GMR Institute of Technology
An Autonomous Institute Affiliated to JNTUK, Kakinada

GMRIT Training Tomorrow's Engineers Today

COURSE HANDOUT

B.Tech(CSE) - 6th Semester

Course Title : Language Processor Lab **Dated:** 21-11-2017

Course Code : CSE 3218 **Academic Year :** 2017-18

Course Structure : 0-0-3-2

Course coordinator : Dr V Prasad

Instructor(s) : Mr Ch Koteswara Rao & Mrs P Someswari

Course Description :

Compiler is system software that converts high level language to low level language.

Human beings can't program in machine language understood by computers. So we program in high level language. Compiler is the software which bridges the gap between user and computer by converting high level language into low level language. Compiler contains six phases. In the lab sessions students implement lexical analyzer and code for each phase to understand compiler software working and coding in detail.

Scope and Objective :

The course content enables students to:

1. Implement the actions performed by Lexical Analyzer without using Lex tool.
2. Implement Lexical Analyzer using Lex tool.
3. Implement Syntax Analyzer or parser using YACC Tool.
4. Implement the top-down and bottom-up parsing.

Course Outcome:

After undergoing this course the students will be able to:

1. Apply the knowledge of LEX tool to develop a scanner.
2. Compute the first and follow of non-terminals of a grammar.
3. Apply the knowledge of YACC tool to develop a parser.
4. Design top-down and bottom-up parsers

Lab Manuals:

Text Books:

1. Compilers, Principles Techniques and Tools- Alfred V Aho, Monical S Lam, Ravi Sethi, Jeffrey D. Ullman, 2nd ed, Pearson,2007.
2. Principles of compiler design, V. Raghavan, 2nd ed, TMH, 2011.

Reference Books:

1. Principles of compiler design, 2nd ed, Nandini Prasad, Elsevier
2. Compiler construction, Principles and Practice, Kenneth C Louden, CENGAGE
3. Implementations of Compiler, A new approach to Compilers including the algebraic methods, Yunlinsu, SPRINGER

List of experiments

Experiment I

To find out whether a given string is an identifier or not

Experiment II:

To find whether string is a keyword or not

Experiment III

To pick out comments in a c program

Experiment IV

Designing a lexical analyzer

Experiment V:

Implementing the lexical analyzer using lex.

Experiment VI:

To compute first of non-terminals.

Experiment VII:

To compute follow of non-terminals

Experiment VIII:

Designing predictive parser for the given language

Experiment IX:

Designing LALR bottom up parser for the given language

Experiment X:

Implementation of YACC for a given grammar

Course Plan:

Lab Session No.	Learning Objectives	Topics to be covered
1	To know the rules of an identifier and to check the given string is identifier or not	Write a C program to find out whether a given string is an identifier or not
2	To check whether string is a keyword or not	Write a C program to find whether string is a keyword or not
3	To identifying comments in a program	Write a C program to pick out comments in a c program
4	To design Lexical analyzer	Write a C program for design a lexical analyzer
5	Implementation of lexical analyzer using lex.	Implement the lexical analyzer using lex.
6	To compute first of non-terminals	Write a program to compute first of non-terminals.
7	To compute follow of non-terminals	Write a program to compute follow of non-terminals
8	To Design predictive parser for the given language	Design predictive parser for the given language
9	To Design LALR bottom up parser for the given language.	Design LALR bottom up parser for the given language.
10	Implementation of YACC.	Implementation of YACC for a given grammar

Evaluation scheme:

Component	Particular	Marks	Date & Time
Lab regularity	No of Experiments completed and recorded	15	Every week during this semester
Internal Examination	150 minutes	10	26-03-2018 to 31.03.2018
External Examination	180 minutes	50	09.04.2018 to 14.04.2018 9.00 a.m to 4.00 p.m
	Total	75	

Signature of the Instructor

Mr Ch Koteswara Rao & Mrs P Someswari

Signature of the course-coordinator

Dr V Prasad