Topics for the course

1. **Deterministic finite automata** - Deterministic finite automata, Nondeterministic finite automata, Subset construction, Regular expression, State minimization.

2. **Pushdown automata** - Context free languages, Context free grammars, Pumping lemma, Parsing.

3. **Turing machines** - Effective computation, Equivalent models, Universal machines, Diagonalization, Undecidability, λ-Calculus.

4. **Complexity classes** - Time and space complexities, P, NP, Cook-Levin theorem, NP-completeness, PSPACE, Savitch's theorem.

Texts for the course

- **Automata and Computability** (Kozen)
- **Theory of Computation** (Kozen)