18	Meaning of perception	Lecture	
Day 19	factors influencing perception	Lecture	
Day 20	Rational decision making process	Lecture	
Day 21	concept of bounded rationality	Lecture	
Day 22	Leadership - Approaches - Trait, Behavioral, Situational, Emerging	Lecture	
Day 23	Concept and theories of motivation - maslow, two factor, theory XY, ERG theory, McClellands, goal setting	Lecture	
Day 24	Application of theories in organizational scenario	Lecture	Assignment
Day 25	Linkage between MBO and goal setting theory	Lecture	
Day 26	Employee recognition and involvement	Lecture	

	program.		
Day 27	Defining and Classifying of groups	Lecture	
Day 28	Stages of group development	Lecture	
Day 29	Informal and Formal Groups - Group dynamics	Lecture	
Day 30	Managing conflict and negotiation	Lecture	
Day 31	A contemporary perspective of intergroup conflict	Lecture	
Day 32	Causes of group conflicts	Lecture	
Day 33	managing intergroup conflict through resolution	Lecture	
Day 34	Meaning and importance of communication process	Lecture	
Day 35	importance of organizational communication	Lecture	
Day 36	Effective communication	Lecture	
Day 37	Organizational Stress - Definition and Meaning	Lecture	
Day 38	Sources and types of stress	Lecture	
Day 39	impact of stress on organizations	Lecture	
Day 40	Stress management techniques	Lecture	
Day 41	Meaning and nature of organizational culture	Lecture	
Day 42	Types of culture	Lecture	
Day 43	Managing cultural diversity	Lecture	Assignment
Day 44	Managing change and innovation	Lecture	
Day 45	Change at work	Lecture	
Day 46	Resistance to change	Lecture	
Day 47	Revision	Lecture	
Day 48	Revision	Lecture	

Outcome of Course:

1. Students can be able to know the importance of effective motivation and its contribution in group dynamics and resolving conflicts.
2. Students will be able to understand how to overcome organizational stress by maintaining proper organizational culture and effective communication.

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