

3Q14 Quarterly Report (7/1/14-9/30/14)

Project No: 00077815 • Subcontract No: UFOER00010008

University: University of South Florida (USF)

Project Title: *“Renewable Energy Education Program
at USF’s Patel College of Global Sustainability”*

Reported by: George Philippidis, Ph.D. (PI)

Project Description

The goal of this project is to establish an education program in renewable energy at USF’s Patel College of Global Sustainability (PCGS) by developing two graduate-level courses: (1) *“Renewable Transportation Fuels”* and (2) *“Renewable Power Portfolio”*. The courses will be developed for both in-class and on-line delivery and will constitute the concentration in Renewable Energy for the College’s existing M.A. in Global Sustainability.

Budget: \$85,101

Technical Report

(1) Course: *Renewable Transportation Fuels*

During the 3rd calendar quarter of 2014 the content of this course was completed and the course was successfully launched for Fall Semester 2014 on Aug. 26, 2014. It is taught by Dr. Philippidis on Tuesdays at 6:00-8:45 pm at USF’s Patel Center and through the canvas system online. The first class consists of 13 graduate students in class and 5 graduate students on line (including a student attending on line from Taiwan).

The course is delivered in the form of weekly modules, each one consisting of a powerpoint presentation, assigned readings from the selected textbook and the literature, and in-depth discussion, both in class and on line. The instructor has created a discussion board on canvas, where students are required to respond to the instructor’s questions on a weekly basis and to comments made by their classmates.

The 11 modules of the course are:

1. Energy for a green economy
2. Corn ethanol and biodiesel
3. Sugarcane ethanol
4. Biomass as a biofuels resource
5. Advanced biofuels
6. Biochemical conversion of biomass
7. Thermochemical conversion of biomass
8. Algae technologies
9. Economics and finance of advanced biofuels

10. Sustainability and environmental aspects of biofuels
11. Establishing a biofuels industry (integrative case study)

Two exams are planned, a mid-term and a comprehensive final. For the research project the students have already selected their individual topic of interest from the list of modules. Students will share their findings with their classmates during a professional presentation and will produce an individual written report at the end of the semester.

Moreover, 3 professionals from the biofuels industry have accepted invitations to appear in class as guest speakers. Their presentations will be recorded professionally and posted on canvas for access by the on-line students.

(2) Course: *Renewable Power Portfolio*

Development of the content of this course has started and is in progress. The course will focus on the various forms of renewable power: solar water heating, photovoltaics, concentrating solar power, wind, geothermal, bioenergy, and ocean energy. Technology, economics, financing, policy, market penetration and prospects, regulatory, and sustainability aspects will be presented for each of these forms of renewable energy.

A textbook has been selected (“Introduction to Renewable Energy” by V. Nelson, CRC Press, 2011). The modular structure of this course will be similar to that of the first course, including a research project in one of the areas listed above and participation by guest speakers from utilities and other renewable energy companies. The course will be launched in Spring 2015.

Financial Report

Submitted separately (in the form of an invoice) by our Grant Financial Administrator Sharon Corlett.