

Topics / Lectures are arranged in sequence - same - as to be taught in the class. Maintain data related to "Date" in its hard copy.					
S. No.	Lecture No	Topic Description	Teaching Pedagogy	Reference Material	Remarks, if any
1	1	Alphabets, Languages and Grammar, Production and Derivations	Board	T1	
2	2	Regular Expression and Finite Automata : Introduction to Finite Automata and 5 tuples, Transition table, Transition diagram	Board	T1	
3	3	Deterministic Finite Automata : Transition function, Applications of FA, Types of FA	Board	T1	
4	4	Acceptance of Language, Non-Deterministic Finite Automata (NFA) : Definition of NFA, Designing NDFA	Board	T1	
5	5	DFA question practice, NDFA with E-moves, Elimination of E-moves	Board	T1	
6	6	Equivalence of 2 FA, Conversion of NFA to DFA	Board	T1	
7	7	Finite Automata with Output, Mealy machine	Board	T1	
8	8	Moore machine and example, Conversion of Moore to Mealy machine and vice-versa	Board	T1	
9	9	Chomsky Hierarchy of Languages	Board	T1	
10	10	Regular Expression, Identities of RE	Board	T1	
11	11	Arden's Theorem, Find RE by Arden's Theorem		T1	
12	12	DFA to RE, Example questions, RE to DFA	Board	T1	
13	13	Context-free grammars (CFG) and Languages (CFL), Chomsky Hierarchy of languages	Board	T1	
14	14	Ambiguity in CFG : Introduction to Grammar, types of Regular Grammars	Board	T1	
15	15	Derivation Tree and its types (Left & Right), Ambiguous Grammar, Simplification of Grammar, Removal of Null and Unit Production	Board	T1	
16	16	Chomsky Normal Form	Board	T1	
17	17	Greibach Normal Form	Board	T1	
18	18	Greibach Normal Form continues, Properties of Pumping Lemma, Pumping lemma for regular language		T1	
19	19	Pumping Lemma for Context Free Grammar	Board	T1	
20	20	Minimization of DFA - Partitioning Method	Board	T1	
21	21	Revision / Class Test	Board	T1	
22	22	Introduction to Context free language and Pushdown automata, CFG to PDA	Board	T1	
23	23	NPDA , Parse Tree and Ambiguity in CFG	Board	T1	
24	24	Properties and Pumping Lemma for CFL	Board	T1	
25	25	Linear Bounded Automata and equivalence with CSG	Board	T1	
26	26	Introduction to Turing Machine and Examples, Types of Turing Machine, Problem of TM	Board	T1	
27	27	TM as enumerator, Universal TM, TM as Transducer (1's complement), TM for even Palindrome	Board	T1	
28	28	Revision / Class Test	Board	T1	
29	29	Introduction to Compiler Design	Board	T2	
30	30	Language Translator, Phases of Compiler		T2	
31	31	Lexical Analysis(scanner) : scanner generator, Symbol Table, Error Handling	Board	T2	
32	32	Finding FIRST(), Finding FOLLOW()	Board	T2	
33	33	LEX Tool, LEX File Format	Board	T2	
34	34	Grammar for Arithmetic Expression, Common Notation, Sentential LMD	Board	T2	
35	35	RMD, Ambiguous Grammar, Associative Operator, Precedence, Left Recursive	Board	T2	
36	36	Syntax Analysis (Parser): ambiguity LL(1) grammars and Parser : LL(1)	Board	T2	
37	37	LL(1) continued, LL(1) parsing with string	Board	T2	
38	38	Bottom up parsing : LR Parsing, Closure and GOTO, LR(0)	Board	T2	
39	39	SLR(1), LR(0) string parser	Board	T2	
40	40	CLR Parser and questions	Board	T2	
41	41	LALR Parser and questions	Board	T2	
42	42	Operator Precedence Grammar	Board	T2	
43	43	Revision / Class Test	Board	T2	
44	44	Syntax Directed Definition, Types of SDD	Board	T2	
45	45	Binary to Decimal, Binary to Fraction	Board	T2	
46	46	Symbol Table: Its structure, Symbol attributes and management	Board	T2	
47	47	Revision / Class Test	Board	T2	
48	48	Intermediate Code Generation: Translation of different language features	Board	T2	
49	49	Different types of intermediate forms, Intermediate code optimization	Board	T2	
50	50	Backpatching, Directed Acyclic Graph	Board	T2	
51	51	Machine code Generation and optimization: Instruction scheduling (for pipeline)	Board	T2	
52	52	Loop optimization (for cache memory) etc.	Board	T2	
53	53	Peephole Optimization, Liveness Analysis	Board	T2	
54	54	Register allocation and Target code generation	Board	T2	
55	55	Revision / Class Test	Board	T2	

Study Material / Books / Web-resources / Online Courses Links etc.

S.No.	Description
1	T1 : Theory of Computer Science: Automata, Languages and Computation, 3/E by K.L.P. Mishra, N. Chandrasekaran
2	T2 : A.V. Aho, M.S. Lam, R. Sethi, and J.D. Ullman, Compilers:Principles, Techniques, and Tools, Pearson Education, 2007 (second ed.)

