

Project Name: Innovation in Bioengineering

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Project Overview:

Our activities in the past year involve three components:

1. development of curriculum for both a two-week and a semester-long module on innovation, done collaboratively with Portuguese faculty;
2. Successful delivery of the two week intensive module on innovation in September, 2007 in Lisbon;
3. Launch of the semester-long i-Teams program in January 2008.

1. In collaboration with Ken Zolot, Senior Lecturer in the Sloan School of Management and School of Engineering we worked with a team in Portugal to create a curriculum for a two part course in Innovation in Bioengineering. The development of the curriculum for this module began with a visit to Lisbon by the MIT team in January 2007, and continued with extensive visits to MIT by collaborators from four Portuguese universities. The participants were: Isabel Rocha from University of Minho, Duarte Miguel Prazeres from IST/UTL, Luis Lages from FE/UNL and Pedro Saraiva from University of Coimbra. During the several-month visit to MIT by the Portuguese faculty in the Spring of 2007, they became immersed in the “action learning” method of live case work, as they prepared a go-to-market assessment of a novel bio-rubber material emerging from Prof. Robert Langer’s lab Their work at MIT in the spring of 2007 provides the foundation for the curriculum to be delivered in September. We also added to our faculty by retaining Luis Perez-Breva, Lecturer in the MIT Sloan School of Management.

2. We delivered the first part of this curriculum in a two week module from September 17-28, 2008 in Lisbon. This was a collaborative teaching exercise, with approximately 50% coverage from MIT and 50% from Portugal faculty. The course lead in Portugal was Prof. Jose A. Girao. Representing MIT at the two week module were Charles Cooney, Kenneth Zolot, who helped lead the first two days of the session, and Luis Perez-Breva, who stayed for the entire two week module and conducted sessions daily.

The two week course module exposed students in bioengineering to the fundamentals and frameworks that underlie technological innovation. Such a framework can lead to the creation of new commercial ventures either by company creation or licensing of technology. The curriculum was derived in part from our experience in teaching Innovation-Teams at MIT, a course focused on developing a go-to-market strategy for emerging technologies.

3. The next segment of this project is a semester long course for selected students that parallel I-Teams as taught at MIT. Research projects were selected from work in the participating Portuguese universities and teams of students were formed to focus on development of go-to-market strategies for these technologies. This action oriented format for learning leverages the

material presented in the two week module required of all students in the Bioengineering Program. In addition to the formal curriculum, this program draws upon guest speakers and mentors from the local Portuguese innovation ecosystem, helping to fuel the cycle of role models inspiring students to become innovators. In addition to the development of the BioInnovation-Teams curriculum, we have initiated a study of the issues impacting the supply of entrepreneurs for creation of new companies in Portugal. A systems Dynamics model has been formulated as a means to explore the impact of decisions on research funding as well as policy that influences new company creation. The results of this work will be incorporated into future teachings of the BioInnovation-teams modules.