

# Electronics II

## Exercise 3

Deadline Wed 14.2.2018 12:00

1. Use the 74HC595 shift register to display a message of your choice on the 4 digit 7-segment display. (3p)  
(It is possible to drive the display without a shift register but it requires more pins.)
2. Measure the temperature with a thermistor and display it on the display you've just built with 0.1°C resolution. (1.5p)
3. Let's revisit the external interrupts from last week. Take the following code block and add an interrupt service routine which counts the number of falling edges on a pin. Write a displayNumber(byte number) function which writes the input argument on the 7-segment display.

```
volatile byte fallingEdges = 0; //why volatile?  
  
void loop(){  
  delay(5000);  
  displayNumber(fallingEdges);  
  fallingEdges = 0;  
}
```

You can connect either a button or the tilt switch to the pin to produce the edges. Don't alter the loop function. (1.5p)