강 의 계 획 서

교과목명	자료구조와알고리즘	교강사명	정재훈
수강대상대학	소프트웨어학과		
수업시간	월[FF]16:30-17:45,수[FF]16:30-17:45		
강의실	[22410] 제1공학관22동 4층 첨단e+강의실		
개요/진행	Topics that we will cover include time/space analysis, sorting, divide-and-conquer, dynamic programming, the greedy method, balanced search trees, the data structures for dis-joint sets, and a variety of graph optimization problems (e.g., minimum spanning tree and shortest path algorithms). We will explore the theoretical foundation of these methods along with the illustration of examples.		

내용

9 월	Introduction - Introduction to algorithm and Data structure review Sorting - Insertion sort, Merge sort, and Growth of functions (i.e., Complexity analysis) Divide and Conquer 1 - Maximum-subarray problem, Strassen's matrix multiplication, and Quick sort Divide and Conquer 2 - Recurrences (Substitution, Recursion-tree, and Master methods)
10 월	Dynamic Programming 1 - Basics and Rod cutting Dynamic Programming 2 - Matrix-chain multiplication and Longest common subsequence Dynamic Programming 3 - Binary search trees and Optimal binary search trees Midterm Exam (75 minutes)
11 월	Greedy Algorithms 1 - Activity-selection and Elements of the greedy strategy Greedy Algorithms 2 - Knapsacks and Huffman codes Matroids and Application 1 - Matroids Matroids and Application 2 - Task-scheduling problem
12 월	Minimum Spanning Trees (MST) - Generic MST, Kruskal's algorithm, and Prim's algorithm Shortest Path Algorithms 1 - Single-Source Shortest Paths (Bellman-Ford algorithm and Dijkstra's algorithm) Shortest Path Algorithms 2 - All-Pairs Shortest Paths (Simple Dynamic Programming approach and Floyd-Warshall algorithm) Final Exam (75 minutes)

참고문헌

도서구분	도서명	저자	발행년도	출판사
교재	Introduction to Algorithms	T. Cormen, C.Leiserson, R. Rivest, and C. Stein	2009	MIT Press