MC102: Algorithms and Computer Programming

Since 2011.

**Prerequisite:** None

**Description:**
Basic concepts on computer organization. Construction of algorithms and its representation on pseudocode and high level languages. Systematic development and programs implementation. Structuring, debugging, tests and documentation of programs. Problem solving.

**Programme:**
Topics to be studied (preferably in this order)
1. Computing environment's basic organization
2. Variables, constants and attributions
3. Data input and output
4. Arithmetic, logic and relational expressions
5. Conditional commands
6. Repeat commands
7. Arrays and Strings
8. Matrices
9. Functions
10. Variable scope
11. Pointers and dymanic allocation of arrays
12. Sorting algorithms
13. Search algorithms
14. Enumerated Types and structures
15. Text and binary files
16. Recursion

**Recommended Literature:**

   [Translation to portuguese: C - A Linguagem de Programação. Editora Campus, 1989]
V. W. Celes, R. Cerqueira, J.L. Rangel. Introdução a Estruturas de Dados, 1st edition, Editora Campus, 2004