A Few Words From the Editor . . .

Hey everybody,

As you are all very well aware, final exams are right around the corner. Undoubtedly, many of you have already begun to grind away at your textbooks and notes in preparation for these ultimate determinants of your semester grade.

This time of year has the potential to be incredibly stressful and even depressing at times, but only if you let it. Over the next couple of weeks, remember that, in the long run, a few tenths of a point on your GPA just aren’t going to alter your life all that much, and pushing your mind and body to their physical limits to get an extra five points on your exam probably isn’t the best use of your time.

So instead of staying up until the wee hours of the night trying to ingrain in your mind the difference between a Type I and a Type II error or the definition of a shadow cost, relax, because at a certain point, it just isn’t worth it.

Your Editor,

Sam Rosen

Visit the IOE Undergrad Page:
http://ioe.engin.umich.edu/degrees/ugrad/index.php
IOE Student Societies

**Alpha Pi Mu (APM)**
http://www.engin.umich.edu/societies/apm/
The only nationally accepted industrial engineering honor society, APM membership is based on GPA. All students with junior or senior standing are considered. APM sponsors numerous events every year; highlights from last year include the IOE Bar Crawl and IOE t-shirt sales.

**Engineering Global Leadership (EGL) Honor Society**
http://www.engin.umich.edu/egl/
EGL is a five-year program that combines engineering curriculum with courses in the Business school and LS&A, culminating in a Bachelor of Science degree and Masters degree in Engineering. EGL is designed to help students improve the bridge between business and engineering in industry, as well as give its members a cultural background to work in an increasingly global market. EGL is no longer an IOE/ME only honor society, but its membership features plenty of IOEs.

**Human Factors and Ergonomics Society (HFES)**
http://www.engin.umich.edu/societies/hfes/
Nationally, HFES is a professional society whose mission is to “promote the discovery and exchange of knowledge concerning the characteristics of human beings that are applicable to the design of systems and devices of all kinds.” The student chapter at Michigan leads multiple Center for Ergonomics lab tours and attends conferences throughout the year.

**Institute of Industrial Engineers (IIE)**
http://www.engin.umich.edu/societies/iie/
Another society with links to a national professional society, IIE’s main goal is to “provide an awareness of the Industrial and Operations Department and its resources” at Michigan. The student chapter acts as a conduit to the local Detroit IIE chapter and a networking hub for all IOEs at U of M. IIE sponsors plant tours and features corporate speakers at meetings.

**Institute for Operations Research & the Management Sciences**
http://www.engin.umich.edu/societies/informs

**Outstanding Multicultural Industrial Engineers (OMIE)**
http://www.engin.umich.edu/societies/omie/

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**2011-2012 IIE Officers**

- **President** Gavi Abramson, gavirox@umich.edu
- **VP Programs** Chris Fowlkes, tophercf@umich.edu
- **VP Activities** Ophra Shiffeldrim, oshiff@umich.edu
- **Treasures** Lucas Adlam, ladlam@umich.edu
- **Blueprint Editor** Xinxin Zhu, xzh@umich.edu
- **Secretary** Carmen Kuchta, cmkuchta@umich.edu
- **UMEC Representative** Sara Ali, saraali@umich.edu
- **Website Editor** Gavi Abramson, gavirox@umich.edu
- **Membership** Paolo DiBenedetto, paolodib@umich.edu
- **Publicity Chair** Matt Scott, scotmatt@umich.edu
- **Nationals Liaison** Nicholas Chetcuti, nchecut@umich.edu
- **Faculty Advisor** Prof. Mark Daskin, msdaskin@umich.edu

**2011-2012 APM Officers**

- **President** Andrew Hakim, andrewch@umich.edu
- **Executive VP** Danielle Ebstein, ebsteind@umich.edu
- **Internal VP** Jennifer Rothbarth, jenrothb@umich.edu
- **External VP** Anna Weiss, arweiss@umich.edu
- **Finance Chair** Matt Friedman, mbfman@umich.edu
- **Community Relations** Brianna Bogan, bribogan@umich.edu
- **Webmaster** Sam Rosen, brosen@umich.edu
- **UMEC Representative** Ryan Chen, ryanchen@umich.edu
- **Tutoring Chair** Dan Weinblatt, weinblat@umich.edu
- **Faculty Advisor** Prof. Katta Murty, katta_murty@umich.edu
In Reflection

Gary Herrin: A Tribute
By Kevin Twill
Year: Junior

I opened up my IOE career with Professor Herrin in IOE 265: Probability and Statistics for Engineers. Going in I thought to myself, “Prob and Stat? I aced that my junior year in high school this is going to be breeze”. It ended up being one of the most challenging classes that I have had in IOE. The exams were extremely difficult even though they were open-note. He really made us understand the concepts and not just copy information. His exams really reflect his teaching style; he oozed confidence and never compromised with or showed pity to his students. He loved to talk about his alma mater, Ohio State, and its football successes as our team struggled to get wins. After the average of the second exam was in the 60s and flatly saying “If you have an F you deserve to fail”, students had some negative things to say for the midterm class review. So, what did Herrin do about this negative feedback? In typical Herrin fashion, the next class he stood in front of us in IOE 1610 with a stack of reviews and read them out loud, challenging the basis of the negative critiques. This made a lot of us mad, but what it really did was challenge us to do well the rest of the semester. The final had a high average and we all finished with grades far above the midterm projections. I can’t speak for everyone else but Professor Herrin pushed me to work hard and eventually succeed in his class. I had Professor Herrin again in the winter for IOE 366. It’s only a seven week course but Herrin seemed to have lost his edge. At the time, I was happy to have a relatively easy class compared to IOE 265. However, I had no idea that he was struggling at the time with an aggressive form of cancer. In August he passed away leaving his family, friends, and the Michigan IOE community deeply saddened. Gary Herrin was one of the most memorable teachers I ever had, and I consider myself lucky to be his student during his last two semesters. Professor Herrin, you are a legend and will be truly missed.
Engineers Abroad

Opinion: Studying Abroad as an IOE Student
By Chris Stevens
Year: Junior

If you’ve ever read *The Industrial Blueprint*, you know that I am not the first person to advocate participation in a study-abroad experience. However, in order to differentiate this article from the previous ones, I wish to explore in this article not my own experiences, but the future of study abroad programs for students in the IOE department.

Currently, there is a drive within the College of Engineering to have students who study abroad use their IOE-related transfer credit towards their degree requirements. This is a massive shift from the current system that, as I understand it, generally prohibits any credit taken at another university from counting towards an IOE requirement. I can certainly see why the IOE department has historically taken this stance; however, the rest of the college has long been onboard with their students going abroad and taking classes within their major. We are irrefutably a highly specialized department, and there are very few other departments in the world that have classes, let alone majors in the industrial engineering field.

Yet, in the end there most certainly are courses at different universities that line up with classes we might take here at Michigan within the industrial engineering department. With the current system, these courses would likely not count towards our desired requirements. To my way of thinking, we as students are unable to truly diversify our education by not being able to take these classes at other institutions. I personally feel that taking courses outside of our classes here at Michigan could give students a new and interesting perspective on a topic that is highly relevant to our major and, subsequently, quite interesting to us. Furthermore, it may allow more students to study abroad while still fitting their degree into the timeframe they desire.

I personally hope that the IOE department will soon consider a change in their stance on transfer credits to more fully encourage students to study abroad. In any case, I look forward to any discussion that may be coming vis-à-vis transfer credit. Go Blue!

*The views and opinions expressed in this article are solely those of Christopher Stevens.*
Focus on the Real World

The Value of an IOE Degree
By Victor Verdeja
Year: Senior

Industrial and Operations Engineering is a very versatile degree that allows students to build a diverse set of skills that can be applied across many jobs in multiple industries. The great thing about industrial engineering majors is that they are problem solvers and not too focused in any one direction. These types of people are who employers are looking for. Whether you want to go a more traditional route (ergonomics, manufacturing, etc.) or go in a bit of a different direction after school (consulting, finance, etc.), IOE provides the skills you will need to achieve success in any career field.

This past summer, I had an internship in technologies with American Express, where I used many of the Excel Macro skills I learned in IOE 373. It was a great experience, and I was able to really apply my analytical problem-solving skills in a corporate environment. It helped that American Express allowed me a great deal of flexibility. When I pointed out that another project might be more beneficial to the company, than the one I was originally assigned to, my manager allowed me to go out on my own to solve this new problem and deliver a real solution to the company. I had to do a lot of on-the-job learning, and my creativity and analytical skills are what brought me success in my internship. I firmly believe my background in IOE is what allowed me to have that creativity and analytical skillset.

This fall, when companies came to recruit, I realized that my passion did not lie in technologies, but rather in finance, specifically investment management. At first, I thought it would be difficult to explain to an investment management firm why I was interested in finance when I had studied engineering. However, it was actually the easiest part of the process. In my different interviews over the last few months, when I was asked why I had studied IOE, I simply told them that I had gone into it for the problem-solving background where I could learn a variety of different subjects. This was always a good answer, and everybody seemed to think IOE was a great major for the field. I will now be working for T. Rowe Price, an investment management firm when I graduate, where I am confident I will be able to apply my analytical skills from IOE to the world of finance.

IOE has truly brought me success throughout my college career and has made relatively easy to find a job in a time when many people think the economy is still struggling. For that, I am grateful for my educational experience, and I look forward to applying what I learned in school to the real world.
Course Reviews

IOE 413: Optimization Modeling in Health Care
By Crosby Steiner
Year: Junior

IOE 413, “Optimization Modeling in Health Care” is a class that I took based on a very strong recommendation by a Michigan IOE alumnus who could not say enough positive things about Richard Hughes, the professor of the course. The class, only in its 4th year of being taught, is one that not only calls on a student’s knowledge of linear programming, but also exposes him or her to the diverse field of operations research within the healthcare arena. A large variety of topics are discussed in the class, ranging from macroscopic ideas like operating room scheduling to microscopic ones such as muscle force analysis.

What makes IOE 413 such an incredible class is how it differs from so many of the other classes within the college of engineering. The small class (35-40 students) is heavily encouraged by Professor Hughes to participate in discussion, offering their own questions and analyses. Another exciting part of the class is the homework, which is primarily done using MATLAB. While this is scary at first (ENGR 101 was a long time ago), the homework is both interesting and helpful in terms of familiarizing students with a critical piece of software. Lastly, because the course is not taught out of a textbook, the material covered in the class changes every semester as Professor Hughes utilizes feedback from students on which material is more or less interesting, and adjusts the syllabus accordingly. Regardless of your interests in healthcare, I would certainly recommend taking this class as it is incredibly well-taught and provides practical and useful real world advice which just about anybody can benefit from.

CEE 265: Sustainability Engineering Principles
By Laura Yee
Year: Junior

CEE 265 was offered for the first time in Fall 2011. Its predecessor is CEE 260: Environmental Principles. I was interested in taking this course because it focuses on environmental issues and sustainability practices. It also incorporates ethics with engineering ideologies. This course is divided into three subsections: Materials and Environmental Impact, Energy and the Environment, and Decision-Making and Design. Each subsection is taught by a different professor. It was interesting to learn the different perspectives of these professors because they all have different engineering backgrounds ranging from chemical to mechanical to environmental engineering.

This 3-credit course is in the same non-IOE engineering distribution as NERS 211, group E. The lectures are held twice a week for 1.5 hours each. The graduate student instructor will provide supplemental problems that directly relate to the homework during a weekly optional discussion section. The grade breakdown consisted of two midterm exams and a final exam involving true/false and written problems, weekly problem sets, and attendance. The problem sets were challenging but very helpful for the exams.

Although this course may be new and the course curriculum is still improving semester to semester in order to accommodate the needs of students, it is very interesting and enjoyable. I recommend this class to my fellow IOE students.
Beyond the Classroom

What is Consulting?
By Nicole Prince
Year: Senior

What is consulting? It wasn’t until September of my senior year that I really understood the answer to this question. The answer is, as is common with most consulting focused questions: it depends. A consultant, by definition, is a professional who provides expert advice in a particular area such as management, accountancy, entertainment, technology, law, human resources, marketing, etc. However, if you’re looking to become an analyst/associate in Management Consulting, your job essentially is to perform the work necessary to answer your client’s questions, to address the business needs and to solve business problems. Your job is to generate the most comprehensive, data-driven insights and answers that your clients don’t already know. These in turn will form the basis for the recommendations you and your team will provide, and from which your clients will ideally implement in their business.

With that said, the consulting profession can be an ideal career fit for Industrial & Operations Engineering majors. An article found at http://careers-in-business.com/consulting/mcyou.htm states that there are three primary skills consulting firms are expecting in their candidates and they include:

Skill #1: A Passion for Ideas. You can't eat what a consulting firm makes. You can't drive it. You can't smell it. The product is an idea, an insight, a suggestion or a way of thinking. Ultimately, consulting firms are nothing more than repositories of pure human capital. This means that their most important asset has to be the ability to generate relevant ideas through rigorous thinking and careful research.

Skill #2: A Passion for Client Service. With all of the money being thrown around by the consulting firms these days, it can be easy to get into the profession for the wrong reason. After all is said and done, consulting is a service profession and most firms screen carefully for commitment to others and ability to excel in meeting client needs.

Skill #3: A Passion for People. Consultants will often note that some of their most fulfilling relationships are with clients because they had built life-long, lasting partnerships with a number of clients through repeated contact and hard work. These relationships are what can make the long hours, stressful travel and corporate frustrations encountered by consultants worthwhile.

So, it's an odd admixture in demand at consulting firms. Smart, likable people who are good at helping others. Not necessarily a natural combination of abilities you might say. Other characteristics in demand including understanding of specific business issues, a tolerance for ambiguity, tolerance for absolutely abusive hours, superb IT skills, personal appearance, the ability to work quickly in spreadsheets, logical thinking skills, writing skills, willingness to travel and facility with languages.

If any or all of the above sounds appealing I would highly encourage you to look into the Consulting industry, as many IOE’s find it to be an extremely rewarding and great fit to kick start their career!
Just For Fun! (November)

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phone: 216.371.8600 / email: ft@funnytimes.com

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“[Character 1]: Say it... [Character 2]: You want fries with that?"

“I forgot to make a back-up copy of my brain, so everything I learned last semester was lost.”