I. Introduction to Computer Science

II. Prerequisite: Exit Learning Support and ESL.


IV. Catalog Description:

This course provides an overview of selected major areas of current computing technology, organization and use. Topics surveyed include the history of computing, data representation and storage, hardware and software organization, communications technologies, ethical and social issues, and fundamental problem-solving and programming skills. Hands-on projects enhance and reinforce the ideas presented in class.

V. Course Objective

The course provides students with knowledge of computer science concepts and computing skills through extensive problem-solving and project opportunities.

VI. General Notes:

Instructors will cover appropriate sections in text to comply with the Common Course Outline.

VII. Course Outline:

<table>
<thead>
<tr>
<th>Week</th>
<th>Text Chapter</th>
<th>Homework</th>
<th>Labs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Read Chapter 1</td>
<td>Lab Manual: Lab 1&lt;br&gt;Chapter 1&lt;br&gt;#1 - 55</td>
<td>Read Chapter 12</td>
</tr>
</tbody>
</table>
Chapter 12: #1 - 54, and #61 - 72  
Lab Manual: Lab12A and Lab12B

Read Chapter 11  
Chapter 11: #1 - 56

Read Chapter 16  
Chapter 16: #1 – 60  
Lab Manual: Lab16A and Lab16B

Read Chapter 2  
Chapter 2: #1 - 34, and #37 – 44  
Lab Manual: Lab 2, Lab Manual

Read notes on Chapter 2 – Number System  
Chapter 3: #1 – 38, 40-41, 47-74  
Lab 3A and Lab 3B or 3C

Read Chapter 3  
Chapter 4: #1 – 72

Read Chapter 6  
Read Notes – Ethics  
Chapter 6: #11 – 35, and #17 - 51  
Lab Manual: Lab 6 (or your own lab)

Read Chapter 4  
Chapter 5: #1 - 64  
Lab Manual: Lab5

Read Chapter 5  
Chapter 10: #1 - 35, 37 - 63, 67 - 742  
Lab Manual: Lab10

Read Chapter 10  
Chapter 15: #1 – 63  
Lab Manual: Lab 14 or Lab 15

Read chapter 6  
Read Notes on Chapter 6 – Discuss examples of algorithms  
Chapter 6: Review #11 –35, and #17 - 51 (Developed by the Instructor)

Read Chapter 6  
Chapter 17: #1 – 33, 44 – 55  
Lab Manual: Lab17

Read Chapter 17  
Chapter 7: #1 – 24, 44 - 46  
Lab Manual

Read Chapter 7  
Chapter 8: #1 – 24, 44 - 46  
Lab Manual
Read Chapter 9 (only 9.1, 9.4, 9.5, and 9.7)

Give Notes on C++ or Java:
• C++ Overview
• C++ Operators
• Programming Errors

• If and Switch statements
• The Switch Statement

Review for Final

Note:
1. The sequence of text chapters, homework assignments, and labs will be at the discretion of the instructor.
2. The syllabus and course calendar are subject to change at the discretion of the instructor.

TOPICS TO BE COVERED
SUGGESTED CHAPTER(S)

History and Vocabulary of Computers (5%) 1, 5.3
1. What is a Computer?
2. Types of Computers
3. Common terms
4. Historical issues
Data Representation and Storage (5%) 4.1 - 4.2 + notes
1. Number systems
2. Binary
3. Octal
4. Hexadecimal
5. Text
6. ASCII/ANSI
7. Unicode
8. Graphics
9. Bitmap
10. Vector
Computer Hardware Concepts (10%)  
1. Central Processing Unit  
2. Arithmetic-Logic Unit  
3. Control Unit  
4. Registers  
5. Memory  
6. ROM  
7. BIOS  
8. RAM  
9. Cache  
10. Secondary Storage  
11. Disk technologies  
12. Tape technologies  
13. CD-ROM and other optical technologies  
14. Hybrid technologies  
15. Peripheral Devices  
16. Input devices  
17. Output devices  
18. Communications Devices  
19. Modems  
20. Network equipment

Computer Software Overview (20%)  
1. Operating Systems  
2. Word processing  
3. Presentation/multimedia software  
4. Spreadsheets  
5. Databases  
6. Graphics  

Communications Technologies (20%)  
1. Computer network types  
2. Network topologies and message passing  
3. Client-Server relationships  
4. Electronic mail and newsgroups  
5. The Internet  
6. The World Wide Web

Social and Ethical Issues (10%)  
1. Privacy and information access  
2. Censorship
3. Intellectual property rights
4. Computer crime
5. Professional responsibilities
6. On-line communities
7. Technology in everyday life
8. Artificial intelligence (optional)

Fundamental Problem-solving and Programming Concepts (30%)  2, 3, 7.1 - 7.6, 8.1 - 8.4
1. Problem analysis (7.7-7.8 optional)
2. Algorithm development
3. Program Structure
4. Input and output
5. Computations
6. Decisions and repetitions
7. Modular programming (optional)
8. Large-scale data storage (optional)

VIII. Evaluation Methods

Details of grade determination are left to the instructor with the approval of the Department Head. Exams, assignments, and a final exam prepared by individual instructors will be used to determine the course grade. The course grade must weigh examinations for at least 50% of the grade and programming assignments for not more than 50% of the grade. Eight to ten project-oriented assignments must be assigned. Testing must consist of at least two one-hour examinations and a comprehensive final examination. The final examination must be weighted at not less than 25% nor more than 35%.

IX. Effective Date: August, 2007 Approved Date: May, 2007