

Syllabus

Instructor

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Class Logistics

Venue: L13.
Time: Mon and Fri – 8am, Tue – 9am .
Course Textbook: *Introduction to the Theory of Computation*, by Michael Sipser.
Prerequisite: CS201
Web site: <https://piazza.com/iitk.ac.in/fall2013/cse340/home>

Course Syllabus

- Models of computation – classification, properties and equivalences.
- Regular languages models: finite state machines (deterministic and non- deterministic), regular grammars, regular expressions, equivalence of deterministic and non-deterministic machines and of the three models. Properties: closure, decidability, minimality of automata, iteration theorems.
- Context-free languages models: grammars (including different normal forms), pushdown automata, and their equivalence. Properties: closure, iteration theorems, parsing.
- Recursive and recursively enumerable sets models: Turing machines, grammars, recursive functions, their equivalence. Church's thesis. Properties: closure, decidability, undecidability/non-computability, notion of reductions.

Testing and Grading

Your grades will be based on class participation, homework assignments, quizzes, a mid semester exam and a final exam. The following table gives a guideline for evaluating your final grade.

Class Participation	5%
Homework	17.5%
Quiz	17.5%
Mid Semester Exam	20%
Final Exam	40%

Useful Information

- There will be 4 homework assignments distributed over the semester. You will be given about one week to complete each assignment, which is due at the beginning of class on the respective day. Late submissions are strongly discouraged and will be penalised.

- There will be around 4 quizzes in this course. The quizzes may be unannounced.
- Plagiarism in any form such as cheating, copying, lending your work to others, etc., is very strongly discouraged and will be heavily penalised.
- For the exams, you can consult your textbook and notes only. No electronic devices are permitted whatsoever. There will be NO makeup quizzes/exams unless under extreme circumstances, which is solely upon the discretion of the instructor.
- Clarity and legibility of your solutions are as important as the solution itself.
- It is strongly encouraged that you attend all lectures.