

# 10B17CI672: Compiler Design Lab

**Course Credit: 1**

**Semester: VI**

**Objective:**

- Deepen the understanding of compiler design
- Develop problem solving ability using programming
- Develop ability to design and analyze a compiler

**Learning Outcomes:**

The students shall acquire the generic skills to design and implement a compiler along with analysis of practical aspects.

**List of Experiments**

S NO	Topics
1	a. Write a program to read and translate integers into numbers. e.g. 1=ONE 12 = ONE TWO 856 = EIGHT FIVE SIX Generate an error if the number of digits is more than 3 b. Write a program to convert infix notation to postfix notation.
2	1. Implement a DFA which simulates the regular expression $a + (aa)^*b$ . 2. The following rules define the translation of an English word into pig Latin: a) If the word begins with a nonempty string of consonants, move the initial consonant string to the back of the word and add the suffix AY; e.g., pig comes igpay. b) If the word begins with a vowel, add the suffix YAY; e.g., owl becomes owlyay. c) U following a Q is a consonant. d) Y at the beginning of a word is a vowel if it is not followed by a vowel. e) One-letter words are not changed. Write a C program to generate pigLatin from an English word.
3	Implementation of Lexical analysis
4	Program for computation of FIRST AND FOLLOW of non-terminals.
5	Write a program to check whether a grammar is left recursive or not, if it is remove left recursion.
6.	Implementation of Predictive Parsing Table Construction
7.	Implementation of Shift Reduce Parsing
8.	Implementation of Operator Precedence Parsing
9.	Implementation of LR Parsing
10	Intermediate Code Generation
11	Implementation of Code Generation

## References

1. A.V. Aho, M.S. Lam, R. Sethi, and J.D. Ullman, Compilers: Principles, Techniques, and Tools, Pearson Education, 2007 (second ed.).
2. K.D. Cooper, and L. Torczon, Engineering a Compiler, Elsevier, 2004.

## Evaluation Scheme:

1. Mid Term Exam (Viva and Written Exam)	20
2. End term Exam (Viva and Written Exam)	30
3. Lab Records	5
4. Regular Assessment (Quality and quantity of experiment performed, Learning laboratory skills, Attendance etc.)	30
5. Project	15

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<b>Total</b>	<b>100</b>
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