Plan of Lections

1. Introduction: O-notation, Count Sort, Binary Search
2. Asymptotics & real work times, excersises on asymptotics
3. Graphs-1: bfs, dfs, dijkstra; some graph theory (?)
4. Solving recurrents, D&C: polynom multiply (Karatsuba), matrix multiply (Strassen)
5. Sorting and greedy solutions: QSort, MergeSort and inversion count, HeapSort, sortings theorem, comparing sortings (time, additional memory, stability)
6. Data Structures-1: Stack, Queue, Deque, Heap, Vectors; Amorisation analysis
7. Data Structures-2: DSU, Segment Trees
8. Graphs-2: SCC, TopSort, ?
9. Dynamics: max raising subsequence, edition distance (+optimization), Backpack problem, Lazy recursions
10. Strings-1: π-function, Z-function, substring search, ...
11. Strings-2: Trie, Automata and FSM, Aho-Korasik algo,...