

CS432/SCS432 Theory of Computation 2025/2026
Lecture Materials

Lecture materials are parts of the two main references of the course:

Book 1: Theory of Computation, An Introduction by "James Hein" (1st edition)

Book 2: An Introduction to Formal Languages and Automata by "Peter Linz" (3rd or 4th edition)

Materials for both Midterm and Final exams:

* Introduction to Regular Languages

Section 1.4, 5.1 of Book 1

* Deterministic and Non-deterministic Finite Automata

Sections 5.2, 5.3 of Book 1

Sections 2.1, 2.2, 2.4 of Book 2

* Regular Grammars

Section 5.4 of Book 1

* Properties of Regular Languages

Section 5.4 of Book 1

Sections 4.1, 4.2 of Book 2

* Pumping lemmas for Regular Languages

Section 5.4 of Book 1

Section 4.3 of Book 2

Materials for Final exam only:

* Context Free Grammars and Languages

Section 6.1 of Book 1

Sections 5.1, 1.2 of Book 2

* Push Down Automata

Section 6.2 of Book 1

* LL(k), LR(K) grammars and Deterministic Context Free Languages

Section 6.3 of Book 1

* Pumping lemma for Context Free Languages

Section 6.4 of Book 1

Section 8.1 of Book 2

* Properties of Context Free Languages

Section 6.4 of Book 1

Section 8.2 of Book 2

* Turing Machines, Linear Bounded Automata, and Context Sensitive Languages

Section 7.1, 8.2 of Book 1

* Post's correspondence problem

Section 8.1 of Book 1

Section 12.3, 12.4 of Book 2
