

Design Idea Contract

Assignment 2

CpE 190/EEE 193A

There are two major components to the Senior Design course – project management and technical solution. You will employ industry standard project management techniques and processes while you simultaneously create a technical solution in your CpE/EEE area of expertise. The project management aspects are largely assigned in terms of reports, timelines, formal presentations, periodic reports and other milestone events. However the creation of the technical solution to your chosen societal problem is largely in your hands. Thus the design idea contract is the binding of course requirements to your project.

Based on your current understanding of the societal problem you are addressing, state the nature of your design idea. This design idea statement is fairly specific and will cover the technology employed, the resources needed and your skills applicable to the design. This document is your course technical proposal and you will be graded in accordance with your design idea contract. This is a course contract and your choice of language should be clear and subject to limited interpretation - for your own piece of mind.

For example – Societal Problem - there is too much trash. What might be done to reduce the volume of trash? Design idea – create a high temperature (up to 800 C) combustor that burns up to two tons of trash a day and which uses the waste heat in an electrical cogeneration plant.

The design idea must demonstrate that it addresses the societal problem. You are creating a solution to a known problem. What other similar solutions exist? How does your design fit in with the existing world?

You should describe your design idea in some detail and explain the nature and feature set of your design. The report will be in the current version of the IEEE format with a cover page, abstract, keyword index, introduction, main points, conclusion, references, appendixes and a glossary of special terms that should be defined. The report length is variable but in the 15 to 20 pages range with single line spacing just like this document. The design idea proposal report covers the entire senior design course from September 2014 to May 2015.

Required elements of your written documentation:

1. First state your design idea in a manner that non-technical persons can understand in 150 characters or less. Yes, that is 150 characters and not 150 words. This is frequently called the *Elevator Pitch*.
2. Next describe your design idea in considerable detail. How does your idea address the problem? What is unique about your idea? What technologies are needed for your design? Include sufficient information about other approaches to the problem so that you establish why your effort is unique and worthwhile.
3. Summarize your design idea in terms of required features so that you can create the following items of a “Punch List”.
 - a) Feature.
 - b) Hardware to implement that feature to include generic devices and number of devices (ex. "Four" ambient light sensor systems).
 - c) Software to implement that feature including version number, if known, and supporting development platforms such as compilers, interpreters, and
 - d) Who will do what – estimate the total number of hours to implement this feature.
 - e) Outcome – how will you determine the feature is "fully" implemented (as proved by testing results), or.....
4. Detail what resources you need to complete the project such as lab space, parts, consultants, conference travel, software, technicians, and so on. Include a brief budget as an addendum to the report.
5. Identify your team members and cite how that team member is bringing a vital skill to the project.
6. Attach a resume for each team member as an addendum to the report.

Upload this document and any attachments to the team’s Hive site in the “Assignments - Fall 2014” folder.

Your team will discuss this document with the instructor during the weekly lab period as scheduled in the course syllabus. A major part of this discussion should be concerned with the scope of the project. Your instructor has considerable experience with projects and can assist in properly setting the project limits (scope) so that you have a significant but still achievable task. After the team-instructor discussion, the team will revise the design idea (if needed) and then seek instructor approval of the document as the “Design Idea Contract”.

Check the syllabus for the due date of the report.