

Course name	ECE 46800 Introduction to Compilers
Credit and contact hours	(3 cr.) Class 3
Course coordinator's name	Dongsoo S. Kim
Textbook	Alfred Aho, Ravi Sethi, and Jeffrey Ullman, Monica Lam <i>Compilers: Principles, Techniques, and Tools</i> , Addison-Wesley, 2007, ISBN 9780321547989.
Course information	<p>ECE 46800 Introduction to Compilers and Translation Engineering (3 cr.) P: ECE 36200 and CSCI 36200 or ECE 35900. Class 3. Design and construction of compilers and other translators. Compilation goals, organization of a translator, grammars and languages, symbol tables, lexical analysis, syntax analysis (parsing), error handling, intermediate and final code generation, assemblers, interpreters, and an introduction to optimization/parallelization. Emphasis on engineering, from scratch, a compiler or interpreter for a small programming language, typically a C or Pascal subset. Projects involve implementation (and documentation) of such a system using C on Unix.</p> <p>Prerequisites/ Co-Requisite P: ECE 36200 and CSCI 36200 or ECE 35900</p> <p>Required, Elective, or Selected Elective: EE Elective, Advanced CE Elective</p>
Goals for the course	<p>Upon successful completion of the course, students should be able to</p> <ol style="list-style-type: none"> 1. Describe of the role of the compiler. [1] 2. Design a lexical analyzer. [1, 2] 3. Design a parse generator. [1, 2] 4. Describe the functions required for code generation. [1] 5. Describe the run-time environment. [1]
List of topics to be covered	<ol style="list-style-type: none"> 1. Compilation overview (4 classes) 2. Grammars and formal languages (4 classes) 3. Lexical analysis (3 classes) 4. Symbol tables (3 classes) 5. Syntax Analysis (6 classes) 6. Intermediate forms (3 classes) 7. Code generation and improvement (7 classes)
Syllabi approved by	Dongsoo S. Kim
Date of approval	11/30/2021