

Course Outline

1. Document Information

Degree Program	Computer Science
Course Number	CS 201
Course Title	Problem Solving with Computers
Semester Hours	3
Course Coordinator	Chun-Hsi Huang
Revision Term	Summer 2020
Latest Revision	Summer 2020

2. Catalog Description

This course provides an introduction to problem solving using computers. It goes beyond basic computer literacy and application software experiences, but is less intensive than a first course devoted solely to programming. The course focuses on problem solving in the context of an introduction to computer programming and includes coverage of topics from computer literacy, word processing, spreadsheet and database packages. A preliminary treatment of the Internet and World Wide Web is also included.

3. Textbooks

- Miller, Bailey. Problem Solving with Computers (Online version). ZyBooks. ISBN: 978-1541851504.

4. References

5. Course Learning Outcomes

- Students will be able to see the development of the current computer technology in the historic perspective.
- Students will be able to discuss various approaches to problem solving including top down design, and bottom up design.

- Students will be able to depict algorithmic solution to a problem using pseudo-code and flow charting symbols.
- Students will be able to explain data representation by the computer using the binary system and hexadecimal system.
- Students will be able to understand and explain different generations of programming languages and compilation process.
- Students will be able to differentiate between functional decomposition approaches to problem solving and object oriented approach.
- Students will be able to understand and implement different control structures of sequence, selection and repetition to implement an algorithm.
- Students will be able to implement data structures such as single and two dimension arrays for solution development.
- Students will be able to develop simple Web pages using HTML and simple text processors.
- Students will be able to use common and some sophisticated functionalities of Microsoft Office applications including database management and spreadsheet software.

6. Assessment of the Contribution to Student Outcomes

Outcome	1	2	3	4	5	6
Assessed		X				X

7. Prerequisites by Topic

No prerequisite.

8. Major Topics Covered in the Course

1. Problem solving
2. Problem solving with C++
3. System software (operating system, compilers, etc.)
4. Hardware (CPU, memory, communications, etc.)
5. Application software and packages
6. Computers and society (ethics, security, etc.)

Laboratory

1. Windows and Netscape
2. Microsoft Word
3. Algorithms

4. Problem solving with C++
5. Microsoft Excel
6. Microsoft Access