

Next Generation Engineering Curricula

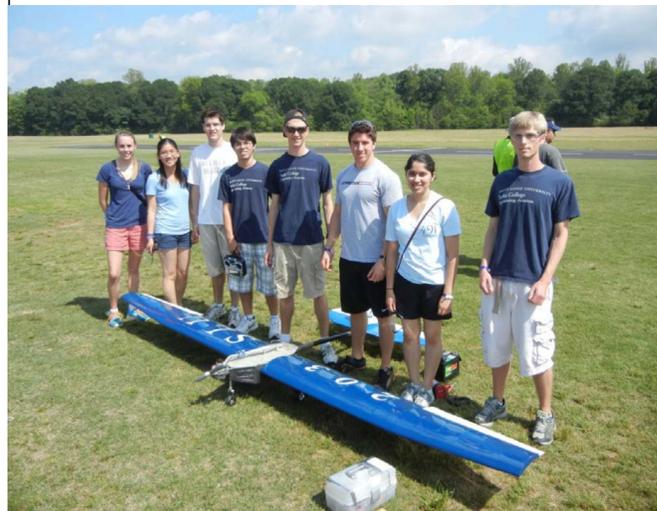
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of ENGINEERING, AVIATION AND TECHNOLOGY

Learning Activities and Materials

Use this section to describe any learning activities and materials that you have developed or will develop as you work on this innovation.

Use some of the space below for figures, pictures, or graphs that illustrate that project.



Execution

Problem based learning has worked well in some courses and not so well in others.

Outside the class room activities such as innovation challenge, I2P competitions, ASAE competitions and hands on projects as part of the course have worked very well.



What I hope to learn at FOEE

How well Grand Challenge Scholars Program is working at other institutions.

MOOCS in undergraduate engineering curricula.

Entrepreneurial mindset in engineering curricula.

Flipped class room model-benefits and pitfalls.

Introduction and Objectives

1. To implement the next generation engineering curricula in a holistic manner that synergistically integrates technology and problem based learning to meet the needs of students with different learning styles so that they become leaders and meet the needs of the 21st century workforce.
2. To implement the Grand Challenge Scholars Program (GCSP) at Saint Louis University.

The educational outcome will be to produce leaders who are technically competent, entrepreneurially minded, and possess social and global awareness.

Focus: Freshman through senior students in engineering.

Learn: What other schools are doing.

Developmental History of Innovation

During academic year 2012-13, a committee made up of faculty and industry thought leaders reviewed engineering curricula at our institution to identify the opportunities resulting with dynamic changes in the educational and industrial arenas. The committee made the following key recommendation (among other) to differentiate our curriculum from others: **Implement an effective combination of hands on active learning and technology integration in the classroom.**

In 2009, Grand Challenge scholars Program at Saint Louis University was initiated. I attended a related summit and workshop in April 2010. I leveraged this opportunity to help Saint Louis University to become a member of Kern Entrepreneurship Education Network (KEEN) – a network of 20 schools working together to instill the e-mindset. In 2012-13, a Comprehensive Globalization Vision team was initiated at our institution of which I am a member. Simultaneously our institution has signed memorandum of agreement with many foreign institutions in Korea, India and China to name a few. Thus all the components of the Grand Challenge Scholars Program are in place now for us to accelerate the implementation of the GCSP program.

Discussion

Students are more engaged and see relevance in learning in the class room with hands on activities and technology integration in the class room.

What spinoffs do you see from your innovation?

Many other universities are adapting some of the activities.

What remains to be learned?

How to engage the entire student body in outside the class room activities.

What are your recommendations for future work?

Longitudinal study on how grand challenge scholars are making a difference in their career.

Will you be submitting a proposal to NSF?

Yes

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