



TECHNICAL UNIVERSITY OF KENYA

Education and Training for the Real World

School of Computing and Information Technologies

ECSI 4106

Compiler Design and Construction

Course outline

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Prerequisite

- Introduction to Programming, Structured Programming, C++

Expected Learning outcomes

1. Deepen your knowledge of Programming
2. Understand the basic principles of compilers
3. Use compiler design and construction tools
4. Construct a simple compiler

Outline

1. Introduction to compilers: compilers and interpreters;
2. Main phases of compilers: Lexical analysis, Syntax analysis, Syntax analysis, semantic analysis, Code generation;
3. Issues in compiler design: symbol tables, program compilation, loading and execution;
4. Attribute grammars;
5. Syntax-directed translation;
6. Parsers;
7. Compilation techniques: one-pass and two pass;
8. Storage allocation;
9. Object code for subscripted variables;
10. A simple complete compiler: Organization, Subroutine and functions compilation, Bootstrapping techniques, multi-pass compilation;
11. Optimization: techniques, local, expressions, loops and global optimization.

Core Reading Book

- Compilers Principles, Techniques, & Tools, 2nd Edition. by A.V.Aho, R.Sethi & J.D.Ullman, Pearson Education