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UNIVERSITY OF MAINE

Land Grant Youth Entrepreneurship Symposium

INNOVATION ENGINEERING™

1. Introduction

As the state's center for research and innovation, the faculty and students at the University of Maine (UMaine) are advancing or leading the state's research and technological advancements in areas such as composite materials engineering, aquaculture, and information and biotechnologies. UMaine is committed to giving its students the knowledge and skills to be full participants in the innovation-driven future of the state. A critical component of this initiative is the addition of the Foster Student Innovation Center (FSIC), which opened in October, 2006. The Center provides a comprehensive program to encourage innovation, business and social entrepreneurship and technology commercialization.

UMaine is implementing a novel undergraduate curriculum in *Innovation Engineering™* that will prepare students to incorporate innovation and entrepreneurship in their careers, regardless of their major. Unlike creativity programs that focus simply on the birth of the "new and novel" product or service, *Innovation Engineering™* will provide students with a *systematic approach* to inventing, evaluating, and communicating ideas with commercial viability. This systematic approach is based in established theory and practice as well as cutting-edge research in fields such as psychology, business, and engineering. Unlike entrepreneurship programs that focus on the "entire business enterprise," *Innovation Engineering™* focuses on the number one determinant of success — *the idea*. *It is a disciplined "engineering" approach that will distinguish Innovation Engineering curriculum from other entrepreneurship and creativity programs*.

2. Objectives

An interdisciplinary new discipline and minor called *Innovation Engineering™* is created with the purpose of bringing together students from engineering and sciences, business, the arts, education and humanities as *Innovation teams*. The goal is to give students knowledge, tools and inspiration to become innovators and entrepreneurs. Classes in *Innovation Engineering™* are designed to help students develop, refine, and successfully communicate his/her bright ideas.

This UMaine trademarked educational program is designed to prepare students who desire to innovate *within* established organizations as well as those who wish to pursue entrepreneurship. All students are expected to learn a set of reliable and reproducible systems for inventing and communicating innovative ideas that pertain to their employment environments – whether students find themselves working in business, public schools, government, an artists' cooperative, or a hospital. Students are also encouraged in developing particularly local environmental based project, specifically to develop environmentally safe products.

3. Resources

The new campus-wide minor program is being developed with the guidance of UMaine alumnus Doug Hall who has been recognized by *Inc. Magazine* and *A&E* as one of America's top innovators. He regularly works with Fortune 500 companies to help them innovate new products and processes. Doug Hall began working closely with University of Maine faculty, staff, and students to develop the initial curriculum. A group of faculty and staff went to Doug Hall's Eureka Ranch boot camp (www.eurekaranch.com) in the fall of 2007 to practice first hand applying these innovation systems to real companies. Participation to the camp was supported by a grant from P & G's (Proctor and Gamble) Higher Education Grant Program. The program is also supported by a curriculum development grant from the NCIIA (National Collegiate Innovators and Inventors Alliance).

4. Work Plan

There are four courses that form the core of the minor, which students will supplement with two additional related courses in their disciplines. The first course, *What is an Idea*, teaches students a system for generating and recognizing great ideas. The second course *Expressing Your Ideas* teaches students how to effectively communicate their ideas, and the third course, *Making Your Idea Real*, teaches students how to refine an idea by finding its flaws as quickly and inexpensively as possible. The fourth course, *Project Innovation* emphasizes the real world application of concepts explored in the first three courses. Students are presented with real world business problems, and then challenged to work in teams to develop potential solutions, real solutions with written concepts and rapid prototypes. In the course, students learn team dynamics by working in a team to fully develop an innovative solution.

As part of the interdisciplinary nature of the program, a team of three faculty members teaches each course. Faculty teaching these courses came from departments including Biological and Chemical Engineering, Electrical Engineering Technology, English, Communication, New Media, Music, and Education. Most of the faculty teaching these courses has experienced the boot camp of Doug Hall's Eureka Ranch.

Students who wish to pursue their innovative ideas beyond the end of the course will be able to take advantage of resources from the FSIC. The FSIC's business and project incubation program assists students with protecting ideas, finding seed money, and connections to needed resources and experts for their business. The FSIC provides *informal learning opportunities* such as a speaker series featuring outstanding entrepreneurs and innovators. The Center also creates *innovation teams* by matching students, faculty and outside entrepreneurs to combine the expertise necessary to make a successful product.

My plan is to have a discussion in exploring the expansion of this undergraduate curriculum to the youth entrepreneurship.