

Master Syllabus

CIS 2207 - Data Structures & Algorithms

Division: Business and Public Services

Department: Computer Information Systems

Credit Hour Total: 3.0

Lecture Hrs: 3.0

Prerequisite(s): CIS 1202

Date Revised: April 2017

Course Description:

This course covers data structures using the C++ Programming Language. Topics include data abstraction, encapsulation, information hiding, the use of recursion, searching and sorting algorithms, and the creation and manipulation of various data structures: lists, queues, tables, trees, heaps, and graphs.

General Education Outcomes:

- Critical Thinking/Problem Solving Competency

Course Outcomes:

Analyze a given problem and select the appropriate solution.

Use the understanding of data structures to provide the appropriate solution to a problem

Assessment Method: Locally developed exams

Performance Criteria:

70% or higher on a standard rubric

Assessment Method: Simulations

Performance Criteria:

70% or higher on a standard rubric

Define each of the algorithms and data structures studied.

Create C++ classes using inheritance, polymorphism and data structures.

Assessment Method: Locally developed exams

Performance Criteria:

70% or higher on a standard rubric

Assessment Method: Simulations

Performance Criteria:

70% or higher on a standard rubric

Create programs or classes using the C++ programming language for each of the data structures studied.

Develop abstract data structures such as linked lists, stacks, queues, and binary trees.

Assessment Method: Locally developed exams

Performance Criteria:

70% or higher on a standard rubric

Assessment Method: Simulations

Performance Criteria:

70% or higher on a standard rubric

Evaluate the different algorithms in terms of time using Big O notation to determine their efficiency.

Analyze problems and design, code and test the C++ software solutions.

Assessment Method: Locally developed exams

Performance Criteria:

70% or higher on a standard rubric

Assessment Method: Simulations

Performance Criteria:

70% or higher on a standard rubric

Outline:

Data abstraction and encapsulation

Information hiding

Recursion

Searching and sorting algorithms

Creation and manipulation of various data structures including lists, queues, tables, trees, heaps, and graphs.