

 COMPUTER SCIENCE
 DEPARTMENT

CS 190 - STUDENT LEARNING OUTCOMES

**Analyze the execution of searching and sorting algorithms.**

* Below Expectations: Describes the execution trace of one searching algorithm and one sorting algorithm.
* Meets Expectations: Analyzes the execution of various searching and sorting algorithms.
* Exceeds Expectations: Evaluates the execution of various searching and sorting algorithms including a recursive solution.

**Construct multiple files or multiple modules programming solutions that use class hierarchies, inheritance, and polymorphism to reuse existing design and code.**

* Below Expectations: Describes when inheritance and the use of class hierarchies is an appropriate design strategy.
* Meets Expectations: With guidance, produces a programming solution using inheritance and polymorphism.
* Exceeds Expectations: Designs and constructs a programming solution using the features of inheritance and polymorphism appropriately.

**Construct object oriented programming solutions for reuse, using ADTs that incorporate encapsulation, data abstraction, and information hiding.**

* Below Expectations: Summarizes the concepts of encapsulation, data abstraction, and information hiding and explains how they apply to object-oriented programming.
* Meets Expectations: Organizes programming solutions that include encapsulation, information hiding, and data abstraction.
* Exceeds Expectations: Constructs reusable software components that incorporate encapsulation, data abstraction, and information hiding.

**Create programming solutions that use data structures and existing libraries.**

* Below Expectations: Produces programming solutions that use existing library code.
* Meets Expectations: Organizes programming solutions that incorporate appropriate data structures and pre -existing code.
* Exceeds Expectations: Designs and develops programming solutions that use data structures, pre-existing libraries, and individual library code.

**Discuss significant trends and societal impacts related to computing, software, and the Internet.**

* Below Expectations: Explains how databases and the Internet can impact privacy and property rights.
* Meets Expectations: Discusses the potential uses and abuses of data and the consequences of the loss of privacy.
* Exceeds Expectations: Practices ethical behavior when addressing property rights and privacy issues.

**Design and develop secure and fault tolerant programs that mitigate potential security vulnerabilities.**

* Below Expectations: Summarizes important characteristics of software assurance, such as the elimination of buffer overflows, memory leaks and back-door access.
* Meets Expectations: Produces a fault-tolerant program using the foundations of software assurance to mitigate potential security vulnerabilities.
* Exceeds Expectations: Designs and develops a secure and fault-tolerant programming solution utilizing principles of software assurance.

**Produce graphical user interfaces that incorporate simple color models and handle events.**

* Below Expectations: Differentiates between good and bad design concepts for human-computer interfaces.
* Meets Expectations: Produces programming code of a graphical user interface that utilizes a simple color model effectively and efficiently handles events triggered by user interaction.
* Exceeds Expectations: Develops programming code for a graphical user interface that incorporates the concepts of good HCI design.

**Verify program correctness through the development of sound test plans and the implementation of comprehensive test cases.**

* Below Expectations: Produces test plans for object oriented programming solutions that considers code coverage.
* Meets Analyzes a program and devises a test plan that examines code coverage and develops test cases for data coverage.
* Exceeds Expectations: Constructs a test driver for code coverage and creates a formal test plan choosing comprehensive test cases for data coverage.