



ĐẠI HỌC BÁCH KHOA HÀ NỘI
VIỆN CÔNG NGHỆ THÔNG TIN VÀ TRUYỀN THÔNG

Experiment in Compiler Construction

School of Information and Communication
Technology

Hanoi University of Science and
Technology

What is the course about

- Knowledge about compiler is introduced in 2 courses :
 - IT3322E – Compiler construction: Theory course
 - IT4182E - Experiment in compiler construction
- The course will require students to build a simple compiler for a tiny programming language KPL
- Through the course, students will understand how each phase of the compiler works.
- The operation of the compiler will illustrate and clarify the knowledge presented in the theory course
- At each lesson, an **incompleted project** is provided to students. In the project, some functions or code paragraphs are left blank
- Students only need to complete the sections marked “todo”

Course Grade Components

Approximate % of Grade

Midterm	30
Final exam	70

Reward points ≤ 1 : weekly assignments, class participation, and quizzes.

Projects

- “Hello class”
- Lexical analyzer (scanner)
- Syntax analyzer (parser)
- Symbol Table
- Semantic analyzer
- Code generator
- Interpreter



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Experiment in Compiler Construction Project 0: Hello class

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C basic programming exercises

- Exercise 1

Enter a string with no more than 15 characters from the keyboard. Print the message “*Error: Not a number!*” if the string contains at least one non-digit character. Print the message “Error: Number too long” if the numeric value of the string exceeds the range of data type *int*. Otherwise, print the numeric value of the string.

- Exercise 2

Enter the name of a text file from the keyboard. Read that file, count and print out the number of lines, number of letters and number of digits in it.

- Exercise 3

Create a C project to solve exercise 2 in which all the characters on the ASCII table are encoded, with one code for all letters, one code for all digits. This encoding is represented in 2 given files `charcode.h` and `charcode.c`.