CS8501 THEORY OF COMPUTATION   **L T P C 3 0 0 3**

UNIT I AUTOMATA FUNDAMENTALS 9
Introduction to formal proof – Additional forms of Proof – Inductive Proofs –Finite Automata – Deterministic Finite Automata – Non-deterministic Finite Automata – Finite Automata with Epsilon Transitions

UNIT II REGULAR EXPRESSIONS AND LANGUAGES 9
Regular Expressions – FA and Regular Expressions – Proving Languages not to be regular – Closure Properties of Regular Languages – Equivalence and Minimization of Automata.

UNIT III CONTEXT FREE GRAMMAR AND LANGUAGES 9
CFG – Parse Trees – Ambiguity in Grammars and Languages – Definition of the Pushdown Automata – Languages of a Pushdown Automata – Equivalence of Pushdown Automata and CFG, Deterministic Pushdown Automata.

UNIT IV PROPERTIES OF CONTEXT FREE LANGUAGES 9
Normal Forms for CFG – Pumping Lemma for CFL – Closure Properties of CFL – Turing Machines – Programming Techniques for TM.

UNIT V UNDECIDABILITY 9
Non Recursive Enumerable (RE) Language – Undecidable Problem with RE – Undecidable Problems about TM – Post 's Correspondence Problem, The Class P and NP.

TEXT BOOK:
1. J.E.Hopcroft, R.Motwani and J.D Ullman, ―Introduction to Automata Theory, Languages andComputations‖, Second Edition, Pearson Education, 2003.

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1. H.R.Lewis and C.H.Papadimitriou, ―Elements of the theory of Computation‖, Second Edition,
 PHI, 2003.
2. J.Martin, ―Introduction to Languages and the Theory of Computation‖, Third Edition, TMH, 2003.
3. Micheal Sipser, ―Introduction of the Theory and Computation‖, Thomson Brokecole, 1997.