**Course Code Course Name** Semester Theory Practice Lab Credit ECTS 0 INF224-A Algorithms And Data Structures 3 2 2 3 5 Prerequisites INF112/INF114 Admission Requirements INF112/INF114 Language of Instruction French Course Type Compulsory Course Level Bachelor Degree The aim of the course is to equip student with skills of choosing the most appropriate data structure, using these data Objective structures into different types of algorithms, analyzing the performance of proposed algorithms and choosing the most efficient one and programming these algorithms in C. Week 1: Algorithm analysis. Week 2: Principal data structures (arrays, linked lists, queues). Week 3: Tree structures, binary search tree. Week 4: AVL tree structure. Week 5: Tree traversal algorithms. Week 6: Hash functions and tables. Week 7: Graph structure. Content Week 8: Midterm. Week 9: Graph algorithms (shortest path, minimum spanning tree). Week 10: Sorting algorithms. Week 11: Sorting algorithms. Week 12: Search algorithms. Week 13: Search algorithms. Week 14: Coding algorithms. 1. M.A. Weiss, Data Structures & Algorithm Analysis in C++, 1999, Addison Wesley. 2. A.M. Tanenbaum, Data Structures using C, 1989, Prentice Hall.

References

A. Drozdek, Data Structures and Algorithmss in C++, 2004, Course Technology.
R. Sedgewick, Algorithms in C, Parts 1-4: Fundamentals, Data Structures, Sorting, Searching, 1997, Addison-

Wesley

5. Olcay Taner Yıldız, C && Java ile Veri Yapılarına Giriş, Boğaziçi Üniversitesi Yayınevi, 2013.

## Theory Topics

## Weekly Contents

- 1 Algorithm analysis
- 2 Principal data structures (arrays, linked lists, queues).
- 3 Tree structures, binary search tree.
- 4 AVL tree structure.
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- 6 Hash functions and tables.
- 7 Graph structure.
- 8 Midterm.
- 9 Graph algorithms (shortest path, minimum spanning tree).
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- 13 Search algorithms.
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