

Syllabus

Course

Code: *CSC421*
Title: *Compiler Construction*

Credits

3-0-0-3

Text Books

- *Compilers: Principles, Techniques, and Tools: International Edition*
Alfred Aho, Monica Lam, Ravi Sethi, Jeffrey Ullman, 2nd Edition, 2007, Pearson Education.

References

Prerequisite:

CSC-420

Course Description

This is an introductory course to compiler construction. In this course the student will learn the important basic elements of compilation. The student is expected to develop a parser for a small size language. The student will be introduced to many concepts about compiler construction. Beside that, the course introduces the student to many programming and data structures techniques that enhances his abilities in conducting a large scale software development.

Objectives:

- Introducing students to the concepts and principles of compiler design.
- Providing students with basic understanding of grammars and language definition.
- Introducing students to the various phases of designing a compiler.
- Introducing students to the various programming techniques and structures used in compiler construction.
- Providing students with practical programming skills necessary for constructing a compiler

Course Outline

<i>Week</i>	Topics
1	An overview of Compilers
2	Lexical analysis
3	
4	
5	
6	Syntax analysis
7	
8	
9	
10	Semantic Analysis
11	
12	Intermediate Code Generation
13	
15	Project Discussion
16	

Grading

Assessment/Evaluation:

Midterm 1	15%
Midterm 2	15%
Assignments and projects	20%
Final Exam	50%

Total **100%**

Intended Learning Outcomes:

Upon completion, students will be able to:

Outcomes	Assessment Methods
Understand the structure of compilers.	Exams, Assignments, Project
Understand the basic techniques used in compiler Construction such as lexical analysis, top-down, bottom-up parsing, context-sensitive analysis, and intermediate code generation.	Exams, Assignments, Project
Understand the basic data structures used in compiler Construction such as abstract syntax trees, symbol tables, three-address code, and stack machines.	Exams, Assignments, Project
Design and implement a compiler using a software engineering approach.	Project
Use generators (e.g. Lex and Yacc)	Assignment

Method of Teaching:

- **Lectures (three hours per week)**
- **In class coding**
- **Assignments and project discussion**