

Project Assignment Description

A group project will be required from each student. The projects will be completed in groups of 3-6 students (4 suggested). The project will demonstrate an innovative use of electronics, sensors and/or controls to solve a problem. A project proposal must be submitted to the instructor for approval. The proposal will describe the project.

The project will use the Scrum Project Development Framework.

Grade/Work Breakdown

Project Deliverables	Grade %	Description	Responsibility
Project Proposal	5	A short 1 page document detailing what the group intends to do for their project.	Group
Project Initiation	5	Initial list of Scrum Project Backlog with work estimates; Designate Product Owner, Scrum Master	Group
Sprint Deliverables	15	Planning, Review, Retrospective, "Daily" Scrum	Group
Project Completion	30	Complete and meets proposal requirements. Demonstration of operation will be in final lab period.	Group
Practice Online Design File	10 (5 each)	2 lab reports will be posted using the online design file format for practice	Individual
Online Design File	10	A web tutorial explaining how to build the project. Due at final lab period.	Group
Practice Video	5	Exactly 60 second video of a lab to practice technique.	Individual
Video	10	Exactly 60 second video demonstrating/ explaining the project or commercial. Will be posted online. Due at final lab period	Group
Class Presentation	5	A 10 minute group presentation explaining your project, how it works, and why it is interesting. The video must be part of the presentation. Replaces final.	Group
Individual Report	5	Maximum two page report detailing individual effort in project and what you learned. Due at time for final.	Individual

Individual Project Component Descriptions

Project Proposal

The project proposal must be submitted for approval. The description is due in the third week of the semester This will just be a short project description (1/2 page) and list group members.

Project Initiation

Project Initiation is due one week after the description. The major deliverable is the project Backlog. You will also designate your Scrum Master and Product Owner. These are Scrum terms. The Backlog is a list of features that you want to implement in the project. Features are short stories that describe how a user interacts with the system you will be creating. The Project Backlog will create your initial Product Backlog.

Project Backlog may not change after Spring Break

Project completion grades will be based on the number of completed and incomplete items in the project backlog at Spring Break.

Sprint Deliverables

The Scrum process will divide your work into Sprints. At the start of a Sprint, you will have a Sprint Planning Meeting. Here you will select items you will complete that Sprint. These are placed on the Scrum Board for that Sprint. During a Sprint, you must maintain and update your Scrum Board using the “Daily” Scrum in each class period. At the end of each Sprint, you will have a Sprint Demo where you demonstrate the completed work to the Product Owner who certifies that the work is completed. The final Sprint step is a Sprint Retrospective where you review what went right, what could have gone better, and what can be made better in the next Sprint (based on process not people).

Grades for each Sprint will be based on the following items:

Sprint Planning: Picture of Scrum Board at start of Sprint.

“Daily” Scrum: Picture of Scrum Board at the end of each Scrum.

Sprint Demo: Demo will be observed by an Instructor or TA.

Sprint Retrospective: ½ page document submitted to Canvas

Project Completion

This will be graded in your final lab period. The score is based on the percentage of completed project features from the list at Spring Break.

Online Design File

The Online Design File describes your work in order that future engineers can build further developments based on what you have done. It is vital that you clearly describe what and how you did it. It is also especially important to discuss important challenges that must be considered when designing a system like yours. It will be posted online through Github’s Open Source Project Pages.

Items to turn in:

The Online Design File will be turned in as a link to the posted project webpage.

To practice this tool, you will convert two labs into Online Design Files and post them on Github. The selected labs will be announced in class and during the lab period.

These items will be graded according to the Design File rubric.

Video

This is a video explaining the project. The video will be exactly 60 seconds, and we will use Adobe Premiere for video creation. You will post it online at a video sharing website. We will have one practice video based on one of your labs so that you can practice using the tool.

Class Presentation

This is a ten-minute group presentation explaining your project, how it works, and why it is interesting. It will be during the Final Exam period. The video must be part of the presentation. There must be some sort of prepared visuals (i.e. PowerPoint slides or something better). This replaces the final. These presentations are meant to be fun and more relaxing after the hectic

work to finish your project, so grading will mostly consist of ensuring everyone is present and that minimum requirements are met.

Individual Report

This is report that details individual effort on the project and a short description of what you learned. It will be a maximum of two pages. Feel free to use a list of the Project Backlog items you worked on to demonstrate individual effort and the outcomes of Sprint Retrospectives for what you learned. The purpose of this assignment is to help diagnose when issues arise in a project or team and to determine the most appropriate method of handling those issues. Groups that function well may have little to say other than a cut and paste from earlier Scrum team deliverables.

Additional Information

The College of Engineering's eStudio and Presentation U can help with project deliverables.

Although the project is a group responsibility, scores can vary between group members based on individual effort.

Many examples of electronics projects with tutorials are available online:

<http://learn.adafruit.com/>

<https://learn.sparkfun.com/tutorials> - In the projects section.

<http://www.instructables.com/> - Incredible variety of projects at all levels. Only some are based on electronics.

The project must be an original effort and idea. Groups are not allowed to copy designs or projects already posted online.