



Course Name: Java Programming I

Course Number: CSC* E223

Credits: 4

Catalog description: A comprehensive study of the fundamentals of object-oriented programming using the Java programming language. Topics include installing and setting up the Java environment and SDK, Java VM, Java programming tools, the fundamental syntax and semantics of Java language, program structure, data types, primitive and reference types, control structures, methods, recursion, strings, arrays, searching and sorting, data abstraction, encapsulation, classes, objects, constructors, object life cycle, garbage collection, interfaces, polymorphism and dynamic binding, class structure, inheritance, aggregation, composition, object-oriented design, Java packages and the Java API.

The course requires substantial hands-on use of computers in a computerized classroom environment.

Prerequisite: CSC* E105 *or* permission of the instructor

Corequisite or Parallel:

General Education Competencies Satisfied:

HCC General Education Requirement Designated Competency Attribute Code(s):

None

Additional CSCU General Education Requirements for CSCU Transfer Degree Programs:

None

Embedded Competency(ies):

None

Discipline-Specific Attribute Code(s):

COMP Computer Science Elective



Course objectives:

General Education Goals and Outcomes:

None

Course Specific Objectives:

1. Demonstrate use of text editors, compilers, the Java environment, Java tools, and the Java Virtual Machine
2. Plan, design, write, save, edit, compile, run, and debug Java programs
3. Understand the basic syntax of the Java language and language semantics
4. Understand Java byte code and the role of JVM
5. Create and use variables and constants
6. Understand Java primitive, reference data types, and data type conversions
7. Understand expressions, operators, and statements
8. Understand and use Java arrays
9. Understand and use Java strings and string manipulations
10. Understand and perform search and sort operations
11. Understand and use Java methods
12. Understand and apply recursion
13. Create programs that use decision and loop structures
14. Understand, use, and design Java classes, interfaces, and objects
15. Understand object creation, object life cycle, constructors, and garbage collection
16. Understand basic object-oriented principles and object-oriented design and programming (object-oriented software development)
17. Understand and utilize abstraction, encapsulation, inheritance, aggregation, composition, and polymorphism
18. Understand and utilize Java packages and the Java API



Course Content:

- Text editors, compilers, the Java environment and SDK, Java tools, and the Java Virtual Machine
- Planning, designing, writing, saving, editing, compiling, running, and debugging Java programs
- Basic syntax of the Java language and language semantics
- Java byte code and the role of JVM
- Java variables and constants
- Java primitive data types, reference data types, and data type conversions
- Expressions, operators, and statement
- Relational and logical operators
- Decision and loop structures
- Java arrays
- Searching and sorting
- Java strings and string manipulations
- Java methods
- Recursion
- Java classes, interfaces and objects
- Constructors and garbage collection
- Data abstraction and encapsulation
- Polymorphism and dynamic binding
- Inheritance, aggregation, and composition
- Object-oriented principles and object-oriented design and programming (object-oriented software development)
- Java packages and the Java API

Date Course Created: Fall 2012

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