ECE-492
SENIOR ADVANCED DESIGN PROJECT
Meeting #6
Q1: Let’s discuss your proposal and proposal presentation

Q2: Any question about Modeling and Design?

HW4: Teams – show your state diagrams and models
Design Review

- The goals are *(do not skip any item!)*:
  1. To present your Level-2 design
  2. To discuss phenomenology supporting your project
  3. To present progress in hardware and software design
     - Including schematics, parts selection, etc.
  4. To highlight all trouble areas and issues
  5. To demonstrate your ongoing early prototyping effort
  6. To receive valuable feedback from faculty
  7. To revise your design before Design Document submission
You need to progress significantly from what you showed during your proposal presentation; especially in the following directions:

- System modeling
- Theoretical foundations behind your project
- Detailed design into schematics, parts selection, etc.
- Prototyping effort

Design Review will last longer than your proposal presentation and discussion. So, allocate at least 1 hour for the review

- Presentation should take about 40 min
- Remaining 20-30 min should be allocated to discussion

You need to submit Design Review presentation slides to CC
1. Cover page
2. Short review of the Need and Requirements
3. Design architecture (Level-0 and Level-1)
4. Background knowledge/phenomenology (math, physics, EE, etc.) used to derive a solution/design
5. Detailed design (Level-2)
6. System models (state diagrams, data flow diagrams, etc.)
7. Schematics and parts selection
8. List of prototyping activities and progress discussion
9. Problems/surprises you encountered
STEP 9: DESIGN DOCUMENT

- There is not much time left – so hurry up
- The focus is on detailed design
  - Emphasize the top-down design
  - Get to the bottom – circuit-level, algorithm-level, etc. (!!!)
- Technical part and administrative part
  - Administrative issues depend on technical design
  - Again, you must have technical issues resolved before addressing administrative issues
- Look back at your proposal
- You must report your early prototyping activity
REMINDER (!)

For successful completion of ECE492 you must have all four issues resolved in your Design Document:

1) **Detailed design of your system**
   - Schematics down to the component/resistor/capacitor value
   - Algorithms

2) **Model of your system operations**
   - Functional model
   - System architecture

3) **Prototyping effort progress**
   - Simulations
   - Experimentation with selected components

4) **Implementation plan**
   - Gantt chart for the next semester effort
   - List or tasks and team member allocation/responsibilities
Design Document Format

- Cover page
- Short introduction (Problem Statement)
- Requirements specification
- System design/architecture - system decomposition
- Background knowledge/phenomenology (math, physics, EE, etc.) used to derive a solution/design
- Detailed design
  1) All levels of your design down to circuit schematics, state diagrams, and algorithm flowcharts – even if you are not sure about the design
  2) Detailed description of components and interfaces
  3) Include flow diagrams with identification of subroutines and main parameters for simulation projects
  4) Detailed description of software structure
- Prototyping progress report
  - List of acquired components
  - Specify what was built, experimented with, tested
  - Explain what you learned

- Testing plan
  - What kind of experiments (and explain why such experiments)?
  - Determine evaluation criteria (how do you measure success?)

- List and description of tasks (for ECE 493)
  - Description of each task/subtask provides an explanation of activities
  - Decompose tasks into subtasks
  - Allocate responsibilities to each task
Schedule and milestones

- Cover the next semester time (+ summer/winter break if you plan to work)
- Be realistic
- Make a significant push at the beginning of the next semester
  - Begin working during Wekk#0
  - Exploit the first few weeks of very light class schedule
  - Remember, most projects are delayed
- Include demos – mention functionalities to be presented by a sequence of demos/experiments
- See sample schedule on the web page
CASE STUDY: Clock Timer

< Step 9: Detailed Design >
For the Next Meeting

- Read textbook
  - Chapter 7 (Testing) and
  - Chapter 10 (Project Management)

- Next meeting:
  - Testing
  - Scheduling

- Homework for the next meeting:
  - Bring hard copies of
    - Background knowledge/phenomenology (math, physics, EE, etc.) used to derive a solution/design