

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Semester: 2

Computer Science & Engineering

Subject Name: Major Elective II- Advance Compiler Design

Sr.No	Course content
1	The Structure of a Compiler ,Lexical Analyzer, LEX, Design of Lex ,Top down Parsing, LL(1) Parsers ,Bottom up Parsing, YACC, LR parsers ,Syntax Directed Translation ,Types and Type Checking ,Run-Time Storage Administration and Symbol Table Management ,Intermediate Code and Code Generation ,Data-Flow Analysis ,Code Optimizations,Architecture and recent development on compilers,Introduction, Other Translators, Lexical Analysis Using lex, Parsing Using CUP , Semantic Actions, Parse Trees , Parse Trees, cont., Symbol Tables, Type Checking, Activation Records, Review/Activation Records, Test Postmortem/Finish Pretest Topics, Intermediate Code Generation, Int. Code/Declarations, Basic Blocks, Instruction Selection, Liveness Analysis, Register Allocation, Coloring Algorithm for RA, Optimizations and Data Flow Analysis.

Reference Books:

1. Aho, Alfred V.; Sethi, Ravi; and Ullman, Jeffrey D. *Compilers--Principles, Techniques, and Tools*, Addison-Wesley, Reading, Mass., 1986 (Available at Cal Poly Bronco Bookstore or Campus Books).
2. A Retargetable C Compiler: Design and Implementation Fraser and Hansen, Benjamin-Cummings, 1995.
3. Advanced Compiler Design and Implementation, Muchnick, Morgan and Kaufmann, 1998.
4. Crafting a Compiler, Fischer and LeBlanc, Benjamin-Cummings, 1988.
5. Introduction to Compiler Construction with UNIX, Schreiner and Friedman, Prentice-Hall, 1985. (on reserve)
6. Compiler Design in C, Holub, Prentice-Hall, 1990.
7. Rich, Craig A. *Advanced Compiler Design--CS 441 Lecture Notes*, Spring 2001 (Available at Bronco Copy 'n Mail in the University Union).