

# Introduction to Computer Science

## E04 – Lecture 10

### **Lecture, November 8**

We covered encryption from section 11.6 and discussed exponentiation, an efficiency concern with RSA and many other public key cryptosystems, along with other efficiency concerns with RSA. There are some notes on cryptography, from PGP, using a link on the course's homepage.

### **Lecture, November 15**

We will begin on the theory of computation from chapter 11.

### **Lecture, November 22**

Klaus Meer will introduce some basic questions related to neural networks. He will explain how neural networks in principle could be used for tasks such as pattern recognition. We shall deal with a most basic example of a one-layer, feedforward network called perceptron (or McCulloch-Pitts network). A few ideas behind the famous Perceptron Learning Algorithm will be explained.

### **Discussion section: week 47**

Discuss the following problems in groups of three or four.

1. Discuss questions 2 and 3, and 5 on page 464.
2. Discuss questions 3 on page 470.
3. Discuss questions 2, 3, and 5 from page 485.

4. Discuss problems 20 and 25 on page 491.
5. Discuss problems 27, 29, 31, 32, 33, 37, 42, 44 on pages 491–493.
6. Discuss how the Shortest Path Problem (defined in lecture – given two cities, find the shortest path between them) and the Traveling Salesman Problem differ.

### **Assignment due 8:15, November 23**

Late assignments will not be accepted. Working together is not allowed. (You may write this either in English or Danish, but write clearly if you do it by hand.) Explain your answers.

1. Problem (not question) 2 on page 489.
2. Problem 15 on page 490.