Topics for the Final Exam in Programming Knowledge
Curriculum F
Robotics Specialization

1. **Recursion: Recursive algorithms (Factorial, Fibonacci, Towers of Hanoi)**
2. **Recursion: Recursive programming theorems (Sum, Search)**
3. **Structure of a Linked List, Insertion algorithms (to the front, to the end, after an element**
4. **Properties of a Unordered Linked List, Search and deletion algorithms**
5. **Structure of an Ordered Linked List, Insertion algorithm**
6. **Properties of an Ordered Linked List, Search and deletion algorithms**
7. **Concept and structure of a Binary Tree. Ways to traverse a Binary Tree.**
8. **Concept and structure of a Binary Search Tree. Search in a Tree based on a key. Insertion algorithm.**
9. **Advantages/disadvantages of a Binary Search Tree. Deletion of a node from a Tree based on a key.**
10. **Storing Graphs using Adjacency List. Breadth-first search.**
11. **Storing Graphs using Adjacency Matrix. Depth-first search.**
12. **Definition of a Graph. Topological ordering.**
13. **Shortest path in a weighted Graph. Dijkstra's algorithm.**