



A First-Year Career Development Course: Securing and Succeeding in an Engineering Job

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Abstract

This paper summarizes the work in progress on the establishment of and, to date, three separate offerings of a career development seminar course aimed at first-year engineering students in the College of Engineering at the University of California, Davis. The course provides information to students on how they can start preparing for a successful engineering career early on in their academic studies. The course also helps students understand the career options available to them as an engineering graduate. Students gain information on how to successfully land an internship or job in the field of engineering and how to thrive in that role. Finally, this course helps students develop valuable professional, leadership and life skills. Student response to this course has been overwhelmingly positive.

Background

Many engineering students who are first-generation, low income and/or from underserved groups do not have a network of individuals that can assist them in their career development or in their job search. While job searching and a number of career development resources are offered through campus-wide internship/career center offices, many engineering students, for various reasons, do not utilize these resources. Hence, a number of engineering colleges provide this type of information through stand-alone workshops [1], modules [2-3], and incorporation within existing courses [4-6]. Some engineering departments also teach stand-alone courses targeted at students closer to graduation [7-8]. Other engineering colleges have developed multiple college-wide courses that encompass a complete professional development program including teamwork, decision-making, ethics, etc. throughout their four-year undergraduate program of study [9-10] or graduate program of study [11].

The course discussed here is different from the models just mentioned in that it encompasses all of the following characteristics: (a) targeted towards beginning engineering students; (b) stand-alone, college-wide course; (c) emphasizing both career development and job searching skills necessary to secure an internship or full-time employment; and (d) taught primarily by practicing engineers. The goal of this course is not only to teach students the tactics and tools necessary to secure a job, as emphasized in the work of Sharp and Rowe [12], but also to introduce students very early on to the types of skills that they should be developing to better prepare themselves for career success when they graduate. For our college and the population of students we serve at UC Davis, a secondary, but equally-important goal is to inspire beginning year engineering students to stay in the engineering major by giving them a glimpse of the 'light at the end of the tunnel.' In fact, Stevens *et al.* [13] found that a lack of career development opportunities is a significant reason that students drop out of engineering. Also, Makki *et al.* [14] found that work readiness was highly correlated with career exploration and career self efficacy.

At UC Davis we also serve a very large percentage of first generation students (34%) and students from underserved groups (24%). For these students, the 6-year graduation rate is only 50%, with half of these students leaving engineering after the first year. Many of these students lack first-hand knowledge of the wonderfully creative and diverse types of work in which engineers are engaged. The idea is to introduce students to a wide variety of practicing engineers who are very passionate about and fulfilled in their work – giving the students more reasons why they should stick it out early on in the engineering major when the time commitment to their studies is significant and the first year curriculum is less engineering courses and more math, chemistry, physics and general education courses. As an additional note, we also simultaneously instituted a college-wide mentoring program in which all of our beginning engineering students have the opportunity to be mentored by a recent engineering graduate of our college to enhance our students' first-hand knowledge of the engineering field.

Course Description

The course is a one-unit undergraduate engineering elective consisting of 10, 50 minute class periods. The Dean of Engineering (paper author) coordinates the course and is the instructor of record. The Dean coordinating the course provides a great forum for students to interact with a college leader. In addition, it gives the Dean, whose daily schedule is dominated by meetings with faculty and staff, an excellent opportunity to hear directly from the students and affirm to the students their commitment to student success. The first class period is taught by the Dean, along with graduating senior(s), and discusses lessons learned from graduating seniors - "what I wish I knew when I was a first-year engineering student". The first class also covers graduate school versus full-time industrial employment after graduation. The second class covers "Building a Great Resume" and is taught by a university staff member who serves as the engineering college's liaison at the campus' Internship and Career Center (ICC). The timing of this lecture occurs before the quarterly campus career fair. In this lecture, the many resources offered by the ICC are also highlighted, providing a great exposure for ICC to the students. The ICC is extremely supportive of the course, and, for the first offering of the course, two ICC employees attended all of the lectures.

All of the other course topics are taught by engineering alumni. The alumni instructors are highly successful practicing engineers who are well known to the Dean, possess outstanding presentation/communication skills, and employ engineering undergraduates. The other eight topics covered in the course include "Improving Your Interview Performance," "Optimizing Your LinkedIn Profile," "How to Use Networking to Find a Job," "Characteristics of a Successful New Hire," "Creating a Positive Professional Image," "Effective Business Communications," "Developing Leadership Skills," and "Skills Necessary to be a Successful Intrapreneur or Entrepreneur." In each lecture, the instructor presents information on their assigned topic and spends about 10 minutes discussing their own career path. Some instructors discuss their own career at the beginning of their lecture; others weave their career story throughout their lecture. The instructors also often include advice to the students beyond items that are directly related to

job acquisition. The instructors encourage questions during the lecture, and there is very active class-instructor dialogue. Typically, after each lecture is over, students wait in line for 30 minutes or more to have the opportunity for an individual brief chat with the alumni instructor. For each offering of the course, some of the best instructors are repeated and teach on the same assigned topic.

The course is graded pass/no-pass. In order to pass the course, students must attend seven of the ten lectures (attendance is taken via attendance sheets) and complete two, very practical assignments. The first assignment is to develop or improve their LinkedIn profile and connect with the Dean. The second assignment is to develop or improve their resume and submit it to the Dean. The Dean provides written feedback to every student on their resume. The course assignments are purposefully kept to a minimum so as to not deter students from signing up for the course.

Student Response and Feedback

Student response has been overwhelmingly positive. The course has been offered three times to date every other quarter. With each offering, the student enrollment fills the room capacity with a waiting list. For the first offering of the course, the engineering student enrollment was 70, 130 students for the second offering, and 170 students for the third offering. As mentioned, a key motivation for teaching this seminar course is that students from at-risk backgrounds often do not have broad access to a network of family or friends who can support or aid in the students' professional and career development. The enrollment has a greater percentage of women (7% higher), Hispanic/Latino (9% higher) and EOPS (Extended Opportunity Programs and Services) (7% higher) students when compared to the overall engineering college's undergraduate population. The course is primarily advertised by the academic advisors to the first year engineering students, but all engineering students are welcome to enroll. About one-thirds of the student enrollment is first or second year engineering students. And, a few first year graduate students took the course in its third offering.

Students indicate that the new skills they learn and their interactions with the speakers are extremely valuable in their job search process. They also indicate that the course motivates them to begin the job process much earlier than they would have without taking the course. Many students have proactively emailed, messaged on LinkedIn and conveyed in person to the Dean their deep appreciation for the course, its content and how they now feel better prepared and more confident in their search for engineering employment.

Some examples of comments received:

Thanks for creating this informative seminar class!

I'm really enjoying the different topics, especially the networking lecture as I found it extremely helpful, both in how to grow my network as well as in the managing advice the speaker shared.

I've made a LinkedIn profile and today I am filing an application for an internship at Lockheed Martin for the summer!

Thank you for encouraging us to start working on our LinkedIn profiles.

I would just like to thank you for giving me the opportunity to learn more about how I should plan my future beyond college.

This class has helped me tremendously.

Thank you for providing such an enriching class!

I just want you to know how inspirational it was to hear the speaker's story in class today. I hope to accomplish as much as he did. Thank you for making it happen!

Plans for the Future

Given the increasing demand, the course may need to be offered every quarter, depending on the number of students who enroll. Also, a survey will be conducted during the next offering of the course in order to rate the topics that are covered, perhaps replacing one of the topics with a topic suggested by the students should the feedback indicate that. Many students have already expressed interest in interview training. While a one-unit course does not allow sufficient in-class time for this, an extra assignment may be added, in collaboration with the Internship and Career Center, which takes advantage of the mock interviewing services offered there. Finally, starting for this year's UC Davis Exit Survey for Graduating Engineers, a question will be added to the survey asking if students took the course. These data will be then be correlated with job placement data to assess the effectiveness of the course in students securing a job within three months of graduation.

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