

2021-2022	Common Trunk	Year 2 - Sem. 3
INFO204	Programming III	Mandatory
ECTS: 3	Instructors: Dr. Bassam Eter, Dr. Hussein Nasser, Eng, Ibrahim Joumaa	Language: English/French
Total hours: 39 h	Period : October - February	

Description:

This course includes the basic foundations in of data structures and algorithms. This course covers concepts of various data structures like stack, queue, list, tree and graph. Additionally, the course includes topics of sorting and searching.

Learning outcomes:

- Analyze the runtime performance of a (simple) algorithm/program in terms of the size of its inputs, and this in the average, best, and worst cases.
- Choose appropriate algorithms and data structures for storing data, searching and sorting, as well as implement those algorithms.
- Use and implement basic graph algorithms.

Content:

- Data structures: trees, FIFO queue, stack, priority queues, heaps.
- Searching: binary search trees, balanced search trees, hash tables.
- Sorting: insertion sort, merge sort, quick sort, heap sort.
- Graph algorithms: depth first and breadth first search, topological sort and (strongly) connected components.
- Design techniques: divide-and-conquer.\
- Implementation of algorithms and data structures.

References:

- Bassam ETER Langage C#.Net.

Evaluation Method:

Assessment in the following areas will be converted to points, to compute your final grade in this course:

- Mid-Term
- Final Exam
- Home Works

Description :

Ce cours contient les bases essentielles des structures de données et des algorithmes. Il couvre les concepts de diverses structures de données comme la pile, la file d'attente, la liste, l'arbre et les graphes. De plus, ce cours inclue des sujets de tri et de recherche.