Computer Science II 2023-2024 Catalog

[ARCHIVED CATALOG]

CSCI 102 - Computer Science II

PREREQUISITES: CSCI 101 - Computer Science I and MATH 211 - Calculus I.
COREQUISITES: MATH 211 - Calculus I.
PROGRAM: Computer Science
CREDIT HOURS MIN: 3
LECTURE HOURS MIN: 3
DATE OF LAST REVISION: Spring, 2019

Provides a working understanding of the fundamentals of procedural and object-oriented program development using structured, modular concepts and modern object-oriented programming languages. Reviews control structures, functions, data types, variables, arrays, and data file access methods. This is a first-level course in object- oriented computer programming, using a language such as Java or C. Object-oriented concepts studied include classes, objects, inheritance, exception handling, recursion, abstract data types, streams and file I/O, reusable software, and event-driven programming.

MAJOR COURSE LEARNING OBJECTIVES: Upon successful completion of this course the student will be expected to:

1. Demonstrate the basic procedural concepts of computer programming, including variables, constants, character strings, and data types.
2. Demonstrate how to use arithmetic operators, expressions and statements.
3. Demonstrate how to use the basic control structures of sequence, selection, and repetition.
4. Demonstrate the use of user defined methods and functions in satisfying programming objectives.
5. Demonstrate the use of arrays and array processing.
6. Demonstrate the use of simple searching and sorting algorithms.
7. Demonstrate the basic object-oriented concepts of computer programming, including classes and subclasses, objects, inheritance, exception handling, graphical user interfaces using an API, and event-driven programming.
8. Discuss database systems and database query languages.
9. Discuss software engineering, software maintenance and software reuse.
10. Demonstrate how to create and access data files using streams.

COURSE CONTENT: Topical areas of study include -

- Variables
- Sorting algorithms
- Constants
- Classes, subclasses and objects
- Character strings
- Inheritance
- Arithmetic operators
- Exception handling
- Expressions and statements
- Graphical user interfaces using an API

- Repetition techniques
- Event-driven programming
- Methods and functions
- Database systems
- Array processing
- Software engineering
- Searching algorithms
- Accessing data files and streams
- Query languages
- Software maintenance
- Software reuse

Course Addendum - Syllabus (Click to expand)
