**MA8701 Theory of Computation**

Formal grammer and languages and their calssifications (Chowmsky Clasification), Automata and Language Theory: Finite automata, regular expression, pumping lemma, context free grammar, context free languages, Chomsky normal form, push down automata, pumping lemma for CFL; Computability: Turing machines, Churh- Turing thesis, decidability, halting problem, reducibility, recursion theorem & functions; Complexity: Time complexity of Turing machines, Classes P and NP, NP completeness, other time classes, the time hierarchy. First order language and first order predicate logic. First order theories, Peano arithmetic, Groups, Orderings. Logic on automata.

**References:**

1. Sipser, Introduction to the Theory of Computation, Thomson, 2004.
2. H. R. Lewis and C. H. Papadimitriou, Elements of the Theory of Computation, PHI, 1981.
3. J. E. Hopcroft and J. D. Ullman, Introduction to Automata Theory, Languages and Computation, Narosa, 1979.