ENED 1091: Introduction to Team Project
Spring 2013

Scenario:
As engineering and technology students at the University of Cincinnati, you have been asked to help improve the quality of the education received by future students. In order to do this, you will be working in teams to design a Graphical User Interface (GUI) using MATLAB that will help to teach one of the fundamental concepts from your chosen discipline or from the first-year engineering course sequence if you haven't had any disciplinary coursework yet.

The motivation for creating a program to help teach a fundamental concept is that it will allow future students to experiment and interact with the concept in the hopes that they will develop a more complete understanding.

Requirements:
In order to demonstrate that you have understood the material covered in this class, several requirements must be met by your program.

1. The GUI must have at least two components that were not used in the Lab 9 tutorial.
2. ***Each member*** of the team is required to write the code for at least one of the callback functions in the GUI you create which includes (at a minimum) one use of the following:
    - Conditional structure (IF Else or Switch)
    - Looping structure (For or While)
    - Array or vector
3. The GUI must actually work.
4. The GUI should be effective in teaching the concept your team has chosen.
5. The GUI should allow for significant user interaction and be engaging for the user.
6. The GUI should be user friendly and easily understandable. If appropriate, you could include an information pushbutton or a help pushbutton to explain what the GUI does or how to use the GUI.
7. The GUI should be creative. You don't get many points for creativity if you just re-create an earlier lab assignment and throw in a slider.
8. The GUI should look professional. Color can be very effective, but can also be very distracting depending on what you do.

Some Starter Ideas:

- Calculus Concepts: derivatives, integrals, Newtown Raphson, Taylor Series, other Series/Sums, etc.
- Programming Concepts: loops, conditional statements, arrays, etc.
- Physics Concepts: motion, resultant force, work, etc.
- Chemistry Concepts: reactions, thermodynamics, etc.
- Concepts you have learned in whatever discipline specific course you are taking this semester.

Assessment:

Your projects will be assessed using the following rubric:

Aspect	Points
Progress Report Submitted	5
Functionality: • Is the GUI an effective teaching tool for the chosen concept? • Does the program work?	15
Engagement: • Is the GUI engaging? • Is the GUI user friendly?	15
Complexity: • Does the GUI have at least two components that were not in the tutorial? • Did the team make good choices in selecting the components to demonstrate the concept?	15
Creativity and Appearance: • Is the concept for the GUI creative? • Is the appearance of the GUI professional?	15
Demonstration: • Did the demonstration work?	5
Final Report: • Does the description meet all of the requirement elements? • Is the description well written?	15
Individual Score: Each team member will receive an individual score based on the peer evaluations and the T.A. assessment of participation	15
Total:	100

Schedule and Milestones:

1) Week of March 25th:
    a. Project Assigned.
    b. Form teams. Choose a team leader. Exchange contact information
    c. Discuss ideas for GUI.
    d. Team Leader: Submit a Progress Report at least two days before the next recitation meeting. See project folder for format.
2) Week of April 1st
    a. Work on Project
    b. Demonstrate progress on the project to your T.A.
3) Week of April 8th :
    a. Work on Project
    b. Demonstrate progress on project to your T.A.
4) Week of April 15th:
    a. Demonstration during recitation
5) Due on Monday April 22nd by Midnight
    a. Final report and the code (this includes .m file and .fig file and any other files needed to run the GUI) uploaded to Blackboard by team leader. Please put in zipped folder if you have a lot of files.
    b. Peer evaluations submitted by all members of the team (see Project Folder for form).

Final Report Requirements:

Accompanying the program for your project will also be a final report for the project. The report will need to contain the following sections, and should be well written (i.e. minimal spelling, grammatical errors). The report should be no longer than 3 pages.

1) A title for your project.
2) An introduction section which introduces your team and describes in general what the GUI does, what concept it covers, and why your team chose this concept.
3) A section describing in detail the chosen concept and how that concept is effectively used/demonstrated within the GUI.
4) A section providing instructions for how to use the GUI.
5) A section describing the contributions of each of the team members to the development of the project.
6) A section describing any challenges that your team faced and what you learned from the project.
7) A conclusion section.