Reference: https://iitk.ac.in/math/index.php/2014-05-21-10-30-47/courses (MTH 401)

Syllabus: Pre-requisite: MTH302/Consent of Instructor

Regular languages, Deterministic and non-deterministic finite automata, Closure properties, Languages that are and are not regular, State minimization in deterministic finite automata. Context-free languages, Closure properties, Parse-trees, Languages that are and are not Context-free, Pushdown automata. Turing machines, Turing computability, Church-Turing thesis, Halting problem, Some undecidable problems. Computational complexity, Classes P and NP, Completeness, Examples of NP complete problems.

Reference materials:

1. H. R. Lewis and C. H. Papadimitriou: Elements of the Theory of Computation, Prentice Hall, 1998.
2. J. E. Hopcroft, R. Motwani, J. D. Ullman: Introduction to Automata Theory, Languages and Computation, Pearson Education, 2001.

Credits: 9