

## CIS CA Computer Programming with Java

PLO	PLO Reflection (What were the strong points and weak points students demonstrated in the courses? What areas need more attention? What do your results show about student learning?)	PLO Action Plan (include timeline for implementation, key/responsible personnel, priority high/medium/low, status report/reflection on results of action plan)
<p><b>Computer Software Development:</b> Demonstrate the ability to apply data requirements, algorithmic principles, and software development practice in the modeling and design of computer-based systems in a way that proves comprehension of the tradeoffs involved in design choices.</p>	<p>Students demonstrated weakness in program development because of starting with the coding phase instead of designing a proper solution first; to decrease a significant amount of errors.</p>	<p>Continue to assign more assignments, activities and projects for them to design a solution to the problem first, desk check the solution, and then code the program in a chosen programming language. Assigned instructor will implement additional resources in Fall 2017 to continue new methods of implement the program development process to make a better effective outcome of the program development process.</p>
<p><b>Programming Skills:</b> Demonstrate the ability to analyze a problem, using algorithms to create computer systems and appropriate problem solving using a programming language.</p>	<p>Student demonstrated weakness in being clear of the define problem phase before outlining the solution in their assignments.</p>	<p>Continue to assign more assignments, activities and projects to prepare them on what questions should be asked to be clear of the problem to solve. Assigned instructor will implement additional resources and update SLO to improve on the define the problem phase Fall 2017.</p>
<p><b>Solve Business Problems with Computers:</b> Interpret and analyze a business information problem and design, code, compile, test and debug a program solution in Java using proper program syntax balancing efficiency and maintainability, and manage project tasks required for completion of a computer system development project.</p>	<p>Students demonstrated weakness to express their solution in a programming language. The students weakness in the translation of the logic from the flowchart and or pseudocode to the coding (programming language); indicates more mini projects to have more hands on in working through the phases of developing an algorithm and coding process.</p>	<p>Continue to assign more assignments, activities and projects for them to improve on the translation of the logic form the flowchart to the programming language. Assigned instructor will implement additional resources in Fall 2017.</p>

## SLOs

### Python Programs:

Develop programs that are concise and elegant, in a clear and well-planned manner in the Python programming language. Reduce the complexity of a programming problem into smaller, simply defined components (modular & object-oriented programming)

### Data Types:

Use data types to define variables, lists, sets & dictionaries

### Sequences and Selection:

Analyze and construct algorithms and translate to appropriate control structures of sequence & selection and alternation (if statements)

### Loops and Recursion:

Analyze and construct algorithms and translate to appropriate control structures for iteration using loops and recursion

### Solve Problems with Computer Programs:

Interpret and analyze a business problem and design, code, compile, test and debug a program solution in Java with proper program syntax balancing efficiency and maintainability, using object-oriented programming concepts to create applications solving business problems with classes and objects

### Program Structure:

Use data types to define variables and arrays, analyze and construct algorithms and translate to appropriate control structures of sequence, selection and iteration, and design methods to structure programs into smaller, simply defined components

### Development Tools:

Use software development tools including editors, libraries and compilers; Use a wide range of troubleshooting methods and tools to isolate and fix bugs and develop User Interface (UI) or program interaction to meet user requirements

### Solve Business Problems:

Write Java applications and applets to create solutions to business problems and manage project tasks required for completion of a computer system development project

### Advanced Techniques:

Develop programs using advanced techniques and features such as exceptions, multi-threading and concurrency

### Graphical User Interface:

Develop event-handling code for GUI (graphical user interface) programs for environments such as Abstract Windows Kit (AWT), Swing, or 2D API (application programming interface)

### Input/Output:

Access persistent data utilizing file Input/Output and/or database access, and write programs that communicate over the Internet using a protocol such as Transmission Control Protocol (TCP/IP) clients that communicates through sockets

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Programming Skills: Analyze a problem, using algorithms to create computer systems and appropriate problem solving using a programming language.

Solve Business Problems with Computers: Interpret and analyze a business information problem and design, code, compile, test and debug a program solution in Java using proper program syntax balancing efficiency and maintainability, and manage project tasks required for completion of a computer system development project.