

Student Experimental Farm Project and Activities Proposal Form

This document serves as a proposal for those who wish to do activities at the student experimental farm, and seeks to clarify proposed activity details. Before implementation can take place, projects must be approved, first, by identified SEF Faculty Facilitator (presently Dr. Pete Schwartz), and then by HCS Department Head (presently Dr. Scott Steinmaus), and Cal Poly Environmental Health and Safety.

SEF Mission Statement

Bringing the "old organic farm" back to life, we envision an interdisciplinary learning community dedicated to teaching, learning, practicing sustainability.

Project Title: >>Efficient DC Powered Light Path for the SEF<<

Statement of Project: >>The SEF currently does not have exterior lighting, which makes it difficult to navigate at night time. This project will address the problem by implementing an efficient light path throughout the SEF. The lights will be powered by the renewable energy sources connected to the DC house. At night, the lights will remain on at a dim level. Once a person walks within a certain proximity, nearby lights will become bright. As a person walks along the path, the lights behind them that move out of range will automatically dim. <<

Project Type: Please put an "X" in all appropriate boxes

Senior Project Class Project Independent Project Event Other (specify)

List name of advisors with contact information:

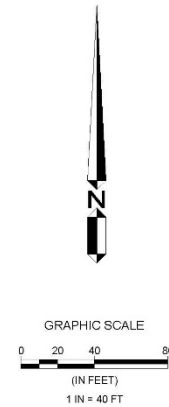
Taufik
Professor, Electrical Engineering Department
taufik@calpoly.edu
Phone: 756-2318

List Participants with Cal Poly affiliation (i.e., student, staff, none):

>>Vineal Singh, Emily Whitaker, Edith Rodriguez<<

Project Location

On the map below, please find a red circle that you can change in size and location. Please adjust this circle so that it fully describes the areas you will plan to use. If you require more than one location, please make multiple copies of the circle.



Please specify location details: >>The light path should be in a location that allows people to travel safely from building to building within the SEF. Land surveying and consultation with different groups at the SEF will be done in order to determine the best possible location.<<

Deliverables

What is the project or activity meant to achieve, create, or deliver?

>>The purpose of this project is to install an outdoor lighting system on the SEF that will allow people to safely walk around the farm at night.<<

Project Details and Logistics

Please list all reasonably possible activities that will take place and refer to the Cal Poly Risk Management website and the guidelines listed in the Program Development Document to determine whether training, precautions, or supervision is required for any activities listed.

- Design the layout of the light path after surveying the land at SEF
- Install ground mounted light fixtures based on designed path
- Install wiring from the DC house to the lights
- Install DC-DC converters at various points along path to maintain desired voltage levels
- Install microcontrollers and sensors to control the lights and increase efficiency

Potential Hazards

Describe anything you can foresee that might threaten safety or property and what might be done to mitigate risk.

- Operating voltage (12V to 48V) and maximum power of the lighting will be relatively low
- Electrical wiring to connect the lights will use conduit buried under ground
- There will always be at least two people working for electrical work
- Thorough design and land surveying will take place prior to installation
- As senior electrical engineering students we will use safety practices that have been enforced through engineering lab classes

Timing and Permanence

Over what period of time will the project or activity take place? *Projects are limited to two years. If your project extends beyond this time period, you can extend it with another application.*

Starting date: >> 1/12/17 <<

Ending Date: >> 6/17/17<<

Can project be easily disassembled? If so, how and when will it be disassembled? What condition will the project be left in when project is finished? *No project can use cement, concrete, or plaster without specific request and permission.*

The project can be disassembled easily by removing the mounted lights and disconnecting the wiring connected to the DC house. No concrete or cement will be needed.

Funding

How is this project going to be funded? How is the work and cost of the project going to be supported? Please list funding sources and chances of success from each source.

- Electrical Engineering Department through their senior project funds (about \$450)
- Electric Power Institute through its DC House fund (covers the rest of required cost)

Strategic Context

How does the project relate to SEF's and Cal Poly's missions?

This project will provide light to the SEF using renewable energy. The lights will also be used in an efficient manner by becoming bright only when a person is nearby. The efficient manner in which the lights are controlled as well as the use of renewable sources are sustainable methods that relate to SEF's mission. This project will also require us to learn a variety of new skills, emphasizing Cal Poly's Learn By Doing motto.

Contract

By signing below, I **Taufik** hereby request consideration, acceptance, and approval of the above project/activity proposal. I am committed to complete the project/activity as outlined in the Guidelines for Projects and Activities of the SEF Development Document. I understand that if activity is not completed by end time as specified in this document I will need to resubmit this proposal. It is further understood that a revised activity project proposal may be necessary before approval.

>>  _____ <<

Signature

This project is approved for implementation upon approval, first by identified SEF Faculty Facilitator and then by HCS Department Head, (presently Pete Schwartz and Scott Steinmaus respectively) and then Cal Poly Risk Management

By signing below, I hereby approve this project for implementation.

Pete Schwartz, SEF Faculty Facilitator

Scott Steinmaus, HCS Department Head

Cal Poly Risk Management Representative