Assembler Language and Architecture II
CSC 410
Spring 2012
Credits: 3

Class hours: 2
Lab hours: 2

Course Description:
The students enhance their knowledge of Assembler Language and machine architecture by writing sophisticated programs utilizing indexing, subroutines and linkage conventions. User and system macros, conditional assembly and file input/output operations are covered.

Prerequisites: Basic Skills- ENG 095, ESL 095, ACR095, MAT012/051; CSC 310 (Assembler Language & Architecture I or Departmental approval)

Learning Outcomes and Assessment
After completing this course, students will be able to:

- **Outcome:** program using floating-point instructions
  **Assessment:** Programming projects, lab exercises and exam questions

- **Outcome:** convert assembly to machine language
  **Assessment:** Programming projects and exam questions

- **Outcome:** practice the mechanics of high-to-low level information transfer
  **Assessment:** Lab exercises and exam questions

- **Outcome:** understand computer organization
  **Assessment:** exam questions

- **Outcome:** comprehend the basic logic design of a microchip
  **Assessment:** exam questions

- **Outcome:** explore microchip security issues
  **Assessment:** exam questions

General Education Outcomes and Assessment

- **Quantitative Skills** – Students will use quantitative skills and concepts and methods of programming logic to solve problems
  **Assessment:** Use programming logic and knowledge to solve problems in programming assignments

- **Information and Technology Literacy** – Students will collect, evaluate and interpret information and effectively use information technologies
  **Assessment:** Use an assembly computer programming language to create small-scale application software

Required Text & Readings:

- **Textbook:** Assembly Language for Intel-Based Computers, 5th Edition
- **Author:** Kip R. Irvine
- **Publisher:** Prentice Hall
- **ISBN:** 0132383101
- **ISBN-13:** 9780132383103
Other Resources: Flash drives are recommended.

Use of Technology (if applicable):

Evaluation & Requirements of Students:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examination(s)</td>
<td>80%</td>
</tr>
<tr>
<td>Project</td>
<td>10%</td>
</tr>
<tr>
<td>Assignments</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
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Outline of Topics:

1. Review of CSC310 Topics
2. Macros
3. Stack Parameters
4. Interfacing assembly language with a high-level languages
   a. Inline Assembly
   b. Linking with an external assembly module
   c. Writing a low-level interface (Ex. input/output library)
5. Floating-point assembly
6. Machine language
   a. Translating the MOV instruction
7. Disk File Management
   a. FAT12 Overview
8. Logic design of the following components:
   a. Arithmetic Logic Unit (ALU)
   b. Registers
   c. Clock
   d. Random-Access Memory (RAM)
   e. Control Unit (CU)(Optional)
9. CISC vs. RISC overview (Optional)

College Attendance Policy:

At BMCC, the maximum number of absences is limited to one more hour than the number of hours a class meets in one week. For example, you may be enrolled in a three-hour class. In that class, you would be allowed 4 hours of absence (not 4 days). In the case of excessive absences, the instructor has the option to lower the grade or assign an F or WU grade.

Academic Adjustments for Students with Disabilities:

Students with disabilities who require reasonable accommodations or academic adjustments for this course must contact the Office of Services for Students with Disabilities. BMCC is committed to providing equal access to all programs and curricula to all students.

BMCC Policy on Plagiarism and Academic Integrity Statement:

Plagiarism is the presentation of someone else’s ideas, words or artistic, scientific, or technical work as one’s own creation. Using the idea or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations require citations to the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism.

Students who are unsure how and when to provide documentation are advised to consult with their instructors. The library has guides designed to help students to appropriately identify a cited work. The full policy can be found on BMCC’s web side, www.bmcc.cuny.edu. For further information on integrity and behavior, please consult the college bulletin (also available online).