

October, 2010

Greetings from University of Wisconsin-Madison!

This handbook has been prepared to help students from other campuses of the University of Wisconsin System and from Madison Area Technical College (Madison College) prepare to transfer to the University of Wisconsin-Madison College of Engineering.

It is normal for students planning to graduate from the UW-Madison College of Engineering to complete their admission requirements on another campus in the UW System or at Madison College. Almost half of the students who have graduated from engineering at the Madison campus began their course work on another campus or in another UW-Madison school or college.

One of the strengths of the University of Wisconsin System and Madison College is the autonomy of the individual units of the system - which even extends to departments within a single college. The impact of this on transferring students is that available courses offered at one unit may not be identical to those specified for a degree at another unit. The information within this booklet, as well as the use of the Transfer Information System (TIS) will enable students to choose either identical or equivalent courses to efficiently fulfill their graduation requirements.

The graduation requirements are officially defined in the University of Wisconsin-Madison Undergraduate Catalog effective for 2009-2011. Departmental curricula information is available through the web addresses listed on the curriculum pages in this book. You may also contact the departments for curriculum booklets. These booklets will list the latest course requirements and will supersede other publications.

Transfers to the College of Engineering must meet both the UW-Madison transfer expectations and the General College Requirements outlined on pages 4 and 5. Transfer students who are accepted must attend the Student Orientation, Advising, and Registration (SOAR) program to register for courses on this campus.

This handbook and the websites listed below will direct you to further information about University of Wisconsin - Madison and the College of Engineering.

Websites:

College of Engineering	http://www.engr.wisc.edu
Transfer Information	http://studentservices.engr.wisc.edu/transfer
Transfer Information System (TIS)	http://tis.uwsa.edu
Application for Admission	http://www.apply.wisconsin.edu/
UW-Madison Catalog	http://pubs.wisc.edu/ug/
Timetable on the Web	http://registrar.wisc.edu/schedule_of_classes.htm
Scholarships & Financial Aid	http://studentservices.engr.wisc.edu/money/
Departmental Websites	http://www.engr.wisc.edu/departments.html
SOAR Information	http://newstudent.wisc.edu/soar/

Sincerely,

Bonnie Schmidt
Transfer Admission Coordinator
e-mail: schmidt@engr.wisc.edu

TIPS FOR TRANSFERS

Table of Contents

Abbreviations	3
Application Deadlines	3
Admission Information	
Transfer Admission	4
General College Requirements (GCR) for entering a department	5
2010-2011 Credit Summary - Minimum graduation requirements	
Total Degree Credits	6
Lower Level Courses	6
Free Electives	6
Required Mathematics, Computer Science, Engineering Graphics, Statistics, Chemistry, Physics, and Engineering Mechanics Courses	7
Liberal Electives	8
Examples	9
Engineering Degree Descriptions	
Biomedical Engineering	10
Chemical Engineering	10
Civil Engineering	11
Computer Engineering	11
Electrical Engineering	12
Engineering Mechanics.....	12
Engineering Physics.....	13
Geological Engineering	13
Industrial Engineering	14
Materials Science and Engineering.....	14
Mechanical Engineering.....	15
Nuclear Engineering.....	15
Certificate Programs	16
Curricula Requirements	
Biomedical Engineering	19
Chemical Engineering	20
Civil Engineering	21
Computer Engineering	22
Electrical Engineering	23
Engineering Mechanics.....	24
Engineering Physics.....	26
Geological Engineering	27
Industrial Engineering	28
Materials Science & Engineering	29
Mechanical Engineering	30
Nuclear Engineering - Power Track	31
Nuclear Engineering - Radiation Sciences Track	32
Transfer Credit Equivalency	33
Academic Assistance	
Tutoring.....	34
Group Study Options.....	36
Chemistry Resources.....	36

Study Skills Workshops	36
Writing Lab.....	36
Engineering Counseling Service	36
International Engineering Studies and Programs	37
Diversity Affairs Office	37
Engineering Cooperative Education and Summer Internship Program.....	37
Scholarships, Loans, and Contests	38
Computer-Aided Engineering Center.....	39
Engineering Student Organizations	40
Referral sources: Where to go for Help.....	Back cover

ABBREVIATIONS USED IN "TIPS FOR TRANSFERS"

The abbreviations of engineering degree programs to the right are called Majors for pre-departmental engineering students, but are also called **DEGREE CLASSIFICATIONS** for students who have been admitted to the programs (see page 4). These are UW-Madison majors and classifications; other campuses might have others.

Pre-Departmental classification	EGR
Degree Classifications:	
Biomedical Engineering	BME
Chemical Engineering	ChE
Civil Engineering	CEE
Computer Engineering	CMPE
Electrical Engineering	EE
Engineering Mechanics	EM
Geological Engineering	GLE
Industrial Engineering	IE
Materials Science & Engineering	MSE
Mechanical Engineering	ME
Nuclear Engineering	NE

APPLICATION DEADLINES:

Consult the Office of Admissions website for the specific transfer application deadlines:

<http://www.admissions.wisc.edu/transfer/apply.php>

College of Engineering application deadline dates are firmly enforced. Priority is given to applications submitted on time. Late applications will be considered only if departmental capacity and application review time permits.

ENGINEERING TRANSFER ADMISSION

Transfer students must have completed the **General College Requirements (GCR)** for a degree classification in order to transfer directly into a degree-granting department of the College of Engineering (i.e., ChE, EE, ME, etc.). A student who lacks the requirements, but has attained sophomore standing, may transfer to UW-Madison as a student in the College of Letters and Science and transfer into the College of Engineering when all of the requirements for transfer have been met.

Transfer students must meet **both** the requirements set by UW-Madison as well as the requirements set by the college/school within that campus:

- For the UW-Madison Transfer Admission Expectations, see [http:// www.admissions.wisc.edu/transfer/requirements.php](http://www.admissions.wisc.edu/transfer/requirements.php)
- For the Engineering General College Requirements (GCR), see <http://studentservices.engr.wisc.edu/advising/degrees/generalcollegereq.html>

Thus, a transfer student may meet the college/school requirements but not the campus requirements, and vice versa. A student wanting to transfer to the College of Engineering should maintain as high a grade point average as possible since admission will be based on the capacity of the admitting unit. Students with the highest GPAs will be admitted first, working down to lower GPAs until capacity is reached. **The cumulative transfer GPA** required for most engineering programs is **usually a 3.0 minimum**.

For transfer students who completely satisfy the admission requirements before transferring to UW-Madison, all credits and grades earned at the institution(s) from which the student transfers are used to determine eligibility.

For students who transfer to UW-Madison before completely satisfying the regulations, all credits and grades earned at both UW-Madison and the previous institution are used to determine eligibility to an engineering program. Students must carry a minimum of one 12-credit semester and meet the **General College Requirements (GCR)**.

Transfer of Degree-Applicable Credits: A course taken anywhere other than at UW-Madison, or by independent study, is transferable to UW-Madison, College of Engineering in credits only. Credits count toward graduation only if it satisfies a graduation requirement of the curriculum to which it is to be applied.

Transfer of Grades: Grades for courses taken anywhere other than UW-Madison are not transferable. Grade point average is factored on all work attempted including repeated and failed grades.

Transfer of Credit: Students receive the same number of credits for the course(s) for which they take it on their campus. Accepted credits are counted toward the degree only for courses passed with a grade of C (2.0 on a 4.0 scale) or better.

Foreign Language Requirement: Two years of a single foreign language at the high school level or two semesters of a single foreign language at the college level. Foreign language taken at the college level can also be used to meet liberal studies electives and are considered to be humanities.

Outline: Engineering Transfer Admission Expectations

For admission to the COE, applicants must meet UW-Madison transfer admission requirements. Beyond these, applicants must meet additional requirements set by the COE.

1) UW-Madison Minimum Transfer Requirements. Consult the Office of Admissions website: www.admissions.wisc.edu/transfer/requirements.php. Please note the foreign language requirement: at least two high school years or two college semesters of a single foreign language.

2) COE Minimum Transfer Requirements. Below are the minimum requirements to be considered for transfer admission to engineering degree-granting programs. The General College Requirements are incorporated.

1. Communication Part "A" General Education Requirement
2. Introduction to Engineering course (recommended but not required for transfer students)
3. Physics: either EMA 201 (statics) or Physics 201 (calculus-based physics with lab, mechanics and heat) or equivalent.
4. Chemistry: either Chemistry 103-104 (two semesters of general chemistry with lab) or Chemistry 109 (accelerated chemistry with lab, usually the combination of Chemistry 103-104) or equivalent.
5. Calculus: Math 221 and 222 (first- and second-semester calculus) or equivalent.
6. Math/Science GPA*: Minimum 2.5 GPA, preferably higher, in at least 17 math/science credits that must include the courses in #3, #4, and #5 above. Grades for engineering courses if taken (other than intro-to-engineering, technical communication, and seminar/independent study courses) will also be considered.
7. Cumulative Transfer GPA: 3.0 minimum is expected
8. Admission also depends upon the degree program capacity. When capacity is limited, the GPA and math/science course requirements can be higher. Biomedical Engineering, Chemical Engineering, and Engineering Physics regularly have higher requirements.

*The following courses count toward the calculation of the minimum 2.5 math/science GPA:

- Computer Sciences: all courses 302 and above
- Math: all courses 217 and above
- Statistics: all courses 224 and above
- Physics: all courses 201 and above
- Chemistry: all courses
- Statics: EMA 201 only

Application Support

The COE looks for a strong match between the individual and the specified engineering program. In the application statement, students should explain their interests, related experiences and/or goals, and reasons for wanting to pursue engineering at UW-Madison. They may also explain circumstances that might have affected their academic record. Recommended: at least one letter attesting to the student's academic ability and/or engineering as a good academic/professional match.

After Admission: Curriculum

Students must follow the curriculum requirements in operation at the time of their admission.

2010-2011 CREDIT SUMMARY
Minimum Credits Required for Graduation

1. Total Degree Credits

Degree	BME	CHE	CEE	CMPE	EE	EM**	EP**	GLE	IE	ME	MSE	NE **
Total Credits	128	133	128	124	121	127	128	125	120	128	130	128

**EM, EP, and NE majors administered under the Dept. of Engineering Physics with common freshman and sophomore year curriculum.

2. Lower Level Courses

Students entering the College of Engineering are expected to be proficient in English and in mathematics below calculus (algebra, geometry, trigonometry, analytic geometry). Students deficient in such courses must take remedial courses. Remedial courses count only as free elective credits up to the total number available for a specific degree, but beyond that do not carry any graduation credit. Courses such as Math 101 carry no graduation credit in the College of Engineering.

3. Free Electives

Listed are the maximum number that are used toward graduation. Math courses below Math 112 do not count toward graduation. Remedial English 100, Algebra (Math 112), Trigonometry (Math 113), and combined Algebra/Trigonometry (Math 114) count only as free electives.

Degree	BME	CHE	CEE	CMPE	EE	EM	EP	GLE	IE	ME	MSE	NE
Free Electives	9	6	0	0	0	0	0	0	0	3	6	0

The numbers indicated are only approximate, in that students may have had to take remedial courses or exercised options which will alter the number of free electives. Students should contact departmental advisors if there are any questions.

4. Required Mathematics, Computer Science, Engineering Graphics, Statistics, Chemistry, Physics, and Engineering Mechanics Courses

	BME	ChE	CEE	CMPE
Math	221+222+234 319 or 320	221+222+234 319 or 320	221+222+234 and 319 or 320	221+222+234 240 or 475
Computer Science	302 or 310	No	CEE 291	302+367 536, 537, or 564
Engineering Graphics	No	No	ME 170 or 231	No
Statistics	Stat 541 or 371	Stat 324	Stat 324 or 311	ECE 331, Math 431, or Stat 311
Chemistry	109 or 103+104, 341 or 343, 344 + 345 or 327 or 329	109+329 343+344+345 562	109 or 103+104	Chem 109 or Chem 103 & 104
Physics and Engineering Mechanics	Phys 202 EMA 201,EMA 202 or ME 240	Phys 201+202 or Phys 207+208	Phys 202 or 208 EMA 201+202 EMA 303+307	Phys 201 or EMA 201 & 202 or EMA 201 & ME 240; Phys 202

	EE	EM	EP	GLE
Math	221+222+234 319 or 320	221+222+234 319+340	221+222 +234+ 319 + 321 *	221+222 234, 319 or 320
Computer Science	302+412, Adv Math/CS elective	NE 271 or CS310 Computing Elect	NE 271 or CS310 Computing Elect	GLE 291
Engineering Graphics	No	ME 231	ME 231	No
Statistics	ECE 331, Math 431, Stat 311, Stat 424, or Stat 426	Stat 224	Stat 224	Stat 324 or 311
Chemistry	109, or 103 &104	109	109	109
Physics and Engineering Mechanics	Phys 201 or EMA 201 & 202 or EMA 201 & ME 240; Phys 202; ECE 235	Phys 202 Phys 205 or 241 EMA 201+202 EMA 303+307	Phys 202 or 208 Phys 205 or 241 Phys 322,EMA 201or Phys 207, EMA 202 or Phys 311, EMA 303 +307	Phys 202 or 208 EMA 201 + 202 EMA 303 + 307

	IE	ME	MSE	NE
Math	221 + 222 + 234 320 or 340	221+222+234 320	221+222 319, **	221+222+234 319+321
Computer Science	302 or 310	302	CS 310 (preferred) or 302	NE 271 or CS310 Computing Elect
Engineering Graphics	No	ME 231+ 331	No	ME 231
Statistics	Stat 311+312; Math 319, Stat 333, or Stat/ME 424	Stat 224	Stat 224 or Stat 324 or Stat/ME 424	Stat 224
Chemistry	(103 + 104) or 109	Chem 103 + 104 or Chem 109 ***	Preferred 109 or Chem 103 &104 chem./sci II req.****, and Chem 341 or 343	109
Physics and Engineering Mechanics	Phys 201 or EMA 201 + (EMA 202 or ME 240); Phys 202	EMA 201 or Physics 201 ME 240 ME 306 + 307	Phys 201+202 or equiv. Phys 205 or equiv EMA 303	Phys 202 Phys 205 or 241 EMA 201+202 EMA 303+307

* See footnotes 8 and 9 of EP curriculum guide, page 4.

** Math 234 can count as Technical Elective in MSE curriculum

*** See Item A on back of ME flow chart

**** Chem 311, 327, 329, 345+lab 342 or Geology 203 or Zoology 101 + 102 or 151

5. Liberal Electives

“Liberal electives” are classes that are *not* science, engineering, math, or any class that teaches a skill such as art, dance, or music performance.

College of Engineering rules about liberal electives are very specific. All engineering undergraduates must take 16 credits (15 in curricula requiring 120 credits) that are classified as L, H, S, or Z.

L = Literature

H = Humanities

S = Social Studies

Z = Humanities/Social Studies

Many liberal electives have no particular prerequisites. Therefore, they are ideal for first-semester students.

In addition, foreign language courses count, and are a great idea because many engineers collaborate internationally.

To graduate, engineering students must fulfill the liberal-elective requirement. For all majors, that means having at least 15-16 credits of courses that fulfill the following requirements:

BREADTH

- At least three credits must be Social Sciences (S or Z).
- At least six credits must be Humanities (L, H, or Z).
- A foreign language counts as H
- Many AP classes count here.

DEPTH

- At least two courses must be from the same department (such as Sociology, French or Economics), and one of those has to be at least at the intermediate level.
- You can fulfill this sub-requirement by taking a single course in a foreign language if you place into a 200 or above class and get a B or better to earn retrocredits. These retrocredits don't count in any other way.

ETHNIC STUDIES

- You need one ethnic studies course designated L, H, S, or Z to graduate.
- Ethnic Studies courses cover modern American racial minorities; they are classified as “e”.

This sample list of courses fulfills the liberal-electives requirement:

EXAMPLE: FULFILLS REQUIREMENT

Philosophy 101	4 credits (ZE)
Philosophy 211	4 credits (ZI)
Economics 101	4 credits (SE)
InterEgr 101	2 credits (SE)
Chicano Studies 201	3 credits (SEe)

There are some exceptions to the general guidelines. Some departments have added to the basic rules for liberal electives.

- **CBE** – You must have 9-12 credits in the same department.
- **CEE** – You must have Economics 101, 102, or 111 and an environmental studies course from an approved list.
- **EE, CMPE** – At most three credits from liberal studies courses cross-listed with the School of Business may be applied to Liberal Studies
- **EP, EMA, NE** – Liberal elective classes from the School of Business must be cross-listed with L&S
- **Are you pre-med?** Helpful courses can include psychology, English literature, foreign language, sociology, anthropology, and economics

Examples of Liberal Elective Courses

Department	Course #	Classif.	Course Title
Amer Ind Studies	172	LEe	Intro to Lit of Native America
English	162	LE	Shakespeare
English	167	LE	Intro to British & American Lit
Lit in Translation	201	LE	19 th & 20 th Century Russian Lit
History	205	HE	Islam/Middle East, 500-1500
Lang & Cultrs of Asia	100	HE	Intro to Cultures of Asia
Music	105	HE	Opera
Spanish	203	HI	Spanish, Third Semester
Religious Studies	273	HE	Religion: Hist & Cultr of the East
Anthropology	104	SEe	Cultrl Anthro & Human Diversity
Economics	101	SE	Principles of Microeconomics
History	101	SE	Amer History to Civil War Era
Sociology	125	SE	Contemporary Amer Society
Poli Sci	104	SE	Intro-Amer Politics & Govrnmt
Intgr Liberal Studies	205	ZE	Western Culture: Politics & Econ
Intgr Liberal Studies	209	ZE	Intro to Global Cultures
Philosophy 101	101	ZE	Intro to Philosophy

And more! Take the opportunity to explore. For example ...

Consider studying a new foreign language.

60 languages are taught here! Russian, Arabic, Polish, Thai, Finnish, Swahili, Hindi, and more. All are classified “H”.



Department of Biomedical Engineering **Degree: Biomedical Engineering**

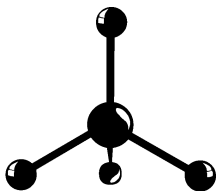
Room 2130 Engineering Centers Building, 1550 Engineering Drive
(608) 263-4660

<http://www.bme.wisc.edu>

bme@engr.wisc.edu

Biomedical engineering is the application of engineering tools for solving problems in biology and medicine. It is an engineering discipline that is practiced by professionals trained primarily as engineers, who specialize in medical and biological applications. Consequently, the BME undergraduate degree prepares students in mathematics, physical sciences, and engineering sciences. Biomedical engineers assert their multidisciplinary expertise for designing new medical instruments and devices, applying engineering principles for understanding and repairing the human body, and for decision making and cost containment using engineering tools. Biomedical engineers work in teams consisting of engineers, physicians, biologists, nurses, and therapists.

The BME degree leads either to medical school or to a masters BME program. Admission to BME is highly competitive, so all students interested in biomedical engineering should choose an alternative engineering major as a fallback.



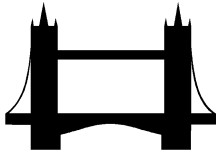
Department of Chemical & Biological Engineering **Degree: Chemical Engineering**

2014 Engineering Hall

(608) 262-1092

<http://www.engr.wisc.edu/che>

Chemical engineers study, develop and implement processes that involve chemical properties and transformations, for the benefit of society. They work in established fields such as pharmaceuticals, petroleum processing, chemical manufacture, plastics, food processing, consumer products and environmental protection, but also increasingly in emerging fields like biotechnology, nanotechnology, microelectronics manufacture, alternative energy resources and medical technology. The capability of chemical engineers to work in this broad array of fields arises from a curriculum that emphasizes general scientific principles of chemical, biological and physical processes.



Department of Civil & Environmental Engineering **Degree: Civil Engineering**

2304 Engineering Hall
(608) 890-0864
<http://www.engr.wisc.edu/cee>

Civil engineers design, construct, and manage public works facilities and projects, including roads and bridges; water supply and waste-treatment plants and systems; dams and reservoirs for water control and supply, power production, navigation, and recreation; and facilities to house and to transport people to where they live, work, and play. Civil engineers respond to society's complex problems by working with other engineers and with physical, biological, and social scientists to protect our natural resources and to create a better physical and social environment for all people. The civil engineer is a builder who understands the impact of engineering designs on the environment and on society, and who can play a role on interdisciplinary environmental design teams.

Civil Engineering has two distinct subdisciplines with separate curricula that lead to options in these fields. Students interested in the management and design functions related to construction facilities can obtain the option in Construction Engineering Management. Students interested in pollution abatement and remediation, water chemistry, and solid waste disposal can obtain the Environmental Engineering option.

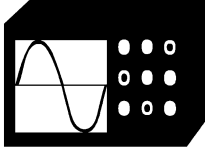


Department of Electrical & Computer Engineering **Degree: Computer Engineering**

2308 Engineering Hall
(608) 890-2075
<http://www.engr.wisc.edu/ece>

Computer engineers design, develop, analyze, research, and manufacture hardware, software, and systems that process, store, and convey information. These systems include personal computers, workstations, mainframe computers, and embedded digital systems. Embedded systems consist of one to many computers within other products such as aircraft, automobiles, communication switching systems and networking components, biomedical instrumentation, and industrial automation systems. These systems are characterized by the use of digital electronic hardware and of software in performing useful tasks. Computer software in combination with digital integrated circuits provides the foundation for the current revolution in computers and communications. Because digital systems usually include both hardware and software, a computer engineer typically has the hardware background of an electrical engineer and the software background of a computer scientist.

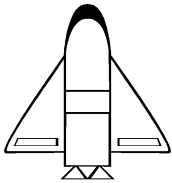
Computer engineers can choose to specialize in areas such as very large scale integrated (VLSI) systems design, embedded systems, electronic design automation and networks and communications. Due to the size and complexity of the problems solved, computer engineers work together in teams. This team aspect of the discipline is emphasized in the program of study. Due to the strong demand for computer engineering graduates and the resulting student interest, initial admission to this undergraduate program is likely to be competitive.



Department of Electrical & Computer Engineering **Degree: Electrical Engineering**

2308 Engineering Hall
(608) 890-2075
<http://www.engr.wisc.edu/ece>

Electrical Engineers (EEs) design and develop anything and everything that uses electricity: from the power systems that bring electricity to our homes and communications systems that allow us to keep in touch with family and friends, to the electronic devices, electrical appliances, computers, sensors, and medical equipment that shape our everyday lives. Typical careers may find an EE collaborating with medical doctors or astronauts in the space program, designing advanced automotive and transportation systems, and interacting with other engineers and professionals. Many EEs work as scientists, inventing new kinds of electronic technology, instrumentation, and devices to help people.



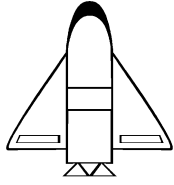
Department of Engineering Physics **Degree: Engineering Mechanics**

153 Engineering Research Building
(608) 263-1646
<http://www.engr.wisc.edu/ep/ema>

Engineering mechanics majors apply the physical laws that govern forces, motion, energy, and the deformation of materials under load to a wide variety of engineering problems. Engineers with expertise in mechanics are essential for the design of many projects, from nuclear reactors and energy storage systems to aircraft, automobiles, and other mechanical systems.

An exciting direction in Engineering Mechanics is the Astronautics option within the BS degree program. Students who choose this option will learn to apply the laws of physics to problems of aircraft design and control, rocket guidance and space flight, including orbits of the planets and moons, and the building and control of flight systems in air or in space.

The Engineering Mechanics degree is only one of the degrees offered by the Department of Engineering Physics. The first four semesters are identical for the Engineering Mechanics, Astronautics, Nuclear Engineering, and new Engineering Physics programs.



Department of Engineering Physics

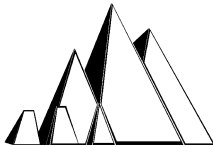
Degree: Engineering Physics

153 Engineering Research Building
(608) 263-1646
<http://www.engr.wisc.edu/ep>

The B.S. in Engineering Physics degree is designed for the ever-changing technologies and opportunities of the 21st century. The degree is designed to provide graduates with skills in emerging technological areas. These graduates will become a source of qualified employees for high-tech, start-up companies as well as traditional engineering firms, and are well prepared for advanced graduate degrees. Students choose a technological focus area to specialize in with the Engineering Physics degree. Initially, the technological focus areas to choose from will be:

- Nanoengineering
- Plasma Science and Engineering
- Scientific Computing

The first four semesters of the Engineering Physics program are identical to the Engineering Mechanics, Astronautics, and Nuclear Engineering programs.



Geological Engineering Program

Degree: Geological Engineering

1217 Engineering Hall
(608) 262-3491
<http://www.engr.wisc.edu/interd/gep>
kbleier@engr.wisc.edu
Student Services: Katie Bleier

Geological Engineering integrates two disciplines – geology and engineering. Geologists study the earth – its origins, its composition, and its evolution. Engineers apply scientific principles to practical ends, such as the design and construction of facilities. Geological engineers find the best ways to use the earth's resources to solve technical problems while protecting the environment. Geological engineers solve a variety of practical problems associated with rock and soils using principles of sustainable engineering. They design and construct structures, transportation facilities, dams, tunnels, and power plants. They mitigate naturally occurring phenomena such as floods, landslides, and earthquakes, and develop safe and environmentally sound sources of energy and minerals. They also manage groundwater and surface water resources to ensure the public has access to safe water. Geological engineers also design and construct subsurface repositories for waste disposal and remediate contaminated sites.

Geological Engineering is an interdisciplinary undergraduate and graduate program offered by the College of Engineering with the Department of Geoscience in the College of Letters and Science. The GLE undergraduate program has been arranged so that they may receive a second major in Geology from one streamlined curriculum.



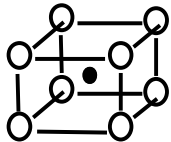
Department of Industrial and Systems Engr.

Degree: Industrial Engineering

3182 Mechanical Engineering Building

<http://www.engr.wisc.edu/ie>

Providers of goods and services rely on industrial and systems engineers to design and improve systems that involve people, equipment, and materials. Specifically, their real-world duties might include analyzing economic factors, designing facilities, studying feasibility issues, training employees, analyzing the interface between workers, equipment and environment (ergonomics), and designing computer systems to help people make better decisions. The industrial engineer's collaboration with many kinds of professionals within an organization helps achieve smooth and efficient operations. Such flexibility and creative approaches make ISyEs appealing to employers seeking candidates for management. Industrial and Systems engineers design the systems that organizations use to produce goods and services. In addition to working in manufacturing industries, ISyEs are vital links to quality and productivity improvement in places such as medical centers, communication companies, food service, education systems, government, transportation companies, banks, urban planning departments and an array of consulting firms. ISyEs educate and direct these groups in the implementation of improved processes and systems. Especially "hot areas" are manufacturing, health care, occupational safety and service organizations.



Department of Materials Science and Engr.

Degree: Materials Science and Engineering

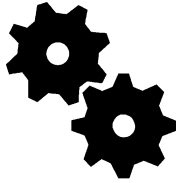
276 Materials Science and Engr. Building

(608) 262-3732

<http://www.engr.wisc.edu/mse>

Materials scientists and engineers develop and apply fundamental knowledge of the structure, processing and properties of materials to develop new technologies and improve existing ones. Advances in technologies ranging from structural materials to electronics to communications to transportation systems to energy production to biotechnology all depend on the creation and utilization of new materials with superior properties and manufacturability. Materials is one of the most rapidly growing and enabling areas in all of science and engineering.

Materials science and engineering is a broad field that intersects all areas of technology and underpins many of them. Graduates of the program may find employment in fields that range from traditional metals casting to aerospace applications to the emerging areas of nanoscience, biotechnology and beyond. Students who enjoyed the sciences in high school and are interested in their applications to real world technologies should definitely consider a curriculum and career in materials science and engineering.



Department of Mechanical Engineering

Degree: Mechanical Engineering

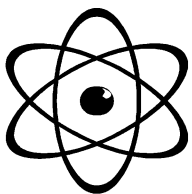
3182 Mechanical Engineering Building

(608) 262-3543

<http://www.engr.wisc.edu/me>

Mechanical engineers are the general practitioners of the engineering profession and they are involved in essentially every engineering application. It would not be possible to list all of the areas that depend on mechanical engineers. However, traditional areas are in the automotive, heating and refrigeration, robotics, machine design, materials processing, process control and manufacturing industries. In these and other areas, mechanical engineers apply physics and engineering principles to the analysis, design, and production of energy and mechanical equipment. Mechanical engineers are increasingly being called upon to improve the efficiency of processes so that they require less energy and production time and have reduced impact on the environment. The diversity within the Mechanical Engineering curriculum provides graduates with a breadth of career opportunities including sales, marketing, and management in addition to design.

The Mechanical Engineering Department at UW-Madison is staffed by internationally-known professors who conduct research as well as teach principles of engineering. The faculty have active research programs in solar energy utilization, internal combustion engines, cryogenics and refrigeration, polymer processing, applied mechanics, computer chip manufacturing processes, robotics, laser welding and other area. Undergraduate students benefit from up-to-date knowledge of the faculty and the modern facilities.



Department of Engineering Physics

Degree: Nuclear Engineering

153 Engineering Research Building

(608) 263-1646

<http://www.engr.wisc.edu/ep/neep>

Nuclear engineers design systems and processes in which radiation plays a prominent role. The traditional nuclear engineering degree focuses on power production from fission reactors. Nuclear engineers in the nuclear power industry design fuel, operate and maintain power plants, and design procedures to minimize occupational exposure. The excellent employment prospects in this field are shown by a recent 2001 survey of nuclear engineering employers. It revealed that over 75% are finding a shortage of qualified nuclear engineers. Nuclear engineering also provides an excellent background for students interested in nuclear medicine or medical physics; in these fields, radiation is used to treat patients with inoperable tumors or vessel malformations. Still other nuclear engineers design equipment or processes related to plasmas – partially or fully ionized gases. Low energy plasmas are used in manufacturing materials, while high energy plasmas will eventually offer a new source of energy through nuclear fusion.

A recent curricular innovation that reflects growth in broader career opportunities is the track on radiation sciences. Two other innovations that set Nuclear Engineering apart are the Distinguished Scholars Honors Program and the 5-year combined BS/MS program.

Certificate Programs

While UW-Madison does not have minors, it does offer organized programs in specific disciplines that lead to a certificate and a transcript notation indicating successful completion. The College of Engineering offers four such certificates. The newest programs are the Biology in Engineering Certificate and the Certificate in International Engineering. See studentservices.engr.wisc.edu/advising/degrees/certificates.html



Japanese Studies

(608) 262-4810

<http://www.engr.wisc.edu/epd/tjc>

The Certificate in Japanese Studies is designed to help undergraduate engineering students gain conversational and written skills in colloquial Japanese, reading and translation skills in technical Japanese, and an understanding of the Japanese culture. Japanese has become an important language in engineering and business. Increasing numbers of American companies are doing business in Japan, and many Japanese companies are expanding their activities in the United States.

The certificate requires three semesters of Japanese language, two semesters of intermediate-level technical Japanese, and one additional course related to Japanese language or culture.



Technical Communications

(608) 262-8073

<http://www.engr.wisc.edu/epd/tc>

The Technical Communication Certificate (TCC) complements all undergraduate engineering degrees. The TCC curriculum helps you gain a broad range of skills in these areas:

- Written, oral and graphic communication
- Online communication and electronic publishing
- Team projects and interpersonal communication
- Professional communication through the TCC internship

Now in its eighteenth year, the TCC has established itself as a program that meets industry and government agencies' demands for engineers who are skilled communicators and for communication specialists. Because employers value well-developed communication skills, the TCC courses will enhance your success in co-op/intern positions and post-graduation careers.

The TCC requires 24 credits, including 9 credits in technical courses (most of which are already required for any engineering degree) and 15 credits in technical communication (3 to 5 credits of which may count toward technical, liberal, or free electives, depending on the major).

Other certificates are offered by units outside the College of Engineering. Some certificates commonly taken by engineering students include the Certificate in Business, the Environmental Studies Certificate and the Global Studies Certificate.

Biology in Engineering Certificate

<http://studentservices.engr.wisc.edu/advising/degrees/certificates.html>

The Biology in Engineering Certificate, administered by Academic Affairs in the College of Engineering, is designed for engineering students who want to strengthen their biology backgrounds. It is offered especially to encourage engineering students in traditional disciplines to prepare themselves to understand the special engineering problems in biology and medicine. A student successfully fulfilling the requirements will have the notation "Biology in Engineering Certificate" added to their transcript.

The 15-credit Biology in Engineering Certificate (BEC) program was designed and will be administered by a Biology in Engineering Certificate Committee composed of faculty from multiple engineering disciplines. Students normally should begin the program during their sophomore or junior year, but seniors may also apply. For more information, visit 2620 Engineering Hall or call 608/262-3484.

Prerequisites required to enter the certificate program:

* Prior admission to an engineering B.S. degree program or Biological Systems Engineering through the College of Agricultural and Life Sciences at the UW-Madison or alternatively have an accredited B.S. degree in any engineering discipline.

* Students pursuing an undergraduate degree at UW-Madison need to have completed at least one intermediate-level (minimum 200-level) engineering course.

See the certificate website for more information about advisors, courses, and the application form.

Certificate in Engineering for Energy Sustainability

University of Wisconsin Energy Institute

http://www.energy.wisc.edu/?page_id=1077

(608) 262-4515

info@energy.wisc.edu

Equity and sustainability of energy resources in the face of increasing global population and economic development are key issues at the center of the public discourse today. The objective of this certificate program is to offer undergraduate students a suite of courses addressing energy sustainability that span across the engineering curriculum, with firm roots in “real world” design and engineering practices.

Students who are enrolled as degree-seeking undergraduate students with a minimum GPA of 2.5 and a plan of study to fulfill the certificate requirements may enroll in the program. A student interested in completing the certificate program must contact a particular faculty member in their major department to apply.

Students will select the 16 “sustainability credits” from a suite of available courses that are divided into the following categories: Science/Liberal Studies, Engineering, Capstone. Students will be required to take a minimum of 3 credits from each category, and a maximum of 6 from any category.

Capstone courses associated with the certificate program are offered by faculty within various departments, supervising independent work by students who are nearing completion of their corresponding degree program, with parallel interest in the subject of energy sustainability. Supervising faculty of the respective capstone courses will assign sustainability credits for their courses.

Students will also have to fulfill a one-credit seminar requirement. This will consist of student presentations and panel discussions on the topics of energy sustainability

During the term that they expect to meet the certificate requirements, students must fill out and submit a course plan to the supervising faculty member of their capstone courses in their major department. The certificate program is designed to fit into any engineering major’s study plan.

See the certificate website for more details

Certificate in International Engineering

<http://studentservices.engr.wisc.edu/advising/degrees/certificates.html#intlengr>

international@engr.wisc.edu

The Certificate in International Engineering demonstrates your knowledge of a specific country or region outside the United States. This credential appears on your transcript, strengthens your résumé and testifies to your preparation for an international career.

An undergraduate student in the College of Engineering or the Department of Biological Systems Engineering can earn the certificate by completing at least 16 credits of coursework with a primary focus on the language, culture, history, geography, society or institutions of a particular country or region of the world.

The requirements include:

1. Language courses

A maximum of nine credits may be devoted to courses in a foreign language. Only foreign language courses completed after the first 8 credits may be used to satisfy this requirement. A maximum of three credits from Independent Study or Directed Study may be counted toward either the language or area studies requirement.

2. Area studies courses

A minimum of six credits must be devoted to courses with a major emphasis on the culture, history, geography, society or institutions of one country or the countries in a geographically identifiable region of the world. These courses must be selected from at least two departments. A maximum of three credits from Independent Study or Directed Study may be counted toward either the area studies or language requirement.

3. International experience

A documented minimum stay of five weeks for study or work (including an internship or co-op) in the designated country or region is required.

4. International engineering course

Successful completion of the one-credit course InterEGR 413, “Current Issues in International Engineering,” to be taken after the international stay, is required.

BIOMEDICAL ENGINEERING

<http://www.engr.wisc.edu/bme/current/undergrad/curriculum>

UNDERGRADUATE CURRICULUM

Four-Year Schedule

(128 Total Credits Required)

FRESHMAN YEAR

<u>First Semester</u>		<u>Credits</u>	<u>Second Semester</u>		<u>Credits</u>
Chem 109	General Chemistry I	5	Chem 327***	Analytical Chemistry	4
Math 221	Calc & Analytic Geometry	5	Math 222	Calc & Analytic Geometry	5
EPD 155	Basic Communication	2	EMA 201	Statics	3
Interegr 160	Introduction to Engineering	<u>3</u>	Chem 343	Intro Organic Chemistry	<u>3</u>
		15	or 341		15

SOPHOMORE YEAR

Zool 101	Animal Biology	3	CS 302 or 310	Intro to Programming	3
Zool 102	Animal Biology Lab	2	BME 310	Bioinstrumentation	3
Math 234	Calculus	3	BME 201	Biomed engr design	1
Phys 202	General Physics	5	Chem 345*	Intermed Organic Chem	3
BME 200	Biomed Engr Design	1	ECE 230	Circuit Analysis	4
EMA 202 or	Dynamics	<u>3</u>	Math 319	Advanced math elective	<u>3</u>
ME 240		17	or 320		17

JUNIOR YEAR

Chem 344*	Intro Organic Chem Lab	2	Elective	Adv. Life Science Elec	3
BME 315	Biomechanics	3	Elective	Adv. Life Science Lab Elec	2
Physiol 335**	Physiology	5	BME 430	Biomaterials	3
BME 300	Biomed engr design	1	BME 301	Biomed engr design	1
STAT 371 or	Intro to Biostatistics	3	Elective	Technical Electives	3
541 ****					
Elective	Liberal Studies Elective	<u>2</u>	Elective	Liberal Studies Elect	<u>4</u>
		16			16

SENIOR YEAR

EPD 397	Technical Writing	3	Elective	Advanced BME Technical Elect	3
BME 400	Biomed Capstone Design	3	BME 402	Biomed engr design	1
Elective	Technical Electives	6	Elective	Technical Elective	6
Elective	Liberal Studies Elect	<u>4</u>	Elective	Liberal Studies Elect	<u>6</u>
		16			16

* Or elective or 300-level engineering technical elective

** Or Animal Science 301

*** Or Chem 329 or Chem 344 and 345. Premeds should take Chem 109 + 327 (329) + 343 + 344 + 345 or Chem 103 + 104 + 343 + 344 + 345.

Premeds should consider taking a biochemistry course, but this is not part of the BME curriculum and can only be taken as a free elective.

**** Stat 301 is not permitted as a replacement for the biostatistics requirement.

CHEMICAL ENGINEERING
<http://www.engr.wisc.edu/che/current/undergrad/curriculum>
UNDERGRADUATE CURRICULUM
Four-Year Schedule
(133 Total Credits Required)

FRESHMAN YEAR

<u>First Semester</u>		<u>Credits</u>	<u>Second Semester</u>		<u>Credits</u>
Chem 109	Gen'l & Analytic Chem	5	Chem 329*	Fund. of Analytical Sci	4
Math 221	Calc & Analytic Geometry	5	Math 222	Calc & Analytic Geometry	5
Elective	Communications Elec	2	Phys 201	General Physics	5
Elective	Liberal Studies Elec	<u>3</u>	Elective	Liberal Studies Elective	<u>3</u>
		15			17

SOPHOMORE YEAR

CBE 250	Process Synthesis	3	CBE 255	Intro to Chem Process	3
Chem 343	Intro Organic Chemistry	3	CBE 310	Chem Process Thermodyn	3
Math 234	Calculus	3	Chem 344	Intro to Organic Chem Lab	2
Phys 202	General Physics	5	Chem 345	Inter Organic Chem	3
Zoo 153	Intro to Biology	<u>3</u>	Math	Math 319 or 320	3
		17	Stat 324	Intro Appl Stats for Engrs	3
					17

JUNIOR YEAR

CBE 320	Intro Transport Phenomena	4	CBE 324**	Transport Phenomena Lab	3
CBE 311	Thermodynamics of Mixtures	3	CBE 326	Momentum & Heat Transfer	3
Elective	Advanced Biology Elec	3	Chem 562	Physical Chemistry	3
Elective	Liberal Studies Elec	3	Elective	Professional Breadth Elec	3
Elective	Professional Breadth Elec	<u>3</u>	Elective	Liberal Elective	<u>4</u>
		16			16

SENIOR YEAR

CBE 426	Mass Transfer Operations	3	CBE 450	Process Design	3
CBE 430	Chem Kinetics & Reactor Design	3	CBE 470	Process Dynamics & Control	3
CBE 440 or	Chem. Engr. Materials or	3	Elective	Free Elective	6
CBE 540	Polymer Science & Tech		Elective	CBE Elective	<u>3</u>
Elective	CBE Elective	3			15
Elective	Liberal Elective	<u>3</u>			
		15			

SUMMER (5 WEEKS) CBE 424 Oper & Proc Lab, 5 cr.

*Chem 327 will substitute for Chem 329 is taken before transfer

**Stat 224 will substitute for Stat 324 if taken before transfer

CIVIL ENGINEERING

http://www.engr.wisc.edu/cee

UNDERGRADUATE CURRICULUM

Four-Year Schedule

(128 Total Credits Required)

FRESHMAN YEAR

<u>First Semester</u>		<u>Credits</u>	<u>Second Semester</u>		<u>Credits</u>
Math 221	Calc & Analytic Geometry	5	Math 222	Calc & Analytic Geometry	5
InterEgr 101/160 **	Intro to Engr	1-3	EMA 201	Statics	3
Chem 109*	General Chemistry	5	ME 170^^	Civil Engr Graphics	2
EPD 155	Comm A	2	Elective	Liberal Studies Elective	3
Elective	Liberal Studies Elective	<u>3</u>	Geol 100/101/106	General Geology	<u>3</u>
		16-18			16

SOPHOMORE YEAR

Math 234	Calculus	3	EMA303/ ME 306	Mechanics of Materials	3
EMA 202	Dynamics	3	CEE 310	Fluid Mechanics	3
BOT/ZOO 260/151/153 Or Micro 101	Introductory Biology	3	EMA/ME 307	Mech of Materials Lab	1
Stat 324/311^	Intro Statistics for Engr	3-4	EPD 275	Technical Presentations	2
CEE 320	Environmental Engr	<u>3</u>	CEE 291 Math 319/320	Prob Solv Using Cmptr Tools	3
		15-16		Differential Equations	<u>3</u>
					15

JUNIOR YEAR

CEE 311	Hydroscience	3	CEE 395	Matls for Constr Facil	3
CEE 340	Structural Analysis I	4	Phys 202/208	General Physics	5
Econ 101/102/111	Principles of Econ	3-4	CEE 330	Soil Mechanics	4
CEE 370	Transportation Engr	3	Elective	Environ Studies Elec	<u>3</u>
EPD 397	Technical Communication	<u>3</u>			
		16-17			15

SENIOR YEAR

Elective	Liberal Studies Elective	3-4	Elective	Applied Engr Elec (1)	13
Elective	Applied Engr Elec (1)	7	CEE 578	Capstone Design	<u>4</u>
CEE 498	Construction Proj. Mgmt	3			17
Prep	Applied Design Course	<u>3</u>			
		16-17			

Note: PASS/FAIL REGULATIONS: Up to two P/F courses may count toward the CEE degree. These courses must be liberal electives only and do not include the required ECON 101 (or equiv) or the required Environmental Issues Course.

*CEE will accept the Chem 103-104 sequence

**InterEgr 160 will count toward the Applied Engineering Requirement/InterEgr 101 will count toward Liberal Studies Requirement

^ Stat 224 will substitute for Stat 324 if taken before transfer.

^^ME 231 will substitute for ME 170

COMPUTER ENGINEERING

<http://www.engr.wisc.edu/ece/current/undergrad/cmpe/curriculum>

UNDERGRADUATE CURRICULUM

Four-Year Schedule

(124 Total Credits Required)

FRESHMAN YEAR

<u>First Semester</u>		<u>Credits</u>	<u>Second Semester</u>		<u>Credits</u>
Math 221	Calc & Analytic Geometry	5	Math 222	Calc & Analytic Geometry	5
Chem 109	Gen & Analytic Chem	5	CS 302	Algebraic Language Prog	3
ECE/CS 252	Intro to Comp Engineering	2	Phys. 201	General Physics	5
Elective	Comm A Elective	<u>2</u>	Elective	Liberal Studies Elective	<u>3</u>
		14			16

SOPHOMORE YEAR

Math 234	Calc & Analytic Geometry	3	ECE 220	Electrodynamics I	3
Phys. 202	General Physics	5	ECE 230	Circuit Analysis	4
ECE 170	Introductory Laboratory	1	CS 367	Data Structures	3
ECE/CS 352*	Digital Systems Fund.	3	ECE/CS 354	Machine Org. and Prog.	3
CS/Math 240	Intro to Discrete Math	<u>3</u>	Elective	Liberal Studies Elective	<u>3</u>
		15			16

JUNIOR YEAR

ECE 270	Circuits Laboratory I	1	ECE 551	Dig Sys Design/Synthesis	3
ECE 330	Signals and Systems	3	ECE/CS 552	Intro to Comp. Arch.	3
ECE 340	Electronic Circuits I	3	Elective	CMPE Advanced Elective	3
ECE 353	Intro to Microproc Sys	3	Elective	Probability/Statistics	3
Elective	General Science	3	Elective	General Science	3
Elective	Liberal Studies Elective	<u>3</u>	ECE 321	Trans Lines for Dig Apps	<u>1</u>
		16			16

SENIOR YEAR

Elective	Systems Software	3-4	EPD 397	Technical Communication	3
Elective	Design Laboratory Elective	4	Elective	General Science	2
Elective	Mini-Laboratory Elective	1	Elective	CMPE Advanced Elec(s)	4-5
Elective	Electronic Circuits Elective	3	Elective	CMPE Advanced Elective	3
Elective	Liberal Studies Elective	<u>4</u>	Elective	Liberal Studies Elective	<u>3</u>
		15-16			15-16

*Courses that formerly transferred as ECE/CS 352 might now instead fulfill ECE/CS 252, which is a prerequisite for ECE/CS 352. To be determined per individual, depending on other ECE/CS courses taken prior to transfer.

ELECTRICAL ENGINEERING

<http://www.engr.wisc.edu/ece/current/undergrad/ee/curriculum>

UNDERGRADUATE CURRICULUM

Four-Year Schedule

(121 Total Credits Required)

FRESHMAN YEAR

<u>First Semester</u>		<u>Credits</u>	<u>Second Semester</u>		<u>Credits</u>
Math 221	Calc & Analytic Geometry	5	Math 222	Calc & Analytic Geometry	5
Chem 109	General Chemistry	5	Physics 201	General Physics	5
ECE/CS 252	Intro to Comp Engineering	2	CS 302	Algebraic Language Prog	3
Elective	Comm A elective	<u>2</u>	Elective	Liberal Studies Elec	<u>3</u>
		14			16

SOPHOMORE YEAR

Math 234	Calc & Analytic Geometry	3	ECE 220	Electrodynamics	3
Phys 202	General Physics	5	ECE 230	Circuit Analysis	4
ECE 170	Introductory Lab	1	ECE 270	Circuits Laborator I	1
ECE/CS 352*	Digital System Fund.	3	Elective	Adv. Math Elective	3
Elective	Liberal Studies Elec	<u>4</u>	Elective	Liberal Studies Elec	<u>3</u>
		16			14

JUNIOR YEAR

ECE 271	Circuits Laboratory II	1	ECE 335	Microelectronic Devices	3
ECE 320	Electrodynamics II	3	Elective	EE Advanced Elec	4
ECE 330	Signals & Systems	3	Elective	Prob/Stats	3
ECE 340	Electric Circuits	3	Elective	EE Lab Elective	1
ECE 235	Intro Solid St. Electronics	3	Elective	Adv. Math/CS Elective	<u>3</u>
EPD 397	Technical Communication	<u>3</u>			14
		16			

SENIOR YEAR

Elective	EE Advanced Elec	3	Elective	Science/Eng. Elec	4
Elective	EE Advanced Elec	3	Elective	EE Advanced Elec	3
ECE 370	Advanced Lab	2	Elective	EE Advanced Elec	3
CS 412	Numerical Methods	3	Elective	EE Advanced Elec	3
Elective	Liberal Studies Elective	3	Elective	Liberal Studies Elec	<u>3</u>
Elective	EE Lab Elective	<u>1</u>			16
		15			

Some ECE Advanced Electives are not offered every semester, therefore, this plan may require modifications in the last three semesters. See the handout "ECE Department *Tentative* Course Offerings", available online (<http://www.engr.wisc.edu/ece/current>) or in the South Student Services Center (2304a Engineering Hall) for more information.

*Courses that formerly transferred as ECE/CS 352 might now instead fulfill ECE/CS 252, which is a prerequisite for ECE/CS 352. To be determined per individual, depending on other ECE/CS courses taken prior to transfer.

ENGINEERING MECHANICS

<http://www.engr.wisc.edu/ep/ema/current/undergrad/curriculum/>
(for students entering the program after May 2001)

UNDERGRADUATE CURRICULUM

Four-Year Suggested Sequence

(127 Total Credits Required)

FRESHMAN YEAR

<u>First Semester</u>		<u>Credits</u>	<u>Second Semester</u>		<u>Credits</u>
Chem 109	General & Anal Chem I ¹	5	EMA 201	Statics ³	3
Math 221	Calculus & Anal Geom	5	Math 222	Calculus & Anal Geom.	5
Elective	Commun "A" Elec	2	Stat 224	Intro to Stat for Engr	3
InterEgr 160	Intro to Engineering ²	<u>3</u>	ME 231	Graphics	2
		15	Elective	Liberal Studies Elec	<u>3</u>
					16

SOPHOMORE YEAR

Math 234	Calc & Analytic Geometry	3	Math 319	Differential Eqns	3
Phys 202	General Physics	5	Phys 241/205	Modern Physics	3
EMA 202	Dynamics	3	ME 361	Engr Thermodynamics	3
NE 271	Engr Prob Solv I ⁴	3	EMA 303	Mechanics of Matls	3
EPD 275 or	Public Speaking	<u>2</u>	EMA 307	Mechanics of Matls Lab	1
CA 105		16	Elective	Liberal Studies Elec	<u>3</u>
					16

JUNIOR YEAR

EMA 506	Adv Strength of Matls	3	EMA 405	Pract. in Finite Elements	3
EMA 542/545	Adv Dynamics/Vibrations ⁵	3	EMA 611	Or EMA 540 or EMA 570	3
Math 340	Linear Algebra	3	ME 363 or	Fluid Mechanics	3
MS&E 350	Intro to Matls Science	3	CEE 310	Computing Elective	3
EPD 397	Technical Writing	3	Elective	Technical Electives	<u>3</u>
Elective	Liberal Studies Elec	<u>3</u>	Elective		15
		18			

SENIOR YEAR

EMA 469	Design Prob in Engr	3	EMA 569	Senior Design Project	3
EMA 521	Aerodynamics ⁶	3	ME 364	Heat Transfer	3
ECE 376	Electrical Circuits	3	Elective	EMA Electives	6
Elective	EMA Electives	3	Elective	Liberal Studies Electives	<u>3</u>
Elective	Liberal Studies Elec	<u>4</u>			15
		16			

- Students should take Chem 109, 5 crs; students with inadequate preparation in high school chemistry may substitute Chem 103 and 104, for a total of 9 credits.
- Students who were not able to take InterEgr 160 as freshmen may, with the approval of their advisor, substitute 3 credits of electives from courses offered in the College of Engineering or in the Depts. of Chemistry, Computer Science, Math, and Physics.
- Students may substitute Phys 201, 5 crs., for EMA 201, 3 crs., with the approval of their advisor.
- Computer Science 310 is an acceptable substitute for NE 271.
- Students electing EMA 545 instead of EMA 542 should note that EMA 545 is offered in the spring semester only.
- ME 563, Advanced Fluid Mechanics, may be substituted for EMA 521.

Astronautics Option in Engineering Mechanics

<http://www.engr.wisc.edu/ep/ema/current/undergrad/curriculum/>

(for students entering the program after May 2001)

UNDERGRADUATE CURRICULUM

Four-Year Suggested Sequence

(127 Total Credits Required)

<u>First Semester</u>		<u>Credits</u>	<u>Second Semester</u>		<u>Credits</u>
Chem 109	General & Anal Chem I ¹	5	EMA 201	Statics ³	3
Math 221	Calculus & Anal Geom	5	Math 222	Calculus & Anal Geom.	5
Elective	Commun "A" Elec	2	Stat 224	Intro to Stat for Engr	3
InterEgr 160	Intro to Engineering ²	<u>3</u>	ME 231	Graphics	2
		15	Elective	Liberal Studies Elec	<u>3</u>
					16

SOPHOMORE YEAR

Math 234	Calc & Analytic Geometry	3	Math 319	Differential Eqns	3
Phys 202	General Physics	5	Phys 241/205	Modern Physics	3
EMA 202	Dynamics	3	ME 361	Engr Thermodynamics	3
NE 271	Engr Prob Solv I ⁴	3	EMA 303	Mechanics of Matls	3
EPD 275 or	Public Speaking	<u>2</u>	EMA 307	Mechanics of Matls Lab	1
CA 105		16	Elective	Liberal Studies Elec	<u>3</u>
					16

JUNIOR YEAR

EMA 506	Adv Strength of Matls	3	EMA 545	Vibrations	3
EMA 405	Practicum in Finite Elements	3	EMA 550	Astrodynamics	3
ME 363 or	Fluid Mechanics	3	EMA 611	Or EMA 540 or EMA 570	3
CEE 310					
Math 340	Linear Algebra	3	ME 364	Heat Transfer	3
EPD 397	Technical Writing	3	Elective	Computing Elective	<u>3</u>
Elective	Liberal Studies Elec	<u>3</u>			15
		18			

SENIOR YEAR

EMA 469	Design Prob in Engr	3	EMA 569	Senior Design Project	3
EMA 521	Aerodynamics ⁵	3	EMA 642	Satellite Dynamics	3
EMA 542	Adv. Dynamics	3	ECE 332 or	Control Systems ⁶	3
			ME 446		
ECE 376	Electrical Circuits	3	Elective	Technical Electives	<u>3</u>
Elective	Liberal Studies Elec	<u>4</u>	Elective	Liberal Studies Electives	<u>3</u>
		16			15

- Students should take Chem 109, 5 crs; students with inadequate preparation in high school chemistry may substitute Chem 103 and 104, for a total of 9 credits.
- Students who were not able to take InterEgr 160 as freshmen may, with the approval of their advisor, substitute 3 credits of electives from courses offered in the College of Engineering or in the Depts. of Chemistry, Computer Science, Math, and Physics.
- Students may substitute Phys 201, 5 crs., for EMA 201, 3 crs., with the approval of his/her advisor.
- Computer Science 310 is an acceptable substitute for NE 271.
- ME 563, Advanced Fluid Mechanics, may be substituted for EMA 521
- The controls courses, ECE 332 and ME 446, have prerequisites not included in the Astronautics curriculum, but our experience is that Math 319 and EMA 545 provide sufficient background for these courses.

ENGINEERING PHYSICS

<http://www.engr.wisc.edu/ep/current/undergrad/curriculumEPJuly2007pdf>.

UNDERGRADUATE CURRICULUM

Four-Year Schedule (128 Total Credits Required)

FRESHMAN YEAR

<u>First Semester</u>		<u>Credits</u>	<u>Second Semester</u>		<u>Credits</u>
Chem 109	General & Anal Chem I	5	EMA 201	Statics*	3
Math 221	Calculus & Anal Geom	5	Math 222	Calculus & Anal Geom.	5
Elective	Commun "A" Elec	2	Stat 224	Intro to Stat for Engr	3
InterEgr 160	Intro to Engineering	<u>3</u>	ME 231	Graphics	2
		15	Elective	Liberal Studies Elec	<u>3</u>
					16

SOPHOMORE YEAR

Math 234	Calc & Analytic Geometry	3	Math 319	Differential Eqns	3
Phys 202	General Physics*	5	Phys 241/205	Modern Physics*	3
EMA 202	Dynamics or Physics 311**	3	ME 361	Engr Thermodynamics or MSE 330***	3
NE 271	Engr Prob Solv or CS 310	3	EMA 303	Mechanics of Matls	3
EPD 275 or CA 105	Public Speaking	<u>2</u>	EMA 307	Mechanics of Matls Lab	1
		16	Elective	Liberal Studies Elec	<u>3</u>
					16

JUNIOR YEAR

NE 305/3xx	Intro to Quantum Engr	3#	MSE 351 /ChE 440	Intro. Material Science	3#
Phys 322	Electricity & Magnetism	3#	ME 363	Fluid Mechanics	3+#
Math 321	Applied Analysis	3#	ECE 376	Electrical and Electron. Cir.	3+#
Phys 311	Mechanics (or Tech Ele **)	3	EP 469	EP Focus Elective	3
	Computing Elective	3+#		EP Team R&D Project	1
EP 468	EP Team R&D Project	<u>1</u>		Liberal Studies Elective	<u>3+#</u>
		16			16
# CS 412	If in Scientific Focus area				

SENIOR YEAR

ME 364/ MSE 331	Heat Transfer	3+		Lab Course (See Note 2)	2#
	EP Focus Elective	3	EPD 397	Technical Writing	3+#
	EP Focus Elective	3		EP Focus Elective	3
EP 568	EP Team R&D Project (Note 1)	3		Technical Elective	3
Elective	Liberal Studies Elec	<u>4+#</u>	EP 569	EP Team R&D/ Sr. Thesis	3
		16	Elective	Liberal Studies Electives	<u>3+#</u>
					17

* Higher-level Physics courses (e.g. 207, 208, and 241 or 247, 248 and 241) are recommended for B.S. EP students

** If Physics 311 is substituted for EMA 202, then a Technical Elective needs to be substituted.

*** MSE 330 is required for the Nanoengineering focus area and is a 4 rather than 3 credit course.

+ Courses common with EM B.S. degree requirements (at least one track)

Courses common with NE B.S. degree requirements (at least one track)

Note 1 and Note 2 – check with department office, 153 Engineering Research Building

GEOLOGICAL ENGINEERING

UNDERGRADUATE CURRICULUM

Four-Year Schedule (125 Total Credits Required)

FRESHMAN YEAR

<u>First Semester</u>		<u>Credits</u>	<u>Second Semester</u>		<u>Credits</u>
Math 221	Calc & Analytic Geometry	5	Math 222	Calc & Analytic Geometry	5
Geosci 100/106	General/Envir. Geology	3	EMA 201	Statics	3
Chem 109	General Chemistry ***	5	GLE 171	Intro to Geol Engr **	1
Elective	Comm "A" Elective *	<u>2</u>	Geol 204	Evolution of the Earth	<u>4</u>
		15			13

SOPHOMORE YEAR

Math 234	Calculus	3	Geosci 370	Petrology	3
GLE 291	Prob Solv - Computers	3	CEE 310	Fluid Mechanics or Stats 324	3
Geosci 202	Intro to Geologic Struct.	4	EMA 303	Mechanics of Matls	3
EMA 202	Dynamics	3	Physics 202	General Physics	5
Geosci 360	Mineralogy	<u>3</u>	Elective	Liberal Studies Elective	<u>3-4</u>
		16			17-18

JUNIOR YEAR

EPD 275	Tech Presentations	2	EPD 397	Technical Writing	3
CEE 310 or Stats 324*	Fluid Mechanics	3	Geosci 455	Structural Geology	4
Geosci 431	Sed. & Stratigraphy Lab	1	Elective	Technical Electives	3
GLE 330	Soil Mechanics	4	GLE 474	Rock Mechanics	3
Elective	Liberal Elec	3	Elective	Professional Issues	<u>1</u>
ISyE 313	Engineering Economics	<u>3</u>			14
		16			

SENIOR YEAR

GLE 627	Hydrogeology	4	GLE 479	Geological Engr Design	3
GLE 594	Intro to Appl. Geophysics	3	Elective	Liberal Studies Elective	3-4
GLE 595	Intro to Appl. Geophys Lab	1	Elective	Technical Electives	6
Elective	Technical Elective	6	Elective	Liberal Studies Elective	<u>3</u>
Elective	Liberal Elec	<u>3</u>		Fund of Engr Exam	15-16
	Fund of Engr Exam	17			

* Stats 222 will substitute for Stat 324 if taken before transfer. ** see department for details

*** Students with high school chemistry should take Chem 109. Those without a high school chemistry course should take Chem 103 and Chem 104. Degree credit will only be given for Chem 104.

INDUSTRIAL ENGINEERING

<http://www.engr.wisc.edu/ie/current/undergrad/curriculum>

UNDERGRADUATE CURRICULUM

Four-Year Schedule

(120 Total Credits Required)

FRESHMAN YEAR

<u>First Semester</u>		<u>Credits</u>	<u>Second Semester</u>		<u>Credits</u>
Math 221/217	Calc & Analytic Geometry	5	Math 222	Calc & Analytic Geometry	5
Chem 109	General Chemistry	5	Physics 201	General Physics	5
InterEgr 160*	Intro to Engr	3	Econ 111/101	Principles of Econ	3-4
Elective	Gen Ed Comm Elec	<u>2-3</u>	Elective	Liberal Studies Elective	<u>3</u>
		15-16			16-17

SOPHOMORE YEAR

Math 234	Calc & Analytic Geometry	3	ISyE 313	Engr Econ Analysis	3
Physics 202	General Physics	5	ISyE 315	Prod, Plan, & Control	3
Stat 311	Intro to Statistics I	4	Stat 312	Intro to Statistics II	4
Elective	Comp Sci Elec	<u>3</u>	Elective	Math Elec	3
		15	Elective	Biology Elec	<u>3</u>
					16

JUNIOR YEAR

ISyE 323	Oper Res - Det Model	3	ISyE 320	Sim & Prob Model	3
ACCT IS	Intro to Acct (300/100)	3	ISyE 321	Sim Model Lab	1
Elective	Liberal Studies Elective	3	Elective	Junior Design Elec	3
Elective	Math/Stat Elec	3	EPD 397	Technical Writing	3
ISyE 349	Intro to Human Factors	<u>3</u>	Elective	Engr Science Elec	3
		15	Elective	ISYE Technical Elective	<u>3</u>
					16

SENIOR YEAR

Elective	ISyE Technical Elec	6	Elective	ISyE Capstone Design	3
ISyE 415	Intro to Mfg Systems	3	Elective	ISyE Tech Elective (Quan)	3
Elective	Liberal Studies Elective	3	Elective	Liberal Studies Elec	3
Elective	Engr Science Elec	3	Elective	ISyE Tech Elective (Open)	<u>3</u>
ISyE 417	Health Systems Engr	<u>3</u>			12
		15			

*Students not taking InterEGR 160 are required to take an additional ISyE Technical Elective

MATERIALS SCIENCE & ENGINEERING

<http://www.engr.wisc.edu/mse/current/undergrad/curriculum>

UNDERGRADUATE CURRICULUM

Four-Year Schedule

(130 Total Credits Required)

FRESHMAN YEAR

<u>First Semester</u>		<u>Credits</u>	<u>Second Semester</u>		<u>Credits</u>
Math 221	Calc & Analytic Geometry	5	Math 222	Calc & Analytic Geometry	5
Chem 103 or 109	General Chemistry	4	†Chem 104 or Sci Elec	General Chemistry or Science Elective	4
EPD 155	Basic Communication	2	Physics I *	General Physics	5
Elective	Elective (Intro to Engr)	<u>1-3</u>	Elective	Liberal Elective	<u>3</u>
		14			17

SOPHOMORE YEAR

Physics 202	General Physics	5	MS&E 361	Mat Lab II	2
MS&E 351	Mat Sci – Struc/Prop	3	MS&E 352	Mat Sci-Trans in Solids	3
Stat 224	Intro Stat for Engr	3	CS 310	Computer Tools	3
MSE 360	Materials Laboratory I	1	ECE 376	Circuits	3
MSE 330	Thermodynamics of Materials	<u>4</u>	Elective	Liberal Elective	4
		16			15

JUNIOR YEAR

MS&E 332	Macroproc of Materials	3	MS&E 333	Microproc of Materials	3
MS&E 362	Mat Lab III	2	MS&E 331	Transport in Materials	3
Chem 341 or 343	Intro to Organic Chem	3	MS&E 401 or EMA 303	Mechanics of Materials	3
Math 319	Ord Diff Eqn	3	MSE 421 or ME 418, 417	Polymers	3
Phys 205, 241,244 or 249	Modern Physics	3	Elective	Eng and Society	2 or 3
Elective	Liberal Elective	<u>4</u>	Elective	Liberal Elective	<u>3</u>
		17			17 or 18

SENIOR YEAR

MS&E 451	Ceramics	3	Elective	Technical Elective	3
MS&E 379	Mat Sys & Design Proj I	2	Elective	MS&E Elective	3
MS&E 441	Deformation	3	Elective	Free Elective	3
EPD 397	Tech Writing	3	MS&E 390	Mat Sys & Design Proj II	2
Elective	Tech Elective	3	Elective	Liberal Elective	<u>3</u>
Elective	MS&E Elective	<u>3</u>			14
		17			

* Physics 201 or 207 or 247

† See Footnote 5 on the Curriculum Flow Chart revised August 10, 2004

MECHANICAL ENGINEERING

<http://www.engr.wisc.edu/me/current/undergrad/curriculum>

UNDERGRADUATE CURRICULUM

Four-Year Schedule

(128 Total Credits Required)

Effective Spring 2010 and Later

FRESHMAN YEAR

<u>First Semester</u>		<u>Credits</u>	<u>Second Semester</u>		<u>Credits</u>
Math 221	Calc & Analytic Geometry	5	Math 222	Calc & Analytic Geometry	5
ME 231	Engineering Graphics	2	EMA 201	Statics***	3
Chem 103	General Chemistry*	4	Chem 104	General Chemistry *	5
	Comm A	2	Stat 224	Intro Statistics for Engr	<u>3</u>
Elective	Free Elective	<u>2</u>			16
		15			

SOPHOMORE YEAR

Math 234	Calculus	3	ME 361	Thermodynamics I	3
Math 320	Linear Mathematics	3	Physics 202	General Physics	5
ME 240	Dynamics **	3	ME 306	Mechanics of Materials	3
Elective	Liberal Studies Elective	3	ME 307	Mechanics of Matls Lab	1
MS&E 350	Intro to Materials Science	3	Elective	Liberal Elective	<u>3</u>
CS 302	Intro to Programming	<u>3</u>			15
		18			

JUNIOR YEAR

ECE 376	Electric Circuits	3	ECE 377	Power Conversion	3
ME 331	Geometric Modeling	3	ME 368	Measurements Lab	4
ME 363	Fluids	3	ME 364	Heat Transfer	3
ME 340	Dynamics Systems	3	ME 313	Manufacturing Process	3
EPD 397	Technical Communication	3	Elective	Technical Elective	<u>3</u>
Elective	Liberal Studies Elective	<u>3</u>			16
		18			

SENIOR YEAR

ME 351	Interdisp. Exp. Des I	3	ME 370	Energy Lab	3
ME 342	Mechanical Design	3	ME 352	Interdisp. Exp. DesII	3
ME 314	Competitive Mfg.	3	Elective	Liberal Elective	0-3
Elective	Liberal Studies Elective	3	Elective	Technical Elective	3
Elective	Technical Elective	<u>3</u>	Elective	Technical Elective	<u>3</u>
		15			15

* Option 1 – Chem 103, 4 credits and Chem 104, 5 credits OR Chem 109, 5 credits. If Chem 109, 5 credits, is taken, students must take more free electives to meet the minimum number of credits required for the degree.

** EMA 202 may substitute for ME 240 if taken before transferring to UW-Madison. ME 240 is the preferred course.

*** Phys 201 or 207, 5 credits, may substitute for EMA 201. EMA 201 is recommended.

NUCLEAR ENGINEERING - Power Track

<http://www.engr.wisc.edu/ep/need/current/undergrad/curriculum/>

(for students entering the program after May 2001)

UNDERGRADUATE CURRICULUM

Four-Year Suggested Sequence

(128 Total Credits Required)

FRESHMAN YEAR

<u>First Semester</u>		<u>Credits</u>	<u>Second Semester</u>		<u>Credits</u>
Chem 109	General & Anal Chem I ¹	5	EMA 201	Statics ³	3
Math 221	Calculus & Anal Geom.	5	Math 222	Calculus & Anal Geom.	5
Elective	Communication A Elective	2	Stat 224	Statistics for Engineers	3
InterEgr 160	Intro to Engineering ²	<u>3</u>	ME 231	Graphics	2
		15	Elective	Liberal Studies Elec	<u>3</u>
					16

SOPHOMORE YEAR

Math 234	Calculus	3	Math 319	Differential Equations	3
Physics 202	General Physics	5	ME 361	Thermodynamics I	3
EMA 202	Dynamics	3	Phys 241 /205	Intro to Modern Physics	3
NE 271	Engr Prob Solving I ⁴	3	EMA 303	Mechanics of Materials	3
EPD 275 or	Public Speaking	<u>2</u>	EMA 307	Mechanics of Materials Lab	1
CA 105		16	Elective	Liberal Studies Elective	<u>3</u>
					16

JUNIOR YEAR

NE 305	Fund. Of Nuclear Engr.	3	NE 405	Nuclear Reactor Theory	3
Math 321	Applied Math Analysis	3	NE 408	Ionizing Radiation	3
MS&E 350	Intro to Matls Science	3	ChE 320	Intro Transport Phenom	4
Elective	Technical Elective	3	Elective	Computing Elective	3
Elective	Liberal Studies Elective	<u>4</u>	ECE 376	Electrical Circuits	<u>3</u>
		16			16

SENIOR YEAR

NE 411	Nuclear Reactor Engr	3	NE 412	Nuclear Engr Design	5
NE 427	Nuclear Instrum. Lab	2	NE 428	Nuclear Reactor Lab	2
Elective	Nuclear Engr. Electives	6	NE 571	Econ & Env Aspects of NE	3
Elective	Liberal Studies elective	3	Elective	Liberal Studies Elective	3
EPD 397	Technical Writing	<u>3</u>	Elective	Nuclear Engr. Elective	<u>3</u>
		17			16

1. Students should take Chem 109, 5 cr; students with inadequate preparation in high school chemistry may substitute Chem 103 and 104, for a total of 9 credits. Three credits of Chem 103/104 may be counted as Technical Electives credits.
2. Students who were not able to take InterEgr 160 as freshmen may, with the approval of their advisor, substitute 3 credits of electives from courses offered in the College of Engineering or in the Departments of Chemistry, Computer Science, Mathematics, and Physics.
3. Students may substitute Phys 201, 5 cr., for EMA 201, 3 cr., with the approval of his/her advisor.
4. Computer Science 310 is an acceptable substitute for NEEP 271.
5. ME 363 and ME 364 are acceptable substitutes for ChE 320.

NUCLEAR ENGINEERING - Radiation Sciences Track

<http://www.engr.wisc.edu/ep/need/current/undergrad/curriculum/>

(for students entering the program after May 2001)

UNDERGRADUATE CURRICULUM

Four-Year Suggested Sequence

(128 Total Credits Required)

FRESHMAN YEAR

<u>First Semester</u>		<u>Credits</u>	<u>Second Semester</u>		<u>Credits</u>
Chem 109	General & Anal Chem I ¹	5	EMA 201	Statics ³	3
Math 221	Calculus & Anal. Geom	5	Math 222	Calculus & Anal. Geom	5
Elective	Communication A Elective	2	Stat 224	Statistics for Engrs	3
InterEgr 160	Intro to Engr ²	<u>3</u>	ME 231	Graphics	2
		15	Elective	Liberal Studies Elec	<u>3</u>
					16

SOPHOMORE YEAR

Math 234	Calculus	3	Math 319	Differential Equations	3
Physics 202	General Physics	5	ME 361	Thermodynamics I	3
EMA 202	Dynamics	3	Phys 241 /205	Intro to Modern Physics	3
NE 271	Engr Prob Solving I ⁴	3	EMA 303	Mechanics of Materials	3
EPD 275 or CA 105	Public Speaking	<u>2</u>	EMA 307	Mechanics of Materials Lab	1
		16	Elective	Liberal Studies Elective	<u>3</u>
					16

JUNIOR YEAR

NE 305	Fund. of Nuclear Engr.	3	NE 405	Nuclear Reactor Theory	3
Math 321	Applied Math Analysis	3	NE 408	Ionizing Radiation	3
MS&E 350	Intro to Matls Science	3	Phys 322	Electromagnetic Fields	3
Elective	Technical Elective	3	Elective	Computing Elective	3
Elective	Liberal Studies Electives	<u>4</u>	ECE 376	Electrical Circuits	3
		16	Elective	Free Elective	<u>1</u>
					16

SENIOR YEAR

NE 427	Nuclear Instrum. Lab	2	NE 412	Nuclear Engr. Design	5
Med Phys 501	Radiological Phy & Dosimetry	3	NE 428	Nuclear Reactor Lab.	2
Elective	Medical Phys Elective	6	NE 571	Econ & Env Aspects of NE	3
Elective	Liberal Studies Elec	3	Elective	Medical Physics Elective	3
EPD 397	Technical Writing	<u>3</u>	Elective	Liberal Studies Elective	<u>3</u>
		17			16

1. Students should take Chem 109, 5 cr; students with inadequate preparation in high school chemistry may substitute Chem 103 and 104, for a total of 9 credits. Three credits of Chem 103/104 may be counted as Technical Elective credits.
2. Students who were not able to take InterEgr 160 as freshmen may, with the approval of their advisor, substitute 3 credits of electives from courses offered in the College of Engineering or in the Departments of Chemistry, Computer Science, Mathematics, and Physics.
3. Students may substitute Phys 201, 5 cr., for EMA 201, 3 cr., with the approval of his/her advisor.
4. Computer Science 310 is an acceptable substitute for NEEP 271.

Transfer Credit Equivalency

Consult the Transfer Information System (TIS) for credit transfer within the UW-System and with Wisconsin technical colleges:

TIS: <http://tis.uwsa.edu>

Regarding courses not on TIS and how they might fulfill College of Engineering degree requirements, please contact:

Bonnie Schmidt, Coordinator
Engineering Transfer Admissions
schmidt@engr.wisc.edu
608-262-4822
(or leave message with Engineering General Resources Office, 608-262-2473)

Campus Visit

<http://www.visitbucky.wisc.edu/>

Students and their family members are welcome to visit campus for more information about the College of Engineering:

- Transfer Visit Days are held the first Friday of most months during the academic year. Students may attend an Office of Admissions session for general transfer information. At 1 pm, they may attend an information session in the College of Engineering, go on a tour of the College of Engineering, and then meet individually with Bonnie Schmidt. Consult <http://www.visitbucky.wisc.edu/>.
- Students are welcome to visit at their convenience. To meet with Bonnie Schmidt, call the Engineering General Resources Office at 608-262-2473. Please bring college transcripts (unofficial are fine) to the meeting. During the academic year, tours for visitors are held on most Mondays, Thursdays and Fridays.

Academic Assistance

Tutoring

College of Engineering Academic Assistance: <http://studentservices.engr.wisc.edu/classes/tutoring>

GUTS Tutorial Programs: The Greater University Tutoring Service (GUTS) offers free tutorial assistance to all university students. Engineering students might seek help in math, physics, chemistry and engineering courses.

- **Individual tutoring:** Weekly sessions are offered during the semester.
- **Study Groups:** Up to five students, led by an experienced tutor, meet weekly.
- **Drop-in tutoring:** Immediate short-term help offered on a first-come, first-served basis.
- **Conversational English tutoring:** For international students who wish to improve their conversational fluency in English and increase their understanding of American culture.
- **Study skills counseling:** Individual counseling on a wide variety of study skills, including exam preparation, note-taking, and time management.
- **Exam file:** More than 1,400 exams are available for use as study guides.

To request tutorial help or to volunteer, consult
<http://guts.studentorg.wisc.edu>

Mathematics Tutorial Program: This program offers free, small-group tutoring for students enrolled in Math 95, 101, 112, 113, 114, 171, 217, 211, 213, 221, 222/234. Returning students or students in danger of receiving a poor grade may be referred to the program by an advisor or instructor. Eligibility is determined through an interview with the director. Sessions meet twice weekly; attendance is mandatory. Consult:
<http://www.math.wisc.edu/~tprogram/>

Math lab: Free drop-in help from math teaching assistants is available to students in math courses 101, 112, 113, 114, 211, 213, 221, 222, 234, 141, 171, 240.
<http://www.math.wisc.edu/~mathlab/>

Physics club (University Physical Society): Free drop-in help offered by undergraduate physics majors to students in basic physics courses. The tutoring schedule is posted on the Physics/AMEP majors' room door.
<http://ups.physics.wisc.edu>

Statistics tutoring lab: Free drop-in help from statistics teaching assistants is available for students in Statistics 201, 224, 301, 324, 371.
For more information, contact your professor or TA.

Alpha Chi Sigma: This professional society for students in chemical engineering, chemistry, and other chemistry-related professions offer free tutoring for Chemistry 103, 104 and 109.
<http://www.chem.wisc.edu/~axe/>

Pi Tau Sigma: This honorary mechanical engineering society provides free tutoring in mechanical engineering courses ranging from basic "tool" courses such as graphics, computer science, calculus, and physics to ME courses at the 300 and 400 level.
<http://www.engr.wisc.edu/studentorgs/pitau>

Other societies: Other engineering honor societies, such as Eta Kappa Nu (ECE) and Chi Epsilon (CEE), also may provide free tutoring in their respective engineering fields. Check posters on engineering bulletin boards or class announcements.

Diversity Affairs: Students of color may contact the Diversity Affairs Office for information on tutoring in math, chemistry, and physics. Call 262-2473, or stop by 1147 Engineering Hall.

Athletic department: Students involved in intercollegiate athletics may sign up for tutoring through the athletic department. Tutors will be found for any course with which you are having difficulty. Stop by the Fetzer Center, in the lower level McClain Center.

Teaching assistants and professors: Take advantage of their office hours or make appointments to see them for assistance. They are there to help you, but it is important that you initiate the contact.

Ask the department or the course professor if tutoring sessions are available for the course. Sometimes tutoring sessions for a difficult course will be set up during the semester by teaching assistants.

Private tutors: Private tutoring for a fee. If you feel a private tutor is necessary, ask your instructor or someone else in the department to recommend one. Many department offices maintain lists of qualified tutors.

Veterans benefits: Veterans and eligible dependents might be reimbursed to pay for professional tutors. Consult Veterans' One Stop:

<http://students.wisc.edu/veterans/veterans.html>

College of Engineering -- Undergraduate Learning Center

4th Floor Wendt Engineering Library

<http://studentservices.engr.wisc.edu/classes/tutoring/>

Tutor by Request (one-to-one tutoring, if a tutor is available): *Free to all first-semester transfer students in the College of Engineering.*

Free and open to all students:

Drop-in tutoring for first- and second-year math/science/engineering courses and some third-year courses

Supplementary Instruction for statics (EMA 201) and general physics (Physics 201, 202)

Drop-in tutoring for mechanical and electrical engineering courses, sponsored by honor societies

Group Study Options

Classmates: Find a competent classmate and see if she or he is willing to help you occasionally. You could return the favor by taking notes when she/he is absent, or by tutoring her/him in a subject in which you are competent. Another popular technique is to form an ongoing study group. GUTS (608-263-5666) can help you arrange for a tutor to work with your group.

Math BOARD: The Department of Mathematics MATH BOARD helps students find others who are interested in studying math topics jointly. It is located on the west end of the second floor of the classroom levels (B2) of Van Vleck Hall, near B207.

Chemistry Resources

<http://www.chem.wisc.edu>

Chemistry Library (2361 Chemistry Building, (608) 262-2942)

The chemistry library has books on how to succeed in general chemistry courses like Chem 103 and 104, as well as handbooks with chemistry problems and solutions and workbooks on general chemistry principles and problems.

General chemistry computer room (1327 Chemistry Building, (608) 263-2424)

The computer room offers computer tutorials to accompany general chemistry courses like Chem 103 and 104, lecture notes, and audiotapes to accompany workbooks available in the chemistry library.

Study Skills Workshops

For information, call Counseling and Consultation Services (608-262-1744), Office of Intercollege Programs (608-262-2115), or GUTS (608-263-5666). Also, check the Union Mini-Course listings available at both Memorial Union and Union South, or the Campus Assistance Center (608-263-2400).

Writing Lab

Professional help with writing in any discipline at any level is available at the University's Writing Lab. Instruction is free to any enrolled student. For more information, see <http://www.wisc.edu/writing>.

Engineering Counseling Service

333 East Campus Mall, 7th Floor, Madison, WI 53715, David Lacocque, Psychologist

Office: (608) 265-5480

Appointments: (608) 265-5600 #2

After Hours Crisis Service: (608) 265-5600 #9

The counseling service is available at no cost to engineering students because it is easier to concentrate on studies if you can deal effectively with personal, academic, and career concerns. Talking with someone who is objective and empathic can help you sort through these concerns. The counselor:

- Provides support and understanding, as well as useful information and suggestions
- Helps you develop greater self-awareness and evaluate options to address needs and concerns in personal, academic and career areas
- Offers vocational interest tests and a personality type indicator to assist in self understanding and decision making
- Helps you locate other campus and community resources
- Assures confidentiality within applicable legal and ethical guidelines. Nothing will be recorded in your academic file.

International Engineering Studies and Programs

Room M1002 Engineering Centers Building

Phone: (608) 263-2191

Email: international@enr.wisc.edu

Web: international.engr.wisc.edu

In today's global marketplace, there is an increasing need for broadly educated engineering graduates with cross-cultural skills, international understanding and proficiency in more than one language. The College of Engineering is committed to providing and expanding international opportunities that will assist engineering students in obtaining these important skills.

The college runs semester and year-long study abroad programs at leading engineering schools in many countries, including Argentina, Australia, Austria, Chile, Czech Republic, Denmark, England, Finland, France, Germany, Hong Kong, Hungary, Japan, South Korea, Mexico, New Zealand, Norway, Puerto Rico, Singapore, Spain, and Sweden, Turkey, and United Kingdom.

An 8-week summer program in Hangzhou, China offers two three-credit engineering courses in English, taught by UW-Madison professors who accompany the group. Courses vary annually. Contact IESP for more details.

Diversity Affairs Office

Manuela Romero, Assistant Dean

2620 Engineering Hall

Phone: (608) 262-0684

Email: diversity@enr.wisc.edu

The history of engineering includes contributions from many women and people of color, but these groups are still underrepresented in a field that increasingly demands diversity in a global marketplace. The College of Engineering is committed to improving the situation at UW-Madison through its Diversity Affairs Office (DAO). The Diversity Affairs Office objective is to facilitate the recruitment and graduation of engineering students from traditionally underrepresented populations, including women, African-American, Asian-American, Latino/a-American, and Native American students. The DAO offers informal advising, referral services and internship opportunities. The DAO also sponsors free tutorial assistance and provides financial support to qualified students. The student organizations that are among the most active on the UW-Madison campus include the Society of Hispanic Professional Engineers, the Society of Women Engineers, the National Society of Black Engineers, the American Indian Science and Engineering Society, and the Hmong Association of Engineers.

Engineering Cooperative Education and Summer Internship Program

John Archambault, Director

M1002 Engineering Centers Building

Phone: (608) 262-3471

Web: <http://ecs.engr.wisc.edu>

ecs@enr.wisc.edu

Engineering Career Services' cooperative education and summer internship program connects students and employers for work experiences that complement student engineering coursework and allow employers to complete vital engineering projects. Over 84% of the class of 2008 participated in either a cooperative education, summer internship, or research assignment through the College of Engineering. Co-ops and interns are paid an average of \$3,000 per month, work full-time on engineering assignments, receive academic credit toward their degree, and are considered full-time students while working. During the academic year 2008/09, there were 664 work terms completed by students. Cooperative education assignments typically are from January to August or June to December. Each year over 1000

engineering students register with the Engineering Career Services office to participate in the co-op and intern programs. It is important to get involved with Engineering Career Services and meet your designated ECS contact within the first four weeks on campus.

Although participating in the co-op program can extend a student's program of study by one or more semesters, the many benefits are worth the time invested. Students strengthen their interviewing skills, expand their technical and interpersonal abilities, explore career options in depth, and gain a competitive edge in the job market. Participation in the co-op program often leads to an offer for full-time employment upon graduation. Students are eligible to participate in the Co-op and Intern Program when they are admitted to an engineering department (typically after the first year) and if they are in good academic standing. For information about registration, resume preparation, and interview procedures visit our website or visit Engineering Career Services.

Scholarships, Loans, and Contests

Web: studentservices.engr.wisc.edu/money

Undergraduate students may apply for several types of scholarships and financial aid offered by the College of Engineering.

College and Departmental Scholarships: The College of Engineering and its departments award hundreds of scholarships to students who are enrolled in engineering degree-granting departments. The scholarships are awarded for a variety of reasons; among them to honor academic achievement, to meet financial need, and to recognize extra-curricular achievements.

At the start of the semester in which they will apply to enter an engineering degree-granting department, students should inquire about the scholarship application process and deadline in their department of interest. Students are welcome to inquire at Engineering Hall (608-262-2473, egradvisor@engr.wisc.edu).

Student Emergency Loan Funds: Undergraduate students in engineering may apply for emergency loan funds to cover unexpected and urgent financial demands. For information and an application form, stop by the Engineering Student Services Office.

Diversity Affairs Office Grants and Scholarships: The Diversity Affairs Office provides financial aid on a limited basis to qualified students from groups traditionally underrepresented in engineering. For more information, contact the Engineering Diversity Affairs Office, 2640 Engineering Hall, (608) 890-1319.

Student Organizations: Engineering student organizations, with the support of business and industrial sponsors, often provide financial awards to their outstanding and contributing members. For more information contact Polygon, the engineering student council, (608) 265-2212, polygon@cae.wisc.edu.

The Steuber Prize for Excellence in Writing: The Steuber Prize provides awards up to \$5,000 for outstanding writing of any type and style by sophomore, junior, and senior students in the College of Engineering. Interested students should call the Department of Engineering Professional Development, (608) 262-2472, or visit <http://tc.engr.wisc.edu/steuber>

The Schoofs Prize for Creativity: "This annual competition provides awards up to \$10,000 to undergraduate inventors. Sponsored by the College of Engineering, the Schoofs prize recognizes undergraduate students' technical and creative accomplishments. For information, visit the UW-Technology Enterprise Cooperative Office 2620 Engineering Hall, or visit <http://studentservices.engr.wisc.edu/innovation>

Computer-Aided Engineering Center

1410 Engineering Drive
Phone: (608) 262-5349
Email: helpdesk@cae.wisc.edu

New engineering students are welcome, but not required, to purchase their own personal computers.. The College of Engineering and UW-Madison provide numerous facilities to meet students' computing needs, but you may be used to the convenience of a computer on your desktop.

For higher-end computing needs, the Computer-Aided Engineering Center (CAE) provides consultants, equipment, facilities, and services to support the advanced computing needs of the students, faculty, and staff in the College of Engineering. The CAE main facility is located at 1410 Engineering Drive and is open 24 hours a day, 7 days a week. CAE also manages numerous satellite laboratories—including Windows NT and Unix labs—in other buildings on the engineering campus. The satellite labs are open for general use during normal building hours and when the rooms are not reserved for courses.

At the start of the first semester on campus, visit the CAE main facility to activate email accounts and to learn about CAE services. Information about email and Internet use, software documentation, and lab directories are readily available. Staff consultants will provide individual assistance upon request. Attend a CAE short course for an orientation to new accounts.

To reduce CAE lab overcrowding and to reserve access for advanced computer use, use other campus facilities for basic computer access whenever possible. The university dormitories, libraries, and computer science building all have well-equipped computer centers available for general use.

For information about CAE facilities and resources, call the CAE Consulting Office at (608) 262-5349 or visit the CAE website at (<http://www.cae.wisc.edu/>).

For information about purchasing a computer, contact the CAE Help Desk or the Division of Information Technology (DoIT) Showroom.

CAE Helpdesk
1410 Engineering Dr. Rm 170
(608) 262-5349
helpdesk@cae.wisc.edu

DoIT Computer Demonstration Showroom
1210 W. Dayton St. (Inside the DoIT Tech Store)
(608) 265-7469
showroom@doit.wisc.edu

Engineering Student Organizations

One of your goals should be to reach your full potential as a student and as a professional. Student organizations and activities can play a large part in that development by providing opportunities to interact with practicing engineers, visit industrial workplaces, and contribute to team projects and events. The College of Engineering offers a wide variety of organizations and activities that are open to all engineering students.

More than 35 student organizations are affiliated with Polygon, the engineering student council. Taking an active role in the student chapters of professional organizations is strongly encouraged. Other available organizations include honor societies, social societies, and team automotive projects.

General

Engineering Expo
(biennial engineering event)
<http://engineeringexpo.wisc.edu/>

Polygon
(engineering student council)
polygon@cae.wisc.edu
<http://www.engr.wisc.edu/studentorgs/polygon>

Society of Hispanic Professional Engineers (SHPE)
shpe@cae.wisc.edu
<http://www.shpemadison.org>

Society of Women Engineers (SWE)
swe@cae.wisc.edu
<http://www.engr.wisc.edu/studentorgs/swe/>

Team Paradigm
(hybrid electric vehicle)
vehicle@cae.wisc.edu
<http://www.engr.wisc.edu/studentorgs/vehicle>

Theta Tau Fraternity
(social, co-ed)
thetat@cae.wisc.edu
www.xithetatau.org

Triangle Fraternity
(social, co-ed)
triangle@cae.wisc.edu
<http://www.engr.wisc.edu/studentorgs/triangle>

Wisconsin Black Engineering Society (WBESS)
wbess@cae.wisc.edu
<http://www.engr.wisc.edu/studentorgs/wbess>

Wisconsin Engineer
(engineering student magazine)
wiscengr@cae.wisc.edu
<http://www.engr.wisc.edu/studentorgs/wiscengr>

Biomedical Engineering

Alpha Epsilon Mu Beta (AEMB)
<http://www.engr.wisc.edu/studentorgs/aemb>

Biomedical Engineering Society (BMES)
<http://www.engr.wisc.edu/studentorgs/bmes/>

Chemical Engineering

American Institute of Chemical Engineers (AIChE)
aiche@cae.wisc.edu
<http://www.engr.wisc.edu/studentorgs/aiche>

Civil Engineering

American Society of Civil Engineers
asce@cae.wisc.edu
<http://www.engr.wisc.edu/studentorgs/asce/>

Construction Club
<http://www.engr.wisc.edu/studentorgs/cclub>

Electrical Engineering

Institute of Electrical and Electronics Engineers (IEEE)
ieee@cae.wisc.edu
<http://www.engr.wisc.edu/studentorgs/ieee>

Kappa Eta Kappa
(professional/social)
<http://delta.khk.org>

Engineering Mechanics

American Institute of Aeronautics and Astronautics (AIAA)
aiaa@cae.wisc.edu
<http://www.engr.wisc.edu/studentorgs/aiaa>

Geological Engineering

Geological Engineering Club (GLE)
Faculty Advisor: Prof. Fratta
(608) 265-5644

Industrial Engineering

Institute of Industrial Engineers (IIE)
iie@cae.wisc.edu
<http://www.engr.wisc.edu/studentorgs/iie>

Materials Science and Engineering

ASM/TMS/AFS The Materials Society
<http://www.engr.wisc.edu/studentorgs/afs>

Mechanical Engineering

American Society of Mechanical Engineers (ASME)
asme@cae.wisc.edu
<http://www.engr.wisc.edu/studentorgs/asme>

Pi Tau Sigma
ME Honor Society
<http://www.engr.wisc.edu/studentorgs/pitau>

Society of Automotive Engineers (SAE)
sae@cae.wisc.edu
<http://www.engr.wisc.edu/studentorgs/sae>

SAE Clean Snowmobile Team
<http://www.engr.wisc.edu/studentorgs/saecsc/>

SAE Mini-Baja Team
<http://www.engr.wisc.edu/studentorgs/baja>

Nuclear Engineering

American Nuclear Society (ANS)
(Atomic Badger)
ans@cae.wisc.edu
<http://ans.engr.wisc.edu/phpws/index.php>

REFERRAL SOURCES
WHERE TO GO FOR HELP

Biological Systems Engineering
115 Agricultural Engineering Bldg.
Tel: (608) 262-3310

Biomedical Engineering
2130 Engineering Centers Building
Tel: (608) 263-4660

Chemical & Biological Engineering
2014 Engineering Hall
Tel: (608) 262-1092

Civil and Environmental Engineering
2205 Engineering Hall
Tel: (608) 262-3542

Electrical and Computer Engineering
2420 Engineering Hall
Tel: (608) 262-3840

Engineering Mechanics/Astronautics
147 Engineering Research Bldg.
Tel: (608) 263-1646

Engineering Physics
147 Engineering Research Bldg.
Tel: (608) 263-1646

Nuclear Engineering
147 Engineering Research Bldg.
Tel: (608) 263-1646

Engineering Professional Development (EPD)
432 N. Lake Street, 705 Extension Bldg.
Tel: (608) 262-2061

Technical Communications Program
Technical Japanese Program
M1080 Engineering Centers Building
Tel: (608) 262-2472 Tech Comm Program
Tel: (608) 262-4810 Tech Japanese Program

Geological Engineering
2304A Engineering Hall
Tel: (608) 890-2420

Industrial Engineering
3270 Mechanical Engineering Bldg.
Tel: (608) 262-2686

Materials Science & Engineering
276 MS&E Bldg.
Tel: (608) 262-3732

Mechanical Engineering
3182 Mechanical Engineering Bldg.
Tel: (608) 263-4025

University Housing
(On-campus Housing)
Slichter Hall, 625 Babcock Drive
Tel: (608) 262-2522 General Information

UW Department of Mathematics
213 Van Vleck Hall
Tel: (608) 2633054

Pre-College Outreach Office
(Undergrad Scholarships/Other Inquiries)
1150 Engineering Hall
Tel: (608) 262-2473

UW Office of Admissions
Armory and Gymnasium
716 Langdon Street
Tel: (608) 262-3961

Student Financial Services
333 East Campus Mall, room 9701
Tel: (608) 262-3060

Diversity Affairs Office
1147 Engineering Hall
Tel: (608) 265-9042

Engineering Transfer Student Office
(Admissions/Credit Evaluation)
1150 Engineering Hall
Tel: (608) 262-2473

Engineering Career Services (ECS)
M1002 Engineering Centers Building
Tel: (608) 262-3471

Engineering Counseling
115 N. Orchard Street
Tel: (608) 265-5480

Campus Information & Visitor Center (CIVC)
(Off-Campus Housing)
Armory and Gymnasium
716 Langdon Street
Tel: (608) 263-2400

Engineering Student Services
(Transfer and pre-departmental advising)
1150 Engineering Building
Tel: (608) 262-2473

Computer Aided Engineering (CAE)
1410 Engineering Drive, Room 170
Tel: (608) 262-5349

UW Department of Chemistry
1328 Chemistry Bldg.
Tel: (608) 263-2424

For campus addresses, include UNIVERSITY OF WISCONSIN-MADISON, MADISON, WI 53706
For references not listed, contact the Engineering Student Services or the Campus Information Center.