II/IV B. TECH. SECOND SEMESTER
COMPILER DESIGN LAB   (Required)

Course Code : CS 4L1   **Credits: 2**
Lab Hours: 3 periods/ week   **Internal assessment: 25 Marks**
Tutorial:-   **Semester end examination: 50 Marks**

Prerequisites: Compiler Design

Course Objectives:

  1. To implement Lexical Analyzer using Lex tool & Syntax Analyzer or parser using YACC Tool
  2. To implement NFA and DFA from a given regular expression
  3. To implement front end of the compiler by means of generating Intermediate codes.
  4. To implement code optimization techniques.

Course Outcomes:

At the end of this course student will:

CO 1) Design Lexical analyzer for given language using C and LEX tools.
CO 2) Design and convert BNF rules into YACC form to generate various parsers.
CO 3) Generate machine code from the intermediate code forms
CO 4) Implement Symbol table

Syllabus:

  1.   Design a Lexical analyzer for the given language. The lexical analyzer should ignore redundant spaces, tabs and new lines. It should also ignore comments. Although the syntax specification states that identifiers can be arbitrarily long, you may restrict the length to some reasonable value.
  2.   Implement the lexical analyzer using JLex, flex or lex or other lexical analyzer generating stools.
  3. Design Predictive parser for the given language.

  4. Design LALR bottom up parser for the given language.

  5.   Convert the BNF rules into Yacc form and write code to generate abstract syntax tree.

  6.   Write program to generate machine code from the abstract syntax tree generated by the parser.

7. Implementation of Symbol Table.

8. Generation of Code for a given Intermediate Code.

Learning Resource

Text Books

1.   Compilers: Principles, Techniques and Tools: 2nd Edition, Alfred V. Aho, Monica S. Lam, Ravi Sethi, Jeffrey D. Ulman; 2nd Edition ,Pearson Education.

2.   Modern Compiler Implementation in C- Andrew N. Appel, Cambridge University Press.

Reference Books

1. lex &yacc – John R. Levine, Tony Mason, Doug Brown, O'reilly

2.   Modern Compiler Design- Dick Grune, Henry E. Bal, Cariel T. H. Jacobs, Wiley dreamtech.

3. Engineering a Compiler-Cooper & Linda, Elsevier.

4.Compiler Construction, Louden, Thomson.

5. Principles of compiler design, V. Raghavan, 2nd ed, TMH, 2011.

6.http://www.nptel.iitm.ac.in/downloads/106108052/