

Bhoj Reddy Engineering College for Women: Hyderabad

Department of Information Technology

Lesson plan of faculty member for the academic year 2020-21

Class: III B Tech

Branch-Section: IT -A

Semester: I

Subject: Formal Languages and Automata Theory

Lectures per week: 3

Lecture Number	Topics to be covered	Date (s)
UNIT-I		
1	Introduction to Finite Automata	02 September 2020
2	Structural Representations, Automata and Complexity	04 September 2020
3	Alphabets, Strings, Languages, Problems	07 September 2020
4	Nondeterministic Finite Automata	09 September 2020
5	Nondeterministic Finite Automata problems	11 September 2020
6	Text Search	14 September 2020
7	Finite Automata with Epsilon-Transitions	16 September 2020
8	Deterministic Finite Automata	18 September 2020
9	How a DFA Process Strings	21 September 2020
10	The Language of DFA, Conversion of NFA to DFA	23 September 2020
11	Conversion of NFA with Epsilon-Transitions to NFA without Epsilon-Transitions	25 September 2020
12	Moore Machine	28 September 2020
13	Mealy Machine	30 September 2020
UNIT-II		
14	Regular Expressions, Finite Automata and Regular Expressions	05 October 2020
15	Applications of Regular Expressions	07 October 2020
16	Algebraic Laws for Regular Expressions	09 October 2020
17	Properties of Regular Languages	12 October 2020
18	Conversion of Finite Automata to Regular Expressions	14 October 2020
19	Pumping Lemma for Regular Languages	16 October 2020
20	Applications of the Pumping Lemma	26 October 2020
21	Closure and Decision Properties of Regular Languages	28 October 2020
22	Equivalence and minimization of Automata	09 November 2020
UNIT-III		
23	Definition of Context-Free Grammars	11 November 2020
24	Derivations Using a Grammar	13 November 2020
25	Leftmost and Rightmost Derivations	16 November 2020
26	The Language of a Grammar, Sentential Forms	18 November 2020
27	Parse Tree, Applications of Context-Free Grammars	20 November 2020
28	Ambiguity in Grammars and Languages	23 November 2020
29	Definition of the Pushdown Automaton, the Languages of a PDA	25 November 2020
30	Equivalence of PDA's and CFG's, Acceptance by final state	27 November 2020
31	Acceptance by empty stack Deterministic Pushdown Automata, From CFG to PDA	02 December 2020
UNIT-IV		
32	Eliminating useless symbols, Eliminating ϵ -	07 December 2020

Lecture Number	Topics to be covered	Date (s)
	Productions	
33	Chomsky Normal form	08 December 2020
34	Griebech Normal form	11 December 2020
35	Statement of pumping lemma, Applications of pumping lemma	14 December 2020
36	Closure properties of CFL's, Decision Properties of CFL's	18 December 2020
37	Introduction to Turing Machine, Formal Description, Instantaneous description, The language of a Turing machine	21 December 2020
UNIT-V		
38	Types of Turing machine, Turing machines and halting	23 December 2020
39	Undecidability, A Language that is Not Recursively Enumerable, An Undecidable Problem That is RE	28 December 2020
40	Undecidable Problems about Turing Machines, Recursive languages, Properties of recursive languages	29 December 2020
41	Post's Correspondence Problem, Modified Post Correspondence problem	30 December 2020
42	Other Undecidable Problems, Counter machines	1 January 2020

Text Books:

1. Introduction to Automata Theory, Languages, and Computation, 3rd Edition, John E. Hopcroft, Rajeev Motwani, Jeffrey D. Ullman, Pearson Education.
2. Theory of Computer Science – Automata languages and computation, Mishra and Chandrashekar, 2nd edition, PHI.

Reference Books:

1. Introduction to Languages and The Theory of Computation, John C Martin, TMH.
2. Introduction to Computer Theory, Daniel I.A. Cohen, John Wiley.
3. A Textbook on Automata Theory, P. K. Srimani, Nasir S. F. B, Cambridge University Press.
4. Introduction to the Theory of Computation, Michael Sipser, 3rd edition, Cengage Learning.
5. Introduction to Formal languages Automata Theory and Computation Kamala Krithivasan, Rama R, Pearson.

Name and signature of the faculty: Mrs E Nitya

Name and signature of Head of the Department: Dr C Murugamani