



# Industrial & Operations Engineering

Undergraduate Student Guide  
2020—2021

1205 Beal Avenue  
University of Michigan  
Ann Arbor, MI 48109-2117



COLLEGE OF ENGINEERING  
**INDUSTRIAL & OPERATIONS ENGINEERING**  
UNIVERSITY OF MICHIGAN

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# IOE Student Guide

This guide provides a brief introduction to career opportunities, program requirements, student groups, and faculty within the Department of Industrial and Operations (IOE) Engineering. It is intended to serve as a general source of information about the IOE Department.



“Industrial and Operations Engineering (IOE) is the branch of engineering that seeks to describe, predict, and optimize the performance of complex societal systems. The IOE Department is relevant to all industries and sectors of the economy including energy, finance, health, manufacturing, robotics, and transportation. Our undergraduate and graduate programs are nationally ranked #2 in U.S. News and World Report Rankings. The IOE curriculum emphasizes studies at the intersection of decision analytics, data science and human systems integration with the potential for societal impact on government, for-profit, and not-for-profit organizations. Our students are highly multi-disciplinary, finding career opportunities in a wide range of pursuits including business consulting, financial engineering, entrepreneurship, law, medicine, and more. Many of our students use the educational and experiential learning foundation that IOE provides to continue into advanced studies in graduate school.”

Brian Denton  
Chair of the Department of Industrial and Operations Engineering  
btdenton@umich.edu

“We are delighted that you have chosen to pursue a career in Industrial and Operations Engineering. If you need information about our program, career goals and experience at IOE, please do not hesitate to reach out to us. As you progress through our program, I encourage you to be an active member of our IOE community and the IOE student societies. Not only will your active participation be a valuable addition to your undergraduate experience, but we believe that each of you has a unique set of skills and perspective to add to our program. Welcome to IOE!”

Mariel Lavieri  
Associate Chair, Undergraduate Education  
lavieri@umich.edu



# Introduction to the Department of Industrial and Operations Engineering

Welcome to the Department of Industrial and Operations Engineering (IOE) at the University of Michigan. IOEs integrate working systems with consideration for humans, materials, equipment, information, and economics. These systems can be in manufacturing or a variety of other settings, including health care, transportation, telecommunications, education, financial services, national defense, and government.

An IOE degree is a specialized engineering degree in the analysis and operations of systems, but opportunity exists to concentrate in other areas as well. These other areas include business, economics, social sciences, and medical sciences. IOEs are unique among engineers in their application of these non-physical sciences to practical situations.

The University of Michigan has one of the most outstanding IOE departments in the country, with consistent national rankings among the top three departments in the United States. In fact, for years, U.S. News has ranked the University of Michigan as the #2 school for Industrial / Manufacturing Engineering. The number of students that graduate with a Bachelor's, Master's, and/or Ph.D. places Michigan among the leaders and best.

## Undergraduate Program Office

The Undergraduate Program Office supports students and administers the rules and policies of the IOE Department and the College of Engineering. Students are encouraged to stop by the office with questions and concerns, or for counseling advice. Additionally, the Undergraduate Office runs an IOE undergraduate email group for declared IOE students. This group receives announcements regarding courses, scholarships and job opportunities. The Undergraduate Office staff consists of students, staff, and faculty who are more than happy to assist you in any way.

NOTE: During Fall 2020, our office will be closed for walk-in visits.  
Please feel free to email us.

### Undergraduate Office Contacts

#### Undergraduate Peer Advisors (September-April only)

ioe.peer.advisors@umich.edu  
u Remote drop-in (Fall 2021)

#### Assoc. Chair, Undergraduate Studies

Mariel Lavieri  
lavieri@umich.edu  
Email for appointment

#### Undergraduate Student Advisor

Leonora Lucaj  
lucajl@umich.edu  
Remote drop-in (Fall 2021)  
and appointment:  
[https://myadvising.lsa.umich.edu/  
appointments/offices/IOE](https://myadvising.lsa.umich.edu/appointments/offices/IOE)

### Additional academic and career advising:

#### Academic and Career Advising

Luis Garcia-Guzman  
Lecturer (IOE 373, 474)  
lgguzman@umich.edu  
By appointment:  
[https://myadvising.lsa.umich.edu/  
appointments/offices/IOE](https://myadvising.lsa.umich.edu/appointments/offices/IOE)

#### Career Advising

Debra Levantrosser  
Lecturer (IOE 421, 424, 425)  
levantro@umich.edu  
Email for appointment

# IOE History

In 1895 the University of Michigan began conferring degrees in engineering; degrees included Mechanical, Chemical, Civil, and Electrical. The first “Industrial Engineering” titled degree was the “BSE-Mechanical Engineering and Industrial Engineering” conferred in 1926. It was quickly followed by degrees in “BSE – Chemical and Industrial Engineering” in 1928 and “BSE – Electrical and Industrial Engineering” in 1929. In 1946, the first degree citing IE first was the “BSE – Industrial and Mechanical Engineering” degree. In 1952 the first “BSE – Industrial Engineering” degree was awarded. In 1973, the BSE – IE degree was changed to “BSE – Industrial and Operations Engineering”.

The Industrial Engineering Department of the College of Engineering was created in 1956 in anticipation of the increasing importance of mathematical modeling and computers in the manufacturing sector. Specific effort was made to retain and develop the well-established industrial engineering curriculum in ergonomics (work measurement, methods study, human motivations), engineering economics, production and facility planning, and quality control. At the same time courses involving new techniques such as mathematical programming, simulation, and computer data processing were added to the curriculum.

Since then, the importance of mathematical modeling and computers in industry has opened up many new opportunities for industrial engineering graduates. To reflect the increasing importance of the department’s program, not only in industry, but also to all sectors of the economy, the department changed its name to “Industrial and Operations Engineering.”

Since the 1970s, there has been an increase in the demand for industrial engineers in service industries: banking and insurance, health care, transportation and distribution, environmental protection, information processing, and manufacturing. The department now plays an important role in providing engineers for the design, improvement, and installation work in these service industries.



To date, the department has awarded over 7,200 Bachelor’s degrees, more than 2,000 Master’s degrees, and 240 doctoral degrees. Current enrollment averages 550 undergraduates and 180 graduate students.

## Location

The IOE department is located at 1205 Beal Avenue on the North Campus of the University of Michigan. The building houses the offices for the IOE faculty, the Undergraduate and Graduate Program offices, and the Center for Ergonomics. A major expansion of IOE put state-of-the-art IOE classrooms next to the department offices during the 1996-1997 academic year.

Students utilize the IOE building for classes, office hours, peer advising, computer usage, and departmental activities.

## IOE Faculty

Learn more about the faculty in the IOE department by following the link:

<https://ioe.engin.umich.edu/role/faculty/>

# IOE Undergraduate Program

[For students entering the COE as freshmen or transfer students in or after Fall 2017]

## Sample Schedule

The following schedule is an example that will lead to graduation in eight terms

	Hrs	1	2	3	4	5	6	7	8
<b>Subjects required by all programs (55 hrs.)</b>									
Mathematics 115, 116, 215, 214	16	4	4	4	4				
Engineering 100, 101	8	4	4						
Chemistry 130 with Lab 125/126	5	5							
Physics 140 with Lab 141; 240 with Lab 241	10		5	5					
Intellectual Breadth courses	16	4	4	4			4		
Total	<b>55</b>								
<b>Related Engineering Subjects (11-12 hrs.)</b>									
Non – IOE Engineering Courses *	12				4	4			4
<b>Required Program Subjects (34 hrs.)</b>									
IOE 201 – Economic Decision Making	2			2					
IOE 202 – Operations Modeling	2			2					
IOE 265 – Probability and Statistics for Engineers	3				3				
IOE 310 – Intro to Optimization Methods	3					3			
IOE 316 – Intro to Markov Processes	3					3			
IOE 333 – Ergonomics	3				3				
IOE 334 – Ergonomics Lab	1				1				
IOE 366 – Linear Statistical Models	3					3			
IOE 373 – Data Processing	4						4		
IOE 474 – Simulation	4							4	
IOE 424 or 481 – Senior Design Course	4								4
Technical Communication 380	2						2		
Total	<b>34</b>								
<b>Technical Electives (18 hrs.) **</b>	<b>18</b>					3	6	6	3
<b>Unrestricted Electives (9-12 hrs.)</b>	<b>9</b>							6	3
<b><u>TOTAL</u></b>	<b><u>128</u></b>	<b><u>17</u></b>	<b><u>17</u></b>	<b><u>17</u></b>	<b><u>15</u></b>	<b><u>16</u></b>	<b><u>16</u></b>	<b><u>16</u></b>	<b><u>14</u></b>

## Notes

\* Non-IOE Engineering courses: Select one course from three different groups (11-12 credits):

A – ME 211, CEE 211, ME 240      D – EECS 270, EECS 314, BiomedE 458

B – ChemE 230, ME 235      E – NERS 211, CEE 265

C – MSE 220, ME 382      F – EECS 280

\*\* Technical Electives: Select at least 12 hours from IOE; at least one course from three different groups:

A – IOE 410, 413, 419, 440, 441, 447, 449      C – IOE 430, 432, 434, 436, 437, 438, 463

B – IOE 416, 460, 461, 465, 466      D – IOE 421, 422, 425, 430, 452, 453

*The remaining 6 hours may be selected from any IOE technical elective or from an approved list of non-IOE courses found on the IOE undergraduate home page: <http://ioe.engin.umich.edu/degrees/ugrad/index.php>.*

# IOE Technical Electives

Select at least 12 hours from IOE; at least one course from three different groups:

IOE 410 Advanced Optimization Methods  
IOE 413 Optimization Modeling in Health Care  
IOE 419 Service Operations Management  
IOE 440 Operations Analysis and Management  
IOE 441 Production and Inventory Control  
IOE 447 Facility Planning  
IOE 449 Material Handling Systems

IOE 430 Global Cultural Systems Engineering  
IOE 432 Industrial Engineering Instrumentation Methods  
IOE 434 Human Error and Complex System Failures  
IOE 436 Human Factors in Computer Systems  
IOE 437 Automotive Human Factors  
IOE 438 Occupational Safety Management  
IOE 463 Work Measurement and Prediction

IOE 416 Queueing Systems  
IOE 460 Decision Analysis  
IOE 461 Quality Engineering Principles and Analysis  
IOE 465 Design of Experiments  
IOE 466 Statistical Quality Control

IOE 421 Work Organizations  
IOE 422 Entrepreneurship  
IOE 425 Lean Manufacturing and Services  
IOE 430 Global Cultural Systems Engineering  
IOE 452 Corporate Finance  
IOE 453 Derivative Instruments

The remaining 6 hours may be selected from any IOE technical elective or from the approved list of non-IOE courses:

## Approved Non-IOE Technical Electives

The goal of the Non-IOE Technical Electives is to provide a broader background in one of the many disciplines related to Industrial and Operations Engineering. These electives cannot be cross-listed with IOE and must be chosen from the following set of approved electives.

### Biological and Health Sciences

*Anatomy:* Any course 400 and above

*Biology:* Any course above and including Biology 162 (3 credits max for AP)

*Public Health:* Any course in Epidemiology, Environmental and Industrial Health, or Health Services Management and Policy

*Physiology:* Any course 400 and above

*Kinesiology:* MOVESCI 330, any 400 or above level course in MOVESCI or Kinesiology (KIN) which has prerequisites

### Mathematical and Physical Sciences

*Mathematics:* Any 300 or above level course in the *College of Engineering Bulletin*. (Except Math 333, 385, 417, 419, 431, and Math/Stat 425)

*Chemistry:* Any 300 or above level course in the *College of Engineering Bulletin*.

*Physics:* Any 400 or above level course in the *College of Engineering Bulletin*.

*Statistics:* Any 500 or above level course.

### Engineering

ME 240, ME 250 and any 300 or above level course in Aero, AOSS, BME, ChemE, CEE, EECS, ME (except ME 401/Mfg 402), MSE, NAME, and NERS. These must be regular classes, not independent study.

### Business and Social Sciences

*Business:* Any 300 or above level course in Accounting, Finance, or Marketing.

Also approved: BL(LHC) 305, 306, LHC 321, STRATEGY 310, 361.

(ACC 471, MKT 302 and FIN 302 are most popular options)

*Economics:* Any 400 or above level course (Except Econ 451 (previously 404 and 405)).

*Psychology:* Psychology 230, 240, 345 and/or any 400 or above level course not designated as “practicum”, “experimental”, “tutorial”, or “independent study”.

## Additional Academic Information

### Intellectual Breadth Requirements

Students entering the College of Engineering prior to Fall 2011 must complete 16 credits of Humanities and Social Sciences: <http://adue.engin.umich.edu/hussreqs>.

Students entering the College of Engineering beginning Fall 2011 and after must complete 16 credits of Intellectual Breadth Requirements: <http://www.engin.umich.edu/college/academics/bulletin/ug-ed/reqs#intellectualbreadth>.

### Pass / Fail

The pass / fail option may be elected for HU/SS, Intellectual Breadth or General Elective credits only. No more than two courses per term (one in spring or summer) may be elected pass/fail. Up to four courses in total (max 14 credits) may be elected pass/fail.

### Minimum Grade Requirements

Undergraduate students must maintain an overall 2.00 GPA in IOE to graduate. No lower than a C- is acceptable in the following courses (Note: a grade of C or better in Math, Physics, Chemistry and Engineering courses is required for declaration) :

- Math 115, 116, 215, 214
- Physics 140, 141, 240, 241
- Chemistry 125/126, 130 or 210, 211
- Engineering 101, 100
- IOE 201, 202, 265, 310, 316, 333, 334, 366, 373, 474, 424, 481, TC380

### Senior Design Requirement

Each student must elect one of the following design courses during their senior year:

- IOE 424 Practicum in Production and Service Systems
- IOE 481 Practicum in Hospital Systems
- IOE 499 Senior Design Projects (*by special arrangement only*)

On rare occasions different courses can satisfy the design requirement, but the course must be approved by the undergraduate program advisor and elected with the consent of the course instructor. Internships and co-op assignments cannot count toward this requirement.



### How do I register for my courses?

Browse through the online course catalog at <http://www.ro.umich.edu/schedule> to see the courses that are being offered the following term.

- Take note of the courses you are interested in and make a preliminary schedule.
- Schedule an appointment with an advisor to discuss your options. The advisor will guide you in the right direction to fulfill your requirements and to have a balanced load.
- Log on to Wolverine Access and create a backpack with the courses you will be taking. At the time of (or after) your registration appointment, log on again and register for the courses you have in your backpack. *Tip: Register ASAP to ensure your classes do not fill up!*

### Notes

- You will be receiving your registration appointment via email, so look out for your date and time to register. If you have any questions, contact The Office of the Registrar at 764-6280.
- Academic appointments are determined by the total number of credits you have completed or have in progress.

## IOE Course Offerings by Semester

When planning your schedule for future semesters, please note that not all IOE courses are offered in both the Fall and Winter terms. All required classes are offered each semester (200's, 300's, 474, and 424/481) while most 400 and 500-level courses are offered only once during the year. The following chart lists when all 200-500-level courses will *typically* be available:

### All Courses

	Fall Term	Winter Term
<b>200-Level</b>	201, 202, 265	201, 202, 265
<b>300-Level</b>	310, 316, 333, 334, 366, 373	310, 316, 333, 334, 366, 373
<b>400-Level</b>	413, 416, 421, 422, 424, 425, 430, 432*, 437, 438*, 440, 447, 452, 461, 463, 466, 474, 481	410, 419, 424, 425, 434, 436, 441, 449*, 453, 460, 463, 465, 466, 474, 481
<b>500-Level</b>	510, 512, 515, 517, 533, 536, 537, 539, 541, 548, 552, 560, 562*, 565, 566*, 570, 574, 588*	510, 511, 534, 543, 545, 549, 551, 553*, 570

*\*if course is offered that year*

### Semester Specific Courses

This only applies to 400 and 500-level courses, as seen below:

	Fall Term	Winter Term
<b>400-Level</b>	413, 416, 421, 430, 432, 437, 438*, 440, 447, 452, 461	419, 434, 436, 441, 449*, 453, 460, 465
<b>500-Level</b>	512, 515, 533, 536, 537, 541, 552, 562*, 565, 566*, 574, 588*	511, 516, 534, 539, 543, 545, 547*, 548, 549*, 551, 553*, 563, 570

*\*if course is offered that year*

Refer to the CoE Bulletin for more information about these classes or go to <https://bulletin.engin.umich.edu/courses/ioe/>.

If you have any further questions regarding classes or scheduling, visit the IOE Peer Advising office (IOE 1752) or email the advisors: [ioe.peer.advisors@umich.edu](mailto:ioe.peer.advisors@umich.edu).

Dual degree between Industrial and Operations Engineering & Mechanical Engineering										
A 3.0 is required of all students entering the dual IOE/ME program.		SEMESTER								
		F1	W1	F2	W2	F3	W3	F4	W4	F5
		Credits								
<b>SUBJECTS REQUIRED BY ALL PROGRAMS {55 HRS.}</b>										
Mathematics 115, 116, 215, 216		16								
Engineering 100		4								
Engineering 101		4								
Chem 125 & 130; or Chem 210 & 211		5								
Physics 140 with Lab 141; 240 with Lab 241		10								
Humanities/Social Science or Intellectual Breadth (to include one course in micro or macro economics)		16								
<b>ADVANCED MATHEMATICS (ME)</b>										
IOE 366 (see below)		//								
<b>RELATED ENGINEERING SUBJECTS (ME)</b>										
EECS 314, Circuit Analysis and Electronics		4								
<b>PROGRAM SUBJECTS {77 HRS.}</b>										
	<b>TERM</b>									
ME 211, Introduction to Solid Mechanics	F,W	4								
ME 235, Thermodynamics I	F,W,Sp	3								
ME 240, Intro. to Dynamics & Vibrations	F,W,Sp	4								
ME 250, Design & Manufacturing I	F,W	4								
ME 320, Fluids I	F,W	3								
ME 335, Heat Transfer	F,W,SP	3								
ME 350, Design & Manufacturing II	F,W	4								
ME 360, Model., Analysis & Control of Dyn Systems	F,W	4								
ME 382, Mechanical Behavior of Materials	F,W	4								
ME 395, Laboratory I	F,W	4								
ME 450, Design & Manufacturing III	F,W	4								
ME 495, Laboratory II	F,W	4								
IOE 201, Economic Decision Making	F,W	2								
IOE 202, Industrial, Operations Modeling	F,W	2								
IOE 265, Probability and Statistics for Engineers	F, W	3								
IOE 310, Intro. to Optim. Methods	F,W	3								
IOE 333, Ergonomics	F,W	3								
IOE 334, Ergonomics Lab	F,W	1								
IOE 316, Intro. to Markov Processes	F,W	3								
IOE 366, Linear Statistical Models	F,W	3								
IOE 373, Data Processing	F,W	4								
IOE 474, Simulation	F,W	4								
IOE Senior design satisfied by ME450		4								
<b>TECHNICAL ELECTIVES {11 HRS.}</b>										
<b>A. Select one ME core technical elective.</b>		3								
See entire list <a href="#">here</a>										
<b>B. Select 8 hrs: at least one course from 3 of 4 groups</b>		8								
a. IOE 410, 413, 419, 440, 441, 447, 449										
b. IOE 416, 460, 461, 465, 466										
c. IOE 430, 432, 434, 436, 437, 438, 463										
d. IOE 421, 422, 425, 430, 452, 453										
<b>GENERAL ELECTIVES</b>		<b>0</b>								
<b>B.S.E. (ME/IOE) TOTAL</b>		<b>147</b>								

# Minors, Concentrations and Programs

## Approved Minors Outside of Engineering

Students in the College of Engineering can elect one or more academic minors outside of engineering. Minors are intended to recognize the completion of a coherent sequence of courses in a particular academic area and require more careful selection of your non-engineering courses. They serve as recognition, via transcript notations, of the completion of a more in-depth course sequence.



For more information and the Approved List by the College of Engineering go to: <https://bulletin.engin.umich.edu/ug-ed/other-minors/>

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## Manufacturing Systems Concentration (MSC)

For undergraduate IOE students interested in pursuing a career in manufacturing, this program will expose them more to the field. The concentration consists of a sequence of courses in manufacturing (IOE425, IOE449, ME481, etc.). The credit hours for this sequence will be contained within the usual BSE degree requirements. The Program Advisor for the degree program will advise and audit the concentration sequence “Manufacturing Systems Concentration” will appear in your transcript but not on your diploma. The MSC will focus on systems-approach to manufacturing and design for future requirements.

For more information visit the Mechanical Engineering website: <https://me.engin.umich.edu/academics/undergrad/handbook/bachelors/>

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## Minors and Certificates

The College of Engineering offers a variety of academic minors and co-curricular programs to complement our undergraduate engineering degrees. Through these opportunities, students can apply engineering skills while traveling abroad, obtain hands-on entrepreneurial experience, explore artistic and creative passions and much more.

For more information, including the approval list of minors and certificates offered in the College of Engineering, go to: <https://bulletin.engin.umich.edu/ug-ed/engin-minors/>.

# Honors Program

The College of Engineering Honors Program at the University of Michigan provides a unique opportunity for highly-motivated students to reach their full potential, both inside and outside of the classroom. Specialized academic requirements create an enriched learning environment that caters to the various disciplines of the College of Engineering. Honors students work closely with faculty and student mentors, facilitating strong intellectual bonds and personal growth.

If you are ready to be challenged beyond the scope of traditional curricula, and are looking for an enriching community, then the Honors Program could be the perfect way to explore your talents. For more information on the CoE honors program, please visit: <https://honors.engin.umich.edu/>.

## Five – Year Combined BSE/MSE Programs:

### Engineering Global Leadership (EGL) Honors Program

The Engineering Global Leadership (EGL) specialization is a unique opportunity for students interested in integrating engineering into a global business environment. EGL students continue at U-M beyond the College of Engineering Honors Program to earn a Masters in an engineering discipline.

EGL prepares students to communicate across engineering and business boundaries, thereby breaking down the barriers to global competitiveness. The focus on Global Operations/Business enhances students' understanding of operations and the corporate environment, including the basics of marketing, accounting, strategy and finance.

The program includes an International Minor for Engineers that exposes students to the language, history and customs of another part of the world. Emphasis is placed on the idea that integration of these disciplines is vital to success in today's global business environment.

Students admitted to the College of Engineering Honors Program who choose a Global Business/Operations focus are eligible to apply for EGL.

For more information on EGL please visit: <https://honors.engin.umich.edu/egl/> and for more information about Tauber Institute for Global Operations: <https://tauber.umich.edu>

### Sequential Undergraduate/Graduate Program (SUGS)

The Department of Industrial and Operations Engineering has established a five-year Simultaneous Undergraduate/Graduate Study (SUGS) program that allows outstanding students to receive the BSE and MSE degrees after completing a minimum of 152 credit hours. This is accomplished by allowing students to "double-count" six credit hours of previously approved graduate-level courses in order to satisfy all requirements for both the BSE and MSE degrees. Double-counted courses appear as transfer credit on the student's Rackham transcript and are selected from graduate level general electives or non-IOE Technical Electives.

Students who are second term Juniors with a minimum cumulative GPA of 3.5 may apply for provisional admission to the program. Students who do not meet the GPA requirement may petition the IOE Graduate Admissions and Financial Aid Committee for provisional admission by providing other credentials such as letters of recommendation from faculty and/or other evidence of special accomplishments.

SUGS students must enroll in Rackham for at least two full terms, paying Rackham tuition. Normally, this will be the final two terms of enrollment in the five-year program.

For more information, contact Matt Ireland, IOE Graduate Student Advisor in 1753 IOE.

# Grade and Class Information

## Grade Translations

**A** = Excellent

**B** = Good

**C** = Satisfactory

**D** = Credit

**E** = Not Passed

An E grade for a course required by an Engineering program must be repeated as soon as possible.

**P** = Passed

**F** = Not Passed

**W** = Approved Drop

**ED** = Unofficial Drop

Grade for any course dropped without permission.

**I** = Incomplete

I is received when a student has not completed required work for a class.

## Classes Over The Summer (not at UofM)

If you are considering taking a class at another institution and having that credit count towards your degree here at UofM, then the College of Engineering Transfer Credit Approval Form is what you are looking for. There is a process established for determining what credit you can receive prior to your attendance at another institution. Follow this link for detailed instructions: <http://tcaf.engin.umich.edu/>.

## Drop/Add and Pass /Fail

Dropping or adding a class should be done as soon as possible for the maximum benefit and minimum hassle. Information and procedures can be found on [wolverineaccess.umich.edu](http://wolverineaccess.umich.edu), or contact Wanda Dobberstein ([wldobber@umich.edu](mailto:wldobber@umich.edu)) if you have questions.

## Dropping a Course After the Deadline

The Drop/Add form must accompany *College of Engineering Petition for Request for Late Drop/Add*

*Documentation of extenuating circumstances*

*Signature of the course instructor*

*Signature of IOE advisor*

The petition must be turned in to the Scholastic Standing Committee (SSC) administrator in 143 Chrysler Center. The petition may or may not be approved by the committee. The only approved drops will be for those students who present written evidence of extenuating circumstances.

## Disenrolling Before a Term has Begun

There are four ways to go:

- Visit a Student Services Site (Office of the Registrar) either 2200 SAB, 515 E. Jefferson, or 2202 Pierpont Commons (North Campus).
- Email the request to [ro.registration.questions@umich.edu](mailto:ro.registration.questions@umich.edu) (just give name, student number, and term from which you wish to disenroll).
- Fax the request to the Office of the Registrar (734) 763-9053.
- Mail the request to the Office of the Registrar; 2200 SAB, 515 E. Jefferson St., Ann Arbor, MI 48109-1316.

## Free Tutoring

There are university offices and student honor societies that offer these services.

- Engineering Learning Center (ELC), 273 Chrysler Center provides tutors for Freshmen and Sophomore level classes.
- Math Lab B860 East Hall
- Science Learning Center 1720 Chem provides help for Chemistry and Biology.
- Departmental student honor societies such as Alpha Pi Mu (IOE honor society) provide tutors for departmental lower level courses.

Remember that there are GSI and Professor office hours that you can use to get help.

# Program Tips and Frequently Asked Questions

## Tips on Program Requirements

The following are suggestions you should consider when registering for courses. Peer advisors are available on a walk-in basis in the fall and winter terms for additional advice. A schedule of peer advising hours is available on the door of 1752 IOE.

- IOE 265 can be taken concurrently with IOE 333.
- Always plan ahead because some IOE 400-level courses are only offered once each year.
- ACC 471 – Accounting Principles, FIN 302 – Making Financial Decisions, MKT 302 - Marketing Management are popular non-IOE technical electives.
- Choose Intellectual Breadth courses carefully as they may be prerequisites for technical electives that you are interested in taking in the future.
- Math 214 – Linear Algebra is required.
- Unofficial transcripts can be viewed and official transcripts can be ordered free of charge through Wolverine Access: <http://wolverineaccess.umich.edu>. The Office of the Registrar is located in B430 LL Pierpont Commons.



## Frequently Asked Questions

### How do I declare my major as IOE?

First, make sure you fulfill the requirements. Then schedule an appointment with Wanda Dobberstein at [https://webapps.lsa.umich.edu/AdvApts/AA\\_StuSelfSvc1.aspx?ctgy=IOE](https://webapps.lsa.umich.edu/AdvApts/AA_StuSelfSvc1.aspx?ctgy=IOE)

### What are the requirements to declare?

Students can declare or change into any undergraduate engineering major if they have completed at least one full term of courses on the UM Ann Arbor campus, have an overall UM GPA of 2.0 or better in courses taken at the UM Ann Arbor campus and be in good standing, and have completed or earned credit by exam or transfer for at least one course in each of these categories: 1) Calculus (e.g. Math 115, 116, 156); 2) Calculus based physics lectures (e.g. Physics 140, 160) or chemistry lectures (e.g. Chemistry 130, 210); 3) Required engineering courses (Engineering 100, 101, 151). A grade of C or better is required in the core math/science courses.

### Does the lab meet before the first lecture at the beginning of the term?

Not in general. Classes that have multiple labs usually do not meet until you have had the first lecture, unless the course is a lab course (e.g. 334).

### What is the class permission (override) process?

For courses that require permissions (overrides), add yourself to the class waitlist. If a permission is given, you will receive an automated email with instructions on how to proceed. All permissions have an expiration date. If the permission expires unused, you will be removed from the waitlist. A class permission does not register you for the course. You must complete the registration process for the course through Wolverine Access.

### What courses are acceptable for non-IOE Technical Electives?

These courses are listed on page 6 of this Student Guide .

### Can I get credit for my summer internship work?

No. Internships are a great opportunity for undergraduate IOE students and will likely do more for a student's career than any individual course. However, no credit will be given for a summer internship.

## Frequently Asked Questions (Continued)

### **What are the benefits of joining student societies?**

Student societies such as APM, HFES, IISE, etc. provide a place for students to network with professionals, gain leadership experience, meet and learn from other students with similar interests, and have fun!

### **What kind of degree will I graduate with from the IOE department?**

Your undergraduate degree will be a BSE (Bachelor of Science in Engineering) in Industrial and Operations Engineering.

### **Can I graduate in 4 years?**

Yes, it is very reasonable to graduate in four years. You should meet with an advisor ASAP to plan a strategy. Also, use the Advisement Report in Wolverine Access to help you plan out your future courses.

### **Which courses should I take for my non-IOE Engineering core?**

The most popular of the courses are ME 211, CEE 211, MSE 220, EECS 314, CEE 265 and NERS 211.

### **Are there any study groups or tutoring services available?**

The Engineering Learning Center and Tau Beta Pi facilitate tutors for courses like Physics, Chemistry, Calculus, and ENGIN 100 and 101. APM facilitates tutors for 200– and 300-level IOE courses throughout the Fall and Winter semesters.

### **What types of careers do IOE graduates have?**

The possibilities are endless. Some examples are: Management and Strategy Consulting, IT Consulting, Banking, Manufacturing, Healthcare ...

### **Can I study abroad?**

Study abroad is possible, but usually only for general elective credits, Intellectual Breadth credits, or non-IOE engineering core courses. Check our website or talk to an advisor for information and restrictions. Planning ahead will give you the most options for study abroad courses.

### **If I get a D in one of my non-IOE engineering core courses do I have to retake the course?**

The IOE department does not require you to retake the course to fulfill graduation requirements.

### **What courses can I take pass/fail?**

Elective courses in Intellectual Breadth, or courses to be used as General Electives can be taken pass/fail. The pass/fail total is not to exceed four courses or 14 credit hours and is limited to two courses per term or one in a half term.

### **Are there any scholarships available?**

Yes. There are 9 scholarships: Michael Goldberg/Accenture, Myun Lee, H.R. and D.I. Rasch, Walton Hancock, Clyde Johnson, Accenture, Dow Supply Chain, Wyeth Allen and IOE Departmental Scholarships. For deadlines, applications, and requirements, please contact the IOE advisor.

### **How can I get a combined degree with LSA?**

Go to the College of Engineering (phone: 647-7117 Office: 145A Chrysler Center) to get a form to be filled out and take it to LSA for approval and signature.

### **How do I calculate my IOE GPA? Does it include ME, EECS, ... courses?**

To calculate your IOE GPA, add the MHP you received in your IOE courses and divide by the total number of credits received for these courses. This calculation includes only IOE courses, unless an IOE advisor has approved a substitution for an IOE course. If that is the case, the substituted course is calculated into the IOE GPA as well.

### **Can I get a minor in LSA?**

Yes, the College of Engineering has approved LS&A Minors. Approved minors: <https://bulletin.engin.umich.edu/ug-ed/other-minors/>.

# Study and Work Abroad

Consider studying abroad or being an overseas intern. It is a great way to gain the intercultural skills necessary for being an engineer in today's global environment.

Study/work abroad can be built into your engineering curriculum without any delay to your degree if you plan early and carefully. To start planning or just to find out more, stop by the College's International Programs in Engineering (IPE) Office. Do not wait too long to start the process because you will need approximately 6 to 9 months to plan and make it a reality.

At the International Programs Office you will get:

- Advice to help you decide where you want to go
- Information regarding the course pre-approval process
- Guidance on the whole application process
- Information on various work-abroad options

Remember these things as you consider study/work abroad:

- Most financial aid can be applied to UM programs
- Save some intellectual breadth courses for when you go abroad

## Course Evaluation Process

- The International Programs in Engineering Office coordinates course approval for coursework completed through UM study abroad programs. Information about this process is available online: <https://ipe.engin.umich.edu/studyabroad/courses/>.
- The Office of Recruitment and Admissions coordinates course approval for coursework completed through non-UM study abroad and all other transfer credit. Information about this process is available through the Transfer Credit Approval Form online: <http://tcaf.engin.umich.edu/>.
- All course approval must be granted before you travel abroad. Failure to obtain approval before going abroad may result in denial of transfer credit when you return.
- Course evaluation requests must be submitted no later than 8 weeks before the end of the semester prior to when you are going abroad.
- Upon receiving the study abroad course evaluation report, students must confer with the IOE advisor regarding the applicability of specific courses toward the IOE degree requirements.



# Study and Work Abroad (Continued)

## Recommended Courses for IOE Students

- IOE students participating in study abroad are encouraged to consider taking the following types of courses:
  - Lower-level college-required classes (math, physics, chemistry, etc.)
  - Non-IOE Engineering Courses (ME 211, MSE 220/250, CEE 260/265, etc.)
  - Non-IOE Technical Electives (see the approved list of Non-IOE Technical Electives courses on page 6)
  - Humanities, Intellectual Breadth & general electives
- A few technical electives have been approved in study abroad programs that can fulfill 400-level IOE technical electives. To have an IOE related course evaluated, follow the process described on the previous page.
- Depending on the content of the courses approved to be taken abroad, the IOE Undergraduate committee may deem it appropriate to place restrictions on which advanced technical electives you may take at UM when you return. (This may be because of overlap between UM classes and those taken abroad, or because the committee feels that the course of study would result in a deficiency in your education if you do not rectify it by taking specific technical electives.)
- In order to provide flexibility in approving courses, you should be aware that a class taken abroad may satisfy a required or prerequisite class even if the total credits granted are not equivalent to the UM class. Under these conditions, the IOE committee may specify how the extra credit must be made up.



## Student Societies

<https://ioe.engin.umich.edu/student-organizations/>

### Alpha Pi Mu

<http://webservices.its.umich.edu/drupal/apmioe/>

Alpha Pi Mu is a national Industrial Engineering honor society whose objectives are to confer recognition upon students of exceptional ability, to help advance industrial engineering education, and to help present the needs and ideals of the student body to the faculty. Undergraduates who rank scholastically in the upper one-third of the senior class or the upper one-fifth of the junior class, and who combine qualities of leadership and character with breadth of interest, are eligible for membership in Alpha Pi Mu.



Alpha Pi Mu hosts various activities during the year, including an Options Night in the fall term to discuss the areas of interest within IOE, and various community service activities. Alpha Pi Mu also sponsors tutoring for the 200-level IOE courses, administers the elections for the most outstanding faculty members and graduate student instructor (GSI) of the year, and assists with course evaluation activities.

### Human Factors and Ergonomics Society (HFES)

<http://www.umich.edu/~hfes/Webpages/index.html>

The University of Michigan Human Factors and Ergonomics Society Student (HFES) furthers student knowledge of human-centered design of systems and devices through hosting speakers from industry, organizing field trips to facilities applying human factors principles, and sponsoring events that encourage interaction among students, faculty, and staff interested in this field. If you are interested in learning more about HFES, please explore their website, or contact directly.



### Institute of Operations Research and the Management Sciences (INFORMS)

<https://sites.google.com/a/umich.edu/ioe-informs/>

INFORMS serves the scientific and professional needs of OR/MS students, educators, investigators, scientists, and practitioners. INFORMS serves as a focal point for OR/MS professionals, helping us to communicate with each other.



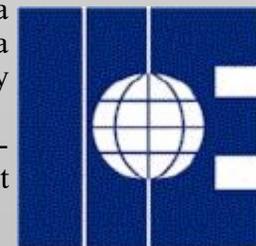
INFORMS can get you involved in national and local meetings, job interviews and resume listings, and student advice sessions. The main purpose is to keep you in touch with people who share your professional interests.

### Institute of Industrial and Systems Engineers

<https://sites.google.com/site/michiganiie/>

IIE is a national professional society committed to making its 40,000 members more aware of new technology in the field, and furthering the development of the industrial engineering profession. The student chapter at the University of Michigan consists of undergraduate and graduate students. Becoming a member is as easy as paying your national and local dues each year. Members receive a yearly subscription to IIE magazine and are eligible for several scholarships sponsored by the national IIE organization.

IIE has various activities throughout the year, including luncheons with speakers from industry, a dinner with the Senior Detroit Chapter, and happy hours. IIE also plans plant trips around the Ann Arbor area and compiles the annual IOE yearbook.



# Graduation

## Requirements to receive a B.S.E. /IOE degree and diploma:

“Apply for Graduation” on the Student Business page of Wolverine Access.  
Any honors/awards that you expect to receive and want listed in the commencement program are self-reported.

### Application Deadlines:

- April/May                      Early March
- August                            Early March
- December                        Middle of October

The College of Engineering offers a commencement for engineering students only once a year, in April or May at the end of the Winter semester.

For more information regarding the College of Engineering graduation events, visit: <http://graduation.engin.umich.edu/>.

*Note: If you need hotels and restaurants during graduation season, book them ASAP because they fill up very quickly.*



# Finding A Job

## Engineering Career Resource Center (ECRC)

The ECRC, located at 230 Chrysler Center, provides a variety of services for students looking for a job. They sponsor programs on resume writing and interviewing, just to name a few. The ECRC also manages a job-searching tool called **Engineering Careers, by Symplicity**, which can be accessed at <https://engineering-umich-csm.symplicity.com/> and is available to all enrolled engineering students. The tool lists future interviews by type or major, and students can access this information 24 hours a day. The job listings are for summer internships, co-op positions, and full time permanent employment. The ECRC offers numerous services to students; so *don't wait* until you're a senior to check them out. It's never too early to start!

### Where to Start

*To find an internship or a permanent position, there are a few steps you should follow.*

- **Write your Resume**  
Your resume is the first voice to recruiters about yourself and accomplishments (make sure you write it the best you can). It should preferably be a page long.  
To find out more about format and content, visit the ECRC. They frequently have workshops on how to improve your resume.
- **Sign up for Engineering Careers, by Symplicity** - <https://engineering-umich-csm.symplicity.com/>  
Login as a first time user (if you are), you will need to create a PIN for future access to your new account.  
Complete all the personal information asked and post your resume.  
Familiarize yourself with your new job-hunting tool.
- **The Fun Begins**  
The system will match your qualifications and interests with job postings that are currently available.  
You will be able to access them, search for them, read about them, and if interested send your resume through the system to them.
- **Almost Done**  
Now is the time to visit to the ECRC and ask all of your questions and learn more about the job searching system.

## Career Center

The Career Center offers many resources for students to plan their futures. They offer programs, reference letter files, a library of career resources, and a web-based program job search tool. Students should begin taking advantage of their services as soon as possible. The Career Center is located in the Student Activities Building. <https://careercenter.umich.edu/>.

## Job Placement

The IOE degree is an accredited engineering degree that opens doors to the technical arena and a wide spectrum of career opportunities. To reflect the wide array of career opportunities available to graduates, the IOE undergraduate program covers a range of topics. Students have the ability to concentrate in areas that coincide with their interests and career goals. They may focus in a particular area of IOE, or they may diversify considerably. With technical electives, students may make their program more engineering intensive or more business, social, or health science based. Regardless of the courses elected, each IOE graduate will develop advanced problem solving and optimization skills that can be applied to a number of specific fields.

Opportunities for IOE graduates are typically categorized into four specific areas: Manufacturing, Operations Research, Ergonomics, and Computer & Information Systems. Michigan's program is designed to give students exposure to each of these four areas. Presented here is a description of each, the preparation available at the undergraduate level, and a profile of a Michigan IOE graduate who works in that field.

### IOE Graduates are not limited

An IOE degree in no way limits graduates to one of these routes. These areas are presented simply to illustrate some of the typical job assignments that IOE graduates receive upon completing their degree.

The diversity in paths of University of Michigan IOE graduates is effectively demonstrated in the results from a recent survey of one thousand IOE alumni:

- 26% described themselves as non-engineering related managers or executives
- 16% were in other non-engineering positions
- 7% described their current position as "Industrial Engineer"
- 11% described their current position as "Consultant"
- Some graduates have even gone on to become Medical Doctors (0.4%) and Lawyers (1.8%)

### After Graduation Placement

Companies of across industries are always hiring Michigan IOEs. The ECRC has provided us with some names of companies that hire IOEs. These companies include:

<a href="#"><u>A.T. Kearney</u></a>	<a href="#"><u>Clarkston Group</u></a>	<a href="#"><u>McKinsey &amp; Company</u></a>
<a href="#"><u>Abbott Laboratories</u></a>	<a href="#"><u>Dell Computer</u></a>	<a href="#"><u>Microsoft</u></a>
<a href="#"><u>Accenture</u></a>	<a href="#"><u>Delphi Automotive Systems</u></a>	<a href="#"><u>PricewaterhouseCoopers</u></a>
<a href="#"><u>Amazon</u></a>	<a href="#"><u>Disney Corporation</u></a>	<a href="#"><u>Procter&amp;Gamble</u></a>
<a href="#"><u>American Express</u></a>	<a href="#"><u>Eaton Corporation</u></a>	<a href="#"><u>Qualcomm</u></a>
<a href="#"><u>American Management System</u></a>	<a href="#"><u>Exelon Nuclear</u></a>	<a href="#"><u>Raytheon</u></a>
<a href="#"><u>Andersen Consulting LLP</u></a>	<a href="#"><u>FCI</u></a>	<a href="#"><u>Results Systems</u></a>
<a href="#"><u>AON Consulting</u></a>	<a href="#"><u>Ford</u></a>	<a href="#"><u>Rockwell Automation</u></a>
<a href="#"><u>Applied Materials</u></a>	<a href="#"><u>General Motors</u></a>	<a href="#"><u>Sumitomo</u></a>
<a href="#"><u>Applied Safety and Ergonomics</u></a>	<a href="#"><u>Goldman Sachs</u></a>	<a href="#"><u>Sun Microsystems</u></a>
<a href="#"><u>Arthur Andersen LLP</u></a>	<a href="#"><u>Google</u></a>	<a href="#"><u>Target</u></a>
<a href="#"><u>Arthur D. Little</u></a>	<a href="#"><u>Haworth</u></a>	<a href="#"><u>Tyco International</u></a>
<a href="#"><u>Bain &amp; Company</u></a>	<a href="#"><u>Henrob Corporation</u></a>	<a href="#"><u>Unisys</u></a>
<a href="#"><u>Barclays Capital</u></a>	<a href="#"><u>Humantech</u></a>	<a href="#"><u>University of Chicago Hospital</u></a>
<a href="#"><u>Blue Cross Blue Shield</u></a>	<a href="#"><u>Intel</u></a>	<a href="#"><u>University of Washington</u></a>
<a href="#"><u>The Boston Consulting Group</u></a>	<a href="#"><u>KLA – Tencor</u></a>	<a href="#"><u>Washington Freedom</u></a>
<a href="#"><u>Cap Gemini Ernst and Young</u></a>	<a href="#"><u>The Martec Group</u></a>	<a href="#"><u>ZS Associates</u></a>

# IOE Opportunities

## Computer and Information Processing

**Description:** Computers and information systems are important components of modern business. Students are introduced to the basic terminology and concepts of information system design, construction, and usage. The values and limitations of computing capabilities are explored. Emphasis is placed on the use of computer hardware and software systems in information processing and on the interface of information systems with management in helping to achieve the objectives of an organization.

**For more information** about computer and information systems visit:

Association for Information Systems: <http://www.aisnet.org>

Association of Information Technology Professionals: <http://www.aitp.org>

## Ergonomics

**Description:** Ergonomics emphasizes the technical knowledge necessary to analyze and predict the performance of humans in human–machine systems. Basic courses cover capabilities and limitations of major human subsystems including cardiovascular, muscular, and cognitive (information processing) systems. Knowledge of these human subsystems is used to aid in the design of effective and safe working environments.

**For more information** about ergonomics visit:

Human Factors and Ergonomics Society: <http://hfes.org>

International Ergonomics Association: <http://www.iea.cc>

Occupational Safety and Health Administration: <http://www.osha.gov>

## Management Engineering

**Description:** In the design and implementation of integrated systems, industrial engineers must be able to master the technology of new systems, to understand the technical change process, and to achieve the benefits of such systems. Management engineering courses emphasize the role of people acting as individuals, and in groups, in operating systems. Theories of administration, group dynamics, and human motivation are applied to specific managerial problems related to the establishment, clarification and modification of an organization's objectives. They also cover the design, evaluation, and improvement of human–machine systems for accomplishing these objectives.

# IOE Opportunities (Continued)

## Manufacturing Engineering

**Description:** Manufacturing engineering is concerned with determining how to manufacture engineered products with minimal capital investments and operating costs in facilities safe to both workers and the environment. Students study methods for evaluating production and inventory systems, facility layout, and material handling systems and are prepared to aid in the daily operation of a manufacturing facility while evaluating operations for the future.

**For more information** about manufacturing engineering visit:

National Association of Manufacturers: <http://www.nam.org>

Society of Manufacturing Engineers: <http://www.sme.org>

## Operations Research

**Description:** Operations research is an applied science devoted to describing, understanding, and predicting the behavior of systems, and guiding them towards better performance. Courses in this area cover the use of mathematics in constructing models to analyze and design operational systems. Students study a variety of model structures and their application to real world processes such as production, maintenance, inspection, resource allocation, distribution, and scheduling.

**For more information** about operations research visit:

Operational Research Society: <http://www.orsoc.org.uk>

Institute for Operations Research and Management Sciences: <http://www.informs.org>

## Quality Engineering

**Description:** Industrial and Operations Engineering graduates understand how to cope with uncertainty in the design of engineering systems. In particular, they design quality control systems and apply reliability analysis and experimental design techniques to design better products and processes.

**For more information** about quality engineering visit:

American Society for Quality Engineering: [http://www.asq.org/quality\\_engineers.html](http://www.asq.org/quality_engineers.html)

# Graduate School

If you're thinking about applying to graduate school, below are some resources to consider. Many schools have web pages that you can access to find out information such as deadlines, admission requirements, and where to get an application.

However, if you're considering applying for graduate school here at UM's IOE department, you should go and talk to Matt Irelan, the Graduate Student Advisor, in 1753 IOE. He can discuss U of M requirements, course offerings, application procedures, and more with you.

## Web Pages

### U of M's IOE Graduate Program

<https://ioe.engin.umich.edu/academics/graduate/>. Information on degrees, professors, research, etc.

### The Petersons Guide

<http://www.petersons.com/> Information on schools all over the country. You can also send them an instant request for information from most any school.

### The Graduate Record Examination

<http://www.gre.org/> This page has sample questions and online registration for the GRE.

### US News and World Reports

<http://www.usnews.com/usnews/edu/beyond/bchome.htm> Read national rankings of graduate schools in any area, or up to date articles on various fields of study.



## Useful Web Sites

### **Institute of Industrial and Systems Engineers (IISE)**

<http://www.iise.org> Includes links to Journals, University societies, engineering publications, information about IIE, membership applications, and other engineering resources.

### **Job Search and Job Tips**

<http://www.monstertrak.com>

<http://www.careercenter.com>

<http://career.engin.umich.edu>

<http://www.vault.com>

## U of M Pages

### **U of M Registrar's Office**

<http://www.ro.umich.edu/> This page has final exam schedules, academic calendars, tuition information, transcript information, and much more.

### **Student Employment Office**

<http://studentemployment.umich.edu> This page has information on jobs for UM students, work-study information, and listings for both work-study and non work-study jobs on and around campus.

### **DPS Safety Tips**

<http://www.dps.umich.edu/> This page gives tips for students at their homes, on campus, and in your car. It also lists services available to walk you home if you're out late, such as Safewalk.

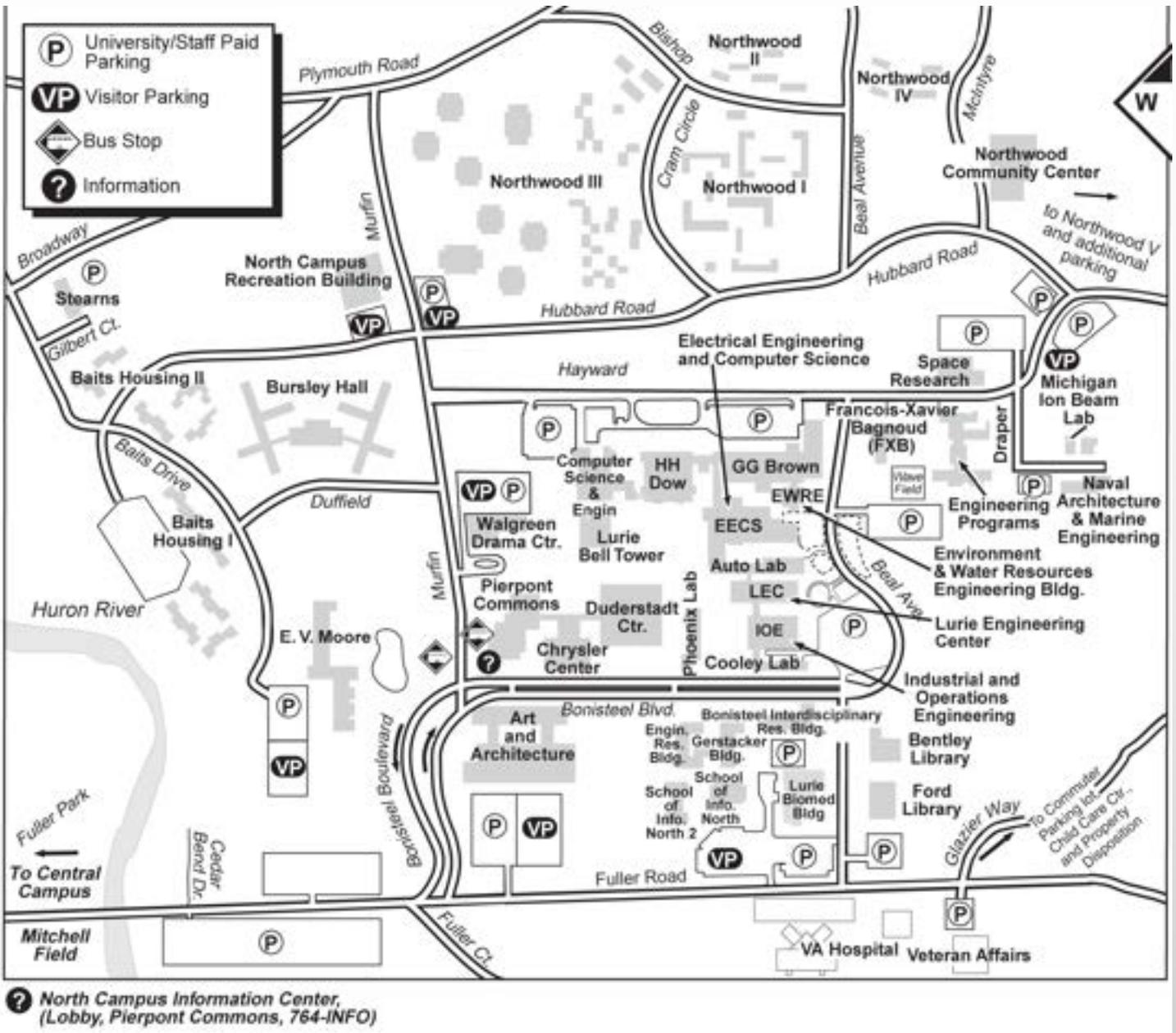
### **Michigan Engineering Mentoring Network**

<http://www.engin.umich.edu/college/info/alumni> A service sponsored by the Engineering Alumni Society. You can search their database for an alumnus in a particular state, with a certain company, and with any engineering major.

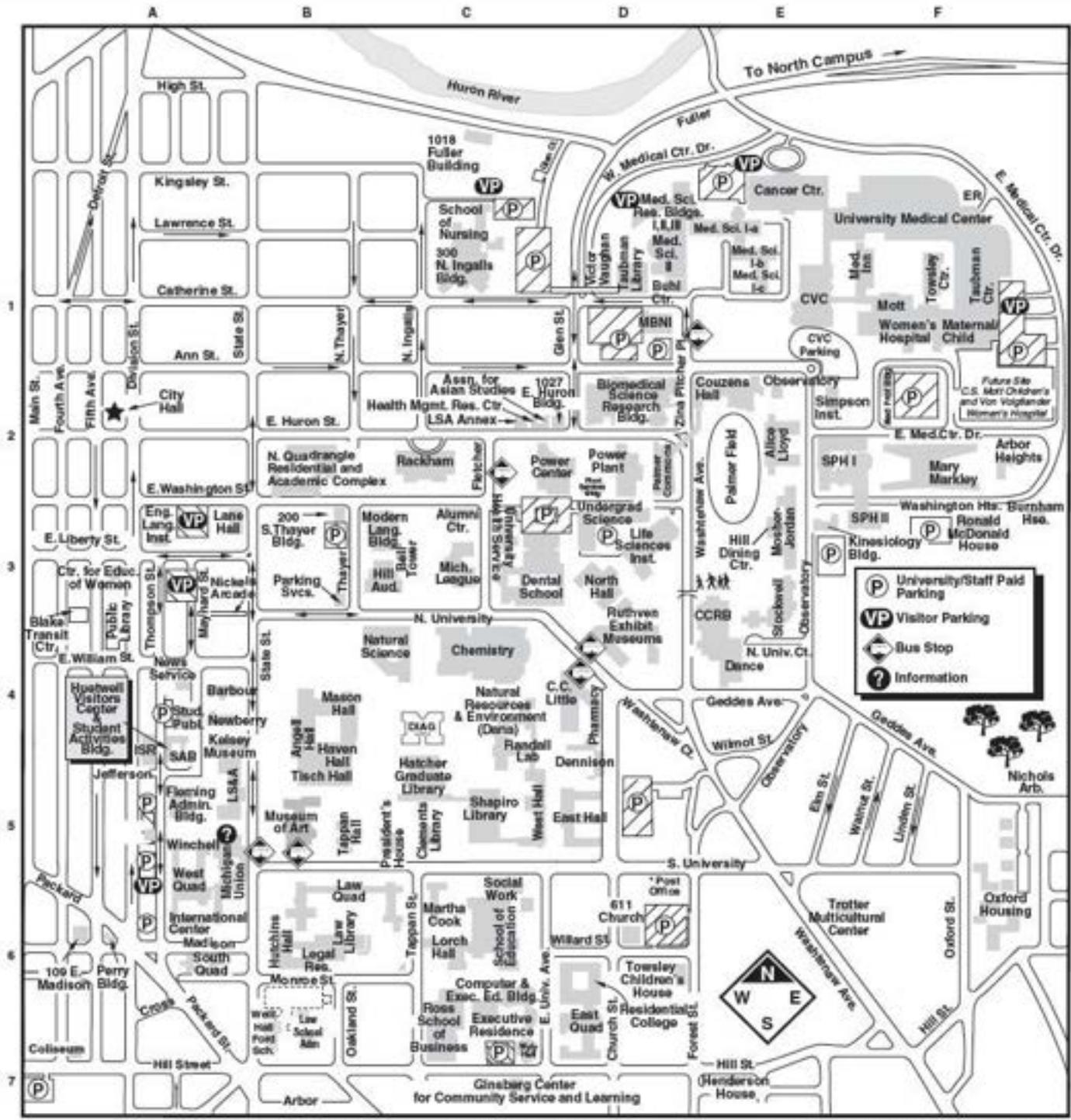
### **Online course guide**

<http://www.engin.umich.edu/college/academics/bulletin/courses> You can see all courses offered by the College of Engineering, along with their descriptions.

# Map of North Campus



# Map of Central Campus



To Wolverine Tower ↓

Ⓜ Campus Information Centers,  
(First floor, Michigan Union, 764-INFO)

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## Campus Contacts

<b>Campus Information Center</b>	Pierpont Commons Lobby, 763-INFO
<b>Career Center</b>	3200 SAB, 764-7460
<b>Office of Student Records</b>	145A Chrysler Center, 647-7111
<b>Combined Degree (IOE and LSA), Betsy Dodge</b>	145A Chrysler Center, 647-7111
<b>Cooperative Education (co-op), Janice Laughlin</b>	230 Chrysler, 647-7140
<b>Course Advising, Wanda Dobberstein</b>	1729 IOE, 764-3297
<b>Declaring IOE, Wanda Dobberstein</b>	1729 IOE, 764-3297
<b>Engineering Career Resource Center (ECRC)</b>	230 Chrysler Center, 647-7160
<b>Honors Program (info and applications), Stacie Edington</b>	251 Chrysler Center, 647-7129
<b>Engineering Honor Council</b>	143 Chrysler Center, 647-7117
<b>Engineering Learning Center (ELC) tutoring for Math, Chemistry, Physics, Computing, Engin courses, study groups.</b>	273 Chrysler Center, 647-7127
<b>Foreign Language Credit from First Year</b>	230 Chrysler Center, 647-7106
<b>Undeclared / Freshman Engineering Advising Center</b>	230 Chrysler Center, 647-7106
<b>International Center</b>	Central Campus, 936-4180
<b>International Programs in Engineering Office</b>	245 B Chrysler, 647-7026
<b>LSA Transfers</b>	153 Chrysler Center, 647-7101
<b>Center for Engineering Diversity &amp; Outreach (CEDO)</b>	1108 Lurie Engr. Center, 647-7120
<b>Office of Financial Aid</b>	2011, SAB 763-6600
<b>Office of the Registrar</b>	2202 Pierpont Commons, 763-7650
<b>Permissions (IOE)*, Wanda Dobberstein</b>	1729 IOE, 764-3297
<b>Peer Advising (IOE)</b>	1752 IOE
<b>Scholarships</b>	143 Chrysler Center, 647-7113
<b>Student Accounts</b>	2226 SAB, 764-7447
<b>Summer Courses, Off Campus / Transfer Credit</b>	153 Chrysler Center, 647-7101
<b>Summer Internships, Engineering Career Resource Center</b>	230 Chrysler Center, 764-8483
<b>Tau Beta Pi Engineering Honor Society, tutoring for 100 and 200 level: Math, Chemistry, Physics, Engineering courses</b>	764-6250
<b>University Mentorship Program</b>	3016 SAB, 764-6413
<b>Transcripts, Office of the Registrar (transcripts can also be ordered through Wolverine Access at <a href="http://wolverineaccess.umich.edu">http://wolverineaccess.umich.edu</a>)</b>	2202 Pierpont Commons, 763-7606

\* For permissions to classes not taught by the IOE department, contact the respective department office.

(SAB = Student Activities Building)



University of Michigan

College of Engineering

**Industrial and Operations Engineering**

IOE Building  
1205 Beal Avenue  
Ann Arbor, Michigan 48109-2117

(734) 764-3297  
(734) 764-3451 fax  
<https://ioe.engin.umich.edu/>

**The Regents of the University of Michigan**

<http://www.regents.umich.edu/>