Institut for Matematik og Datalogi
Syddansk Universitet

3 ECTS Project — Computer Science 2011

2nd Project

This project is based on your courses DM526, DM527, and DM502, though most directly on DM526 since it overlaps with both of the other two. It covers stating algorithms precisely (as is required in programming) and circuit design (Boolean algebra and logic). The project will be graded on a Pass/Fail basis. In order to have your project approved, your answers must be correct, with only very minor errors. There will not be a "retry" on this second try at passing the 3 ECTS project (though there will be a third and last possible assignment for those who flunked the first project, including the retry) and also flunk this one).

You may write this either in Danish or English, but write clearly if you do it by hand. Write your full name and your section number clearly on the first page of your assignment. You should turn in two paper copies of your project between 11:00 and 12:00 on Thursday, September 26, to "studiesekretariatet", which can be found on the following map:

http://vejviser.sdu.dk/opslag?lid=2095&pid=hkr-2847 [vejviser.sdu.dk]

Cheating on this project is viewed as cheating on an exam. Working together on this project is cheating. If you have questions about the project, come to Joan Boyar or your "instruktor" for DM526.

Please note that this project is a compulsory part of your first-year examination. If you fail to hand in the assignment, you will not be able to continue your university studies.

The Project

1. Write down a clear, precise algorithm for getting from the university to your home via public transportation. Include any walking that is necessary.

2. Design and draw a circuit containing only AND, OR and NOT gates (each gate having at most two inputs) which takes three bits as input and outputs a 1 if the input is 100, 011, or 010, and a 0 otherwise.

3. Design and draw a circuit containing only AND, OR and NOT gates (each gate having at most two inputs) which takes four bits as input and outputs a 1 if the input is 1010, 0111, 1101 or 1110, and a 0 otherwise.