Assignment 4

1) Write a driver for serial communication (file, stream, pipe or something alike) through the UART0.

2) Write a program, that communicates between a PC and the clock running at the LCD display. Use the watch protocol, described below. Use a standard terminal program at the PC e.g. putty.exe, which can be found on itslearning/Resources/tools.

The watch protocol

The protocol communicating between a PC and kit, is a simple master-slave protocol with no checksum. The PC is always the master, which means that the PC always starts the communication by asking the slave (the kit) a question, while the slave is answering the question.

Use a terminal program at the PC to test the communication.

The serial communication parameters are:

1 start bit, 8 data bit, 1 stop bit, the baud rate is 19200 bits/sec and there is no flow control.

The protocol is an ASCII-protocol.

The kit will receive the following commands from the PC:

SET CLOCK.

This command is used to set the clock on the LCD display.

Byte nr.	*Description*	*Number of ASCII chars.*	*Value*
0	SET CLOCK COMMAND	1	'1'
1,2	Hours	2	0 – 23
3,4	Minutes	2	0 – 59
5,6	Seconds	2	0 – 59

The Tiva does not have to answer this message.

GET CLOCK

This command is used to get the current time.

Byte nr.	*Description*	*Number of ASCII chars.*	*Value*
0	GET CLOCK COMMAND	1	'2'

The kit must answer with the following message.

Byte nr.	*Description*	*Number of ASCII chars.*	*Value*
0	GET CLOCK COMMAND	1	'2'
1,2	Current hour value	2	0 – 23
3,4	Current minute value	2	0 – 59
5,6	Current second value	2	0 – 59

Good luck,

Oskar