CREDIT COURSE OUTLINE

I. COVER PAGE

(1) CSCI 5	(2) JAVA PROGRAMMING	(3) 3
Number	Title	Units

(4)	Lecture / Lab Hours:		
	Total Course Hours		
		Total Lec hours:	36.00
		Total Lab hours:	54.00
		Total Contact hours:	90.00
	Lec will generate _0_ hour(s) outside work.		
	Lab will generate _0_ hour(s) outside work.		
(5)	Grading Basis:	Grading Scale Only	
		Pass/No Pass option	X
		Pass/No Pass only	
(6)	Advisories: Eligibility for English 125 Eligibility for English 126		
(7)	Pre-requisites(requires C grade or better): MATH 103		
	Corequisites:		

(8)Classification:		
	Degree applicable:	X
	Non-degree applicable:	
	Basic skills:	
(9)RC	Fulfills AS/AA degree requirement: (area)	
	Computer Familiarity	
	General education category:	
	Major:	COMPUTER SCIENCE
	Certificate of:	
	Certificate in:	
(10)CSU	Baccalaureate:	X
(11)Repeatable: (A course may be repeated three times)		0

(12) Catalog Description:
Introduction to object-oriented program design and development using Java. Course will introduce the fundamentals of Java language including data representation, control structures, class, object, methods, arrays, graphical user interfaces, and applets for web browser.

II. COURSE OUTCOMES:

(Specify the learning skills the student demonstrates through completing the course and link critical thinking skills to specific course content and objectives.)

Upon completion of this course, students will be able to:

I. Analyze problems and use critical thinking skills to design a solution
II. Break down solutions into sequences of logical operations using Java which can be performed on a computer.
III. Document solutions (i.e. computer programs) in pseudo code notation and flow chart.
IV. Write, compile, and execute Java programs.
V. Understand and utilize object technology.
VI. Understand and utilize inheritance feature of object-oriented programming.
VII. Implement graphics in Java programs.
VIII. Handle program exceptions.
IX. Understand the relationship between applets and web browser.
X. Identify and correct all logical and syntactical errors in a program

III. COURSE OBJECTIVES:

(Specify major objectives in terms of the observable knowledge and/or skills to be attained.)

In the process of completing this course, students will:

I. Use Java input and output streams.
II. Write Java programs using decision control statements (if, if…else, switch).
III. Write Java programs using repetition control statements (while, for).
IV. Write Java programs using simple data structure (array).
V. Define and implement classes; instantiating objects of classes.
VI. Define classes using inheritance feature.
VII. Write Java programs using AWT (Abstract Windows Toolkit).
VIII. Write simple Java applets.
IX. Create proper test cases to test computer programs
X. Write a total of 500 to 1000 lines of programs.

IV. COURSE OUTLINE:

Lecture Content:

All of the following content is presented in lecture and practiced by students in computer laboratory exercises.

A. Java building elements:

1. Data representation, operators, and expressions
2. Programming errors, debugging, and programming styles

B. Control Structures: if and switch statements
1. Decision control: if, switch statements
2. Loop control: for, while, and do statements

C. Methods:
1. Method creation
2. Method calling
3. Method overload

D. Object-Oriented programming:
1. Program using objects and classes
2. Define classes, create objects
3. Learn about modifiers, instance variables, class variables, instance methods, and class methods

E. Arrays and Strings
1. Array objects
2. String objects

F. Class Inheritance
G. Graphics Programming

1. AWT container classes
2. AWT UI component classes
3. AWT helper classes

H. Graphical User Interfaces

I. Applets
1. The applet class
2. Running a program as an applet

J. Exception handling

K. Input and Output
1. Input streams
2. Output streams

L. File streams

V. APPROPRIATE READINGS

Reading assignments may include but are not limited to the following:

I. Sample Text Title:
1. Recommended - Liang, Y. *Introduction to Java Programming, Comprehensive,* ed. 8 Prentice Hall, 2011,
2. Recommended - Deitel, P. *Java How to Program: Early Objects Version,* ed. 8 Prentice Hall, 2010,
3. Recommended - Gaddis, T *Starting Out with Java: From Control Structures through Objects,* ed. 4 Addision-Wesley, 2010,
4. Recommended - Farrell, J *Java Programming,* ed. 5 Course Technology, 2010,
5. Recommended - Dale, N. *A Laboratory Course for Programming with Java,* ed. 2 Jones & Bartlett, 2009,
6. Recommended - Eck, D *An Introduction to Programming Using Java,* ed. 5 -, 2009,

II. Other Readings

___ Global or international materials or concepts are appropriately included in this course
___ Multicultural materials and concepts are appropriately included in this course

If either line is checked, write a paragraph indicating specifically how global/international and/or multicultural materials and concepts relate to content outline and/or readings.

VI. METHODS TO MEASURE STUDENT ACHIEVEMENT AND DETERMINE GRADES:

Students in this course will be graded in at least one of the following four categories. Please check those appropriate. A degree applicable course must have a minimum of one response in category A, B, or C.

A. Writing Check either 1 or 2 below			
X	***1. Substantial writing assignments are required. Check the appropriate boxes below and provide a written description in the space provided.***		
	2. Substantial writing assignments are NOT required. If this box is checked leave this section blank. For degree applicable courses you must complete category B and/or C.		
	a) essay exam(s)	X	d) written homework
	b) term or other paper(s)		e) reading reports
	c) laboratory report(s)	X	f) other (specify) Java programs

Required assignments may include but are not limited to the following:
Writing Homework Example:
• Formulate a pseudocode algorithm to obtain a series of positive numbers from the keyboard, and determine and display the sum of the numbers.

Writing Computer Program Example
• Write a Java program to generate a table of conversions from inches to centimeters. Start the inches column at 0.0 and increment by 0.5 in. The last line should contain the value 20.0 in. (1 in = 2.54 cm)
• Write an application that prompts the user to enter the length and the width of a rectangle, then display a solid rectangle that is made of asterisks (“*”). Your program should work for rectangles with length and width between 1 and 20.

B. Problem Solving Computational or non-computational problem-solving demonstrations, including:			
X	a) exam(s)		d) laboratory reports
	b) quizzes		e) field work
X	c) homework problems	X	f) other (specify): computer programs

Required assignments may include but are not limited to the following:
Exam/Homework Problems
1. Identify and correct the errors in Java statements
2. Write section of Java code to perform certain task

Programming Assignments
Write a program to calculate student grade point average (GPA).
Write a program to print a temperature conversion table (from Fahrenheit to Celsius).

C. Skill demonstrations, including:			
	a) class performance(s)	X	c) performance exams(s)
	b) field work		d) other (specify)

Required assignments may include but are not limited to the following:
Programming skills:
• Write, compile, and execute Java programs.
• Develop algorithms through the process of top-down design and stepwise refinement.
• Identify and debug syntax and logical errors in programs
• Create a simple applet to execute a Java program.

D. Objective examinations including:			
	a) multiple choice	X	d) completion
	b) true/false	X	e) other (specify): Mixed
	c) matching items		

COURSE GRADE DETERMINATION:
Description/Explanation: Based on the categories checked in A-D, it is the recommendation of the department that the instructor’s grading methods fall within the following departmental guidelines; however, the final method of grading is still at the discretion of the individual instructor. The instructor’s syllabus must reflect the criteria by which the student’s grade has been determined. (A minimum of five (5) grades must be recorded on the final roster.)

If several methods to measure student achievement are used, indicate here the approximate weight or percentage each has in determining student final grades.

Grading scale example 1:
50% Program Lab
40% Exam
10% Term Project

Grading scale example 2:
40% Program Lab
40% Exam
10% Homework
10% Term Project

VII. EDUCATIONAL MATERIALS

For degree applicable courses, the adopted texts, as listed in the college bookstore, or instructor-prepared materials have been certified to contain college-level materials.

Validation Language Level (check where applicable):	College-Level Criteria Met YES	 NO
Textbook	X	
Reference materials		X
Instructor-prepared materials		X
Audio-visual materials		X

Indicate Method of evaluation:

Used readability formulae (grade level 10 or higher)	
Text is used in a college-level course	X
Used grading provided by publisher	
Other: (please explain; relate to Skills Levels)	

	YES	NO
Computation Level (Eligible for MATH 101 level or higher where applicable)	X	
Content		
Breadth of ideas covered clearly meets college-level learning objectives of this course	X	
Presentation of content and/or exercises/projects:		
Requires a variety of problem-solving strategies including inductive and deductive reasoning.	X	
Requires independent thought and study	X	
Applies transferring knowledge and skills appropriately and efficiently to new situations or problems.	X	

List of Reading/Educational Materials

Recommended - Liang, Y. *Introduction to Java Programming, Comprehensive,* ed. 8 Prentice Hall, 2011,
Recommended - Deitel, P. *Java How to Program: Early Objects Version,* ed. 8 Prentice Hall, 2010,
Recommended - Gaddis, T *Starting Out with Java: From Control Structures through Objects,* ed. 4 Addision-Wesley, 2010,
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Comments:

______	This course requires special or additional library materials (list attached).
X	This course requires special facilities: Computer Lab

Attached Files:

BASIC SKILLS ADVISORIES PAGE The skills listed are those needed for eligibility for English 125, 126, and Math 101. These skills are listed as the outcomes from English 252, 262, and Math 250. In the right hand column, list at least three major basic skills needed at the beginning of the target course and check off the corresponding basic skills listed at the left.

(eligibility for English 126) (as outcomes for English 262) __X__ Using phonetic, structural, contextual, and dictionary skills to attack and understand words. __X__ Applying word analysis skills to reading in context. __X__ Using adequate basic functional vocabulary skills. __X__ Using textbook study skills and outlining skills. __X__ Using a full range of literal comprehension skills and basic analytical skills such as predicting, inferring,	Students must read and understand a college level computer programming book. Students must read and understand problem statements Students must read and understand software manual

concluding, and evaluating.	
(eligibility for English 125) (as outcomes for English 252) __X__ Writing complete English sentences and avoiding errors most of the time. __X__ Using the conventions of English writing: capitalization, punctuation, spelling, etc. __X__ Using verbs correctly in present, past, future, and present perfect tenses, and using the correct forms of common irregular verbs. __X__ Expanding and developing basic sentence structure with appropriate modification. __X__ Combining sentences using coordination, subordination, and phrases. __X__ Expressing the writer's ideas in short personal papers utilizing the writing process in their development.	Students will document their programs using complete sentences Students must take lecture notes Students must write program algorithms.
Check the appropriate spaces. _____ Eligibility for Math 101 is advisory for the target course. __X__ Eligibility for English 126 is advisory for the target course. __X__ Eligibility for English 125 is advisory for the target course. *If the reviewers determine that an advisory or advisories in Basic Skills are all that are necessary for success in the target course, stop here, provide the required signatures, and forward this form to the department chair, the appropriate associate dean, and the curriculum committee.*	

CONTENT REVIEW	
MATH 103 INTERMEDIATE ALGEBRA	
Simplify and/or factor mathematical expressions into forms more conducive to analysis.	
Solve equations introduced in Intermediate Algebra.	
Graph functions and relations introduced in Intermediate Algebra.	
Apply Intermediate Algebra topics to solve real-life problems.	

REQUISITES	
Subject Prerequisite -- MATH 103 INTERMEDIATE ALGEBRA	
• Simplify and/or factor mathematical expressions into forms more conducive to analysis. • Solve equations introduced in Intermediate Algebra. • Apply Intermediate Algebra topics to solve real-life problems.	• Write Java programs using decision control statements (if, if…else, switch). • Write simple Java applets. • Create proper test cases to test computer programs

ESTABLISHING PREREQUISITES OR COREQUISITES

Every prerequisite or corequisite requires content review plus justification of at least one of the seven kinds below. Prerequisite courses in communication and math outside of their disciplines require justification through statistical evidence. Kinds of justification that may establish a prerequisite are listed below.

Check one of the following that apply. Documentation may be attached.

1. _____ The prerequisite/corequisite is required by law or government regulations.
   Explain or cite regulation numbers:
2. _____ The health or safety of the students in this course requires the prerequisite.
   Justification: Indicate how this is so.
3. _____ The safety or equipment operation skills learned in the prerequisite course are required for the successful or safe completion of this course.
   Justification: Indicate how this is so.
4. _____ The prerequisite is required in order for the course to be accepted for transfer to the UC or CSU systems.
   Justification: Indicate how this is so.
5. _____ Significant statistical evidence indicates that the absence of the prerequisite course is related to unsatisfactory performance in the target course.
   Justification: Cite the statistical evidence from the research.
6. _____ The prerequisite course is part of a sequence of courses within or across a discipline.

7. __X__ Three CSU/UC campuses require an equivalent prerequisite or corequisite for a course equivalent to the target course:

CSU Long Beach CECS 261 CECS 174
CSU Northridge COMP 105 MATH 102
CSU Sacramento CSC 050 CSC 060