

_____ SOUTH SEATTLE COMMUNITY COLLEGE _____

Academic Programs

COURSE OUTLINE

Revision: Mike Steffancin, February 2008

DEPARTMENT: Academic Programs

CURRICULUM: Engineering/Computer Science

COURSE TITLE: Computer Programming/Engineering/Science

COURSE NUMBER: ENGR 142

TYPE OF COURSE: Academic Transfer
Special Requirement Met: Quantitative/Symbolic Reasoning

COURSE LENGTH: 1 quarter

CREDIT HOURS: 5

LECTURE HOURS: 55

LAB HOURS: 0

CLASS SIZE: 25

PREREQUISITES: CSC 110 Intro to Computer Programming
MATH& 141

COURSE DESCRIPTION:

General principles of modern programming, including how to design, implement, document, test and debug computer programs. Java-based. Covers objects, messages, expressions, statements, methods, classes, conditionals, iterations, arrays and collections.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Critical Thinking and Problem Solving – These skills are developed by utilizing multiple analysis and design techniques throughout the course.
2. Computation – Computation and algorithm analysis are used to further our study of programming and general computer science. This course builds off of previous programming principles developed in CSC 110, as well as discrete math principles studied in College Algebra and MATH& 141.

ENGR 142 Computer Programming/Engineering/Science

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STUDENT LEARNING OUTCOMES ADDRESSED: (cont.)

3. Technology and Information Literacy – These are foundational components to this course, as the students must use current technology (both hardware and software) while accessing information from a variety of resources.
4. Personal Responsibility – Achievement is stressed throughout the course by enabling and assisting the students in the development of non-trivial software systems, and encouraging students to take pride in their accomplishments.

GENERAL COURSE OBJECTIVES:

Upon successful completion of this course, the student will be able to demonstrate the following:

1. An acquired knowledge of fundamental principles, themes, and issues central to the field of computer science.
2. Modern programming techniques and methods.
3. Applications of both the structured and object-oriented paradigms.
4. Understanding of the syntax of so-called “curly-brace” programming languages.
5. Ability to identify and classify control structures common to all programming languages.
6. Proficiency in writing programs using Java by understanding variables, methods, class construction, inheritance hierarchies, interfaces, and polymorphism.
7. Application of these principles in the development non-trivial software systems.

TOPICAL OUTLINE:

APPROX. HOURS

I.	Object-Oriented Terminology	3
II.	Basics of Class Construction in Java	4
III.	Introduction to Java Programs	5
IV.	Java Applets	5
V.	Control Structures and the Structured Paradigm	10
VI.	Methods	5
VII.	Recursion	4
VIII.	Arrays	5
IX.	Searching and Sorting	4
X.	Object-Based Programming and More Object-Oriented Terminology	5
XI.	The Object-Oriented Paradigm	5
	Total hours:	55

REVISED BY: Mike Steffancin
DATE: February 2008

Course Prefix and Number: ENGR 142

Course Title: Computer Programming For Engineers and Scientists

SLO #	Included in Course Objective Number	SSCC Student Learning Outcomes
SLO 1.1	1-5	Communication - Read and listen actively
SLO 1.2		Communication - Speak and write effectively
SLO 2.1	1-7	Computation - Use mathematical operations
SLO 2.2	1-7	Computation - Apply quantitative skills
SLO 2.3	7	Computation - Identify, interpret, and utilize higher level mathematical and cognitive skills
SLO 3.1		Human Relations - Use social interactive skills to work in groups effectively
SLO 3.2		Human Relations - Recognize the diversity of cultural influences and values
SLO 4.1	1-7	Critical Thinking and Problem Solving -
SLO 5.1	1-7	Technology - Select and use appropriate technological tools
SLO 6.1		Personal Responsibility - Be motivated and able to continue learning and adapt to change
SLO 6.2		Personal Responsibility - Value one's own skills, abilities, ideas and art
SLO 6.3		Personal Responsibility - Take pride in one's work
SLO 6.4		Personal Responsibility - Manage personal health and safety
SLO 6.5		Personal Responsibility - Be aware of civic and environmental issues
SLO 7.1	1,2	Information Literacy - Access and evaluate information
SLO 7.2	1-7	Information Literacy - Use information to achieve personal, academic, and career goals, as well as to participate in a democratic society

PREPARED BY: Mike Steffancin
DATE: May 2008