MISSOURI WESTERN STATE UNIVERSITY
COLLEGE OF LIBERAL ARTS AND SCIENCES

DEPARTMENT OF COMPUTER SCIENCE, MATHEMATICS, AND PHYSICS

COURSE NUMBER: CSC 184

COURSE NAME: Computing Concepts I

COURSE DESCRIPTION:

Introduction to problem solving utilizing the Java programming language. Topics include algorithm and program development, syntax of Java, input/output, assignment operations, program control structures, character data manipulation, functions, and single dimension arrays. Emphasis is placed on program design techniques and program modularity. 3 credit hours, offered in fall and spring semesters.

PREREQUISITE :

Grade of C or better in ACT 102 or EGT 102, or an ACT math score of at least 20. LAS Computer Literacy.

TEXT:

Introduction to Java Programming, Comprehensive Version, Liang, Edition 10th 15, Pearson, ISBN 9780133761313

COURSE OBJECTIVES:

1. Provide the student with a general orientation to computers and familiarize the students with a basic understanding of the components of a computer and how they function.

2. Develop algorithmic analysis and problem solving skills related to the development of computer programs.

3. Furnish the student the techniques and procedures used to write correct and efficient programming solutions to selected problems.

4. Provide the student with the skills necessary to write programs using the Java programming language.

5. Establish a foundation upon which the further study of computer science and programming related topics can be based.

COURSE OUTLINE:

II. Computer Basics
    1. Computer Hardware Organization
    2. Software and Programming Languages

3. Program development cycle

II. The Java Programming Environment
1. Java Virtual Machine (JV M)
2. Java Development Kit (J DK)
3. Creating Source Code — The IDE
4. Compiling a Java Program
5. Executing a Java Program

III. Basic Java Program Structure — An Overview
1. Java API (import)
2. Comments, Package, Reserved Words
3. Modifiers, Statements, Blocks
4. Classes, Methods
5. The Main Method

IV. Elementary Programming
1. Identifiers
2. Variables
3. Assignment
4. Primitive Data Types
5. Arithmetic in Java
6. Text Manipulation — Characters and String Input from Console

VI.. Basic Program Statements
1.Java Programming Style and Naming Conventions
2.Programming Errors and Debugging
3.Selection Structures in Java (Decision Making)
4.Relational Operators
5.The Simple If Selection Statements
6.The If/Else Selection Statements
7.The Switch Multiple-Selection Structure
8.Nested If Statements

VII. Repetition of Statements in Java (LOOPS)
l. The While Loop
2. The Do/While Loop
3. The For Loop
4. Nested Loops

VIII. Methods
1. Definition of Methods
2. Invocation of Methods
3. Passing Parameters to Methods
4. Method Overloading
5. Scope of Variables
6. Method Abstraction
7. Methods in the Math Class

IX. Single Dimensional Arrays in Java
1. Concept of an Array
2. Array Declaration
3. Array Initialization

4 Processing Array Information
5 . Passing Array to Methods