COP-5621 Compiler Construction

Catalog Description
Basic techniques of compilation; scanning; grammars and LL and LR parsing, code generation; symbol table management; optimization. (3 credits)

Prerequisites
MAD 3512 and CEN 4010.

Type
Elective for MSCS, MSIT, and MSTN.
Ph.D. students must take either this course or CEN 5011.

Course Objectives
Students will learn about the technology underlying modern compilers by developing a compiler for a subset of Java, called MiniJava. MiniJava is a small, but expressive, object-oriented language designed especially for a student compiler project. The compilers will be written in Java, using tools similar to the well-known Unix tools lex and yacc for lexical analysis and parsing, respectively. The compilers will have a sophisticated "back end" to generate good SPARC assembly language code.

Topics
Lexical Analysis
LR Parsing
Abstract Syntax Trees
Type Checking
Activation Records
Translation to Intermediate Code
Instruction Selection

Textbook
Andrew W. Appel with Jens Palsberg, *Modern Compiler Implementation in Java, Second Edition* (Cambridge University Press, 2002).

Last Update
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