

Industrial Blueprint

-The IOE Student Newsletter-

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Brought to you by APM and IIE

2011

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A Few Words From the Editor . . .

Hey IOE,

Welcome back to school! I hope your summers went well and that the start of the school year has been as fun and action-packed for you as it has been for me.

For those of you who have never picked up an issue of the *Industrial Blueprint* before, this is a student newsletter written by IOE students for IOE students. Inside, you will find articles written by your peers describing their IOE-related experiences and giving you a heads-up on what to look out for in the world of industrial engineering.

So with that said, please stop reading this absolutely pathetic excuse for an editorial section and turn the page to view the outstanding content within. You won't regret it.

Your Editor,

Sam Rosen

Upcoming Dates

2011 Global Operations Conference	Nov. 4
Thanksgiving Recess	Nov. 23-28
Classes End	Dec. 13
Fall Term Ends	Dec. 22

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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Engineers Abroad

Getting Around in Shanghai

By Austin Davis

Year: Junior

This past summer, I had the opportunity to participate in the UofM –Jiao Tong Joint Institute study abroad program in Shanghai, China, and I can easily say that the experience not only exceeded my expectations by far, but also changed my life as a whole. Instantly upon arriving in Shanghai, you get the first-class treatment of being a “foreigner” in a completely new land that is 180 degrees around from the U.S.

Though it was sometimes challenging to get around in a place where you cannot speak or read anything in the language, it turned out that this was something that made my experience that much more fun and exciting. For example, imagine your typical cab ride here in the States where you enter, direct the driver to your next destination, and then pay the fare that has been calculated during the trip. In China, there are a few more variables thrown into the equation when getting from A to B, such as having no way of telling the cab driver where to go and no way of knowing what he is saying to you.

Another thing you learn soon after arriving in China is that the Chinese are extremely caring and hospitable people. Sometimes this gets taken to an extreme, as people will often agree with you even if they have no idea what the words coming out of your mouth actually mean. Going back to the issue of transportation, this means that the phrase “yes, yes, of course” will sometimes lead to the Ancient Summer Palace in Beijing, and other times to the shady electronics market downtown, whether or not you intended to go there! However, if you have the right attitude, sufficient room in your schedule, and the desire to witness all the beautiful sights and culture China has to offer, this language barrier can lead to some of the neatest moments of your life!

I highly recommend a study-abroad experience for anyone, whether you are an engineer or not. It was easily one of the greatest nine-week stretches of my life and something I grew from tremendously and will cherish throughout my years.



Go Fresh

Farmer's Market

By Amanda Hazel

Year: Junior

One of the things industrial and operations engineers do is figuring out how to get stuff to the places it needs to be quickly and effectively. It makes it easier if the goods being transported are locally sourced – and you can see an example of that first-hand at Ann Arbor's wonderful farmer's market. Say you don't care about supporting local farmers, enjoying fresh baked goods, eating organic meat and eggs and lots and lots of veggies and fruit – the farmer's market is an experience you should try at least once before you leave Ann Arbor. It's located in Kerrytown, east and a little north of central campus, and is open all year: May through December: Wednesday & Saturday, 7 a.m. to 3 p.m and January through April Saturday from 8 a.m. to noon.

Long rows of covered pavilions are lined with tables laden with the bounty of southeast Michigan. The air is somehow different in the Farmer's market – and maybe it's because it is an open air market, maybe it's because you get to talk to the people who cultivated the food they are selling you personally. You can nab some fresh goat cheese, no-spray raspberries and some succulent tomatoes and maybe a nice bunch of flowers for your room to remind you that there is more to life than your laptop screen.

Sometimes an efficient system isn't always the best and misses the dynamic part of life – you can optimize a shipping route to get peaches up from Georgia here in the fastest way possible, and buy them in the huge cold tile stores, but doesn't it make more sense and seem like a better use of resources to buy locally grown peaches from the person who picked them? Maybe you could make a case for the Georgia peaches, but before you leave Ann Arbor, try a Michigan one.



Kerrytown & Farmers Market

Summer Spotlight

Optimization in the Workplace

By Meghan Crist

Year: Junior

Working at PolyOne the past two summers, I helped set-up the resin, colorant and special effects inventory of the new design center. Until recently, being enrolled in IOE 310, I had not recognized inventory management as an optimization problem.

The objective of effective inventory management is to minimize cost while still meeting the daily demands of the scientists and engineers in research and development. When they need to compound a resin and a dye for a customer, it is very important to be in stock. Otherwise, the customer will be left waiting for the product, while PolyOne waits for the resin and dye to arrive from the supplier.

The decisions that I worked on this past summer were how much of each product to order for the new design center and eventually, how often to place the order. For example, how much Tritan (BPA-free polycarbonate) do we need to have in our storage room to meet the needs of our engineers, and consequently, our customers.

There are a number of constraints that limit this decision. The storage room for the design center is rather small considering the materials needed, so the space used by each material must be considered. The Engineered Materials department has a budget for the design center. The demand of each of the materials has to be met each month. There are costs for holding the materials in the storage area. It is important to recognize that the longer a material is left unused in the storage space the more money taken in holding costs from the budget.

After countless hours and many long nights spent in the Dude, it's very encouraging to see that what we learn in the classroom actually applies to the workplace. Many times we as students discredit the information taught in university, complaining "I will never use this after college." Although it may seem infeasible, optimization truly goes from the classroom and beyond.



Course Reviews



IOE 461—Six Sigma

By Dakota Fried

Year: Senior

As an Industrial and Operations Engineer, chances are you have heard of “Six Sigma”. But what does Six Sigma really mean and how important is this concept to an Industrial Engineer? Six Sigma is a business strategy to analyze data and improve business systems by reducing variability and eliminating defects. The name is derived from the goal to have 6 standard deviations between the mean and the upper/lower specification limits (in plain terms, this would result in 99.99966% parts that are not defective). The objective is to find a project that could save a company a large amount of money and apply DMAIC (define, measure, analyze, improve and control).

Six Sigma has become a common term in the manufacturing world and therefore, is a large part of Industrial Engineering. Six Sigma uses statistical analysis to improve a system, and let’s face it; statistics contributes to a large portion of our prerequisite courses. If this process seems interesting to you, I would recommend taking IOE/MFG 461 - Quality Engineering Principles and Analysis. After taking this course you can put on your resume that you are “Black Belt Trained” (recruiters love this) and even become certified outside of class through the Center of Professional Development at cpd.engin.umich.edu.

ENGR 405

By Rachel Barch

Year: Junior



“Problem Solving, Troubleshooting, Entrepreneurship, and the Transition to the Workplace” is the class name of ENGR 405. This class must have such a long official name because it counts for so many requirements and you learn a great deal of different useful concepts. I originally signed up because the course was recommended to me by the Center for Entrepreneurship (CFE) since it counts as a “Core” class for the Entrepreneurship Practicum. I figured I needed some more general electives, so why not?

Later when I looked on my “Progress towards graduation” I was reminded that all 400 level Engineering courses count as Non-IOE Tech Electives. That was cool. Anyway, in this course, you learn many problem solving techniques including; Kepner-Tregoe Analyses, how to do Dunker Diagrams, Potential Problem Analysis, brainstorming techniques and more. The professor, Scott Fogler, is also hysterical and loves to get to know his students in this small class (around 20 students). We put our newly learned skills to the test by acting as student consultants to local Ann Arbor businesses. I’m currently working on seating and cost issues at a coffee shop/restaurant. Oh, and did I mention that there are no exams, awesome. So far this class has been a great experience; I certainly plan on using the skills I obtain for years to come.

Beyond the Classroom

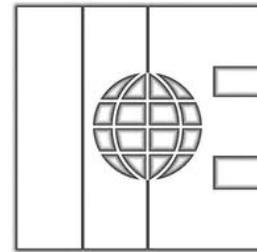


MECC

By Carl "I love the Chicago Bears" Fuda
Year: Junior

For Industrial and Operations Engineers, a very common career path is the consulting industry. Up until recently, I did not have a very good idea of exactly what consulting entailed, and just a year ago, I could not have spoken on the topic in any depth. All I knew was that I had an analytical, engineering background, and that I had an interest in solving real-world business problems.

At the beginning of winter semester last year, I decided to put an end to my naïveté and joined the Michigan Engineering Consulting Club, otherwise known as MECC. This was the best decision I could have possibly made career-wise, and I would highly recommend it for any IOE student interested in applying their skills to the business world. My experiences with MECC were invaluable in that they allowed me to really start understanding the consulting world and what it's all about. You can learn through coursework up to a certain point, but actively participating in pro-bono consulting supplemented my education in a manner that just doesn't exist in the classroom. So join MECC! Even if you decide consulting is not for you, the people you meet, experiences you have, and career path planning you will receive will be more than worth it.



IIE Great Lakes Conference 2013

By: Sara Ali
Year: Junior

You've probably gotten a few emails about the IIE Great Lakes Conference, and you might be wondering what it is. Each year, one of the IIE chapters in the great lakes region hosts a conference for industrial engineers and students from all over the area. The purpose of the conference is to expose people to what's happening in the industrial engineering field and to encourage innovative ideas through team competitions, keynote speakers, and other seminars. It attracts attendees from all over the world, who end up gaining valuable leadership skills, developing communication skills, and having an opportunity to network with a wide variety of people.

This year, the conference is being held at Ohio State University. Many IIE members are planning on attending, and spaces are still available! The bigger deal is the University of Michigan has been nominated to host the conference and has accepted the challenge. That's right, we will be hosting the conference!

With endless networking possibilities, a career fair, social events, exceptional speakers, and workshops, the IIE Great Lakes Conference in 2013 is truly going to be an incredible experience. Look out for more information and for opportunities to help out with the conference.

Just For Fun!

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