

FIRST-YEAR SEMINARS IN ENGINEERING EXCITEMENT

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Abstract ? The importance of first-year small group seminars in student retention has been well-documented by many researchers. Purdue's Freshman Engineering seminar offerings have varied over the years, with instructors continually striving to improve the format and content of various seminar courses. While the usual college "survival skills" make good topics for these seminars, they come across as being dry and boring for many new students looking for the excitement in engineering. To address this, a pilot study was conducted in ENGR 103, Introduction to Careers in Engineering, in the fall of 2002. Half of the presentations focusing on "survival skills" were retained in the course. The remaining eight of the fifteen class meetings were offered to professors in Purdue's Schools of Engineering to teach engineering topics within their area of expertise. A call for proposals yielded eight seminars with such diverse topics as "Diversity and Social Responsibility" and "Fusion Space Propulsion." Two sections of ENGR 103 retained the traditional semester-long "Career Exploration" format. The primary objective of this paper is to describe and evaluate the new ENGR 103 format.

FIRST-YEAR SEMINARS

In *The Freshman Year Experience* [1], it is concluded that freshman seminars are associated with improved academic performance, and that, on the whole, freshman seminars are a positive influence on retention. Numerous research-based studies of first-year seminars confirm enhanced academic performance, greater persistence, and increased student satisfaction [2].

As of 1992, Purdue's Department of Freshman Engineering offered no small seminar classes for the general population of first-year engineering students. A seminar offering small group experiences was offered for women, and medium-sized seminar classes were offered for minority students and honors program students. All first-year students were required to take ENGR 100, an introduction to the various engineering disciplines taught in a large lecture hall.

As the Freshman Engineering faculty evolved to include newcomers with a background in education issues, awareness of the importance of first-year seminars increased and opportunities were generated for students in the Department. The first generally offered seminar class was piloted in 1993 by Freshman Engineering faculty with a class size of 40 students and organized so as to include

attendance at the ENGR 100 lectures as an integral part of the course. This course was ramped up the following year to serve 200 students in 5 sections. Analysis of these early offerings showed that students were "significantly more satisfied with counseling" and had "a more positive impression of the university and its faculty and staff" [3].

Now known as ENGR 103 - Introduction to Careers in Engineering, this first-year seminar has been institutionalized as part of the Freshman Engineering culture. In the fall semester of 2001, seven sections of 30 students each were offered under the traditional "Career Exploration" format. Table I contains the schedule of topics and assignments for ENGR 103 for the fall semester of 2001.

TABLE I
ENGR 103 TOPICS & ASSIGNMENTS, FALL 2001

Week	Topic & Assignment(s)
1	Getting Acquainted; Transition to College – A Video View; make Myers-Briggs Type Indicator appointment before October 5
2	Scannable resumes that work (in computer lab); visit Center for Career Opportunities web site; resume due next week
3	Learning Center – What do they do? Time management
4	Attend Industrial Roundtable job fair (No class); collect two business cards from prospective employers (bring cards to next class)
5	Planning your career strategy (in computer lab); academic plan of study; visit Purdue's Schools of Engineering web pages; using ESCAPE web site
6	Nuclear Engineering presentation – A Key Energy Material for Engineering
7	Bio-Engineering – The 21st Century Engineering Science; hands-on experiences
8	Center for Career Opportunities – Who are they? What do they do? (Know your Myers-Briggs type)
9	Engineering Library – Keys to Information Systems
10	Academic Career Report Preparation
11	Presentations of Academic Career Reports I
12	Presentations of Academic Career Reports II
13	The Game of Life
14	Ethics – What is the right thing to do?
15	Evaluation – How did we do?

SEMINAR FORMAT CHANGES AND CHALLENGES

So, if ENGR 103 was already providing a successful seminar experience for our first-year students, why did we wish to change what we had? The reasons were two fold. The first reason stems from an oft-mentioned goal of the Department of Freshman Engineering to make such seminar

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classes available to all of our incoming first-year students. Current seminar offerings serve less than 60% of our nearly 1600 entering freshman engineers.

Second, faculty members have long been known to have a profound impact on the lives of students with whom they interact. The Boyer Commission Report [4] places a great deal of emphasis on the importance of a seminar, "... taught by experienced faculty ...," being the focal point of a first-year program. This report further states: "Most of all, [the seminar] should enable a professor to imbue new students with a sense of the excitement of discovery ..." At the Massachusetts Institute of Technology (MIT), the Undergraduate Seminars [5] program includes such diverse topics as Kitchen Chemistry, Controlled Fusion, Sustainable Living, The Art and Science of Medicine, and a Songwriting Workshop, just to name a few. The impact on students that is intended for these seminars goes far beyond just the topic area involved. These seminars give students an opportunity to interact with a faculty member in a small group setting, and to learn without pressure, knowing that their academic and future engineering careers probably do not depend on earning an A grade in Kitchen Chemistry, Sustainable Living, or Songwriting. The change we were seeking was to provide that sense of excitement through increased interaction with engineering faculty.

Unfortunately, Freshman Engineering faculty time was, and is, a finite resource already "maxed out." To increase the pool of faculty members available to teach first-year seminars would require tapping into the pool of talent in Purdue's professional programs in engineering.

It was concluded that our first-year students would benefit a great deal from an increase in interaction with faculty from the professional programs in which they will receive the bulk of their undergraduate education. Our plan was to involve professors from Purdue's Schools of Engineering in the engagement of first-year students in seminar activities based on real engineering problems. In modifying ENGR 103 to include new and stimulating material from these faculty members, it was expected that at least some of the following elements would be made available to the students: development of problem solving abilities, opportunities for active learning (projects), and information about career and graduate school options in the particular engineering discipline of the guest instructor.

The Department of Freshman Engineering would provide coordination and oversight for a core portion of the course, including such topics as acquainting students with campus resources, enabling students to explore career goals, interests, skills and abilities, and providing academic support and resources. The guest instructor would guide the students through some combination of hands-on projects, site visits, engineering problems, or other experiences of the professor's choosing. These experiences could be technical in nature, related to research or design for instance, or non-technical, related to issues of ethics, entrepreneurship, or other similar subjects. To say the MIT Undergraduate Seminars [5] were

used as a model would be an overstatement, but the variety of exciting topics available at that institution certainly provided an appealing target.

Because faculty members from Purdue's Schools of Engineering would teach their portion of ENGR 103 as an overload to their fall semester teaching schedule, we sought to simplify their job and minimize their time commitment as much as possible. The seven lectures common to all ENGR 103 sections (see next section for a description) were fully coordinated by faculty and staff in the Freshman Engineering department. The faculty members volunteering their time would have complete control of the course content and activities for the remaining eight lectures. Moreover, a proposal to the Committee on First-Year Seminar Experiences of the Lilly Endowment Retention Initiatives at Purdue resulted in a small grant in support of this plan. The funding obtained was used to finance such cost items as undergraduate student assistants for the course, supplies and equipment for hands-on projects, and travel for site visits.

A recruitment flier detailing the opportunity involved and the funding available was mailed to every Purdue Engineering faculty member the February before the fall semester in which the modified ENGR 103 would be implemented. A memo was concurrently mailed to the Engineering School Heads encouraging their support of the initiative. In addition, the authors used occasional one-on-one time with engineering faculty members to "sell" the idea of teaching a section of ENGR 103 to those faculty seemingly most likely to be interested. Interested faculty submitted a three-page proposal including a proposed syllabus.

Seven faculty from the Schools of Agricultural and Biological Engineering, Nuclear Engineering, Civil Engineering, and Aeronautics and Astronautics submitted proposals for new ENGR 103 sections. In general, the faculty saw the class as an opportunity to interact with freshman engineering students and teach them about their area of specialization as well as an opportunity to recruit students into their own engineering programs. These faculty committed to eight new sections of ENGR 103; brief descriptions of these sections are provided in Table II.

IMPLEMENTATION

We served 25 to 30 students in each of seven modified Professional Engineering (PE) sections of ENGR 103 and an additional 16 students in an eighth modified section. An additional 25 to 30 students were served in two traditional Career Exploration (CE) sections, utilizing a format similar to that presented in Table I. A brief description of the CE section is given in Table II. There was substantial demand by incoming students for the CE format, and another similar section could probably have been filled. The continued utilization of this format also allowed us to perform comparisons that would not have been otherwise possible. The ten sections of the course represented an increase of

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TABLE II
FALL 2002 SECTIONS OF ENGR 103

Description
Biological and Food Process Engineering Sessions designed to allow students to learn about contemporary topics and issues in biological engineering, to develop career skills, and to explore opportunities in the food and bioprocess engineering fields. Participants will be paired with upperclass mentors who will provide advice for succeeding in engineering and help with semester projects, as well as being role models. One lecture may be replaced by a plant visit to either Staley's enzymatic conversion plant or Eli Lilly's fermentation plant in Lafayette.
Fusion Space Propulsion Students will explore various aspects of fusion energy and requirements for space propulsion through information sessions and investigative activities, including a project on a student-selected device or concept.
Transportation Engineering Students will use the latest technology to set up a scheme for collecting data to evaluate vehicle detection equipment. The scheme will involve programming code in HTML and XML and working with Microsoft Access databases. Students will also learn how to use Microsoft Excel, MathCAD, and Microsoft PowerPoint. The work that is done in this class will be implemented as a data collection scheme in the Harold Michael Traffic Lab.
Engineering Career Exploration This course offers activities that provide an overview of the engineering profession. This is most suitable for students who believe they want to be engineers, but don't have any idea what the different engineering disciplines have to offer. Emphasis is on the students learning about themselves through a variety of interest surveys and learning about the various engineering disciplines through web-based exploration and hands-on projects.
Diversity and Social Responsibility Students will be given four sessions addressing the importance of diversity on a global scale. They will stress that Purdue University values and fosters a diverse and multi-cultural environment for higher education. Furthermore, these sessions will illustrate the importance of professional and business conduct in the international arena based on universal principles of social and political justice, dignity, and equality. A distinguished and perhaps controversial speaker from outside the University will speak on some aspect of cultural diversity in the international workplace. Sessions will also focus on diversity of interests, personality temperaments, and learning styles.
Nuclear Medicine Students will explore various aspects of nuclear medicine, including its application to cancer treatment and ethical considerations.
Nuclear Power Engineering Students will explore various aspects of nuclear power, including an introduction to nuclear physics, nuclear weapons, and nuclear reactors. Safety and ethical considerations will also be covered.
Environmental and Natural Resources Engineering Sessions are designed to allow students to learn about contemporary topics and issues related to the environment and natural resources. They will develop career skills and explore opportunities in the environmental conservation and geographic information systems and natural resource engineering fields. If possible, one lecture may be replaced by a field trip to a local watershed to observe hydrologic data collection and conservation practices. Computer laboratory demonstrations will include geographical information systems and land and water resources modeling tools.

three sections over fall 2001, while the involvement by Freshman Engineering faculty decreased by three sections.

The nature of the modified ENGR 103 course is best seen in an example. The seven lectures led or coordinated by the faculty and staff in Freshman Engineering included a session for start-up, a session for evaluations, a session for advance registration for the upcoming semester, and four sessions for college survival topics. These common lectures were integrated into all of the ENGR 103 sections as illustrated in Table III. Table III also serves to illustrate the engineering excitement content and activities of a PE ENGR 103 section. The syllabus for the CE section is given in Table IV. Assignments, quizzes, projects, etc. were designed by each faculty member for his/her own section; therefore, the grading criteria varied among the sections.

In summary, ENGR 103 is not offered to provide an introduction to the various engineering disciplines available to the students for study. As stated previously, that material has been, and continues to be, covered in the large ENGR 100 lecture. ENGR 103 is offered to our students in order to:

- ? Provide an introduction to materials that can help them succeed in their classes;
- ? Make them aware that those around them might make good study-group partners;
- ? Offer them a deeper sense of integration than often found in first-year courses;
- ? Emphasize close interaction between professors and students; and to

? Improve the overall retention of our first-year students.

DATA COLLECTION

Students in all ENGR 103 sections completed a common summative course evaluation so that we might compare the perceptions of students in the PE sections with those enrolled in CE sections. Students rated on a 4-item Likert-type scale (1) the extent to which their section met common course objectives and (2) their overall evaluation of the course. The responses to these questions were converted to a 4-point scale according to the following: Yes, Definitely = 4, Yes, With Reservations = 3, Not Really = 2, and Definitely Not = 1. Students used a 5-item Likert-type scale to rate individual course topics and the overall course. The responses were converted to a 4-0 point scale according to: Excellent = 4, Good = 3, Fair = 2, Poor = 1, and Very Poor = 0.

RESULTS AND DISCUSSION

During the Fall Registration period, incoming freshman engineering students were presented with a description similar to Table II of all of the ENGR 103 sections available, in addition to other Freshman Engineering seminar options. An academic advisor helped students select the most appropriate seminar option, and sections were filled on a

TABLE III
ENGR 103 TRANSPORTATION ENGINEERING SYLLABUS

Week	Topics and Assignments
1*	<i>Topic:</i> Getting acquainted; transition to college video <i>Assignment:</i> Email to instructor
2	<i>Topic:</i> Introduction to traffic signals: Overview of general traffic signal operation and vehicle detection. <i>Assignment:</i> Counting cars
3*	<i>Topic:</i> Writing lab presentation: Resumes <i>Assignment:</i> Write resume and attend Industrial Roundtable
4	<i>Topic:</i> Stadium & Northwestern intersection data collection: field trip to stadium & northwestern and traffic lab to see data collection scheme <i>Assignment:</i> Using Opto 22 Website
5*	<i>Topic:</i> Learning Center presentation – time management <i>Assignment:</i> Weekly time management plan
6	<i>Topic:</i> Using Excel to analyze count data and webpage design using Microsoft FrontPage <i>Assignment:</i> Excel analysis with results published on own web page
7*	<i>Topic:</i> Engineering library presentation – evaluating sources of information
8	<i>Topic:</i> Accessing XML data using HTML web pages: retrieving XML data from the Civil Engineering parking lot cabinet and how to display it in HTML. <i>Assignment:</i> Modify existing web pages to display XML data.
9	<i>Topic:</i> Logging XML data using Microsoft Access <i>Assignment:</i> Modify existing web pages to display XML data
10*	<i>Topic:</i> Registration for spring classes
11	<i>Topic:</i> Intersection data collection using XML: how to collect data at an intersection <i>Assignment:</i> Count cars and collect data with Access
12*	<i>Topic:</i> Center for Career Opportunities – Meyers Briggs Type Indicator
13	<i>Topic:</i> More traffic operation discussion and video detection clips: View traffic simulations based on the counts collected by students. Discuss ring structures and watch video detection error clips. <i>Assignment:</i> Class Evaluation
14	<i>Topic:</i> Final remarks and other transportation research
15*	<i>Topic:</i> Course evaluation

* This week coordinated by Freshman Engineering staff

TABLE IV
ENGR 103 ENGINEERING CAREER EXPLORATION

Week	Topics and Assignments
1*	<i>Topic:</i> Getting acquainted; introductions
2	<i>Topic:</i> Engineering disciplines, job functions, industries <i>Assignment:</i> Journal entry – brainstorm your passions, interests, & hobbies; identify links between your likes and engineering disciplines, job functions, and industries
3*	<i>Topic:</i> Writing lab presentation: resumes <i>Assignment:</i> Write a resume; 2 questions you will ask potential employers at Industrial Roundtable
4	<i>Topic:</i> Purdue scavenger hunt: retrieve literature from Purdue campus resources <i>Assignment:</i> Write 1-2 sentences about the services provided by each office visited. List programs, services, or activities Purdue offers that interest you and identify how they might help you succeed at Purdue and/or help you get a job.
5*	<i>Topic:</i> Learning Center presentation – time management <i>Assignment:</i> Go to the career fair, talk to 2 company representatives, and get their business cards. Journal assignment: reflect on what you learned from these company representatives. Begin making weekly time logs.
6	<i>Topic:</i> Undergraduate student panel <i>Assignment:</i> Journal entry: reflect on what you learned from the upperclassmen, what information surprised you, what actions you will consider taking as a result of what you learned.
7*	<i>Topic:</i> Engineering library presentation – evaluating sources of information <i>Assignment:</i> Review time logs – what is and is not working
8	<i>Topic:</i> Making paper towels – what kind of engineering is required?
9	<i>Topic:</i> Designing and analyzing paper towel experiments
10*	<i>Topic:</i> Registration for spring classes
11	<i>Topic:</i> Ethics game
12*	<i>Topic:</i> Center for Career Opportunities – Meyers Briggs Type Indicator
13	<i>Topic:</i> Academic career report preparation (research your field of interest in terms of: curriculum, current job positions, companies hiring engineers in the discipline, a major product or design, national professional organizations) <i>Assignment:</i> Prepare PowerPoint presentation
14	<i>Topic:</i> Academic career report presentations
15*	<i>Topic:</i> Course evaluation

* This week coordinated by Freshman Engineering staff

first-come, first-served basis. There was a high demand for the CE sections as well as the Fusion Space Propulsion and Nuclear Medicine sections. This resulted in students being placed in sections that were not their first choice. The course evaluation data were parsed based on students attainment of their first choice section so as to account for dissatisfaction in their placement and/or a mismatch in their expectations of the course.

Table V gives an indication of the extent to which the students believed the course met such objectives as generating excitement about engineering, helping them make the transition to college life, etc. Roughly one-third of the students felt the course helped them make the adjustment from high school academics to college-level academics, and one-fourth of the students felt the course helped them adjust from high school to college on a more personal level. Students in the PE sections felt the course aided them more

in making the academic transition, while students in the CE sections – particularly students in the CE sections who were not in their first choice section - felt the courses aided them more in making a personal transition. Moreover, roughly half of the students thought the course gave them a perspective on balancing their academic and personal lives.

Regardless of their ENGR 103 section, students overwhelmingly believed the course excited them about a career in engineering (73% overall agreed) and gave them a perspective on what it takes to succeed as an engineer (67% overall agreed) and on the different academic and career opportunities within the various fields of engineering (75% overall agreed). Almost 60% agreed the course enabled them to take advantage of Purdue University resources and opportunities. They found the course encouraged them to develop relationships with engineering faculty (47% overall agreed) as well as their fellow students (33% overall agreed). Greater percentages of students in the CE sections

TABLE V
PERCENT OF STUDENTS WHO RATED THE EXTENT TO WHICH THEIR ENGR 103 SECTION MET
COURSE LEARNING OBJECTIVES WITH "YES, DEFINITELY" AND "YES, WITH RESERVATIONS"

Course Learning Objectives Has this course...	Professional Engineering (PE)		Career Exploration (CE)		Overall PE	Overall CE	Overall Course
	Yes (N=70)	No (N=94)	Yes (N=26)	No (N=23)	(N=164)	(N=49)	(N=213)
First Choice?							
Aided you in making an academic transition from high school to Purdue life?	37%	34%	23%	26%	35%	24%	33%
Aided you in making a personal transition from high school to Purdue life?	26%	24%	19%	48%	25%	33%	27%
Given you a perspective on what it takes to succeed as an engineer?	73%	59%	77%	74%	65%	76%	67%
Given you a perspective on how to balance academic and personal life?	41%	54%	46%	52%	49%	49%	49%
Given you an understanding of the academic and career opportunities within the different fields of engineering?	80%	65%	85%	87%	71%	86%	75%
Encouraged you to develop a comfortable working relationship with an engineering faculty member?	56%	37%	54%	57%	45%	55%	47%
Encouraged you to develop a network of classmates with whom to study and socially interact?	33%	30%	42%	35%	31%	39%	33%
Enabled you to take advantage of Purdue University resources and opportunities?	57%	54%	65%	78%	55%	71%	59%
Excited you about at least one aspect of a career in engineering?	81%	59%	85%	91%	68%	88%	73%

than in the PE sections believed the course encouraged them to develop relationships with faculty and classmates as well as gave them an understanding of career opportunities within the different fields of engineering.

It should be noted that these are students' perceptions of the extent to which course objectives were met. For example, 67% of the students in ENGR 103 agreed that the course gave them a perspective on what it takes to succeed as an engineer. Nevertheless, we did not explicitly ask the students what it takes to succeed as an engineer. In the future we hope to develop rubrics so that we might better assess the extent to which the course met our objectives.

We'd also like to note that each instructor designed course objectives for his/her section; i.e. the course objectives listed in Table V were not provided to each ENGR 103 instructor at the beginning of the semester. As a result, not all faculty purposefully designed their sections so that the objectives listed in Table V were met. It is therefore not surprising that a greater percentage of students in the CE sections than in the PE sections felt the course gave them an understanding of engineering careers and encouraged them to develop relationships with their classmates and instructor – these objectives were explicit goals of the CE sections.

In general, students who were in a PE section that was not their first choice agreed to a lesser extent that the course helped them gain an understanding of engineering careers, gain a perspective on what it takes to succeed as an engineer, establish a relationship with an engineering faculty member, and excite them about engineering than did students who were in their first choice PE section or students in the CE sections. These students were also less satisfied with the variety and quality of topics covered and their overall enjoyment in their ENGR 103 section (Table VI). This contrasts CE section students who did not get their first choice section: these students were as satisfied if not more

satisfied with their ENGR 103 experience than first choice CE or PE section students. This indicates that it is necessary to ensure we have enough offerings of the more popular ENGR 103 PE sections so that students are more likely to enroll in their desired section. Moreover, it suggests we should reconsider encouraging students to sign up for a less-desired PE section should their first-choice section be full.

As Table VI indicates, most students were satisfied with the variety of topics covered and the quality of topic coverage. Students in both the PE and CE sections rated the common lectures and those lectures designed by the individual instructors about the same (Table VII). Approximately 68% of the total students reported that they enjoyed the course and would recommend it to incoming freshmen (Table VI).

Overall, students reported that ENGR 103 excited them about a career in engineering. With topics ranging from space propulsion to engineering career exploration, developing new professional engineering sections likely served to stimulate interest by providing more opportunities to match students' interests with course topics.

CONCLUSIONS AND FUTURE PLANS

Our plan for ENGR 103 was to involve professors from Purdue's Schools of Engineering in the engagement of first-year students in seminar activities based in real engineering problems while increasing the number of students enrolled in a first-year seminar. One measure of success for fall 2002, then, was the creation of eight PE sections of the course taught by engineering faculty, allowing a total of ten sections to be offered. Approximately 280 students were served by the course. In these regards, the course modification was clearly successful.

TABLE VI
PERCENT OF STUDENTS WHO RATED OVERALL COURSE EVALUATION ITEMS WITH
"YES, DEFINITELY" AND "YES, WITH RESERVATIONS" OR "EXCELLENT" AND "GOOD"

General Course Evaluation Item	Professional Engineering (PE)		Career Exploration (CE)		Overall PE	Overall CE	Overall Course
	Yes (N=70)	No (N=94)	Yes (N=26)	No (N=23)	(N=164)	(N=49)	(N=213)
First Choice?	81%	59%	88%	87%	68%	88%	73%
Are you satisfied with the variety of topics covered?	83%	62%	88%	91%	71%	90%	75%
Are you satisfied with the quality of topic coverage?	71%	50%	62%	65%	59%	63%	60%
If you were an incoming freshman engineer all over again, would you register for ENGR 103?	81%	55%	69%	78%	66%	73%	68%
Would you recommend this course to new incoming freshmen?	77%	55%	65%	83%	65%	73%	67%
Did you enjoy this course?	67%	49%	65%	74%	57%	69%	60%
Overall, I rate this course as excellent or good (Note: this item was rated using Excellent = 4, Very Good = 3 ...)							

TABLE VII
PERCENT OF STUDENTS RANKING COURSE TOPICS
AS "EXCELLENT" AND "GOOD".

Course Topics	Professional Engineering (PE)	Career Exploration (CE)	Overall Course
Topics Common to All Sections	59%	57%	58%
Section Specific Topics	59%	61%	60%

Course evaluation data indicate that students are generally satisfied with the variety and quality of topics covered and the course as a whole. The exception to this is students enrolled in PE sections that were not their first choice. This will necessitate a review of advising and the procedure for placing students in ENGR 103 sections.

As for overall retention increases, only time and cohort studies will tell, and we intend to follow up on that aspect of the experiment, as there is much sentiment that far too many students leave engineering prematurely and for the wrong reasons. Any activity we can initiate that will reverse that perceived phenomenon would have a great deal of support.

We are hopeful that those Schools with participating faculty will experience an increase in the interest of first-year students in their programs. Our plans for following cohorts and analyzing longitudinal data should demonstrate conclusively whether this indeed happened. In addition, we expect, optimistically to be sure, that faculty who taught ENGR 103 last semester will wish to do so again. If we lose one or two of these, we are encouraged by discussions with others that seem to indicate an increase in interest in this activity. If any one of our professional programs realizes a genuine recruitment advantage among undecided first-year engineering students, it is certain that others will want to get their fair share of recruiting time as well. Thus, the experiment will continue, hopefully at an increased level of participation by faculty from the professional programs.

It is our intent to offer the modified ENGR 103 course in the future with or without funding. We believe that we have a very good idea for its improvement, and plan to pursue it vigorously. While we expect that recruitment of

guest faculty from the Schools of Engineering may lag without funding to offer to offset some small expenses, we expect the idea to grow in popularity as the Schools of Engineering gain experience with involvement in the course.

Further, to increase the attractiveness of the teaching opportunity, we plan to "give up" a greater number of the class periods in the course to the guest instructors. In a move to increase their freedom, we plan to retain only the advance registration period mid-semester, resume writing, and the final class meeting for course assessment. Resource information on available guest lecturers for college survival topics will be shared with those who volunteer to join us in this effort, and scheduling of such will be at their convenience, rather than being locked in to a fixed schedule for administrative purposes.

ACKNOWLEDGMENT

The authors wish to thank the Committee on First-Year Seminar Experiences of the Lilly Endowment Retention Initiatives for the funding involved in the implementation of the course modifications discussed herein.

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