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## CSE 401 Introduction to Compiler Construction

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### Credits

4.0 (3 hrs lecture, 1 hr section)

### Lead Instructor

Dan Grossman

### Textbook

- *Engineering a Compiler*, Cooper & Torczon

### Course Description

Fundamentals of compilers and interpreters; symbol tables; lexical analysis, syntax analysis, semantic analysis, code generation, and optimizations for general purpose programming languages. No credit to students who have taken CSE 413.

### Prerequisites

either CSE 326 and CSE 378 or CSE 332 and CSE 351.

### CE Major Status

Selected Elective

### Course Objectives

Learn principles and practice of language implementations. Understand tradeoffs between run-time and compile-time processing. Understand tradeoffs between language features, run-time efficiency, and implementation difficulty. Gain experience working with large systems software, object-oriented design, and Java.

### ABET Outcomes

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (e) an ability to identify, formulate, and solve engineering problems
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

### Course Topics

- Organization of Compilers and Interpreters

- Lexical Analysis
- Syntactic Analysis
- Semantic Analysis
- Interpretation
- Run-Time Storage Layout
- Code Generation
- Optimization