

# **Team Project: Introduction to Electrical and Computer Engineering: 16.100**

Prof. K. Chandra

Department of Electrical and Computer Engineering  
University of Massachusetts Lowell

# Abstract

- This document provides a brief description of the requirements for the team project. The project is designed to provide an opportunity for students in the class to talk and interact with each other. It is also meant to make you think about issues and concerns that you may not necessarily have time or need to address as you progress through the courses in the next few years. This is described more in Section 1.0.
- There are two main outcomes that you should generate as part of this project. The first outcome is a proposal that identifies a central theme, product or service that you propose to create. The proposal is a professional document with structure as described in Section 2 below. Each proposal will be reviewed by a team of faculty members composed from the speakers you have heard from in our seminar series. The proposals will be ranked and the top five teams will be invited to give a presentation to the class.
- The second outcome is a more abstract component where each team member is asked to evaluate their role and that of their team members in the creation of the business proposal. The format for this is described in Section 3.0.

# 1.0 Play the Role of an Engineer

- The role of an engineer is to identify, design and implement in ingenious ways, products that benefit people and the environment in general. The engineer typically starts by identifying an existing or future need and devises a solution that can be both produced and sold within the constraints of the business model. These constraints may refer to social, cultural, ethical and economic issues. **As a team, you are required to think outside the box in identifying a product or service that you propose to develop.** For example, the objective of your team members becoming multi-millionaires by selling this particular product should not be the overriding principle and goal of your team. There are clearly a number of ways one can achieve this goal, and often times if becoming rich is the ultimate goal it will come at the risk of sacrificing some of the constraints identified above. **Your proposal should clearly identify the perceived need and the benefits that will result from the generation of this product.**
- The central product or service can come from any field: Communications, Transportation, Safety, Energy, Medicine, Entertainment etc.. It can also serve to improve any community: People, Animals, Endangered Species, Land, Atmosphere, Outer Space etc.. Remember the objective here is to generate a discussion as a team and come to a consensus that everybody (or at least the majority ) is excited about.

# Short list of the items to create

- Brainstorm to identify the niche area that you want to contribute to, exploit or even bring to the forefront.
  - *This is your problem statement*
- From this basic theme, draft a page or two on why this was selected, who is going to benefit from it and what improvements you will see if your product is successful.
  - *This is your rationale statement*
- Point out what currently exists in this area, its inefficiencies and why product is needed.
  - *This is the state of the art identification*
- Draft another page or two on what technical concepts your group must design and develop to turn the ideas and concept into products or services. Note: You are not required to address the technical details here but rather conceptualize what needs to be developed to accomplish your goal.
  - *This is your technical approach*
- Finally put together a budget totalling no more than 500K dollars to start this venture and execute it in two years. Budget should include cost for space, salaries, equipment and any other resource related to your product. Separate budget required for two years and a summary budget must also be included.

# 2.0 Proposal Format

The proposal should be a written document that starts with a title, affiliation (team and name of venture) and a brief summary capturing the highlights of the idea, rationale, approach and utility. This is followed by separate sections on:

- *Introduction or Background*

- Which includes the rationale and problem statement as described in Section 1.0

- *Technical Approach*

- *Management Plan*

- This section should briefly describe responsibilities of the team members, their expertise etc. and a framework for executing the hypothesized plan. In some sense this characterization of your responsibilities should reflect what you see yourself doing ten years from now. You can point to a company website that you can create by combining your personal web pages to a front end that profiles your venture. I will post these web pages on a secure server that is password protected so that we dont run into the problems that some (ethically challenged?) students in our class created.

- *Budget*

# 3.0 Evaluation of your Team

- As a second outcome I will expect each member of the team to write up a two page evaluation on the team work that took place during the development of this project. You will critically evaluate and state your role and that of other team members. Please identify your specific contributions in the development of this project.

# Summary

- The timeline for this project is three weeks. The proposals are due November 21, 2006. Each team of seven members will be created by random selection on Tuesday October 24, 2006. You will be given an opportunity in this class to review this document and make initial arrangements on how you will work together. We will collect names and emails of members in each team. On Oct. 24, 2006, each team will also elect a team leader (can be temporary) and a contact person who will be responsible for communicating with me on the project. In other words, I will be in contact with your representative and it is his/her responsibility to transfer information from your team to me and vice-versa. I think this should be a challenging but exciting project if you are able to channel your collective minds into the identification of a global cause that can improve the lives of many in this world.