

ELE 3510 Lab 3: Quartus Software Setup and Logic Review

1 dedicated lab period, 1 lab period to complete

Objectives

- Software setup
- Basic tool operation
- VHDL Review

Prelab

- | | student
check off |
|---|--------------------------|
| <ul style="list-style-type: none">• Download the Quartus software
Instructions are available in the file "Quartus Software Setup"
Note: installation may take some time and must be completed prior to the lab class time! | <input type="checkbox"/> |
| <ul style="list-style-type: none">• Review the Quartus Project Setup notes | <input type="checkbox"/> |
| <ul style="list-style-type: none">• Review the ModelSim Testbench Setup notes | <input type="checkbox"/> |

Assignment

Part 1: **Develop the up/dn counter from the example**

Instructions are available in the file "Example Design (Counter)"

Part 2: **Simulate the design using ModelSim**

Part 3: **Implement a 3Hz version of the design on the DE10 board**

Part 4: **Modify the design**

Implement a 5 bit version in simulation and on the DE10

Count by 3's in the up direction and 2's in the down direction

Do not wrap in the up direction, but do wrap in the down direction

Run the DE10 version at 3Hz

Check Off

You must demonstrate your working design(s) prior to the beginning of the next lab period

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| <ul style="list-style-type: none">• Demo the original design (DE10 implementation) | 40% |
| <ul style="list-style-type: none">• Demo your modified design (DE10 implementation) | 40% |

Lab Report (informal)

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|---|-----|
| <ul style="list-style-type: none">• Due at 4:00 pm, the day of the next lab period – in the box | |
| <ul style="list-style-type: none">• Include a properly documented informal lab report. | 20% |