



VIETNAM NATIONAL UNIVERSITY OF HO CHI MINH CITY
UNIVERSITY OF NATURAL SCIENCES
FACULTY OF INFORMATION TECHNOLOGY

COURSE SYLLABUS

Course Code:	TH104
Title:	Assembly Language & Device Control Programming
Credits:	4
Workload:	Lecture hours: 3 periods * 15 weeks = 45 periods Laboratory hours: 2 periods * 15 weeks = 30 periods Preparative hours:
Prerequisites:	TH101 - Computer Architecture

Course Objectives:

This course aims to equip students with a strong programming ability in the popular assembly language of current IBM machines (the 80x86 family). The course also introduces programming methods for controlling and interfacing peripheral devices. After this course, students will have a clear understanding of machine low-level operations.

Main Text: N/A

References:

- *Turbo Assembler Bible*, SAMS, The Waite Group's
- *System Programming*, Peter Norton
- *An introduction to Assembly*, Peter Norton
- *Advanced MS-DOS*, Ray Ducan

Course Outline:

Chapter 1 Assembly Language

- 1.1 Introduction to Assembly Language
 - 1.1.1 Pros and cons of assembly language compared with other advanced programming languages
 - 1.1.2 Characteristics of Assembly Language
- 1.2 Organization and Functionalities of 16-bit CPU 16bit 8086/8088/80286
 - 1.2.1 Structure of CPU: registers
 - 1.2.2 Interrupts
 - 1.2.3 Addressing Mode
 - 1.2.4 Assembly Instruction Coding
- 1.3 Introduction to Assembly Language 8026/8088/80286
 - 1.3.1 A basic assembly program
 - 1.3.2 Basic step in programming with assembly language
 - 1.3.3 Using Turbo Assembler/ MASM
 - 1.3.4 Using Debug/Turbo Debugger
- 1.4 Instruction Sets of Assembly Language

- 1.4.1 Data Movement Instructions
- 1.4.2 Control Transferring Instructions
- 1.4.3 Arithmetic, Logic, and Bit-Shift Instructions
- 1.4.4 String Processing Instructions
- 1.5 Advanced Assembly Language
 - 1.5.1 Structured Data Types, Records
 - 1.5.2 MACRO and directives
 - 1.5.3 Writing Assembly Modules for High Level Languages

Chapter 2 : Device Control Programming

- 2.1 Computer Architecture
 - 2.1.1 Peripheral Equipments
 - 2.1.2 Interrupts corresponding to peripheral devices
 - 2.1.3 TSR Programming
- 2.2 Diskette/disk and memory programming
- 2.3 Keyboard, mouse, and monitor programming
- 2.4 COM, PRN, and MODEM programming
- 2.5 Some programs to control devices (TSRs, interrupts, and peripheral devices).

Grading

Final exam :

Assignments: