

May 2015 Progress Report

Buildings and Energy: Design and Operation Vs. Sustainability

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Project start date: May 16, 2014

Project end date: May 15, 2015

Summary

To achieve higher standards in building design and operation, a solid foundation of energy engineering and sustainability principles is essential. At UF engineering, there are no courses offered to students and industry professionals in energy topics particularly related to buildings, specifically for the design and operation in Florida climate conditions. This project fills this void through the development of an energy engineering course.

Goals and Objectives

1. To develop and offer an online undergraduate/graduate energy engineering course for Florida-specific building design and operation.

Project Activities, Results and Accomplishments

Progress made during the reporting period:

- The undergraduate / graduate course was mostly designed during summer and Fall 2014, and was taught in Fall 2014.
- Application for permanent course number has been filed in Summer 2014. The permanent numbers have not been assigned yet. As a result, the course was taught in Fall 2014 under “special topics” course numbers EML 6934 / EML 4930 under the Mechanical and Aerospace Engineering Department.
- This course is also available via UF Edge (online course). Video recordings of all lectures are available in UF Edge for access by students taking the online version of this course.
- For the benefit of the State of Florida, the building energy modeling project specifically focuses on a retrofit of an existing building in UF campus, i.e., Rinker Hall. The selection of this retrofit project was crucial as students will learn the issues related to Florida-specific climate and the nuances of modeling, calibration, and improving building energy efficiency.
- In Fall 2014, 13 students (8 graduate students and 5 undergraduate students) enrolled in its first term. More students and industry professionals are expected to join in the coming years as the course is advertised via UF EDGE and the course is moved to the college of engineering rather than in a specific department.
- The course was enthusiastically received by the students. Among the three sections of the course and among the three instructors, the student evaluation on ‘instructor overall’ ranged from 3.5 to 4.75.

Concluding Remarks

This engineering course is a game-changer in respect to buildings and energy. As the course delivery is completed by end of Fall term, the PIs have planned to focus on advertising this course to industry professionals in the State of Florida with a view to greater enrollment and impact in subsequent offerings.

Publications

None, but a conference presentation is planned based on experience with designing and teaching the course, perhaps in an upcoming ASEE (American Society of Engineering Education) conference.