

# 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,

Here comes November. The weather is getting cold, but our enthusiasm to academics, extracurricular activities and future career can definitely keep us energetic and consistently moving forward.

Time flies, but precious experiences remain a lifetime. Many students had great takeaways from their oversea adventures and internships. Their fascinating stories are waiting for you under Engineers Abroad and Summer Spotlights. Looking for a student organization to join? You may find Beyond the Classroom inspiring. Furthermore, as course registration for Winter 2012 approaches, read our Course Reviews to get some ideas of what to take.

Thanksgiving is coming soon. I would like to thank you all for being nothing but extraordinary!

Your Editor,

Xinxin Zhu

## Upcoming Dates

Thanksgiving Recess	Nov. 23-28
Classes End	Dec. 13
Fall Term Ends	Dec. 22
Winter Term Starts	Jan. 4

### 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**

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# Engineers Abroad

## The Global Intercultural Experience for Undergraduates

By Jueying Liu

Year: Junior

As IOE students, we are constantly shaping ourselves not only through the classes we take, but also by the extracurricular experiences we have. As members of today's global economy, we will be constantly meeting new people, dealing with new situations and gaining new perspectives on the world. With that said I'd like to talk about a program called the Global Intercultural Experience for Undergraduates, or GIEU.

Since its inception in 2002, GIEU has been funding global educational projects that take learning beyond traditional classroom boundaries, creating new opportunities for short-term (3-4 weeks) intercultural study at field sites around the world. GIEU sends groups of 12-15 undergraduates and faculty members to exciting locations both in the U.S. and abroad. This program enables undergraduates and faculty to learn in rich cultural environments, while gaining a greater understanding of global situations and processes.

I participated in this program during 2010 and went to India as a field trip that summer. In preparation for this program, our site group had several meetings before the trip so we could both get to know each other and learn more about India. We even learned some basic Hindi! One weekend, I went on a retreat with people from other site groups, an experience which was quite overwhelming due to the endless of agenda of different intercultural activities. We also had to write reflections on our experiences each day to force ourselves to spend time thinking about what we had learned during the course of the day.

Overall, this experience was life-changing in terms of how much I was able to broaden my horizons and develop my skills. While the University of Michigan is very diverse, students often don't have much time to have conversations about their cultures and their growing environments. As a result, I sometimes feel disconnected with this huge community. GIEU gives me an opportunity to really communicate with people and learn from them, which is why I highly recommend it.



# Summer Spotlight

## A Summer at Stryker

By Nic Williams

Year: Senior

The final round interviews are probably finishing up for most of us and with that, we have some much needed time to devote to our studies. Before you know it, Christmas break will come and go and a new semester and Winter Career Fair will be upon us. I wanted to focus this article on my internship this previous summer with Stryker and the experiences gained through being an intern.

The recurring theme you will notice about this company, starting with your first interview, is that the people who work at Stryker truly love their jobs. The atmosphere at Stryker was really something special, and you started to see just why the interview process consists of multiple rounds of making sure you fit the “Stryker Culture.”



The best part about the internship was that I was able to get my hands dirty from day one. My role was a Lean Engineer on a hospital bed assembly line and to make sure I understood the process, my first three days consisted of working from 6:00am to 2:00pm on the assembly line. This was just the start of the hands-on experiences I had and it showed me Stryker's commitment to me and making sure I was fully prepared for my duties. During my summer, I was able to develop new time study standards, propose a new process that would generate upwards of \$400,000 in revenue a month with supporting data and be influential in \$100,000 contracting deal. This is some serious responsibility for an intern and it was great to see that type of faith in their interns.

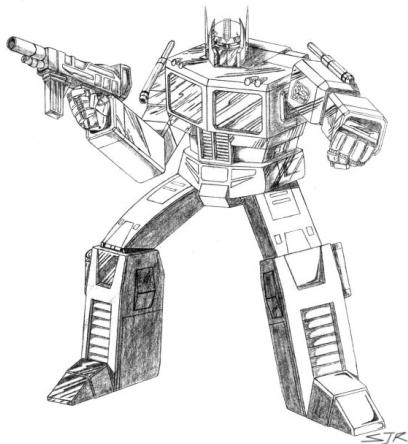
Mentioning the interns, there was over 50 interns at Stryker's Portage, Michigan Campus, and this made for making some great friends and having a couple unforgettable weekends. It's the people I met at Stryker that ultimately make me want to have another internship and eventually full time position with them. If you make it through the process, I'm sure you will have a great time too and urge you to submit an application during Winter Career Fair. If you have any questions, don't hesitate to email me at [nic-will@umich.edu](mailto:nic-will@umich.edu), I'd be more than happy to try and answer them. Take care.

# Summer Spotlight

## Optimize Prime: A GM Story

By Mark Metz

Year: Junior



While working at General Motors this past summer, I helped design and implement a new technology into one of the company's assembly lines. With the help of specific classes I have taken, I was able to successfully install and run this robot in the line at Lansing Delta Township plant in Grand Ledge, Michigan.

During my time at General Motors, I was required to do a certain set of tasks. These tasks included manufacturing and designing parts for the robot, ordering essential pieces, keeping an updated schedule, and also doing a bit of project management. These tasks would not have been possible without a certain skill-set learned from previous classes.

Of the tasks listed, I can say that ME 211 helped me with the designing of the robot by enabling me to use the material from that class in a real world situation. I took into account torque, gravity, momentum, among other physics principles when designing small metal pieces and other tools that would be necessary for a smooth run in the assembly line.

The other 3 tasks that I listed were completed with use of the knowledge I had from taking IOE 202 with Marcial Lapp. Throughout this class, I was pushed to my limits to learn about the EOQ model and lead times, concepts I used when I was put in charge of setting up an order schedule for pieces needed to run the actual assembly line. I was in constant contact with different suppliers regarding how much material was needed and how quickly I could get the shipment. Also, with the help of the case studies I did in IOE 202, I was able to analyze and accomplish specific challenging situations required for a smooth transition from the manufacturing portion of the robot to the actual use of it in the assembly line.

It is very rewarding to take something I had learned in the classroom and put it to use in a real world situation. I'm sure every student thinks "How would this apply to anything I will need for my career?" at some point, but now I do see how it will apply and I am truly grateful for this experience.

# Course Reviews

## **MECHENG 211 – Introduction to Solid Mechanics**

By Brian Pepoy

Year: Junior

Now, if you're one of the IOE undergrads who haven't already taken this course, you're probably looking at that very mundane and broad course title and thinking why I am recommending this. And no, I'm not just recommending this because of the interesting topic (which, surprisingly enough, although you wouldn't think it to be interesting, it really is). It also has to do with the professor I had. Professor James Barber. He was a quirky British man who possessed a wry sense of humor and wit and intelligence that just hooked you into his course from the first sentence that came out of his mouth. He was one of those professors that seemed to care more about discussing the true applications and meanings of what he was teaching. I found it riveting how interesting you could apply the learnings of this class into real life.

Introduction to Solid Mechanics does sound rather mundane. But this course basically focuses on looking at a structure, and seeing where its weak points are and how to fix them. Professor James Barber shows us how stress or strain on a structure can affect its fracture points. He also shows how the differences in materials affects these fracture points, such as where they are and how big they are. And, maybe it's just me whose eyes widen when I think of how the changing of one little thing in a structure can affect so much, but Professor Barber explains to you everything in such a real-world-applied way that it is hard not to be interested in the material covered in this course. I hope some of you heed my words and try out this class – you'll be sure to enjoy it.

## **RCHUMS 334 - Cultures of Basketball**

By Daniel Madwed

Year: Senior

While looking through the course guide to figure out what class I should take to fulfill my last 3 humanities credits I came across RCHUMS 334 - Cultures of Basketball taught by Professor Yago Colás. The course has no exams, but readings for each class session and six separate writing assignments that correspond to the current section of the course. The readings for class are short and interesting. Professor Colás doesn't just want to discuss a summary of what the reading was about, but wants to discuss the meaning of the reading and how the writers' style of writing conveys those meanings. The assigned writings are broken into a summary, a writing critique, and an emotional response. The writing assignments are based off a book that you select from a list of books that correspond to material you are discussing in class.

The course starts with the creation of basketball in Massachusetts and follows the game's evolution into one of America's most popular sports. The class talks about changes that have occurred in the game of basketball and the implications that those changes had on how the game was played and also the social implications that those changes had on America. My favorite part of the course is how Professor Colás engages the class in discussion and encourages all students to participate. Professor Colas is not afraid to go off topic and talk about students' personal opinions and experiences that relate to the class.

# Beyond the Classroom

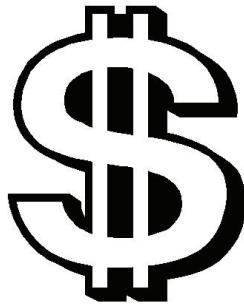
## Michigan Interactive Investments (MII)

By Philip William McCauley IV

Year: Junior

Many IOE students are interested in finance and investing and are interested in joining a club to learn about these topics, but finding the right club can be difficult. Most finance clubs are organized through the Ross School of Business, but many of them allow engineering students to join. One of these clubs is Michigan Interactive Investments, or MII. This school year marks the 14th year of MII as a student-run investment club at the University of Michigan. MII is a terrific opportunity to discuss economic and financial market events with other Michigan students.

Each year MII also manages an investment portfolio with the goal of educating members about investing through interactive portfolio management. MII meets every Thursday for discussion and an investment pitch, which is voted on by the club members at the end of the meeting. If the investment pitch is approved, MII will invest real money in your idea.



Generally, MII's investments take advantage of one of the following three strategies: Alpha Overlay, Relative Value, and Special Opportunities. The Alpha Overlay strategy consists of taking one long position with at least one short position to hedge out various beta components in an investment. The Relative Value strategy, on the other hand, relies on evaluating market sectors in order to locate particular securities which, when compared to other sector members, appear undervalued on the basis of fundamentals, growth projections, and potential risk. Finally, the Special Opportunities strategy is based on utilizing short-selling, derivatives and arbitrage strategies to capitalize on market opportunities. Additionally, investments are generally taken with a three to six month time horizon.

If MII's format or strategy interests you, I encourage you to visit [miiclub.org](http://miiclub.org) to learn more about this club. MII accepts applications in the beginning of the fall semester each year.

## Just For Fun! (November)

