# C404: Assembly Language

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## 0.1 Course summary

This course covers the organization and behavior of real computer systems at the assembly-language level. Topics include the mapping of statements and constructs in a high-level language onto sequences of machine instructions, as well as the internal representation of simple data types and structures. Numerical computation and subroutines are examined.

#### 0.2 Course Goals

You will gain the following knowledge in topics related to assembly language:

- Intel and AMD processor architecture and programming.
- Describe von Neumann architecture and how its components interact.
- Real-address mode and protected mode programming.
- Assembly language directives, macros, operators, and program structure.
- Demonstrate how fundamental high-level programming constructs are implemented at the machine-language level.
- Understand the Assembly Language's procedures, parameter passing and stack operations.
- Programming methodology, showing how to use assembly language to create system-level software tools and application programs.
- Diagnosing and debuggin assembly language programs.

#### 0.3 Textbooks

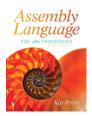


Figure 1: Assembly Language for x86

- Assembly Language for x86 Processors
- by Kip Irvine
- Pearson 2019, 8th Edition

### 0.4 Lab Resources

It is quite important to try all examples in the lecture notes. You have two options:

- 1. Use online compilers (Quick and easy):
  - OneCompiler.com
- 2. See Lab(1)

# 0.5 Grading

Activity	Weight	
Labs	40%	
Final Exam	60%	

### 0.6 Tentative Schedule

Week#	Topic	Kip	Assignment
Week 1	Basic Concepts	Ch.1-2	Lab(1)