College of Engineering
Summer Research Experience for Undergraduates Program

Request for an Engineering Student for Summer 2013 Research

Faculty Name: Dr. Alan Lutenegger _____________________________________

Phone: 545-2872 _________________________________________________________

Department: Civil Engineering ______Email: lutenegg@ecs.umass.edu_________

Brief description of Summer Research Project (please explain the interdisciplinary nature of this project).

The development of small-scale (<5 acres) Solar Panel Systems as economic alternative energy sources is rapidly becoming attractive for small agricultural operations. Provided that the Solar Panels can be placed high enough off the ground (about 10 ft.) the land can still be used for agricultural production giving the land dual purpose. At the present time, the structural support of the Solar Panels is a limiting cost factor for some potential installations. The difficulty in using Solar Panels in this situation is in the design of the foundation system that is both economical and structurally sound to withstand large uplift forces produced by strong wind events acting on the Solar Panels. This project will investigate an economic alternative foundation as a viable foundation option by performing full-scale uplift behavior of precast concrete Solar Panel foundations.

Brief description of what the student will be doing:

The student will work with a graduate student to perform full-scale field tests of foundations at the UMass Agricultural Experiment Station in S. Deerfield and at the UMass Hadley Horse Farm in Hadley. The student will be responsible for installation and load testing and will analyze the results. The student will prepare a Report of the findings of the work and will compare the results with current design procedures.

Is this a CASA-related project? Yes ___ No _X__

Preferred background of student (major(s), class, GPA, pre-requisites, etc.):

A student in Civil Engineering with a minimum GPA of 3.0 is preferred. Ideally a student who has completed the Junior year and who has taken Soil Mechanics would be best. Alternatively, a Mechanical Engineering student would be acceptable.

Did you mentor a student last summer in the College REU Program?

Yes____ No ___X__ I had a student 4 or 5 years ago.

If yes, please describe the outcomes for that student (i.e. Honor's thesis, conference presentations, manuscripts, papers, etc. Describe accomplishments to date as well as plans for the spring semester if the work has continued): The work performed by the previous REU resulting in a professional technical paper that has been submitted for publication.

Please return this form to: lrobidou@ecs.umass.edu by February 1, 2013