

# Schedule of lectures in Constructing Software Systems

(Right to changes reserved)

(February 13) **Preliminaries I** (Chapter 1 and 2)

Primitive types, operators, statements, methods, reference types, exception handling, input and output.

(February 20) **Preliminaries II** (Chapter 3 and 4)

Classes, packages, inheritance, interfaces, generics, function objects.

(February 27) **Algorithms I** (Chapter 5 and 6)

Algorithm analysis, big-oh notation, Java Collections API.

(March 6) **Algorithms II** (Chapter 7)

Recursion, divide-and-conquer, dynamic programming, backtracking.

(March 13) **Algorithms III** (Chapter 8 and 9)

Insertion sort, mergesort, quicksort, randomization.

(March 20) **Implementations I** (Chapter 15, 16 and 17)

Inner classes, stacks, queues, linked lists.

(March 27) **Implementations II** (Chapter 18 and 19)

General trees, binary trees, tree traversal, binary search trees.

(April 3) **Implementations III** (Chapter 20 and 21)

Hashing, binary heaps, external sorting.

(April 10) **Thread Programming**

The thread concept, synchronization, cooperation among threads.

(April 24) **Applications I** (Chapter 10 and 11)

Games, parsing.

(May 1) **Applications II** (Chapter 12 and 13)

File compression, simulation.

(May 8) **Applications III** (Chapter 14)

Graphs, the shortest-path problem, topological sorting.