

Industrial Blueprint

-The IOE Student Newsletter-

Volume 20, Issue No. 5

Brought to you by APM and IIE

March 2007

Undergraduate Walk-In Counseling Hours

Professor Yili Liu (Program Advisor):

Wednesdays: 12:30-1:30pm & by appointment
In G622 IOE
E-mail: yililiu@umich.edu
Phone: 763-0464

Steven Agacinski (IOE/EGL Peer Counselor):

Tuesdays & Thursdays: 12:00-2:30pm
Wednesdays: 11:30am-12:30pm
In 1749 IOE
E-mail: spagaci@umich.edu

Barbara Fordyce (IOE/EGL Peer Counselor):

Tuesdays: 3:00-5:00pm
Wednesdays: 10:30-11:30am
Thursdays: 10:00-11:00am, 3:00-5:00pm
Friday: 2:00-4:00pm
In 1749 IOE
E-mail: bfordyce@umich.edu

Samer Saab (IOE/EGL Peer Counselor):

Mondays: 9:00am-10:30am, 12:30-2:00pm
Wednesdays: 9:00am-10:30am, 12:00-2:00pm
In 1749 IOE
E-mail: snsaab@umich.edu

Punit Mattoo (IOE/EGL Peer Counselor):

Mondays & Wednesdays: 2:00-5:00pm
Fridays: 12:00-2:00pm
In 1749 IOE
E-mail: mattoop@umich.edu

Pam Linderman (IOE Undergraduate Advisor):

In 1603 IOE
E-mail: plinder@umich.edu

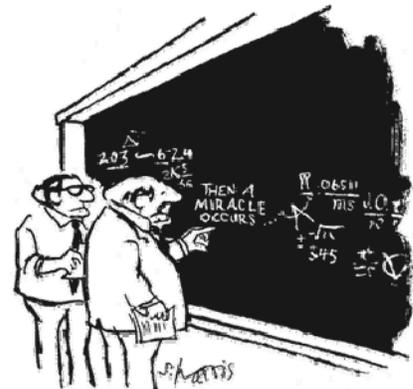
Upcoming Events

March 26th	MLK Cultural Fair
March 31st	IOE Bar Crawl
April 1st	North Campus Service Day

A Few Words From the Editor . . .

Time flies doesn't it? Spring Break 07'

has come and gone, St. Patrick's Day 07' is over. What's left? Finals? Sadly true. But with finals comes registration for next semester's classes. With that in mind this issue of the Industrial Blueprint is a great way to read about that courses that will be offered next year with the numerous number of course reviews evaluated by peer Industrial Engineers. The reviewed courses are: IOE 416, IOE 425, IOE 434, IOE 438, IOE 441, Accounting 471, CEE 211, and ME 235. Whether you want to read up on the required courses you need to take next year or want to see what engineering-tech electives are offered, this issue is a great read, so don't miss out. Also be sure to check out the upcoming events listed below, and if you get bored in class waste time by doing the word search at the end of the issue.



By Inder Dhillon

Visit the IOE Department Website:
<http://www.ioe.engin.umich.edu/ugrad.html>

IOE Student Societies

Alpha Pi Mu (APM)

<http://www.engin.umich.edu/soc/apm>

The only nationally accepted industrial engineering honor society, APM members are in the top GPA percentiles of upper-classmen. 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 Senior Advice Night.

Engineering Global Leadership (EGL) Honor Society

<http://www.engin.umich.edu/students/support/egl/>

EGL is a five-and-a-half 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 society, but its membership features plenty of IOEs.

Human Factors and Ergonomics Society (HFES)

<http://www.engin.umich.edu/soc/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/soc/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/soc/informs>

Outstanding Multicultural Industrial Engineers (OMIE)

<http://www.engin.umich.edu/soc/omie/>

Engineers Can Cook

By: Miranda Olds

***Need something sweet, but don't have a lot of time? This recipe is just for you!

Heavenly Chocolate Layer Pie

Ingredients:

- 2 cups cold milk
- 2 pkg. (4-serving size each) sugar free, instant chocolate pudding
- 1 OREO pie crust (6 oz)
- 1 tub (8 oz.) Fat Free Cool Whip

Procedure:

- Pour milk into medium bowl. Add dry pudding mixes. Beat with wire whisk 2 min, or until well blended.
- Spread 1-1.5 cups of the pudding onto bottom of crust.
- Gently stir half of the whipped topping into remaining pudding. Spread over pudding layer in crust; top with the remaining whipped topping.
- Refrigerate for 3 hours, or until set.



IOE 425 Course Review

By Yat Yeung

IOE 425 / MFG 426 introduces you to one of the most successful manufacturing strategies in operations: lean manufacturing, as seen at Toyota Motor Company and other companies. Lean manufacturing is a philosophy which applies both on and off the factory floor. Lean manufacturing is NOT a set of tools to choose inconsistently.

The course reviews philosophies, systems, and practices utilized by world-class manufacturers to meet current manufacturing challenges, focusing on “lean production” in the automotive industry, including material flow, plant-floor quality assurance, job design, work and management practices. In just a brief half a semester, students also get to virtually tour plants to analyze the extent and potential of the philosophies, applying the knowledge learned in the course.

This course is one of the most important IOE classes offered and I strongly suggest every IOE major to take this course. It is not only after taking this course that I fully understand what IOE’s *actually* do. The course is offered twice every semester (it is only half a semester). I strongly encourage you to enroll in the class offered in the first half of the semester, as its tests and projects will not conflict with final exams and midterms in other classes. Plus, Bob Anderson is a great lecturer; if you feel like skipping his long two-lectures, don’t worry, he posts them online! I cannot emphasize how useful this class is – it is by far my most favorite IOE class.

IOE 434 Course Review

By Mario Blasco

For those of you who are looking to take a 400-level IOE course but are sick of math and statistics, IOE 434 (Human Error and Complex System Failures) is a great option. This 3-credit course, taught by Professor Nadine Sarter, is an in-depth study of why complex systems fail. The class is divided into groups of 4-6 at the beginning of the semester, and each group is given a historical complex system failure/accident to perform a case study on. These are major failures, such as space shuttles, Three Mile Island, Exxon Valdez, etc. These teams will be required to give a presentation and paper of their case study in the second half of the semester. You will learn all the tools you need to perform your case study during the first half of the semester. The first half of the course consists of reviewing chapters of various texts (all posted online, free download!) which offer explanations for why humans make errors, types of errors, accident models, case studies and other relevant material.

There is one midterm, which covers the online chapters and lectures of the first half of the course. There is no final exam, just the paper and presentation due in the second half of the semester. I’ve found that this class has given me a different perspective on why accidents and system failures occur, and I hope to be able to apply the knowledge I’ve gained in my future career as an engineer to help prevent accidents and system failures.

Going to Shanghai This Summer?

By Jian Wei Por

Going to Shanghai for the summer exchange at Shanghai Jiao Tong? Not sure what to do there? No worries. Here are some attractions and food you should not miss in Shanghai!



Famous Attractions:

The Bund (Wai Tan),

This is a designated section of Shanghai’s port along the Huang Pu River lined with beautiful neo-classical buildings and a waterfront promenade that is packed with tourists, locals and street sellers. Attraction type: Historic walking area



Street Garden of Contentment (Yu Yuan Garden),

This five-acre garden consists of six sections separated by boundary walls: Grand Rockery, Ten Thousand-Flower Pavilion, Hall of Heralding Spring, Hall of Jade Magnificence, Inner Garden and Lotus Pool.

Attraction type: Garden

Oriental Pearl Tower (Dongfang Mingzhu),

Speed to the top of the world’s third tallest TV and radio tower for a spectacular view, or just gaze at this beautiful structure from afar, especially striking when lit up at night.

Attraction type: Architectural building; Observation deck/tower; Landmark/point of interest; History museum
Shanghai is also a paradise for gourmets. As a modern city, Shanghai has attracted a great number of expert chefs from other parts of China, and has become one of China’s gastro-nomic centers of the eight major styles of Chinese cuisine.

There are over a thousand restaurants serving the famous 16 styles of Chinese food, such as Beijing, Sichuan, Guangdong, Yangzhou, Fujian, etc.



Famous Restaurants:

Shanghai Old Restaurant is a hundred-year-old establishment in the local Shanghai culinary style. Freshwater fish is the strength of this restaurant, whose menu features such delicacies as eight-treasure duck, red-cooked bullhead fish and braised meat preserved in fermented rice en casserole. Located on 242 Fuyou Road.

Meilongzhen Restaurant is a renowned restaurant characterized by its Sichuan dishes prepared in the Shanghai style. Specialties include braised prawns, egg plants in fermented bean sauce, ginkgo nuts cooked with shrimp meat, and double-cooked pork sandwiches. Located on 22 Lane No. 1081, Nan-jing Road.

IOE 438 Course Review

By Kristina Behrens

I recently completed IOE 438, a half semester course on safety management. I highly recommend this course to other IOE students. The class consists of two evening lectures per week. I took it with Dr. Timothy Rhoades, a senior consultant at Applied Safety and Ergonomics, Inc., located in Ann Arbor. This two-credit course covers a variety of safety-related material in a manner that progresses from understanding and interpreting accident data, to developing codes and standards, and finally to developing safety management strategies and techniques for the prevention of future accidents. The coursepack is hefty, but proves interesting, including articles from a variety of experts in the safety management field. Grades for the class are determined by two exams – one midterm and one final. Keeping up with the long readings can sometimes be difficult, but they are important for the exams. Much of the material, however, is presented in lecture slides and through frequent guest speakers. The professor is interesting as well. All in all, I certainly recommend this course to any IOE's looking for some 400-level classes to take next semester.

IOE 441 Course Review

By Alex Manning

IOE 441's title (Production and Inventory Control) is probably the best description of what you will learn in the class: different forms of production and inventory control. At the beginning of the semester, different methods of forecasting demand are taught, then aggregate planning, which includes different ways to develop production plans. After aggregate planning, the subject and deterministic and probabilistic inventory models are discussed. However, there is always more to the class than just the detail of the subject, which I can give you a general idea about after half a semester.



The two biggest questions going through anyone's mind when picking electives are a) is it interesting, and b) is the class easy. The subject matter itself is somewhat interesting, and very important in relation to manufacturing, but can be very dry at times. I think how interesting the class is deals a lot with who is teaching the class. As I just stated, the class is pretty interesting; however, if another professor was teaching it, I can see the class being unbearable. A good portion of the material involves learning equations and how they are derived. Although our class has not gone into extreme detail on deriving the equations, it is still a good portion of class time, which, if not taught properly can be pretty hard, and not really interesting.

Accounting 471 Course Review



By Jacob Leedekerken

Accounting 471 is an introductory class to accounting concepts and principles for non-business majors. I want to reiterate the word introductory. I feel that this class just breeches on the concepts and principles that are needed in the field of accounting. Don't get me wrong though, even though the class does not go into depth on many, if any, of the concepts and principles, this does not mean that the class will be a breeze in the park for all. Some of the "simple" principles taught are difficult to grasp a full understanding right away and *may* require one to read over the material multiple times and do several practice problems.

There are homework assignments due just about every week, sometimes two, but they are based upon effort and you are allowed two freebies, meaning he only records the ten best of your twelve assignments. Another nice thing is that if you have no idea how to complete a problem, you can just leave it blank and fill it in during class when he goes over the homework (you don't have to turn in the homework until the end of class).

There are three exams, none of which are cumulative. The exams are also all multiple choice with 20 problems and you are given an hour and a half to complete them. This sounds like ample time, but many people go the entire duration working on the problems. I feel as the exams are fair and easy enough to get a decent grade. Another plus about the class is that, like most business school classes, is curved with a B+ as the mean. Therefore, this class can be a way to boost one's GPA. Yet, you must take into consideration that you will not be competing against LS&A students, that would just be too easy, but mainly against other engineers, especially other IOE students. All in all, I feel that Accounting 471 is a great class to take to get rid of some of your non-IOE technical electives and a pleasant break from the rest of your hectic schedule.

CEE 211 Course Review

By Alex Niebrugge

CEE 211 (Civil Engineering) is a class every IOE student should consider for one of their non-IOE classes. This class teaches statics and dynamics. More importantly, from what I have heard, it is more intuitive and less difficult than ME 211, which is part of the same subgroup as CEE 211.

Why else should you take this class? While the class is four days a week, it is not offered on Fridays and each class session is a manageable 50 minutes long. There is one homework assignment due each week, but if you go to most of the classes and use the examples in the textbook you should be fine.

My class was taught by Will Hansen. None of the notes were given online, but the teacher moves at a pace comfortable for the class and mixes between using overheads and writing on the board. Most importantly, the class wasn't too difficult. The average for the class was a B, and the tests were not too bad. As long as you did the practice exams and looked over the old homework assignments, you wouldn't see anything unexpected.



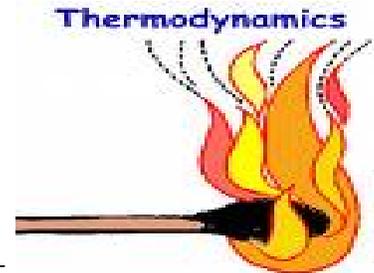
The one downside to the class, and it's a major one, is the 8:30-9:30 in the morning sessions three days a week and the 8:30-10:30 session one day a week. I know what you're thinking, but it's not as bad as it sounds. Since each class is only 50 minutes long, you are usually so exhausted and out of it that before you know it that pile of drool on your desk could fill a small swimming pool.

Overall, I highly recommend this class as an alternative to ME 211. While the schedule is bad, there is no class on Fridays, the professor was helpful, and the exams weren't extremely difficult.

ME 235 Course Review

By Inder Dhillon

Mechanical Engineering 235, Thermodynamics, is an option for fulfilling the one of the three cross-discipline engineering courses for undergraduate IOE requirements. The course, in my opinion, is very interesting even though the material is mostly not relevant to the IOE field. However, if one has an interest in the field of Mechanical Engineering, ME 235 is a great way to pursue that interest while at the same time fulfilling undergraduate IOE requirements.



The material for the course itself is challenging. Thermodynamics is based on studying the phase changes of substance, and their interaction with heat and work to produce energy, with particular emphasis on engines. Although the material is challenging, the course workload is not extreme. There is one homework assignment due each week consisting of six problems, no labs, and three exams (two exams equivalent to midterms and a final). The homework is not difficult if you attend lecture (the only component of the course), and the multiple office hours provide help. The exams are challenging, but the curves for the exams can be 50% for a B-. Although the exams are tough, doing homework and attending lecture will guarantee a B or better.

IOE 416 Course Review

By Jeremy Chan

If you are interested in how queues work, and are looking for a simple two credit course to take, then this is the course you are looking for. Queuing systems is touched on briefly in the IOE 202 syllabus (remember the formulas for the M/M/1 queues?) and Markov processes in IOE 316. I would describe the course-work as a more in-depth combination of the two.

Derivations of the queuing formulas are taught in this course. Besides M/M/1 queues and M/M/2 queues, you will learn

about G/G/c queues – general queuing systems. Real world applications and examples of queuing systems are also discussed in this course.

All in all, this is (in my opinion) a relatively simple course about a very interesting topic. The professor and the GSI are extremely helpful in your understanding of the material. However, do not expect a big class enrollment or early class time-slots.



IOE Word Search!

Can you find all the IOE related words?

H M M O C H C E T T S M S X T A
I U T O I C E E E N P A C N L L
U C M A N U F A C T U R I N G P
E C N A N I F U H A P C T E F H
E T N G N O C I E U O H S U P A
C N E S O F A I L E O M I P N P
O I E N T S A L E E E A T O L I
N R S O G C C C C A A D A C C M
O P T I M I Z A T I O N T C F U
M E E T W M N L I O T E S A T A
I U P A G O T E V R R S B T N N
C L C R N N L P E T G S O E I N
S B X E N O R F S R I A S N I M
R I T P S G S I X S I G M A T E
I N G O Y R O T N E V N I C A T
S N T I M E S T U D Y A G T C I

alpha pi mu
engineering
human factors
march madness
push
tech electives

blueprint
ergonomics
inventory
operations
six sigma
time study

economics
finance
lean
optimization
statistics

egl
flow
manufacturing
pull
tech comm

Blueprint Editors:

Franklin Jen (fraqen@umich.edu)

Special Thanks to Kelly Wendling and
Inder Dhillon

Note: The opinions expressed herein do not necessarily reflect those of the Industrial and Operation Engineering Department at the University of Michigan—Ann Arbor. Any questions or comments should be submitted to fraqen@umich.edu or bwinokur@umich.edu.

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