Introduction to Data Structures and Algorithms (DSA)

A basic preparatory course for students of Computational Engineering,

including lecture and exercises (**T**utorials to Introduction to **D**ata **S**tructures and **A**lgorithms - TDSA),

and a short introduction to Java

Tutor: Dr. Ulrich Klehmet

Time: September 16th to October 4th, 14:00 – 17:00   **(DSA and TDSA)**

Location: Martensstrasse 3, Room H4 (H04)

Contents:

This course introduces basic data structures and algorithms that are necessary

for nearly any kind of programming task.

- We discuss elementary and structured data types such as lists, stacks, queues, trees and sets
  and review basic algorithms for searching, sorting, hashing and graph analysis.

- We will study techniques for determining the efficiency of these algorithms. This is important
  as it helps us to select suitable data structures and algorithms according to the needs of the
  application in mind.

- Further information during the lectures.

- In the last week we will cover the fundamentals of programming language Java, and
  will demonstrate and discuss these using simple examples.

Script: The script will be available at
http://www7.informatik.uni-erlangen.de/~klehmet/teaching/SoSem/dsa

Exercises: The theoretical exercises are part of this course.

Literature:

Introduction to Algorithms, by H. Cormen et al., MIT Press 2001, 2004 and 2009
This book contains a wealth of material that of course we will cover only partially.