University of Bridgeport

INTRO TO VLSI DESIGN
CPE 448

FINAL PROJECT
> 30%

MISCELLANEOUS

Proposal Due By: November 13, 2002
Demo Due By: December 04, 2002
Draft Due By: November 27, 2002
Final Report Due By: December 04, 2002
OBJECTIVE:

1. To CREATE and COMPLETE a PROTOTYPE as in real life....

What to do:

These are some of the steps mentioned as guideline. You and your teams are free to deviate from this as deemed necessary as long as you keep your deadlines.

Assume following:

1. Each of your group consists of professional, ethical engineers.
2. Your group is competing with other groups for a funding.
3. Your survival depends on the success of this project.

Your task may follow steps mentioned below:

1. Decide about your prototype with your team members.
2. Distribute work between your team members.
3. Submit proposal and get it approved.
4. While going through steps 5-9, work on your Draft report.
5. Design your "prototype" using VHDL.
6. Reduce this "prototype" to transistor level logic.
7. Draw this "prototype" using Design Architect (DA).
8. Use Accusim/Quicksim, for logic simulation.
9. Lay out this "prototype" using IC.
10. Use automatically generated layout.
11. Compare between these two layouts.

What is expected?

This final project will adhere to deadlines mentioned in the cover page. Your team is expected to complete your prototype. Your prototype should be of reasonable complexity and should have some market potential. Your prototype may be of existing products but you should be able to justify in your proposal why it could be considered? Each of the deadlines mentioned above will be represented by new term called "deliverables". Cite or credit all references. Do not plagiarize.
What to submit?

There are four deliverables. You/team should submit all deliverables.

PROPOSAL: [DUE BY NOVEMBER 13, 2002]

As mentioned above you are assuming that you are group of engineers who are trying to develop a product. You do not have enough money to fund your venture so you are presenting your design to possible group of people who can fund your project.

What should your proposal include?

There is no particular format for the proposal but you should include following in your proposal.

i. What is your team consists of? Small biography of each member. Use the bio. of Andy Groove, CEO and chairman of Intel as a reference [http://www.intel.com/pressroom/kits/bios/grove.htm](http://www.intel.com/pressroom/kits/bios/grove.htm)

ii. What are you proposing?

iii. How do you plan to achieve it?

iv. What are you designing?

v. How are you going to complete your design? Explain. Include state diagrams, BBBD [Bare Bone Block Diagram] etc.

vi. What are the components of your design?

vii. Who is responsible of what? Meaning why you have that many members?

viii. What is the expected cost? Estimate it. Use some software engineering or project planning practice. Like man-hours or shortest path etc.

ix. What is the estimated cost price and selling price per unit?

x. Explain Market potential.

xi. What are your contingency plans?

xii. What are some constraints? How do you plan to resolve them?
By this time it is expected that your team has completed all VHDL simulation along with Accusim/QuickSim Verification.

**What should your Draft Report Include?**

There is no particular format for the Draft Report as well. But you should consider this major characteristic of this document is that this is a live document. It is contains what is completed and what is remaining.

i. You should include how the VHDL verification is completed? Like simulation. Include waveform. VHDL code should be included in the Appendix.

ii. What percentage of task is completed? What is remaining? Are you on track? Explain why or why not? If not what are you doing to get back in track.

iii. Include circuit diagram. Waveform and explain what you are doing to complete your design.

iv. Explain technical difficulties you are expecting.

v. You need to explain and include all the mathematic analysis or Boolean calculation/reduction performed etc.

vi. Explain each portion of your design with components.
DEMO: [DUE BY DECEMBER 04, 2002]

It is expected that your project is complete.

What should your DEMO Include?

Demo will cover following:

i. Verify your report.
ii. Waveform, design etc.
iii. VHDL simulation.
iv. Circuit diagram.
v. IC layout. (Manual and Automatic)
vi. Based on your proposal and report each individual will be grilled.
**FINAL REPORT: [DUE BY DECEMBER 04, 2002]**

Final report assumes that you have completed your project. If you have not completed the project then, you will understand that there will be no report as well.

**What should your Final Report Include?**

There is no particular format for the Final Report. But this one grows from your draft report. This is not a live document. It demonstrates that you have everything completed for your project. Make sure that you have following in final report.

i. VHDL, simulation, circuit diagram, IC layout. Simulation etc to prove that you have completed the project. Reader should be able to understand it.

ii. Explain each portion of your design with components.

iii. How well did you bode with your estimate?

iv. Compare between the automatic layout and manual layout. Which one is better?

v. What method you use for your project?

vi. Each of your thought about the project.