



# VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN

[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]



## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Course Code / Name : U15CS517/ THEORY OF COMPUTATION

Class (Year / Programme / Department / Section): III/BE/CSE/A&B

### LESSON PLAN

UNIT -1 (FINITE AUTOMATA)				
Session No	Topic	Duration in Minutes	Teaching Aid	Book Referred
1	Introduction	45	BB	R2
2	Basic Mathematical Notation and techniques-	45	BB	R2
3	Finite State systems	45	BB	R2
4	Basic Definitions	45	BB	R2
5	Finite automata	45	BB	R2
6	DFA & N DFA	45	BB	R2
7	Finite Automaton with $\epsilon$ - moves.	45	BB	R2
8	Basic Mathematical Notation	45	BB	R2
9	Finite State systems	45	BB	R2
UNIT -2 (REGULAR LANGUAGES)				
1	Regular Languages	45	BB	R2
2	Regular Expression	45	BB	R2
3	Equivalence of NFA and DFA	45	BB	R2
4	Equivalence of N DFA's with and without $\epsilon$ -moves	45	BB	R2
5	Equivalence of finite Automaton	45	BB	R2
6	Minimization of DFA	45	BB	R2
7	Pumping Lemma for Regular sets	45	BB	R2
8	Problems based on Pumping Lemma	45	BB	R2
9	regular expressions	45	BB	R2
UNIT -3 (GRAMMARS)				
1	Grammar Introduction	45	BB	R1
2	Types of Grammar	45	BB	R1
3	Context Free Grammars and Languages	45	BB	R1
4	Derivations and Languages	45	BB	R1
5	Ambiguity	45	BB	R1
6	Relationship between derivation and derivation trees	45	BB	R1
7	Simplification of CFG	45	BB	R1
8	Unit productions	45	BB	R3
9	Null productions	45	BB	R3
UNIT -4 (PUSHDOWN AUTOMATA)				
1	Pushdown Automata	45	BB	R1

2	Definitions	45	BB	R1
3	Moves	45	BB	R1
4	Instantaneous descriptions	45	BB	R1
5	Deterministic pushdown automata	45	BB	R1
6	Equivalence of Pushdown automata	45	BB	R1
7	Equivalence of CFL	45	BB	R1
8	pumping lemma for CFL	45	BB	R1
9	problems based on pumping Lemma	45	BB	R1
<b>UNIT -5 (TURING MACHINES)</b>				
1	Definitions of Turing machines	45	BB	R1
2	Models	45	BB	R1
3	Computable languages and functions	45	BB	R1
4	Techniques for Turing machine construction	45	BB	R1
5	Multi head and Multi tape Turing Machines	45	BB	R1
6	The Halting problem	45	BB	R1
7	Partial Solvability	45	BB	R1
8	Problems about Turing machine	45	BB	R1
9	Models	45	BB	R1