

MCC 404 COMPILER DESIGN

Module 1 (12 hours)

Introduction, Lexical Analysis (Scanning), Lexical-Analyzer Generators: Lex & Flex, Syntax Analysis (Parsing): CFG, Top-Down Parsing, Bottom-Up Parsing, LR Parsing Methods: SLR, Canonical LR, LALR, Parser Generators-YACC & BISON.

Semantic Analysis: Attribute Grammars & Syntax-Directed Translation Schemes (SDTS).

Module 2 (12 hours)

Intermediate-Code Generation Techniques, Type Checking, Run-Time Environments: Storage Organization, Allocation & Management of Stack and Heap, Garbage Collections, Register allocation and Code Generation.

Module 3 (16 hours)

Machine-Independent Optimizations, Interprocedural Analysis: Basic Concepts, Requirement of Interprocedural Analysis, Logical Representation of Data Flow, Pointer-Analysis Algorithm, Context-Insensitive Interprocedural Analysis, Context-Sensitive Pointer Analysis, Datalog Implementation.

Text Books:

1. Alfred V. Aho, Monica S. Lam, Ravi Sethi, Jeffrey D. Ullman, "Compilers: Principles, Techniques, and Tools", 2nd Edition, 2007, Pearson Education Inc., New Delhi. [Chapters-1, 3 to 9 (excluding 7.8), 12]
2. Kenneth C. Loudon, "Compiler Construction: Principles and Practices", First Edition, 1997, CENGAGE Learning India Pvt. Ltd., New Delhi.

References Books:

1. Pat D. Terry, "Compiling with C# and Java", 2006, Pearson Education Inc., New Delhi.
2. Dick Grune, Henri E. Bal, Cerial J. H. Jacobs, Koen Langendoen, "Modern Compiler Design", First Edition (2000), Wiley India Pvt. Ltd., New Delhi.
3. Keith D. Cooper, Linda Torczon, "Engineering a Compiler", First Edition (2004), Elsevier India Pvt. Ltd., New Delhi.
4. G. Sudha Sadasivam, "Compiler Design", 2008, SCITECH Publications (India) Pvt. Ltd, Chennai.
5. David Galles, "Modern Compiler Design", 2006, Dreamtech /Pearson Education Inc., New Delhi