

Haryana Engineering College, Jagadhri

Lesson Plan of Computer Science & Engg. Deptt. 6th Semester

Subject : Compiler Design (PC-CS-302A)

Objective of Course :

1. To understand the role and designing of a lexical analyzer.
2. To analyze the role and designing of syntax analyzer or parser.
3. To identify the role of semantic analyzer and intermediate code generation.
4. To explore the design importance of optimization of codes and error detection.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Introduction to Language Processing System	Lecture	
Day 2	Compiling Analysis of the Source Program	Lecture	
Day 3	Phases of a Compiler	Lecture	
Day 4	Compiler Construction Tools	Lecture	Assignment 1
Day 5	Lexical Analysis –Regular Expression	Lecture	
Day 6	Introduction to Finite Automata and Regular Expression	Lecture	
Day 7	Conversion of Regular Expression to NFA	Lecture	
Day 8	Role of Lexical Analyzer	Lecture	Assignment 2
Day 9	Specification of Tokens.	Lecture	
Day10	Syntax Analysis:Role of the Parser	Lecture	
Day11	Abstract Syntax Trees	Lecture	
Day12	Ambiguity in Context-Free Grammars	Lecture	
Day13	Types of Parsing:- Top Down Parsing	Lecture	Assignment 3
Day14	Recursive Descent Parsing	Lecture	
Day15	LL Parser	Lecture	
Day16	Back Tracking	Lecture	
Day17	Bottom Up Parsing	Lecture	
Day18	SLR Parser	Lecture	Assignment 4
Day19	Canonical LR Parser	Lecture	
Day20	LALR Parser	Lecture	
Day21	Semantic Analysis : Semantic Errors	Lecture	
Day22	Attribute Grammar	Lecture	
Day23	Synthesized attributes	Lecture	Assignment 5
Day24	Static Allocation, Stack Allocation	Lecture	
Day25	Heap Allocation	Lecture	
Day26	Activation Trees	Lecture	
Day27	Symbol Table	Lecture	Assignment 6
Day28	Intermediate Code Generation and Code Intermediate languages	Lecture	
Day29	Declarations, Assignment Statements	Lecture	Assignment 7
Day30	Boolean Expressions, Case	Lecture	

	Statements		
Day31	DAG representation of Basic Blocks	Lecture	
Day32	A simple Code generator from DAG	Lecture	
Day33	Issues in the Design of Code Generator	Lecture	
Day34	Code Optimization and Run Time Environments	Lecture	
Day35	Principal Sources of Optimization	Lecture	Assignment 8
Day36	Machine-independent Optimization	Lecture	
Day37	Machine-dependent Optimization	Lecture	
Day38	Optimization of Basic Blocks	Lecture	
Day39	Loop Optimization	Lecture	
Day40	Peephole Optimization	Lecture	
Day41	Introduction to Global Data Flow Analysis	Lecture	
Day42	Storage Organization	Lecture	
Day43	Static Storage Management	Lecture	Assignment 9
Day44	Heap Storage management	Lecture	
Day45	Parameter Passing	Lecture	
Day46	Error Recovery	Lecture	
Day47	Panic mode, Statement mode	Lecture	
Day48	Global correction	Lecture	

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Haryana Engineering College, Jagadhri

Lesson Plan of Computer Science & Engg. Deptt. 6th Semester

Subject : Computer Networks (PC-CS-304A)

Objective of Course :

1. To understand the basic concept of networking, types, networking topologies and layered architecture.
2. To understand data link layer and MAC sub-layer.
3. To understand the network Layer functioning.
4. To understand the transport layer and application layer operation.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Introduction to Computer Networks : Data Communication System and its components	Lecture	
Day 2	Data Flow	Lecture	
Day 3	Computer network and its goals	Lecture	
Day 4	Types of computer networks: LAN, MAN, WAN, Wireless and Wired networks broadcast and point-to-point networks	Lecture	
Day 5	Network topologies, protocols, interfaces and services	Lecture	Assignment 1
Day 6	ISO- OSI reference model	Lecture	
Day 7	TCP/IP architecture.	Lecture	
Day 8	Physical Layer: Concept of Analog & Digital Signal, Bandwidth	Lecture	
Day 9	Transmission Impairments: Attenuation, Distortion, Noise	Lecture	
Day10	Multiplexing : Frequency Division, Time Division, Wavelength Division	Lecture	
Day11	Transmission Media: Twisted pair, Coaxial cable, Fiber optics, Wireless transmission (radio, microwave, infrared)	Lecture	Assignment 2
Day12	Switching: Circuit Switching, Message Switching ,Packet Switching & comparisons	Lecture	
Day13	Narrowband ISDN, broadband ISDN.	Lecture	
Day14	Data link layer: Error Control	Lecture	
Day15	Types of errors, framing(character and bit stuffing)	Lecture	
Day16	Error detection & correction methods	Lecture	
Day17	Flow control; Protocols: Stop & wait ARQ	Lecture	
Day18	Go-Back- N ARQ, sliding window protocols	Lecture	Assignment 3
Day19	Selective repeat ARQ	Lecture	

Day20	HDLC	Lecture	
Day21	Medium access sub layer: Point to point protocol, FDDI, token bus, token ring	Lecture	
Day22	Reservation, polling	Lecture	
Day23	Multiple access protocols: Pure ALOHA, Slotted ALOHA	Lecture	Assignment 4
Day24	CSMA, CSMA/CD	Lecture	
Day25	FDMA, TDMA, CDMA	Lecture	
Day26	LLC	Lecture	
Day27	Traditional Ethernet, fast Ethernet	Lecture	
Day28	Network devices-repeaters, hubs, switches	Lecture	
Day29	Bridges, Router, Gateway	Lecture	Assignment 5
Day30	Network layer: Addressing	Lecture	
Day31	Internet address, sub-netting	Lecture	
Day32	Routing techniques, static vs. dynamic routing , routing table	Lecture	
Day33	DHCP	Lecture	
Day34	IEEE standards 802.x	Lecture	
Day35	Routing algorithms: shortest path algorithm, flooding, distance vector routing, link state routing	Lecture	Assignment 6
Day36	Protocols: ARP	Lecture	
Day37	RARP, IP, ICMP	Lecture	
Day38	IGMP, IPV6	Lecture	
Day39	Unicast and multicast routing protocols	Lecture	
Day40	ATM	Lecture	
Day41	Transport layer: Process to process delivery; UDP; TCP, RPC	Lecture	
Day42	Congestion control algorithm: Leaky bucket algorithm, Token bucket algorithm, choke packets	Lecture	
Day43	Quality of service: techniques to improve QoS.	Lecture	Assignment 7
Day44	Application layer: DNS; SMTP, SNMP	Lecture	
Day45	FTP, HTTP & WWW; Firewalls, Bluetooth	Lecture	
Day46	Email, S/MIME, IMAP,	Lecture	
Day47	Network Security: Cryptography, user authentication, security protocols in internet	Lecture	
Day48	Public key encryption algorithm, digital signatures	Lecture	Assignment 8

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Lesson Plan of Computer Science & Engg. Deptt. 6th Semester

Subject : Advanced Computer Architecture (PC-CS-S302A)

Objective of Course :

1. Classify and interpret various paradigms, models and micro-architectural design of advanced computer architecture as well as identify the parallel processing types and levels for achieving optimum scheduling.
2. Identify the roles of VLIW & superscalar processors and branch handling techniques for performance improvement.
3. Analyze and interpret the basic usage of various MIMD architectures and relative importance of various types of static and dynamic connection networks for realizing efficient networks.
4. Examine the various types of processors and memory hierarchy levels and cache coherence problem including software and hardware based protocols to achieve better speed and uniformity.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Computational Model: Basic computational models	Lecture	
Day 2	Evolution and interpretation of computer architecture	Lecture	
Day 3	Concept of computer architecture as a multilevel hierarchical framework	Lecture	
Day 4	Classification of parallel architectures	Lecture	
Day 5	Relationships between programming languages and parallel architectures.	Lecture	Assignment 1
Day 6	Parallel Processing: Types and levels of parallelism	Lecture	
Day 7	Instruction Level Parallel (ILP) processors	Lecture	
Day 8	Dependencies between instructions	Lecture	
Day 9	Principle and general structure of pipelines	Lecture	
Day10	performance measures of pipeline, pipelined processing of integer	Lecture	
Day11	Boolean, load and store instructions	Lecture	Assignment 2
Day12	VLIW architecture	Lecture	
Day13	Code Scheduling for ILP Processors - Basic block scheduling, loop scheduling, global scheduling.	Lecture	
Day14	Superscalar Processors: Emergence of superscalar processors	Lecture	
Day15	Tasks of superscalar processing – parallel decoding	Lecture	
Day16	Superscalar instruction issue,	Lecture	

	shelving, register renaming, parallel execution		
Day17	Preserving sequential consistency of instruction execution and exception processing	Lecture	
Day18	Comparison of VLIW & superscalar processors.	Lecture	Assignment 3
Day19	Branch Handling: Branch problem	Lecture	
Day20	Approaches to branch handling – delayed branching	Lecture	
Day21	Branch detection and prediction schemes, branch penalties	Lecture	
Day22	Multiway branches, guarded execution	Lecture	
Day23	MIMD Architectures: Concepts of distributed and shared memory MIMD architectures	Lecture	Assignment 4
Day24	UMA, NUMA	Lecture	
Day25	CCNUMA & COMA models	Lecture	
Day26	Problems of scalable computers.	Lecture	
Day27	Static connection networks: Linear array, ring, chordal ring	Lecture	
Day28	Barrel shifter, star, tree, mesh and torus	Lecture	
Day29	Fat Tree, systolic array, barrel shifter	Lecture	Assignment 5
Day30	Hypercubes and Cube connected cycles	Lecture	
Day31	Dynamic interconnection networks: single shared buses	Lecture	
Day32	Comparison of bandwidths of locked	Lecture	
Day33	Pended & split transaction buses, arbiter logics	Lecture	
Day34	Crossbar networks, multistage networks	Lecture	
Day35	Omega networks, butterfly.	Lecture	Assignment 6
Day36	Processors and Memory Hierarchy: Advanced processor technology	Lecture	
Day37	Memory hierarchy technology and virtual memory technology	Lecture	
Day38	Cache Coherence and Synchronization Mechanisms: Cache coherence problems	Lecture	
Day39	Hardware based protocols – snoopy cache protocols	Lecture	
Day40	Directory schemes	Lecture	
Day41	Hierarchical cache coherence protocols	Lecture	
Day42	Software based protocols	Lecture	

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Lesson Plan of Computer Science & Engg. Deptt. 6th Semester

Subject : Mobile Computing (PE-CS-S312A)

Objective of Course :

1. Describe the concepts of mobile computing and cellular networks.
2. Learn the basic concepts of wireless networks.
3. Study of various issues of mobile computing and basics of cloud computing.
4. Description and applications of Ad hoc networks.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Introduction, Issues in mobile computing	Lecture	
Day 2	Overview of wireless telephony: cellular concept- Cell	Lecture	
Day 3	Co-Channel Interference	Lecture	
Day 4	Frequency reuse	Lecture	
Day 5	HLR-VLR	Lecture	Assignment 1
Day 6	Handoffs, channel allocation in Cellular systems	Lecture	
Day 7	Mobile computing Architecture	Lecture	
Day 8	Design considerations for mobile computing	Lecture	
Day 9	Mobile Computing through Internet	Lecture	
Day10	Making existing applications mobile enabled	Lecture	
Day11	3G	Lecture	Assignment 2
Day12	4G	Lecture	
Day13	Wireless Networking	Lecture	
Day14	Wireless LAN Overview: MAC issues	Lecture	
Day15	IEEE 802.11	Lecture	
Day16	Bluetooth	Lecture	
Day17	Wireless multiple access protocols	Lecture	
Day18	TCP over wireless	Lecture	Assignment 3
Day19	Wireless applications	Lecture	
Day20	Data broadcasting	Lecture	
Day21	Mobile IP	Lecture	
Day22	WAP : Architecture	Lecture	
Day23	Traditional TCP	Lecture	Assignment 4
Day24	Classical TCP	Lecture	
Day25	Improvements in WAP	Lecture	
Day26	WAP applications.	Lecture	
Day27	Data management issues	Lecture	
Day28	Data replication for mobile computers	Lecture	
Day29	Adaptive clustering for mobile wireless networks	Lecture	Assignment 5
Day30	File system	Lecture	
Day31	Disconnected operations Mobile Agents computing	Lecture	

Day32	Security and fault tolerance	Lecture	
Day33	Transaction processing in mobile computing environment.	Lecture	
Day34	Cloud Architecture model	Lecture	
Day35	Types of Clouds: Public Private & Hybrid Clouds	Lecture	Assignment 6
Day36	Resource management and scheduling	Lecture	
Day37	Clustering	Lecture	
Day38	Data Processing in Cloud	Lecture	
Day39	Introduction to Map Reduce for Simplified data processing on Large clusters	Lecture	
Day40	Ad hoc networks	Lecture	
Day41	Manet's& its Applications	Lecture	
Day42	Routing & Routing protocols- Global state routing (GSR)	Lecture	
Day43	Destination sequenced distance vector routing (DSDV)	Lecture	
Day44	Dynamic source routing (DSR)	Lecture	Assignment 7
Day45	Ad Hoc on demand distance vector routing (AODV)	Lecture	
Day46	Temporary ordered routing algorithm (TORA)	Lecture	
Day47	Fish eye routing protocol	Lecture	
Day48	QoS in Ad Hoc Networks	Lecture	

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Lesson Plan of Computer Science & Engg. Deptt. 6th Semester

Subject : Soft Skills & Interpersonal Communication (OE-CS-302A)

Objective of Course :

1. Develop basic understanding of Communication.
2. Understand the process of communication and speaking.
3. Develop the Personality concepts and its implementation.
4. Develop the basic of group Discussion and interview.

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Communication: Introduction Verbal	Lecture	
Day 2	Types of communication	Lecture	
Day 3	Extra personal communication	Lecture	
Day 4	Inter personal communication	Lecture	
Day 5	Intrapersonal communication	Lecture	Assignment 1
Day 6	Mass communication	Lecture	
Day 7	Creativity in communication	Lecture	
Day 8	Role of communication	Lecture	
Day 9	Flow of Communications and its need	Lecture	
Day10	Speaking Skills	Lecture	
Day11	Main features of speaking skills.	Lecture	
Day12	Barriers in the way of communication	Lecture	
Day13	Noise	Lecture	
Day14	Inter personal barriers	Lecture	
Day15	Intrapersonal barriers	Lecture	
Day16	Organizational barriers	Lecture	
Day17	Extra personal barriers	Lecture	
Day18	Basics of communication: importance of communication	Lecture	Assignment 2
Day19	Process of communication	Lecture	
Day20	Objectives and characteristics of communication.	Lecture	
Day21	Personality Development	Lecture	
Day22	What is personality?	Lecture	
Day23	Role of personality	Lecture	Assignment 3
Day24	Heredity	Lecture	
Day25	Environment	Lecture	
Day26	Situation	Lecture	
Day27	Basics of personalit	Lecture	
Day28	ySoft skills: Need and training	Lecture	
Day29	Activity in soft skills	Lecture	
Day30	Organizational skill: introduction and its need	Lecture	
Day31	Basics principles for organization skills.	Lecture	
Day32	Group discussion: Group discussion	Lecture	
Day33	Form of group discussion	Lecture	

Day34	Strategy for group discussion	Lecture	
Day35	Discussing problem and solution	Lecture	Assignment 4
Day36	Oral presentation, introduction, planning	Lecture	
Day37	Occasion, purpose	Lecture	
Day38	Modes of delivery	Lecture	
Day39	Resume making: Purpose of Resume	Lecture	
Day40	Resume design and structure	Lecture	
Day41	Contents in Resume	Lecture	
Day42	Types of Resume	Lecture	
Day43	Job interview, introduction	Lecture	
Day44	Objective of Interview	Lecture	Assignment 5
Day45	Types of interview	Lecture	
Day46	Stages of interview	Lecture	
Day47	Face to face interview	Lecture	
Day48	Campus interview	Lecture	

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