Compiler Design

3 - 0 - 1 : 4 Credits : 5 Hours

Overview of phases of a compiler, Languages and grammar.

Lexical analysis: Finite automata, Lexical analyzer, Lexical analyzer generator. Parsing: Top-down and Bottom-up parsers, shift-reduce parser, recursive descent (operator precedence) parser, LL(1); LR(0), SLR, LALR parsers, Syntax-directed translation, Parser generator.

Semantic Analysis: Declaration processing, Type checking. Symbol tables.

Intermediate Code Generation: Run-time environments, translation of language constructs.

Code Generation: Flow-graphs; Register allocation, Code-generation algorithms.

Error handling and recovery.

Code optimization: An introduction to the techniques.

Books:

1. Aho, A.V., Sethi, and Ullman J.D: compiler design.

2. Jean-Paul Tremblay and Paul G. Sorrenson, The Theory and Practice of Compiler Writing, McGraw Hill Book Co.