Who Wants to Be an Engineer? 
A New Class to Help Students Explore Majors in Engineering

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BACKGROUND

Many entering freshman students have not made a definite decision about their major when they come to the University of Utah, and need to explore different options. If students take time to explore, they will find that they are behind in their studies if they wish to study engineering. Each of the engineering majors has a structured series of courses required during specific semesters of a student’s undergraduate education. Lateral movement among engineering majors is not easy because of the timeline of the coursework. Students who choose engineering and get frustrated end up leaving engineering altogether because their major was not what they had hoped it would be. Often these students realize that they were in the wrong engineering major, and wish they had a way to explore the majors before beginning their coursework. Other students know that they would like to study engineering, but are not sure which type of engineering offers the career they are hoping to have after graduation. The College of Engineering has created a course that allows students to explore majors within engineering, and will help students create more realistic expectations about the coursework and future career options.

FALL 2011 CONTENT

For Fall 2011, the course was taught with a new lecturer each week, and the course grade was based on attendance. The course was assessed based on the format and content. Questions included:

• Which week’s class was your favorite?
• What did you like about your favorite class?
• Did you change your mind about your major during this course?
• Why did you take this class?
• What factors helped you choose a major?
• What topics would you like to cover in class?
• What was your favorite part of this class? Why?
• Which week's class was your favorite?
• What did you like about your favorite class?

ENGIN 1022 SURVEY RESULTS

1. Why did you take this class?
   - To get an introduction to engineering
   - To make sure I wanted to be an engineer
   - Because I was considering majoring in engineering
   - To better understand each field in order to make an informed decision when I choose a major
   - I wanted to learn what engineering majors existed and it looked interesting
   - To get an introduction to engineering
   - To better understand each field in order to make an informed decision when I choose a major
   - I wanted to learn what engineering majors existed and it looked interesting

2. What do you like most about your major?
   - Using math
   - That I can go into so many different fields with it
   - Research opportunities
   - Can emphasize on energy
   - I like how it is centered on human beings and that it involves several scientific areas
   - I find it fascinating
   - Unique
   - The hands on projects and just building things straight from scratch and creating something

RECOMMENDATIONS

Based on student responses, students enroll in the class to learn more about their majors so that they can explore and understand the majors, and eventually make a decision. Students would prefer a course that is more interactive and engaging, therefore the course should incorporate different types of activities that are also used to teach the content: lab tours, hands-on activities, lecture and discussion.

THE PROJECT PROCESS

• During the summer of 2011, the course was proposed and approved by the College of Engineering curriculum committee.
• The Department Chairs in each department designated a faculty member to represent their department.
• ENGIN 1022 was taught in two sections during Fall 2011.
• A survey was distributed to all students enrolled in the course, which was returned at a 96% response rate.
• Other professors who are aware of similar courses were consulted, who also provided meaningful feedback regarding the course content.
• As a result of surveys and other feedback, the course will be redesigned to address real-world challenges.
• These changes will be implemented during Fall 2012.

FALL 2012 CONTENT CHANGES

Based on student comments, the course will be taught with a different format. In Fall of 2011, each department chair asked one of their faculty to present on their department, and what a student could do with a degree in that field. In Fall of 2012, students will spend time discussing four of the National Academy of Engineering’s Grand Challenges: (http://www.engineeringchallenges.org):
- Providing access to clean water
- Engineering better medicines
- Preventing nuclear terror
- Engineering tools for scientific discovery

Guest instructors will talk about ways they help solve the Grand Challenges in their research, and then students will do a project where they work as a team to solve one challenge.

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