

Course Title	Theory of Automata
Course Code	DC-222
Credit Hours	3
Category	Domain Core
Prerequisite	None
Co-Requisite	None
Follow Up	Compiler Construction
Course Description	Finite State Models: Language definitions preliminaries, Regular expressions/Regular languages, Finite automata (FAs), Transition graphs (TGs), NFAs, Kleene's theorem, Transducers (automata with output), Pumping lemma and non-regular language Grammars and PDA: CFGs, Derivations, derivation trees and ambiguity, Simplifying CFLs, Normal form grammars and parsing, Decidability, Context sensitive languages, grammars and linear bounded automata (LBA), Chomsky's hierarchy of grammars Turing Machines Theory: Turing machines, Post machine, Variations on TM, TM encoding, Universal Turing Machine, Defining Computers by TMs.
Text Book(s)	Introduction to computer theory, Daniel I. A. Cohen, 2nd Edition
Reference Material	Automata, Computability and Complexity: Theory and Applications, by Elaine Rich, 2011 An Introduction to Formal Languages and Automata, by Peter Linz, 4th edition, Jones & Bartlett Publishers, 2006 Theory of Automata, Formal Languages and Computation, by S. P. Eugene, Kavier, 2005, New Age Publishers