SREE VIDYANIKETHAN ENGINEERING COLLEGE (Autonomous)

Sree Sainath Nagar, A. Rangampet-517 102

Department of Information Technology

Lesson Plan cum Dairy 2016-17

Name of the Subject: Theory of Computation (14BT50501)

Name of the faculty Member: Ms. Kavitha & Mr. M. Thrilok Reddy

Class& Semester: III B.Tech – I Semester **Section: IT – A&B**

S. No.	Topic	No. of periods	Book(s) followed	Topics for self study
UNIT – I: FINITE AUTOMATA				
1.	Introduction to Finite Automata	1	T1	Text Search Application
2.	Structural Representations	1	T1	
3.	Automata and Complexity	1	T1	
4.	The Central Concepts of Automata Theory	1	T1	
5.	An Informal Picture of Finite Automata	1	T1	
6.	Deterministic Finite Automata	1	T1	
7.	Nondeterministic Finite Automata	1	T1	
8.	Finite Automata with **ε**-Transitions	2	T1	
Total periods required:		**09**		
UNIT – II: Regular Expressions				
9.	Regular Expressions	1	T1	Decision Properties of Regular Languages
10.	Finite Automata and Regular Expressions	2	T1	
11.	Applications of Regular Expressions	1	T1	
12.	Algebraic Laws for Regular Expression	1	T1	
13.	Proving Languages not to be Regular	1	T1	
14.	Closure Properties of Regular Languages	1	T1	
15.	Equivalence and Minimization of Automata	2	T1	
Total periods required:		**09**		
UNIT -III: CONTEXT-FREE GRAMMARS AND PUSH DOWN AUTOMATA				
	Context-Free Grammars		T1	Closure and Decision Properties of Context-Free Languages.
16.	Context-Free Grammars	1	T1	
17.	Parse Trees	1	T1	
18.	Applications of Context-Free Grammars	1	T1	
19.	Ambiguity in Grammars and Languages	1	T1	
20.	Normal Forms for Context-Free Grammars	1	T1	
21.	The Pumping Lemma for Context-Free Languages	1	T1	
	PUSH DOWN AUTOMATA		T1	
22.	Definition of the Pushdown Automaton	1	T1	
23.	The Languages of a PDA	1	T1	
24.	Equivalence of PDA's and CFG's	1	T1	
25.	Deterministic Pushdown Automata	1	T1	

S. No.	Topic	No. of periods	Book(s) followed	Topics for self study
Total periods required:		**10**		
UNIT – IV: TURING MACHINES AND LINEAR BOUNDED AUTOMATA				
26.	Types of Computational Problems	1	T1	LR(K) grammars.
27.	The Turing Machine	1	T1	
28.	Programming Techniques for TM	1	T1	
29.	Extensions to the Basic Turing Machine	1	T1	
30.	Restricted Turing Machines	1	T1	
31.	Turing Machines and Computers	1	T1	
32.	The Model of Linear Bounded Automaton.	2	R1	
Total periods required:		**08**		
UNIT – V: UNDECIDABILITY				
33.	Language That is Not Recursively Enumerable	2	T1	Other Undecidable Problems
34.	An Undecidable Problem	2	T1	
35.	Undecidable Problems About Turing Machines	2	T1	
36.	Post's Correspondence Problem	3	T1	
Total periods required:		**9**		
Grand total periods required:		**45**		

TEXT BOOKS:

T1. John E. Hopcroft, Rajeev Motwani, Jeffrey D Ullman, **"Introduction to Automata Theory, Languages and Computation",** 3rd edition, Pearson, 2011.

REFERENCE BOOKS:

R1. K.L.P. Mishra and N.Chandrasekaran, **"Theory of Computer Science:Automata Languages and Computation",** 3rd edition, Phi Learning, 2009.

R2. John C Martin, **"Introduction to Languages and the Theory of Computation",** 3rd edition, TMH, 2009.