

Course Syllabus

DATA STRUCTURES

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Program: Computer Science

1. Course number and name

CCPG1006 - DATA STRUCTURES

2. Credits and contact hours

3 credits and 4 contact hours

3. Instructor's course or coordinator's name

EDUARDO SEGUNDO CRUZ RAMÍREZ

4. Text book, title, author, and year

*Goodrich, M.T., Tamassia, R., Goldwasser, M.H.. Data Structures and Algorithms in Java (6th Edition)

a. Other supplemental materials

*Aguilar, L.J., Martínez, I.Z., Zahonero, I.. ESTRUCTURA DE DATOS EN JAVA (Primera Edición)

5. Specific course information

a. Brief description of the content of the course (catalog description)

The course presents the definition, representation and implementation of abstract data types, using a programming language, with emphasis on its application for the analysis and abstraction of entities for a problem with specific needs. Real problems of medium complexity are proposed for students to design and implement the best possible solution in terms of computational efficiency, with an appropriate coding style, based on abstract data types commonly used in computer science.

b. Prerequisites

OBJECT ORIENTED PROGRAMMING - CCPG1005

Co - Requisites

DISCRETE MATHEMATICS - MATG1005

c. This course is a: Required

6. Specific goals for the course

a. Specific outcomes of instruction

1.- Implement states and behaviors of abstract data types, using a programming language.

2.- Analyze the performance of algorithms that use abstract data types, using an asymptotic notation.

3.- Implement algorithms that use abstract data types to solve problems with specific needs using a programming language.

b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

(1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

(6) Apply computer science theory and software development fundamentals to produce computing-based solutions.



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7. Brief list of topics to be covered

- 1.- Data types
- 2.- List
- 3.- Stack
- 4.- Queue
- 5.- Set and Map
- 6.- Tree
- 7.- Graph

