Department Of Computer Science and Engineering
Kathmandu University
Dhulikhel, Kavre

Subject: Compiler Design   **Course: COMP 409**

Level: B.Sc 3rd Year 2nd Semester   **Credit Hours: 3**

Course Objective: This course will focus on imparting knowledge about the Practical aspects of COMPILER DESIGN with the required basic principles behind them with some practical assignments.

Syllabus

1. **Introduction to Compilers**

   - Compilers
   - Analysis-Synthesis model
   - The phases of compiler
   - Error Handler and Symbol Table
   - Cousins of the compiler
   - Compiler Construction tools

2. **Lexical Analysis**

   - Introduction
   - Scanning Process
   - Regular Expressions
   - Finite Automaton
   - Regular Expressions to DFA

3. **Syntax Analysis**

   - The role of the parser
   - Context-free grammars
   - Writing a grammar
   - Top-down parsing
   - Bottom-up parsing
   - LR-Parsing

4. **Syntax Directed Translation and Run-Time Environments**

   - Attributes and attribute grammar
   - Type Checking
   - Symbol Table
   - Introduction to Run-Time Environment

5.   Introduction to Intermediate Code Generation

- Introduction to Intermediate Code
- Three address code
- P-Code
- Issues in the design of code generation
- Target Machine

6.   Introduction to Code Optimization

- Introduction
- Principle sources of code optimization
- Classification of optimizations
- Implementation Technique

Text Book:
1. Compilers: Principles, Techniques, and Tools by Aho, Sethi, Ullman

Reference Books:
1. Compiler Construction: Principles and Practice by Kenneth C. Louden
2. Compiler Design by Dr. O.G.Kakde
3. Compiler Design by Gajendra Sharma
4. Introduction to Compiler Design by Udit Agarwal