



DEPARTMENT OF
**MECHANICAL
ENGINEERING**

UNDERGRADUATE HANDBOOK 2008-2009



THE PETER L. AND CLARA M. SCOTT LABORATORY

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1.0 Academic Advising

Mission Statement

The Academic Advising Program in the College of Engineering at The Ohio State University is a *partnership* between the students and advisors who are committed to

- facilitating the students' successful transition to the University environment;
- supporting their holistic development as self-directed life-long learners and decision makers;
- assisting the discovery of personal values and goals through self assessment of skills, interests, and abilities, leading to a satisfying and rewarding major and career choice.

Mechanical Engineering Undergraduate Advising

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Advising Office Hours

The ME Undergraduate Advising Office is located at N250 Scott Laboratory. We designate times for appointments and walk-in visits. Times may vary by quarter, but will always be posted outside our offices and online at <http://www.mecheng.osu.edu/undergraduate-students/advising>.

Advisor / Student Responsibilities

Both the advisor *and* the student have responsibilities in this partnership. Advisor responsibilities include

- providing current and accurate information about academic majors and requirements;
- providing information on opportunities that help enhance your academic program;
- helping you plan a course of study and give advice about courses and course loads;
- referring you to other resources as appropriate;
- offering assistance if you have academic difficulties.

Student responsibilities are to

- acquire the information needed to assume final responsibility for course scheduling, program planning, and meeting graduation requirements;
- seek academic and career information needed to meet educational goals;
- understand policies and rules of the university;
- *be prepared* with accurate information and materials when contacting their advisor;
- consult with their advisor at least once per quarter.

Advisor / Student Email Guidelines

One of the primary modes of communication between advisors and students is email! When contacting us by email, we request that you send us email from your OSU email account so that we can verify you as the sender. *We will not discuss student information or process requests from outside email accounts.*

Faculty Advising

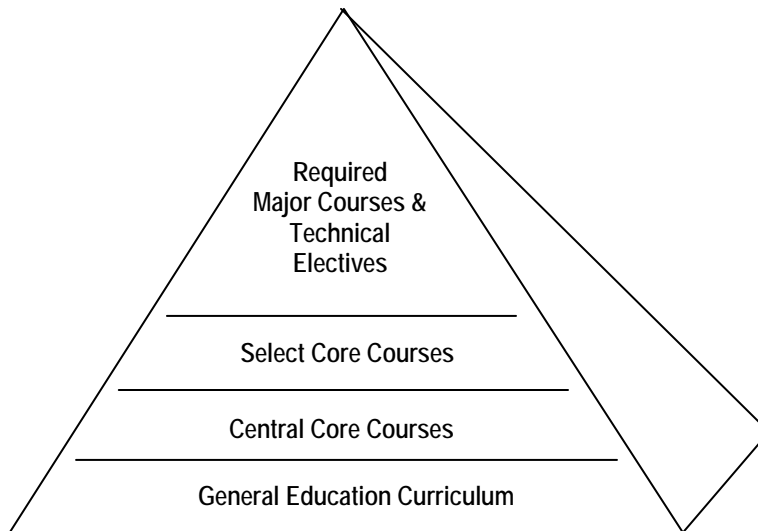
Once students are admitted to the major, they will be assigned a faculty advisor.* Faculty advisors work in conjunction with undergraduate advisors to expand the scope of guidance that a student receives by providing mentorship, career guidance, information on research and graduate study, and assistance on the selection of technical electives. Students should still see their undergraduate advisors for scheduling concerns, questions about program requirements, help with course planning, and to ensure timely progress towards their degree.

* See Section 5.3 for more information on the faculty advising program.

2.0 Curriculum

2.1 Overview

A Bachelor's of Science in Mechanical Engineering (B.S.M.E.) from The Ohio State University is comprised of courses required by the University, the College of Engineering, and by the Department of Mechanical Engineering. We can use a pyramid to envision how these courses build on one another, starting broadly at the base with the General Education Curriculum and narrowing with required major courses and technical electives at the peak. Each group of courses will be defined in the sections that follow.



2.2 General Education Curriculum (GEC)

The General Education Curriculum is considered to be the foundation of any degree at the University. GEC courses are required of all majors, and are designated by college or school.

Engineering students who started at OSU BEFORE SU07 are required to earn 40 GEC hours as follows:

- English and Communication Skills (10 hours)
- Social Sciences (10 hours)
- Arts and Humanities
 - Historical Survey (10 hours)
 - Analysis of Text and Ideas (10 hours)
- Social Diversity (5 hours)*
- Ethics (5 hours)*

* Please note that your ethics course (required only for students entering the University AU06 or later) will either be from the "Social Sciences" or from the "Analysis of Texts and Works of Art" categories, and is not intended to be a separate course. Likewise, your social diversity course can be chosen as part of "English and Communication Skills", "Social Sciences", or "Analysis of Texts and Works of Art", and is not intended to be a separate course.

Engineering students who started at OSU SU07 AND AFTER* are required to earn 35 GEC hours as follows:

- English and Communication Skills (10 hours)

A total of 25 hours distributed between the next three categories, with at least 5 credit hours from each:

- Social Sciences (5 - 10 hours)
- Historical Study (5 – 10 hours)
- Arts & Humanities (5 – 10 hours)
- Social Diversity (5 hours)[†]
- Ethics (5 hours)[†]

2.3 Central Core Courses

Central Core Courses are the foundation of your engineering degree and are required of all engineering students, regardless of area of interest.

<i>College of Engineering Central Core Courses</i>			
Course Number	Name	Credit Hours	Prerequisites
Engineering 181 [‡]	<i>Introduction to Engineering</i>	3	Math 150 (conc.)
Engineering 183 [‡]		3	ENG 181
Physics 131	<i>Introductory Physics: Particles and Motion</i>	5	Math 151 Math 152 (conc.) H.S. Chem or Physics
Physics 132	<i>Introductory Physics: Electricity and Magnetism</i>	5	Physics 131 Math 152 Math 153 (conc.)
Chemistry 121	<i>General Chemistry</i>	5	Eligible for Math 150 H.S. Chem
Math 151 [‡]	<i>Calculus & Analytical Geometry</i>	5	Math 150 (≥C-)
Math 152 [‡]		5	Math 151 (≥C-)
Math 153 [‡]		5	Math 152 (≥C-)
Math 254 [‡]		5	Math 153

* Students who transferred into the University SU07 or AU07 need to see their advisor to determine which GEC program they will be expected to adhere to.

† Please note that your ethics course (required only for students entering the University AU06 or later) will either be from the “Social Sciences” or from the “Analysis of Texts and Works of Art” categories, and is not intended to be a separate course. Likewise, your social diversity course can be chosen as part of “English and Communication Skills”, “Social Sciences”, or “Analysis of Texts and Works of Art”, and is not intended to be a separate course.

‡ Or equivalent. Transfer and/or honors students may take different courses to fulfill these requirements. If you have questions about your courses and the requirements they fulfill, please see your advisor.

2.4 Select Core Courses

Select core courses are additional math, science, general engineering, and statistics courses required for a particular engineering major.

<i>Department of Mechanical Engineering Select Core Courses</i>			
Course Number	Name	Credit Hours	Prerequisites
Physics 133	<i>Introductory Physics: Thermal Physics, Waves, and Quantum Physics</i>	5	Physics 132 Math 153
Chemistry 125	<i>Chemistry for Engineers</i>	4	Chem 121 Math 151 (conc.)
Math 415	<i>Ordinary and Partial Differential Equations</i>	4	Math 254
ME 410*	<i>Statics</i>	4	ENG 183 Physics 131 Math 254 (conc.)
ME 420	<i>Strength of Materials</i>	4	ME 410
ME 430	<i>Dynamics</i>	4	ME 410
MSE 205	<i>Introduction to Materials Science and Engineering</i>	3	Math 151 Chem 121 Physics 131
ECE 300	<i>Electrical Circuits</i>	3	Physics 132 Math 254 2.00 CPHR
ECE 320	<i>Electronic Devices and Controls</i>	3	ECE 300 or ME 482 2.00 CPHR
ISE 311	<i>Manufacturing Engineering</i>	3	Rank 2
ISE 504	<i>Engineering Economic Analysis</i>	3	Rank 3 2.00 CPHR

* Or equivalent. Transfer and/or honors students may take different courses to fulfill these requirements. If you have questions about your courses and the requirements they fulfill, please see your advisor.

2.5 Required Major Courses

Required major courses are the additional courses required for a particular engineering major, and can be taken by students only once they have been accepted into that major.

<i>Department of Mechanical Engineering Required Major Courses</i>			
Course Number	Name	Credit Hours	Prerequisites
ME 250	<i>Numerical Methods and Analysis</i>	4	Math 415
ME 481	<i>System Dynamics & Vibrations</i>	3	ME 250 ECE 300
ME 482	<i>System Dynamics & Electromechanics</i>	4	ME 481 ME 504 (conc.)
ME 501	<i>Thermodynamics</i>	4	Math 415 Chem 121 ME 430
ME 502		3	ME 250 ME 501
ME 503	<i>Fluid Dynamics</i>	3	ME 250 ME 501
ME 504		3	ME 502 ME 503
ME 510	<i>Heat Transfer</i>	3	ME 501 ME 504
ME 512	<i>Fluid Mechanics & Heat Transfer Lab*</i>	2	ME 510
ME 553	<i>Kinematics & Dynamics of Machinery</i>	4	ME 430 ME 250 ME 561
ME 561	<i>Failure Modes, Stress Analysis, and Failure Prevention Principles</i>	5	ME 420 MSE 205
ME 562	<i>Design of Selected Machine Elements</i>	3	ME 561
ME 563		3	ME 562 ME 553
ME 564	<i>Senior Design Group Project</i>	4	ME 510 ME 563 (conc.) 2 nd writing crse.
ME 570	<i>Mechanical Engineering Measurements</i>	5	ME 482 ECE 320 2 nd writing crse.
ME 571	<i>Principles of Automatic Control</i>	4	ME 482
ME 578	<i>Senior Program Review</i>	0	Enrolled in qtr. of grad.
ME 581	<i>Mechanical Engineering Laboratory</i>	4	ME 570
The following series may be taken in place of ME 564 and ME 581:			
ME 565.01 - .03	<i>Mechanical Engineering Design</i>	9	ME 562 2 nd writing crse.

* As of the 2006 – 2007 school year, ME 512 has been temporarily removed from the curriculum. In substitution the ME curriculum includes 2 additional hours of technical elective coursework (see Section 2.7).

2.6 Technical Electives & Concentrations

Students who study mechanical engineering at Ohio State choose a concentration for their studies in their last year. Students choose technical electives based on their concentration, but also have the flexibility to include courses in other concentrations in order to maintain their broad education and to allow them to explore a wide variety of interests.

The Department of Mechanical Engineering offers concentrations in the following areas:

1. APPLIED MECHANICS

Applied mechanics is the theoretical, numerical, and experimental study of the response of solids and fluids to external forces. Mechanics forms the underlying scientific foundation for a wide range of engineering endeavors. It bridges the gap between fundamental science and a wide variety of engineering disciplines. Students who concentrate in this area take courses in finite element analysis, fracture mechanics, advanced strength of materials, and system vibrations.

2. AUTOMOTIVE ENGINEERING

A concentration in Automotive Engineering will prepare you for work in the automotive industry, one of the traditional branches of mechanical engineering which remains of great importance. It is concerned with the design and operation of all kinds of engines and vehicle dynamics, and is rapidly expanding to include the research, design, and testing of alternative energy systems for vehicles. Students who pursue this concentration can take courses in land vehicle dynamics, powertrain dynamics, the study of internal combustion engines, modeling of hybrid-electric vehicles, and fuel cell systems.

3. BIOMECHANICAL SYSTEMS

Biomechanics is the science that examines forces acting upon and within a biological structure and the effects produced by such forces. A concentration in Biomechanical Systems prepares students for work in the medical industry or any other area where there is a need to study the effects of forces on the human body. Students who pursue this concentration can take courses in biomedical engineering design, design of manipulators and robots, and neuromuscular biomechanics.

4. DESIGN & MANUFACTURING

A concentration in Design & Manufacturing is appropriate for students who are interested in the design, testing, and manufacturing of consumer products. Students in this concentration can take courses in product design, tool engineering, machine tool control and programming, and rapid prototyping.

5. DYNAMICS, VIBRATIONS & CONTROLS

A concentration in Dynamics, Vibrations, and Controls prepares students to understand various system components and how they interact as parts of a mechanical system. The design of many industrial and consumer products requires careful consideration of problems of shock, vibration, and noise. Machine and structural vibrations, and unsteady fluid flows are also major sources of radiated noise, which may come under strict federal, state, or local regulations. Automatic control of the behavior of physical systems, and the design/selection of sensors and actuators that enable automatic control, is an important branch of mechanical engineering as well. Students in this

concentration can take courses in control systems design, mechatronics, fracture mechanics, and engineering acoustics.

6. ENERGY SYSTEMS

The study of energy systems concentrates on the production of useful energy from raw materials (i.e. electricity from coal) as well as the process of transforming energy into useful work (i.e. electricity driving a motor), and the optimization of these processes. Students in this concentration can take courses in turbomachinery, HVAC (heating, ventilating, and air conditioning), combustion, and jet propulsion.

7. NUCLEAR ENGINEERING

The field of nuclear engineering is experiencing a resurgence as we investigate the option of nuclear power as an alternative to our society's dependence on fossil fuels. Nuclear engineers study how to design nuclear power reactors, operate nuclear power plants most efficiently, and assist in the evaluation of environmental factors in siting nuclear power plants. The nuclear engineer is also concerned with the uses of radiation in medical diagnostic devices and in industry for improving products and making measurements. Students who concentrate in this area take an introductory course in nuclear science and engineering, and can take courses in reactor theory, nuclear power plants, and radiological safety, as well as reliability engineering.

The Department of Mechanical Engineering also offers qualified students the opportunity to participate in advanced technical elective programs to compliment their participation in the ME Honors Program and/or the BS/MS program, as well as the opportunity for all students to take additional math, science, and engineering courses as part of their technical elective program.



Students should always refer to the most recent technical elective program information when planning for these courses, which can be found at <http://www.mecheng.osu.edu/undergraduate-students/technical-elective-program-requirements>, as well as consulting their faculty advisor and/or undergraduate advisor for guidance and recommendations.



2.7 ME Undergraduate Curriculum Sheet

The ME Undergraduate Curriculum (“Bingo”) Sheet is a helpful tool for both advisors and students. The curriculum sheet maps the central core, select core, and required major courses onto a 12-quarter (4 year) schedule. Although an illustration of one way that a student can complete these courses, it is by no means the only way to navigate the curriculum. Students need to be aware that the average engineering student typically takes more than four years to complete their undergraduate degree, and that the Department of Mechanical Engineering offers all required major courses as well as ME 410, 420, and 430 every autumn, winter, and spring quarter in order to accommodate the scheduling needs of its students.

The curriculum sheet should be viewed as a tool that can show you the recommended order of courses, taking into account class times, prerequisites and course loads. You should always consult your undergraduate advisor when planning courses so that your schedule can be best suited to your individual needs, *especially if you plan to deviate from the recommended curriculum path.*

Additional copies of the ME curriculum sheet are available online at <http://www.mecheng.osu.edu/undergraduate-students/scheduling-curriculum-bingo-sheets> and in the Undergraduate Advising Office.



The curriculum sheet on the following pages applies ONLY to students who start their OSU coursework during the 2008 – 2009 academic year.

This sheet varies by academic year, and students who started at OSU before AU2008 need to go to <http://www.mecheng.osu.edu/undergraduate-students/scheduling-curriculum-bingo-sheets> or see their undergraduate advisor to obtain the curriculum sheet that corresponds to the year that they started their coursework at OSU.



Mechanical Engineering www.mecheng.ohio-state.edu
2008-2009

Name _____

Email: _____@osu.edu

YEAR	AUTUMN	WINTER	SPRING
1	Math 151* (Calc & Analyc Geom)... 5 _____ Chem 121 (Gen Chem) 5 _____ Engr 181 (Intro to Engr I) 3 _____ Engr 100.12 (Engr Survey)..... 1 _____	Math 152 (Calc & Analyc Geom) 5 _____ Chem 125 (Chem for Engr) 4 _____ Physics 131 (Partcls & Motion) 5 _____	Math 153 (Calc & Analyc Geom) 5 _____ Engr 183 (Intro to Engr II)..... 3 _____ Physics 132 (Electrcly & Magntsm) 5 _____
2	Math 254 (Calc & Analyc Geom) 5 _____ Physics 133 (Elctrdynmc & Quant) . 5 _____ ME 410 (Statics) 4 _____	Math 415 (Ord Part Dff Equat) 4 _____ ME 430 (Dynamics)..... 4 _____ MSE 205 (Intro to MSE) 3 _____	ME 250 (Num Mthds & Anlys ME).... 4 _____ ME 420 (Intro Strength Materials) 4 _____ ME 501 (Thermodynamics) 4 _____ ECE 300 (Electrical Circuits) 3 _____
3	ME 481 (Sys Dynamics & Vibs) 3 _____ ME 502 (Thermodynamics II)..... 3 _____ ME 503 (Fluid Dynamics I) 3 _____ ISE 311 (Manufacturing Engr)..... 3 _____	ME 504 (Fluid Dynamics II) 3 _____ ME 561 (Fail Mds, Stres Anlys, Fail Prev)5 _____ ECE 320 (Elec Devices & Controls) . 3 _____ ISE 504 (Engr Econ Anlys) 3 _____	ME 482 (Sys Dynms & Electromech) 4 _____ ME 510 (Heat Transfer) 3 _____ ME 553 (Knmtns Dymn of Machinery) 4 _____ ME 562 (Dsgn Selct Mach Elem I).... 3 _____
4	ME 563 (Dsgn Selct Mach Elem II)... 3 _____ ME 570 (ME Measurements) 5 _____ T.E.....3 _____ T.E.....3 _____	ME 571 (Prin of Automatic Control) .. 4 _____ ME 564 (Sr Dsgn Group Project) 4 _____ ME 512 (Fluid Mech & Heat Trans Lab)2 _____** T.E.....3 _____	ME 581 (ME Lab) 4 _____ ME 578 (Sr Program Review)..... 0 _____ T.E.....3 _____ T.E.....3 _____

GENERAL EDUCATION (35 hours)

TECHNICAL ELECTIVES (15-17 hrs)**

English & Communication Skills (10)
A. _____ English 110 _____ (5) _____
B. Second Writing Course
_____ 367. _____ (5) _____

Social Science (5 - 10)
_____ () _____
_____ () _____

Historical Study (5 - 10)
_____ () _____
_____ () _____

Arts & Humanities (5 - 10)
_____ () _____
_____ () _____

TOTAL = 25 hrs.

NOTE: Foreign language is not required for engineering students. However, if you are interested in foreign language courses, please see the back of this sheet or speak to your advisor to learn how these courses can fulfill some of your GEC requirements.

Ethics
(Your ethics course will **also** count for either a Social Science course or an Arts & Humanities course, depending on the ethics course that you choose.)
_____ (5) _____
Check one: This also counts as a
 I. Social Science (Group _____)
 II. Arts & Humanities (Group _____)

Diversity Experience
(Your diversity course will **also** count for either a second writing course, a Social Science course, or an Arts & Humanities course, depending on the diversity course that you choose.)
_____ (5) _____
Check one: This also counts as a
 Second Writing Course.
 Social Science
 Arts & Humanities

Concentration:
(Check one or more.)
 Applied Mechanics
 Automotive Engineering
 Biomechanical Systems
 Design & Manufacturing
 Dynamics, Vibrations, & Controls
 Energy Systems
 Nuclear Engineering
 Research / Advanced Studies

_____ () _____
_____ () _____
_____ () _____
_____ () _____
_____ () _____
_____ () _____

ME Required Coursework	142	140
General Education Curriculum	35	
Technical Electives	15	17
Total Credit Hours	192	

* All students must satisfy the credit hour minimum (48 credit hours) for math and basic sciences. Students with high math or science placements (i.e. Math 161 without "EM" or "K" credit for Math 151) and transfer students should consult with the ME academic advisors to ensure this minimum is met. Such students may be required to take extra coursework to meet graduation requirements.

** The technical elective program rules and course choices can be found on the Mechanical Engineering web page and also in the ME Undergraduate Student Handbook. **Due to the temporary cancellation of ME 512, students are required to take 2 additional credit hours from the approved ME Technical Elective list.**

Formal application to the major is required. Pre-requisite courses to the major are English 110 and the SPHR courses listed below. In order to be eligible to apply to the major students must have a minimum 2.00 CPHR and SPHR; however, these minimums do not guarantee acceptance to the major. *Acceptance into the Mechanical Engineering major is limited to 200 students per year and is competitive based on a student's SPHR.* Email meadvisor@osu.edu for more information. SPHR = CUMULATIVE GPA in Chem 121, 125; Physics 131 and 132; Engineering 181 and 183; Math 151-153 and 254; ME 410, or their equivalents.

The Ohio State University College of Engineering General Education Curriculum (GEC) Courses

ENGLISH & COMMUNICATION SKILLS (10 hrs)

A. First Course (5 hrs)

English 110.01, 110.02, 110.03

B. Second Course (5 hrs)

African-American and African Studies 367.02, 367.03, 367.04

Agricultural Communication 367

Arabic 367

Art Education 367.01, 367.02, 367.03

Communication 367

Comparative Studies

367.01, 367.02, 367.03, 367.04

Dance H367.01

Economics 367.01, 367.02

Engineering 367

English 367.01, 367.02, 367.03, 367.04,

367.05, 367.06, 367.07

German 367

Human Development and Family Science 367

Landscape Architecture 367

Linguistics 367.01, 367.02

Modern Greek 367

ENR 367

Nursing 367

Philosophy 367

Physics 367

Political Science 367.01

Psychology 367.01, 367.02

Slavic Languages and Literatures 367

Sociology H367.01, 367.02, H367.03

Spanish 367

Theater 367.01, 367.02, 367.03

Women's Studies 367.01, 367.02, 367.03, 367.04

Yiddish 367

C. Third Course (Major Department)

Aeronautical and Astronautical Engineering 510.01, 510.02 AND 510.03 (all three must be taken)

Aviation 530, 540, 550

Chemical & Biomolecular Engineering 521, 630, 760, 762, AND 764 (all five must be taken)

Civil Engineering 405, 406, 460, AND 619 (all four must be taken)

Computer Science & Engineering 560

Electrical & Computer Engineering 582

Engineering Physics – Physics 596

FAB Engineering 225, 695, 723, 724, AND 725 (all five must be taken)

Geodetic Science 625

Industrial and Systems Engineering 500, 608.01, AND 608.02 (all three must be taken)

Materials Science and Engineering 581.01, 581.02, 581.03, 695.01, AND 695.02, 695.03 (all six must be taken)

Mechanical Engineering 564, 570, AND 581 (all three must be taken)

Welding Engineering 690, 691, 692, AND MSE 581.02 (all four must be taken)

ETHICS (5 hrs selected from either Ethics Group I or II.)

A. Ethics Group I

Economics 348

Sociology 302, 464 (Counts as any Social Science Course)

B. Ethics Group II

Philosophy 131.01

Comparative Studies 272

Students must take 25 hours across Social

Sciences, Historical Study, and Arts & Humanities

with a minimum of 5 hours and maximum of 10

hours per category.

SOCIAL SCIENCES (5-10 hours, no more than one

from a group)

A. Individuals and Groups

African-American & African Studies 201, 218

Animal Science 240

Anthropology 201, 202, 421.08

Communication 101, 200, 431

Economics 348

Edu P&L 411

Human Development and Family Science 360, 361, 364

International Studies 356

Linguistics 170, 270, 371, 372, 375

Political Science 201

Psychology 100¹, 367.01, 367.02, 371

Rural Sociology 378

Social Work 230

Sociology 210, 370, 380

Speech and Hearing Science 330, 350

Textiles and Clothing 372

Women's Studies 110

B. Organizations and Politics

Economics 201, 367.01, 367.02

Family Resource Management 243

Geography 450, 460, 643

International Studies 201, 230, 231, 235,

245, 250

Natural Resources 400

Political Science 100, 101, 165, 210, 245, 367.01

Rural Sociology 105

Sociology 101, 345, H367.01, H367.02,

H367.03

C. Human, Natural, & Economic Resources

Agricultural, Environmental, and

Development Economics 200, 280

Bus MHR 290

Economics 110, 200

Family Resource Management 340

Geography 200, 240, H410, 430

History 366

International Studies 210, 215, 240, 280

Political Science 145

Sociology 463, 466

HISTORICAL STUDY (5-10 hrs)

African-American & African Studies 121,122

Economics 515,516

Engineering 360.01, 360.02

History any History course (except 398 & 598).

History 366 may be used to help fulfill

either a History requirement or a Social Science requirement but not both.

Hist Art 201, 202

Philosophy H111, H112

ARTS & HUMANITIES (5-10 hrs, no more than one from a group)

A. Literature

African-American and African Studies 154,

251, 254, 271, 345, 367.02, 367.03,

367.04, 551

Arabic 371, 372

Chinese 251, 501, 502, 503, 504

Classics 101, 102, 222

Comparative Studies 100, 201, 202.01, 202.02,

203, 204, 205, H240, 273, 301, 306, 308,

314

English 201, 202, 220, 260, 261, 262, 275, 280,

281, 290, 291, 367.02, 367.03

French 150, 151, 152, 250

German 250, H263, 291, 292, 399

Hebrew 370, 372, 373, 374, 378

Italian 151, 152, 251

Japanese 251, 252

Korean 251

Modern Greek H250, 371

Near Eastern Languages & Cultures 271, 371,

372, 374

Persian 370, 371

Philosophy 215, 301, 302, 303, 304, 305,

306, 307

Russian 250, 251

Scandinavian 222, 513

Slavic 245

Spanish 320, 321, 520

Theatre 367.02

Turkish 371, 372

Women's Studies 215, 367.01, 367.02,

367.03, 367.04, 372

Yiddish 371, 399

B. Visual/Performing Arts

African-American and African Studies 288

Architecture 271²

Art 205, 206, 300.01, 300.02, 340, H455

Art Education 160, 252, 367.01

Comparative Studies 358

Dance 161, 200

East Asian Languages & Literatures 346

English 263, 269

Film Studies 270

History of Art 201, 202, 210, 211, 212, 213, 216,

260, 300, 301, 305, 315, 316, 340, 345, 350,

360, 505,519, 520, 525, 530, 576, 582

Italian 221

Korean 505

Landscape Architecture 201

Medieval & Renaissance Studies 219

Modern Greek 268

Music 250, 251, 252, 253, 288, 341, 342,

345.01, 347, 348, 349

Philosophy 240, H242

Physics H455

Russian 360

Scandinavian 520

Spanish 322, 330, 380

Theater 100, H101, 161, H230, 271, 280²

Women's Studies 230, 317

C. Cultures and Ideas

African-American and African Studies 303, 342,

485.01

Allied Medicine 307

Anthropology 241

Arabic 241, 367, 377

Art Educ 255

Arts and Sciences 500

Chinese 231, 232

Classics 224, 225, 226, 230, 240

Comparative Studies 234, 241, 242, 264, 270, 272, 274,

275, 305, 336, 339, 345, 367.01, 367.02, 367.03,

376, 377

Dance 357

East Asian Languages & Literatures 131, 341

English H167, 264, 270, 271, 276, 277, 364, 378

ENR 367

French 153

German 275, 299

Hebrew 216, 241, 376, 379

History 306, 330.01, 346

History of Art 306

Japanese 231

Jewish Studies 201

Korean 231

Landscape Architecture 367

Linguistics 201, 301, 303

Medieval and Renaissance Studies 210,211 212, 213,

214, 215, 216, 217, 218, 226, 240

Modern Greek 241

Near Eastern Languages and Cultures 241, 244, 311,

341, 344, 345, 351, 360, 370

Persian 241

Philosophy 101, 130, 131.01, 230, 270, 336

Portuguese 330

Romanian 235

Russian 135, 235

Slavic Languages and Literatures 130

Spanish 150, 151, 331

Turkish 241

Women's Studies 101

Yiddish 241, 367

DIVERSITY EXPERIENCE (Must take one "diversity experience" course which may be taken from any GEC category. Underlined courses in all categories meet "diversity experience" requirements.)

African-American & African Studies 230, 243

Art Educ 467

Biology 597

Comparative Studies 243

Econ 482, 485

Edu P&L 551, 552

Family Resource Management 362

Geography 400

History 325

Political Science 508

Psychology 375, 646

Social Work 300, 301

Sociology 306, 382, 435, 467, 608

Speech and Hearing 310

Women's Studies 370, 510, 520

FOREIGN LANGUAGE (Waived)

A. Completion through enrollment in a foreign language sequence through 104, or enrollment in a foreign language course with a prerequisite of 104 can be substituted for one GEC course requirement in the Arts and Humanities category, group C.

B. Completion of a foreign language minor can be substituted for two GEC courses, one in Social Sciences category, group A or B, and one in Arts & Humanities category, group A or C.

2.8 Co-op and Internship Opportunities

Many students find that a co-op or internship experience greatly enhances their engineering education. A co-op or internship can show you how theoretical concepts are applied in practice, help enhance your resume with engineering work experience, and even help fund your education!

The College of Engineering has a very good co-op and internship program.* In order to register with the Engineering Co-op and Internship Program (ECIP), you must

- be enrolled in the College of Engineering as a full-time undergraduate student;
- be a student in good academic standing;
- have earned a “C” or higher in Math 151 or Math 161;
- have earned credits equal to three full-time quarters of study with a minimum of two, full-time consecutive quarters at Ohio State.

If a student does not meet all of these requirements, he or she may petition the program for permission to enroll. For more information on ECIP go to <http://career.eng.ohio-state.edu/index.php>, or stop in 199 Hitchcock Hall.

The Department of Mechanical Engineering strongly encourages students to participate in a co-op or internship at some point during their undergraduate education. The mechanical engineering curriculum is easily coordinated with a co-op or internship. If you have questions about how to incorporate a co-op or internship into your schedule, see your advisor!

ENGINEERING 689 – Professional Practice in Engineering

During the quarter(s) in which a student has a co-op or internship, they can enroll in Engineering 689. ENG 689 allows a student to retain their full-time student status while they are employed, and also is an official record of their co-op or internship experience. This may be important to the student because they

- need to remain a full-time student in order to avoid repaying loans;
- need to have record of their full-time student status to remain on their parent’s health insurance plan;
- need to be a full-time student to be eligible for student football tickets.

For a complete list of the reasons why a student may want to enroll in this course, please go to <http://career.eng.ohio-state.edu/student/ecip-faqs.php#enroll>.

This course is worth 0 credit hours, requires a nominal fee, and requires that the student complete an evaluation of their co-op or internship experience.

2.9 Study Abroad Programs

A study abroad experience is a great way to enhance your undergraduate education by being exposed to different cultures and ideas, meeting new people, and earning course credit. (Engineering students typically earn credit for GECs when studying abroad, as the availability of engineering coursework that will transfer from other institutions is limited.)

* You may also pursue co-op and internship opportunities outside of those offered through ECIP. Participation in ECIP can be a benefit but is not a requirement in order to co-op.

The College of Engineering does not sponsor its own study abroad programs. However, the College and the Department of Mechanical Engineering are committed to supporting students who wish to pursue these opportunities. More information on the University's study abroad programs can be found at <http://oia.osu.edu/>. The mechanical engineering curriculum is easily coordinated with a study abroad experience. If you have questions about how to incorporate a study abroad experience into your schedule, see your advisor!

2.10 Minor Programs

Engineering students can and do pursue a wide variety of minors to complement their B.S.M.E. degree, such as business, biomedical engineering, and foreign language minors, among others. The mechanical engineering curriculum is easily coordinated with minor coursework. Minor coursework is typically taken in conjunction with major courses and can provide an enjoyable balance to a student's studies.

Information on minors offered at the University can be found at <http://artsandsciences.osu.edu/currofc/gec/minors.cfm>. (The business minor, offered through the Fisher College of Business, is listed as "General Business".)

Minor information can also be found through department and college websites. If there is a particular area in which you would like to earn a minor and are having trouble finding information, ask your advisor for help or contact the department of interest!

3.0 Academic Standards

3.1 Definition of Academic Standards

All pre-major and major students are required to meet certain criteria in order to be in good academic standing in the Department of Mechanical Engineering. Those criteria are*

1. a quarter point-hour ratio (QPHR) of 2.00 or above;
2. a cumulative point-hour ratio (CPHR) of 2.00 or above;
3. an SPHR of 2.00 or above (pre-major students);
4. a cumulative major point-hour ratio (MPHR) of 2.00 or above (major students).†

3.2 Academic Sanctions

The University has established two forms of academic sanctions for students not performing to minimum academic standards or who are not making progress toward their degree.

1. Academic Probation Any student who has accumulated 15 or more deficiency points shall be placed on academic probation (see University Rule 3335-9-25A). If the student's college or school considers a student's progress as unsatisfactory in meeting the conditions placed on his or her probation, the college or school shall be empowered to dismiss him or her from the University (see University Rule 3335-9-26).
2. Probation by Special Action (SAP) If at any time the preparation, progress or success of a student in his or her academic program is determined to be unsatisfactory, the college or school in which the student is registered shall be empowered to place him or her on academic probation (see University Rule 3335-9-25B). *A student on SAP is subject to dismissal from the department if he or she fails to meet the terms placed on his or her probation.*

Students who do not meet the conditions of their probation after one quarter can be dismissed from either the Department or from the College of Engineering. At this time, students will receive a letter informing them of their dismissal with further instructions on making the change to another academic unit. Students in this situation need to move to their new academic unit and meet with their new advisor as soon as possible in order to resolve any scheduling issues created by their dismissal and to formulate a plan for reinstatement to the department or to investigate new major choices.

* If you entered the University or began the major prior to autumn 2003 please see the advisors for a different list of standards.

† The MPHR includes *all* ME courses taken except ME 410.

3.3 What does this mean?

In short, 2.00 is the “magic number”. In order to be eligible to apply for the mechanical engineering major, you need a 2.00 SPHR and a 2.00 CPHR. In order to earn a degree from the Department of Mechanical Engineering, you need to maintain a 2.00 MPHR. In order to graduate from Ohio State, you need a 2.00 CPHR.

Departmental Probation - If you are performing below these standards, even for a quarter, then the Department of Mechanical Engineering will place you on SAP (Special Action Probation). If you do not meet the terms of your probation (generally achieving a 2.00 QPHR the quarter you are on probation), then you can be dismissed from the Department of Mechanical Engineering. Upon dismissal

- if you have ≥ 2.00 CPHR, you will be placed in the Engineering Re-Exploring program, administered through the College office, where you will work either towards reinstatement to the Department of Mechanical Engineering, or towards transfer to another engineering department;
- if you have < 2.00 CPHR, you will also be dismissed from the College of Engineering, and required to enroll in a new major outside of the College of Engineering. If you do not have a new major program in mind then you can enroll into the Exploration program through the College of the Arts and Sciences. The Exploration program can help you choose a new major or work for reinstatement into an engineering department (mechanical or other).

PLEASE NOTE: In addition to performing below the academic standards established by the Department, if it appears that you are no longer pursuing a mechanical engineering degree then you may be put on probation for *Lack of Progress*. The advisors in the Undergraduate Advising Office are not qualified to advise you on your progress towards a degree outside of mechanical engineering. To ensure that you receive the best possible guidance you need to be working with advisors in your chosen field. Being placed on probation for Lack of Progress is a last resort, and will be used only after repeated attempts to contact the student to discuss their situation and encourage their transition to a new major.

Although these measures may seem punitive, they are in reality often in your best interest. Our goal is for you to be successful regardless of your major. If you are not being successful in mechanical engineering, then you may need to take some time to address your difficulties before continuing to move on, or it may be better for you to find a new major (engineering or other) before you dig yourself into an academic hole that you cannot get out of. Probation gives us the means to monitor students, encourage you to resolve your difficulties, or guide you in a more appropriate direction.

University Probation - If at any point you accumulate 15 or more deficiency points*, then you are placed on academic probation by the *College of Engineering* (all colleges are responsible for administering University policies). This means that you are not meeting the minimum requirements needed to graduate from Ohio State, regardless of major. If you do not meet the terms placed on

* Your deficiency points are the number of additional credit points you would need at any given time to have a 2.00 CPHR.

you by the College of Engineering (generally reducing your deficiency points by a certain number), then you are eligible to be dismissed from the University.

3.4 Reinstatement of Dismissed Students

Students who are dismissed from the Department of Mechanical Engineering can petition for reinstatement in two ways:

1. Immediate / Early Reinstatement – Typically, this option is best for students who may have had extenuating circumstances that led to their academic difficulties, such as illness, financial problems, etc. It is important when petitioning for immediate or early reinstatement to clearly show why your previous circumstances will no longer be negatively affecting your academic performance (i.e. you have received medical treatment for your condition; you have received a loan and will no longer find it necessary to work while attending classes, etc.)
2. Reinstatement after Probationary Period – The typical probationary period for students is three quarters. During this time, students take classes that will contribute to their degree or a minor but are not permitted to take any required major courses. It is important to earn high academic marks during this period in order to demonstrate that you have resolved the issues that led to your poor academic performance (i.e. motivation issues, study habits, etc.) The probationary period should be used as time for you to resolve your academic issues before they make it impossible for you to earn your degree.

It is advised that students who are petitioning for reinstatement work closely with both their current advisor and with an undergraduate advisor from the Department of Mechanical Engineering during the petition process. This will ensure that their case for reinstatement is presented in the best possible manner to the Undergraduate Studies Committee.

Reinstatement petitions can be found in the College of Engineering office at 122 Hitchcock Hall. Completed petitions should be turned in to Rosie Quinzon-Bonello at the Undergraduate Advising Office or sent by post to:

Rosie Quinzon-Bonello
N250D Scott Laboratory
201 W. 19th Ave.
Columbus, OH 43210



All information regarding a student's probationary status will be communicated through the student's OSU email account. It is the student's responsibility to ensure that their OSU email account is activated so that they can receive University, College, and Departmental information.



4.0 Procedures for Undergraduate Mechanical Engineering Students

4.1 Registration for Courses and Important Deadlines

Students at The Ohio State University register for their courses online. The online scheduling system can be found at Buckeye Link (www.buckeyelink.osu.edu/). During the third week of a given quarter, students will receive an email from the Registrar's office with their scheduling registration window for the following quarter. If at any time a scheduling window email is deleted, please contact your undergraduate advisor for your scheduling date.

Please note that address changes can also be made online through Buckeye Link and it is the student's responsibility to ensure that the University has an updated address. Your Statement of Account and a graphical view of your schedule can also be found through Buckeye Link.

Adding Courses

Students may add courses online from the time their scheduling window opens through the 1st Friday of the following quarter. This also includes changing sections in a scheduled course. After the 1st Friday, permission is required to add or change sections in all courses.

To add enroll in a full class through the 1st Friday, or to add any course after the 1st Friday of the quarter, written permission from the instructor must be obtained. After the 2nd Friday, written permission from both the instructor and the course department must be obtained. The permission form is available at the Undergraduate Advising Office. Once completed, return the form to your undergraduate advisor in order to have the course added to your schedule. Courses are not added after the 3rd Friday of the quarter without approval from the College of Engineering, which is rarely granted without extenuating circumstances.*

Waitlists

For some courses, demand exceeds availability; therefore, course waitlisting is available. Here are some important features of the waitlist system:

- If during registration a course is full, you will have the option of being placed on the waitlist for that course. Waitlisted courses are noted on your Approved Schedule. All pre-requisites must be met in order to waitlist a course.
- Your position on the waitlist is based on the time of your attempt to register for the course. You are added into the course from the waitlist on a first on, first off basis as space becomes available.
- The system is *course-based*, not section-based. This means that you will be placed in the first available section of a course if an opening becomes available AND the course fits into your current schedule. In order to avoid being placed in a certain section, students may add "Free time" to their schedule.

* If you need to add a course after the third Friday see your undergraduate advisor to discuss your situation and obtain the appropriate paperwork to petition your request to the College of Engineering.

- Check your schedule online weekly before the quarter starts and *daily* during the first week of class!
- Courses may be added to your schedule from the waitlist throughout the entire 1st week of classes. If you do not get dropped into a course from the waitlist by the end of the 1st week, you will be given priority scheduling for the course during the following quarter. However, priority scheduling does not guarantee a seat in the course.

Dropping Courses

Students may drop courses online through the 3rd Friday of the quarter. Courses that are dropped by the third Friday will disappear from the student's official record. After the 3rd Friday of the quarter through the 7th Friday of the quarter, students must drop courses through the Undergraduate Advising Office. A "W" will appear on the student's records in such cases, indicating that the student withdrew from the course. Students are not permitted to drop courses after the 7th Friday of the quarter without approval from the College of Engineering, which is rarely granted without extenuating circumstances.*

Pass/Non-Pass and Audit

Only classes you plan to use for free elective credit (not required for your degree) may be taken pass/non-pass or for audit. Students who wish to take a course pass/non-pass or for audit should see their advisor for the appropriate form and instructions. Forms are due on the 3rd Friday of the quarter.

Repeating a Course & Freshman Forgiveness

Sometimes students will find it necessary or desirable to repeat a course. If a student is repeating a course that was previously failed, they can register for the course as usual online. Students who feel that they would like to repeat a course in which they did not earn a failing grade should contact their academic advisor to discuss their situation.

Pre-mechanical engineering students with *less than* 45 credit hours[†] who receive a D+, D or E in a course may repeat the course for Freshmen Forgiveness at anytime before reaching 90 credit hours[†] (junior status). When taking a course for Freshman Forgiveness, the new grade will replace the old grade in your point-hour ratios, but both grades will remain on your transcript. Please note that you may not retake a math course after moving on to the next course in the sequence. This restriction has been put in place by the Math Department.

* If you need to drop a course after the 7th Friday see your undergraduate advisor to discuss your situation and obtain the appropriate paperwork to petition your request to the College of Engineering.

† Examination (EM) credit does not count towards these 45 credit hours. Transfer (K) credit does. If you are uncertain of your eligibility to use freshman forgiveness, then contact your advisor.

The online scheduling system won't let me schedule courses...why?

Students on academic probation or SAP are not permitted to alter their schedules without advisor permission. If you are on academic probation or SAP, you will need to contact your undergraduate advisor to make any changes to your schedule.

Additionally, holds may be placed on your account by the Office of Fees & Deposits or the University Registrar and will prevent registration. In such cases, the appropriate office should be contacted by the student in order to have the hold removed. Questions regarding holds should be directed to the University Registrar at 614-292-8500 or at registrar@osu.edu.

Important Deadlines

Students are responsible for understanding and adhering to University policies. Some of the most important policies to students are the quarterly Add/Drop/Withdrawal deadlines. The following table illustrates the Add/Drop/Withdrawal deadlines for any given quarter:

1 st Friday	Last day to add a course <i>without</i> permission of the instructor
2 nd Friday	Last day to add a course <i>with</i> permission of the instructor
3 rd Friday	Last day to drop a course online. Courses dropped by the 3 rd Friday of the quarter will disappear from the student's official record. Last day to add a course with permission of the instructor <i>and</i> course department chair
7 th Friday	Last day to drop a course without petitioning the College of Engineering (your official record will show a "W" for the dropped course) Last day to withdrawal from the University without petitioning the College of Engineering

An extensive list of deadlines can be found on the Registrar's webpage at <http://www.ureg.ohio-state.edu/ourweb/more/>.

4.2 Applying to the Mechanical Engineering Major

Admission to major in Mechanical Engineering is by application only and is in accordance with the College of Engineering enrollment management plan approved by the University Council on Academic Affairs. The Department of Mechanical Engineering limits major enrollment to 200 new students per academic year.

Deadline for Submitting Application

Pre-mechanical engineering students need to apply to the major no later than the quarter before they wish to start their required major courses.*

To BEGIN Required Major Courses:	Submit Application By:
Autumn Quarter	2 nd Friday of Spring Quarter
Winter Quarter	2 nd Friday of Autumn Quarter
Spring Quarter	2 nd Friday of Winter Quarter

Students are first eligible to apply during the quarter in which they are enrolled in the final courses which make up the secondary point-hour ratio (SPHR). A student's SPHR is his/her cumulative grade-point average in the following courses:

Chem 121 and 125[†]
Physics 131 and 132
Engineering 181 and 183 *or* H191 and H192 *or* ENG 185, 186, and 187
ME 410 *or* H210
Math 151-153 and 254 *or* 161, 162, and 263 (or equivalent)

In addition, English 110 is also a pre-requisite for admission to the major. Students must pass English 110 with a C- or better to be eligible for admission to the major.

Applications are not accepted during summer quarter. Applications are available in the Undergraduate Advising Office or online at <http://www.mecheng.osu.edu/undergraduate-students/pre-major-students>.

* Typically, ME 250 is a student's first required major course.

† Chem 122 will be accepted as a substitute for Chem 125; however, the Department prefers Chem 125.

Criteria for Admission

All applicants must have a cumulative point-hour ratio (CPHR) of 2.00 or greater and an SPHR of 2.00 or greater in order to be *considered* for admission to the ME major. If demand for admission exceeds 200 students per year, admission to the major will be competitive and based on a student's SPHR. Admission to the major can be conditional based on successful completion of any "in progress (IP)" SPHR courses. The department deems successful completion to be a 2.0 point-hour ratio in IP SPHR courses.

Admission to the major is currently competitive. The SPHR cutoff varies every quarter based on the academic strength of the students who apply during that quarter.

During the 2007 - 2008 academic year, the SPHR cutoff ranged from 2.4 (AU07) to 2.68 (SP08). Our recommendation to students is to aim for an SPHR of 3.0, or a "B" average in the SPHR courses, in order to be competitive when they apply to the major. Students should monitor their SPHR closely by checking their degree audit after every quarter and see an advisor if they have concerns. Note that we cannot predict where the SPHR cutoff will be in future quarters, but give you this information so that you can be aware of past trends.

Notification

Students will be notified of their acceptance/denial to the major no later than the third Friday of the quarter via email. This is the official notification of acceptance/denial to the major.

Students denied admission may reapply subsequent quarters. There is currently no limit to the number of times that a student may apply to the major. Applications will not be retained, so a new application form will be required each time a student applies to the major. Students reapplying to the major should first meet with one of the undergraduate advisors to discuss their situation.

5.0 Important Information for Students Admitted to the Major

5.1 Academic Obligations

You are required to see an undergraduate academic advisor during the first quarter you are in the major. You will be reminded of this requirement via your OSU email account early in the quarter. During this meeting, we will review with you the academic standards of the department.* If you do not meet with an academic advisor to fulfill this obligation, your registration window for the following quarter will be locked.

In brief, the Department of Mechanical Engineering expects their students to maintain minimum quarter, major, and cumulative point-hour ratios (QPHR, MPHR, and CPHR) of 2.00. Students who do not meet these minimum point-hour ratios are subject to departmental probation and/or dismissal from the Department.

5.2 Computer Lab Privileges

Students admitted to the major automatically receive access to the computer labs in Scott Laboratory. The computer labs are located on the second floor in the east building of Scott Lab and are accessible 24 hours a day; however, you need to BuckID to enter. There is also a computer lab on the first floor next to the student lounge area.

When you are given access to the computer labs, you will also be expected to adhere to all published computer lab policies. The purpose of these policies is to create a good study environment for all students and to maintain the condition of the labs for future students, and they are actively enforced.

5.3 Faculty Advising

Once you are admitted to the major you will be assigned a faculty advisor (*in addition* to your undergraduate academic advisor). Faculty advisors assist students in many areas, including mentorship, research, career guidance, graduate study, and selection of technical electives.

Students will receive guidelines for meeting with their faculty advisor upon their admission to the major. The most current information about the requirements for the faculty advising program can always be found at <http://www.mecheng.osu.edu/undergraduate-students/faculty-advising-program>.

5.4 Graduation

All students need to submit an application in order to be eligible to graduate from The Ohio State University! The Department of Mechanical Engineering has its own application that students are required to submit. Applications should be submitted according to the following timeline.

* Please see Section 3 for detailed information regarding the academic standards of the Department of Mechanical Engineering.

If you wish to graduate:	Then we recommend that you submit your Graduation Application by the end of the previous:
Autumn Quarter	Autumn Quarter
Winter Quarter	Winter Quarter
Spring Quarter	Spring Quarter
Summer Quarter	Summer Quarter

These deadlines allow us to check your plan for your last year of major coursework and make any necessary changes to your plan well before they become issues affecting your graduation.

Students who submit their application to graduate on time benefit in two ways:

1. Senior priority scheduling for the final two quarters before graduation.
2. Verification that with courses they plan to take their final three quarters they do indeed meet all requirements to graduate.

Once a graduation application is approved, it is assumed that the student will follow the plan that they indicated on the application. If you deviate from your original plan, it is recommended that you see an advisor regarding the changes you've made to make sure that you are still fulfilling all graduation requirements. If you change courses but do not let an advisor know, then there is no guarantee that your new courses will be checked by an advisor until the quarter that you are set to graduate, *at which time it may be too late to correct any mistakes.*

Applications can be found at <http://www.mecheng.osu.edu/undergraduate-students/graduation>, or in the Undergraduate Advising Office. Late applications will be accepted, but on-time graduation will not be guaranteed in such cases.

Once your application has been approved, further instructions for the graduating class can be found at www.commencement.osu.edu and at <http://www.eng.ohio-state.edu/currentstudents/graduation.php>. Graduating seniors will also receive an email from the College of Engineering during the 5th week of their quarter of graduation with further instructions. If you are planning to graduate but do not receive this email, contact your advisor or the College of Engineering at 292-2651.



*Don't risk delaying your graduation –
keep the Undergraduate Advising Office informed of any schedule changes!*



6.0 Faculty

Faculty and their research interests are listed below. Additional information about Mechanical Engineering faculty, including contact information and publications, can be found at <http://www.mecheng.osu.edu/contacts/faculty>.

All faculty are also organized into *Focus Areas* according to their areas of interest. Students are encouraged to view the research activities and faculty involved in these areas at <http://www.mecheng.osu.edu/focus-areas>. Students may also want to discuss the possibility of research or graduate work within a particular area with their faculty advisors.

ABRAMS, Lisa Asst. Prof. of Practice
Ph.D., The Ohio State University
Teaching focus in design and manufacturing.

ADAMOVICH, Igor Assoc. Professor
Ph.D., The Ohio State University
Supersonic flow and combustion control by plasmas, high-pressure weakly ionized plasmas, plasma material processing, molecular energy transfer.

ALDEMIR, Tunc Professor
Ph.D., University of Illinois
Risk analysis, system dynamics of nuclear plants, reactor physics, in-core fuel management, risk assessment.

ALTAN, Taylan Professor
Ph.D., University of California/Berkeley
Net shape manufacturing, metal forming, hydroforming, high speed machining.

BECHTEL, Stephen Professor
Ph.D., University of California/Berkeley
Nonlinear mechanics and thermomechanics, polymer processing, material characterization.

BERME, Necip Emeritus Professor
Ph.D., Case Western Reserve University
Biomechanics, machine design, experimental mechanics.

BHUSHAN, Bharat Professor
Ph.D., University of Colorado
Tribology/microtribology, surface and mechanical characterization, contact modeling, friction, wear, lubrication, ceramics, coatings, contamination and industrial applications, including data storage devices and MEMS.

BLUE, Thomas E. Professor
Ph.D., University of Michigan
Boron neutron capture therapy, radiation dosimetry and detection, solid state nuclear track detectors, image processing.

BUSBY, Henry R. Professor
Ph.D., University of Southern California
Computer-aided design, machine design, vibrations, finite elements, inverse methods and computational mechanics.

CHRISTENSEN, Richard Emeritus Professor
M.S., Stanford University
Thermodynamics and heat transfer as applied to power reactor systems and components.

CONLISK, A. Terrence Professor
Ph.D., Purdue University
Fluid mechanics, film flows and boundary layers, computational fluid dynamics, mass transfer, micro/nano flows, bio-fluid mechanics.

DAPINO, Marcelo J. Assoc. Professor

Ph.D., Iowa State University

Dynamics, vibrations, smart materials and structures, electromagnetics, material characterization.

DENNING, Richard Professor

Ph.D., University of Florida

Probabilistic risk assessment, nuclear facility safety assessment, inherently safe reactor design.

DUNN, Michael Professor

Ph.D., Purdue University

Experimental methods for unsteady aerodynamics and heat transfer; high speed instrumentation.

DUPAIX, Rebecca Asst. Professor

Ph.D., Massachusetts Institute of Technology

Solid mechanics, polymer mechanics, mechanical behavior of materials, deformation processing of polymers, finite element analysis.

ESSENHIGH, Robert H. Emeritus Professor

Ph.D., University of Sheffield

Combustion science, flame modeling, heterogeneous reaction kinetics, furnace analysis and energy conversion.

GHOSH, Somnath Professor

Ph.D., University of Michigan

Computational mechanics and finite element methods, multi-scale modeling of composite and polycrystalline materials, nano-scale modeling, failure and reliability of aerospace and automotive materials, metal forming and biomaterials.

GILAT, Amos Professor

Ph.D., Brown University

Experimental mechanics, plasticity, mechanics of materials.

GUENTHER, Dennis A. Professor

Ph.D., The Ohio State University

Automotive engineering, crash simulation, traffic safety.

GUEZENNEC, Yann G. Professor

Ph.D., Illinois Institute of Technology

Experimental fluid mechanics, turbulence and mixing, fluid dynamics and combustion in IC engines, flow visualization.

HAJEK, Brian K. Research Scientist and Associate Chair (Nuclear Engineering)

M.S., The Ohio State University

Reactor operations, nuclear instrumentation, and hydraulics and measurements.

HALDEMAN, Charles

Research Assoc. Prof.

Ph.D., The Ohio State University

Usage of short-duration facilities and instrumentation in gas turbine research, high precision aerodynamic and aeroperformance measurements, turbine-clocking issues, high cycle fatigue, counter-rotating vaneless turbines.

HARPER, Brian Assoc. Professor

Ph.D., Texas A&M University

Composite materials, viscoelasticity, polymers, electronic packaging.

HEREMANS, Joseph Professor

Ph.D., Catholic University of Louvain

Energy, fluids and systems, and transport properties of nanostructures, particularly thermal transport.

KAHRAMAN, Ahmet Professor

Ph.D., The Ohio State University

Dynamics and vibrations, mechanical design, fatigue, engineered surfaces and wear, power transmission and gearing.

KATSUBE, Noriko Professor

Ph.D., University of California/Berkeley

Heterogeneous materials, computational mechanics, composite materials, continuum mechanics.

KINZEL, Gary L. Prof. and Associate Chair

Ph.D., Purdue University

CAD/CAM, rapid design prototyping, kinematics, sheet metal forming, design of machine elements.

KORPELA, Seppo A. Emeritus Professor

Ph.D., University of Michigan

Heat transfer, fluid mechanics, computational mechanics, turbomachinery.

LEE, J.K., Professor

Ph.D., University of Texas/Austin

Computational mechanics, frictional contacts, sheet metal forming, mechanics of porous media.

LEMPERT, Walter Professor

Ph.D., University of Utah

Fundamental spectroscopic phenomena, optical diagnostics, laser development, nonlinear optics.

LILLY, Blaine, Assoc. Professor

Ph.D., The Ohio State University

Pulsed electrochemical machining, abrasive flow machining, micro-injection molding, microcasting, die and mold manufacturing.

LUSCHER, Anthony F. Assoc. Professor

Ph.D., Rensselaer Polytechnic Institute

Mechanical assembly of plastic parts (snapfits), design theory and methodology, structural modeling and design, advanced injection molding processes.

MAZUMDER, Sandip Asst. Professor

Ph.D., Pennsylvania State University

Computational fluid dynamics, microscale heat transfer, and fuel cell modeling.

MENDELSON, Daniel Assoc. Professor

Ph.D., Northwestern University

Fracture and contact mechanics, wave propagation, BEM, applied mathematics.

MENO, Chia-Hsiang, Professor

Ph.D., Carnegie Mellon University

Automatic control, CAD/CAM automation, coordinate metrology, precision engineering, vibrations.

MILLER, Don W. Professor Emeritus

Ph.D. The Ohio State University

Nuclear power plant instrumentation and control (I&C) systems emphasizing the introduction of advanced technology, computer-based safety and control systems, and applications of fiber optics in nuclear power plants.

MORAN, Michael J. Professor

Ph.D., University of Wisconsin

Thermodynamics, thermoeconomics, energy conversion.

PARKER, Robert G. Professor

Ph.D., University of California/Berkeley

Vibration dynamics, and stability of high-speed mechanical systems, vibration control.

RICH, J. William Professor Emeritus

Ph.D., Princeton University

Gas dynamics, non-equilibrium and ionized gas flows, gas lasers, industrial laser applications, laser- and plasma- induced chemical processes.

RIZZONI, Giorgio Professor

Ph.D., University of Michigan

System dynamics, measurements, and control; theory and application of fault diagnosis in dynamic systems; automotive systems, electric, hybrid-electric and fuel cell powertrain system design.

SAMIMY, Mohammad Professor

Ph.D., University of Illinois

Gas dynamics, turbulence, aeroacoustics, propulsion, advanced optical diagnostics of flows.

SELAMET, Ahmet Professor

Ph.D., University of Michigan

IC engines, nonlinear wave dynamics, noise and pollutant emission control, combustion, heat transfer.

SINGH, Rajendra Professor

Ph.D., Purdue University

Machine dynamics, acoustics, vibrations, nonlinear dynamics and signal processing, with applications to automotive NVH problems and geared systems.

SISTON, Robert A. Asst. Professor

Ph.D., Stanford University

Medical device design and evaluation, experimental and computational orthopedic biomechanics.

SMIDTS, Carol S. Professor

Ph.D., Université Libre de Bruxelles

Probabilistic risk assessment, dynamic methodologies, continuous event trees, Markov analysis, software reliability modeling, automated software testing, software safety, human reliability modeling, digital systems reliability and risk assessment.

SRINIVASAN, Krishnaswamy

Professor and Dept. Chair

Ph.D., Purdue University

Automatic control, fluid power and application to automotive powertrains, control of manufacturing processes and mechanical systems.

STAAB, George Assoc. Professor

Ph.D., Purdue University

Experimental mechanics, high strain-rate behavior of composites, numerical methods, engineering education.

SUBRAMANIAM, Vishwanath V. Professor

Ph.D., Carnegie Mellon University

Gas dynamics, lasers, magneto-plasma dynamics, non-equilibrium reacting and ionizing gas flows.

SUN, Xiaodong Asst. Professor

Ph.D., Purdue University

Thermal hydraulics and reactor safety, two-phase flow and instrumentation, boiling and condensation, interfacial area transport and bubble dynamics.

SUTTON, Jeffrey A. Asst. Professor

Ph.D., University of Michigan

Application of advanced laser diagnostics and imaging techniques to combustion and fluid mechanics.

UTKIN, Vadim Professor

D.S. Institute of Control Sciences

Control theory and practice, sliding mode control, electromechanical systems.

WALTER, Mark Assoc. Professor

Ph.D., California Institute of Technology

Mechanics of advanced materials, experimental techniques, fracture and damage evolution, numerical methods.

WANG, Junmin Asst. Professor

Ph.D., University of Texas/Austin

Control, modeling, estimation, and diagnosis of dynamic systems, specifically for engine, powertrain, aftertreatment, ground vehicle, alternative/renewable energy, and mechatronic systems.

WASHINGTON, Gregory, Professor

Interim Dean, College of Engineering

Ph.D., North Carolina State University

Modeling and control of smart structures, design and control of mechatronic systems.

YU, John, Assoc. Professor

Ph.D., Penn State University

Numerical analyses of detonations, pulse detonation engines, cavitations, spray dynamics, electro-magnetogas-dynamics, and high-strain rate deformation for automotive body assembly.

7.0 Honors Programs

7.1 University Honors

Every college in the University runs its own Honors Program. “The University Honors & Scholars Center is the administrative hub of the University Honors Program at Ohio State and works closely with the College Honors Programs in which students are enrolled. Although these programs vary, the features of the Honors Program that are common to all Honors students include: the ability to take honors courses, the opportunity to live in honors residence halls, the encouragement to pursue original research with faculty, access to the programming and staff of the University Honors & Scholars Center and university priority scheduling.” (<http://www.honors-scholars.ohio-state.edu/>)

7.2 College of Engineering Honors Program

The honors program in the College of Engineering is designed to meet the needs of students with exceptional academic ability and to promote scholarly development throughout their college careers. The program's objectives are to challenge these students by offering them access to more advanced levels of study, to merit the fullest possible use of their creative abilities, and to encourage a sustaining interest in advanced education and research.

Honors students are eligible to receive scheduling priority and to enroll in honors courses. First-year students are eligible to apply for residence in one of several honors living-learning centers. Upper division honors students are eligible to participate in an undergraduate research project, including six to nine hours of independent study, the preparation of a senior research thesis, and subsequent oral defense of this thesis as approved by the College of Engineering Honors Program.

Honors versions of courses are offered in both engineering-related and liberal arts areas. Students are encouraged to challenge themselves through these courses. Popular choices include honors calculus, honors physics or chemistry, and honors versions of social and physical science courses.

Please note that requirements to attain and maintain honors standing in Engineering have changed for students entering the University in autumn 2006 or later. Distinctions are noted below:

Requirement	Students Entering Prior to Au06	Students Entering Au06 or Later
To Maintain Honors Status - Cumulative GPA	3.4 CPHR at end of each spring quarter	3.4 CPHR at end of each spring quarter Note: Students are only required to have a CPHR of 3.3 after their first year
To Attain Honors Status	3.4 CPHR, Min 15 credits at OSU for letter grade	3.4 CPHR, Min 24 credits at OSU for letter grade
GHIE Contract	Optional	Must have an approved "Graduation with Honors in Engineering" plan completed by the end of their third year to maintain Honors status
Honors Course Requirements	None; Honors coursework is optional	Required to Maintain Honors status: Option 1: Completion of First-year Engineering Honors sequence (ENG H191, H192 and H193 and at least three companion Math, Physics or Honors Engineering Courses). Option 2: 6 honors, upper division (500+), or graduate-level courses over the first 3 years. (Note that a maximum of 2 honors embedded courses can be used for the 6 course requirement.)

For students entering the University prior to Autumn 2006:

Honors courses are elective, not mandatory. A student who chooses not to enroll in honors courses will not jeopardize his or her honors status as long as a 3.4 cumulative point-hour ratio is maintained. As an Honors engineering student, you may participate in the Graduation with Honors in Engineering (GHIE) program. Once you are enrolled in this program, you will be advised by a team. Members of this team will include: your department academic advisor, the College of Engineering Honors advisor, and a faculty mentor. For the most up-to-date information regarding this program, please view the application at the College of Engineering Honors website.

For students entering the University in Autumn 2006 or later (includes new students and transfer students):

Honors courses are mandatory to maintain honors status and students must maintain a 3.4 cumulative point-hour ratio. Students must either complete six of the courses in the First-year Engineering Honors sequence (ENG H191, H192 and H193 and at least three companion Math, Physics or Honors Engineering Courses) or complete 6 honors, upper division (500+), or graduate-level courses over the first 3 years. (Note that a maximum of 2 honors embedded courses can be used for the 6 course requirement.) In addition to the requirements listed above, all students wishing to maintain honors status in the College of Engineering must have an approved Graduation with Honors in Engineering (GHIE) plan completed by the end of their third year.

Students interested in participating in the honors program should contact their academic adviser or the College of Engineering Honors Coordinator, Dave Donley, for enrollment procedures. Students can also visit <http://www.eng.ohio-state.edu/currentstudents/honors.php> for more information and to download materials.

7.3 Latin Honors

Graduating seniors may earn the designation of magna cum laude, summa cum laude, or cum laude based on their cumulative point-hour ratio at graduation. Students with a CPHR of 3.5 or above but less than 3.7 graduate with the designation *cum laude*, students with a CPHR of 3.7 or above but less than 3.9 graduate with the designation *summa cum laude*, and students with a CPHR of 3.9 or above graduate with the designation *magna cum laude*.

7.4 Graduation with Honors in Engineering

As an Honors Engineering Student, you may participate in the Graduation with Honors in Engineering (GHIE) program

1. to support and challenge you with access to more advanced levels of study;
2. to enable your creativity;
3. to encourage in you the development of a sustained interest in advanced education and research;
4. to enhance your professional development;
5. to provide opportunities for you to gain recognition at the time of graduation for advanced and distinguished work as an undergraduate. This will be indicated on your diploma as a Bachelor of Science degree in your field with Honors in Engineering.

Honors students new to the University Autumn 2006 or after are required to complete a "Graduation with Honors in Engineering" plan by the end of their third year to maintain their honors status. All honors students, regardless of when they entered the University, are encouraged to consider this option as part of their undergraduate education. Students who complete the GHIE requirements are eligible to receive the designation *with Honors in Engineering* on their diploma.

Each student's GHIE program differs and is specially tailored to the interests of the student. For more information on the GHIE program and for application materials, please visit <http://www.eng.ohio-state.edu/currentstudents/honors.php>.

7.5 Graduation with Distinction

Honors students who complete a senior research thesis with successful oral defense are eligible to receive the designation *with distinction* in their major area of study on their diploma. Participation in the Mechanical Engineering Honors Program (below) fulfills the requirements for graduation *with Distinction in Mechanical Engineering*.

7.6 Department of Mechanical Engineering Honors

The Mechanical Engineering Honors Program provides students with the opportunity to engage in original research, to fulfill joint requirements for the College's Graduation with Honors in Engineering (GHIE) program, and to earn the designation *with Distinction in Mechanical Engineering* on their diploma.

Through the Mechanical Engineering Honors Program, students have the opportunity to work one-on-one with a faculty member to develop an individual research project reflecting their area of interest. Students in the program earn 9 credit hours of technical elective credit and successful completion and oral defense of their undergraduate thesis earns them the designation of graduation "with Distinction in Mechanical Engineering" on their diplomas. Past students have found this program to be one of the most exciting and rewarding parts of their educational experience.

Detailed information about the ME Honors Program including criteria for participation and enrollment procedures can be found at <http://www.mecheng.osu.edu/undergraduate-students/mechanical-engineering-honors-program> and in the undergraduate advising office. Further questions should be directed to your undergraduate advisor, your faculty advisor, or to the ME Department Honors Advisor, Prof. Yann Guezennec, at quezenec.1@osu.edu.

7.7 Department of Mechanical Engineering BS/MS Program

The combined BS/MS program is designed to give qualified students an opportunity to reduce the amount of time required to meet the master's degree requirements. Students in this program are normally accepted at the end of the junior year and begin taking graduate-level courses as seniors in the undergraduate program. These courses (up to 15 credit hours) are counted toward both the BS and MS degrees. This enables most students to complete the MS requirements in four quarters after completion of the BS degree.

Students who are currently juniors in the Mechanical Engineering Department or related engineering disciplines, and have at least a 3.5 CPHR, may apply. Applicants should submit a BS/MS application to the ME Graduate Program *at least 60 days before* planned entrance into the BS/MS program, but *no more than four quarters before* completion of their BS degree.

For more information on the BS/MS program, including application materials, please visit <http://www.mecheng.osu.edu/graduate-students/combined-bsms-program>. You may also contact Nick Breckenridge, ME Graduate Program Advisor, at megrad_recruit@osu.edu. For answers to frequently asked questions about applying to graduate school please consult your faculty advisor or visit <http://www.mecheng.osu.edu/prospective-graduate-students>.

8.0 Scholarships

The easiest way to be considered for all University, College of Engineering, and department scholarships is to *complete the OSU Scholarship Application*. This application is available at <http://sfa.osu.edu/forms/index.asp?tab=b#pagecontent>.



THE DEADLINE FOR ALL SCHOLARSHIP APPLICATIONS IS ALWAYS MARCH 1ST.



- Students who wish to be considered for University scholarships must submit their original application to the Office of Student Financial Aid in 340 Lincoln Tower.
- Students who wish to be considered for College of Engineering and Department of Mechanical Engineering scholarships must also submit two copies of the OSU Scholarship Application in 122 Hitchcock Hall.

Please go to <http://www.eng.ohio-state.edu/scholarships/current.php> for more information on the College scholarship application process.

9.0 Grievances

Resolution of grievances about academic problems or complaints about faculty, such as violations of university requirements, incompetence, and misconduct, *begin first with speaking with the faculty member or instructor*. If the difficulty is not resolved, the student may make an appointment with the department's Undergraduate Program Coordinator. The Coordinator will attempt to resolve the issues causing concern by assisting the student in discussing issues with the faculty member. If satisfactory resolution does not occur after this meeting, the student may take the grievance to the department's Associate Chair. If the student nor the Coordinator nor the Associate Chair feel that a satisfactory resolution has been reached, the student should notify the department's Chair. The Chair, in consultation with appropriate university offices, will evaluate the complaint and determine the appropriate resolution.

Information regarding specific procedures for handling grade grievances (Faculty Rule 3335-7-23) can be obtained from the Office of Undergraduate Academic Advising.

Grievances concerning graduate teaching and research associates should be submitted first to the supervising instructor, then to the Undergraduate Program Coordinator, and if necessary, to the department's Associate Chair.

10.0 Academic Misconduct

Academic misconduct is defined in Section 3335-23-04 of the Ohio State University Code of Student Conduct as *“Any activity that tends to compromise the academic integrity of the university, or subvert the educational process. Examples of academic misconduct include, but are not limited to:*

- 1. Violation of course rules as contained in the course syllabus or other information provided to the student; violation of program regulations as established by departmental committees and made available to students;*
- 2. Knowingly providing or receiving information during examinations such as course examinations and candidacy examinations; or the possession and/or use of unauthorized materials during those examinations;*
- 3. Knowingly providing or using assistance in the laboratory, on field work, in scholarship or on a course assignment;*
- 4. Submitting plagiarized work for an academic requirement. Plagiarism is the representation of another's work or ideas as one's own; it includes the unacknowledged word-for-word use and/or paraphrasing of another person's work, and/or the inappropriate unacknowledged use of another person's ideas;*
- 5. Submitting substantially the same work to satisfy requirements for one course or academic requirement that has been submitted in satisfaction of requirements for another course or academic requirement, without permission of the instructor of the course for which the work is being submitted or supervising authority for the academic requirement;*
- 6. Falsification, fabrication, or dishonesty in creating or reporting laboratory results, research results, and/or any other assignments;*
- 7. Serving as, or enlisting the assistance of a substitute for a student in the taking of examinations;*
- 8. Alteration of grades or marks by the student in an effort to change the earned grade or credit;*
- 9. Alteration of academically-related university forms or records, or unauthorized use of those forms or records; and*
- 10. Engaging in activities that unfairly place other students at a disadvantage, such as taking, hiding or altering resource material, or manipulating a grading system.”*

The above information is obtained from (http://studentaffairs.osu.edu/resource_csc.asp).

The Ohio State Committee on Academic Misconduct (COAM) states that “Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, students are expected to complete all academic and scholarly assignments with fairness and honesty.” (<http://oaa.osu.edu/coam/ten-suggestions.html>) On their website (<http://oaa.osu.edu/coam/ten-suggestions.html>) COAM publishes a list of Ten Suggestions for Preserving Academic Integrity. We recommend that you read this list and the Code of Student Conduct, because as a student you are held to these policies. (“I didn’t know” is not an excuse when it comes to academic misconduct!)

Engineering students often work in groups, and sometimes have difficulties distinguishing between acceptable and unacceptable collaboration. All work should be completed individually unless given permission otherwise.



*When in doubt about academic misconduct,
ASK your instructor what is acceptable collaboration!*



Appendices

- I. Useful Websites
- II. Professional Engineering Licensure
- III. Graduate and Professional Study Options

Useful Websites

ADMINISTRATION

Buckeye Link www.buckeyelink.osu.edu

This website is your "one-stop shop" to schedule your courses, check your grades, access your account statement or financial aid information, run a degree audit, and more!

Office of the University Registrar www.ureg.ohio-state.edu

The University Registrar is the office responsible for all University records. We recommend that you become very familiar with services offered through the Registrar's website.

Office of the Treasurer <http://www.treasurer.ohio-state.edu>

Pay your tuition online, manage your loans, download financial forms and more!

Student Financial Aid <http://sfa.osu.edu>

Everything you could want to know about financial aid in general, and about your aid in particular! Also home to the Federal Work Study / Student Employment web page.

BuckID <https://buckid.osu.edu>

This site contains everything you could want or need related to your BuckID. You can find out where your BuckID is accepted (which is just about everywhere!), add money to your account, and report a lost or stolen card.

Transfer Credit Information

http://www.ureg.ohio-state.edu/ourweb/Transfer_Credit/index_transCred.html

If you are a transfer student, or an Ohio State student considering taking a class at another college (a transient student) then be sure to check out this informative website which, among other things, explains the process you will need to take make sure that your courses will transfer to OSU.

Important Dates <http://www.ureg.ohio-state.edu/ourweb/more/>

Check here for your add and drop deadlines, registration windows, fees deadlines, and more.

Academic Calendar <http://www.ureg.ohio-state.edu/ourweb/more/Content/bigcal.html>

Organized by quarter and year.

Transcripts http://www.ureg.ohio-state.edu/ourweb/more/Content/Transcript_page/Index.htm

Do you need an official copy of your transcript? Order it online here!

ACADEMICS

The Exploration Program (College of Arts and Sciences) <http://exploration.osu.edu>

Not every student is positive about their major when they enter college. The Exploration Program is designed to inform you about majors and to help you choose the right major for you!

Undergraduate Major Programs

<http://undergrad.osu.edu/majors.html>

A list of all majors offered at the University.

Undergraduate Minor Programs <http://artsandsciences.osu.edu/currofc/gec/minors.cfm>

A list of minors offered at OSU, along with a page of information on each. (Information on the business minor offered through the Fisher College of Business is listed under "General Business.")

The College of Engineering www.eng.ohio-state.edu

Find information here on all of the engineering departments and majors, about the first-year engineering program, about scholarships offered through the College of Engineering, about outreach and support services offered through the COE, and more! .

The Department of Mechanical Engineering www.mecheng.ohio-state.edu

The Department of Mechanical Engineering website contains departmental information for undergraduate and graduate students.

Honors and Scholars Program <http://honors.osu.edu>

This is the home page for the University Honors and Scholars Programs.

ACADEMIC SUPPORT PROGRAMS

Younkin Success Center <http://younkinsuccess.osu.edu>

The Younkin Success Center is committed to helping students be successful, whatever their personal definition of that may be. Go to their website for information on the center, and links to program information on Career Connection, Counseling and Consultation Services, Student Athlete Support Services, and the Walter E. Dennis Learning Center.

Technical Communications Resource Center (Engineering Writing Center)

<http://www.eng.ohio-state.edu/tcrc/index.php>

Run by the College of Engineering to help students with writing tasks (not a proofreading service!) Check the website for walk-in hours or to make an appointment.

Women in Engineering Program <http://wie.eng.ohio-state.edu>

The Women in Engineering Program is an award-winning program with the purpose of supporting women students while they are pursuing their engineering degrees. Stop by and see what support services are available to you, or how to can help support other female engineering students.

Minority Engineering Program <http://mep.eng.ohio-state.edu>

The purpose of the Minority Engineering Program is to support underrepresented ethnic minorities in their pursuit of engineering degrees and in the engineering profession. Efforts reach from pre-college to graduate students.

Office of International Affairs <http://oia.osu.edu>

The Office of International Affairs provides assistance to international students and also coordinates Study Abroad programs at OSU.

Mathematics and Statistics Learning Center <http://www.mslc.ohio-state.edu>

Do you need help with a math course? The MSLC offers tutoring for Math 050 through 415, and Statistics 133 through 428. Check the website for recommendations on how to get the most from your visit and for hours and locations.

GRADUATION INFORMATION

Graduation Information (Department of Mechanical Engineering)

<http://www.mecheng.osu.edu/undergraduate-students/graduation>

How to apply for graduation.

Graduation Information, Application, and Instructions (College of Engineering)

<http://www.eng.ohio-state.edu/currentstudents/graduation.php>

Further information from the College of Engineering for students seeking graduation.

Commencement Information <http://commencement.osu.edu>

University commencement information and instructions for graduating seniors, including how to prepare for commencement and what to do if you are unable to attend your graduation ceremony.

OUTSIDE OF THE CLASSROOM

Engineering Career Services <http://career.eng.ohio-state.edu>

Do you want to incorporate a co-op or internship experience in your undergraduate education? Are you ready to begin searching for a job? The Engineering Career Services at Ohio State can help guide you through this process, and connect you with potential employers.

Engineering Student Activities and Organizations

<http://www.eng.ohio-state.edu/currentstudents/activities.php>

Students in the College of Engineering can participate in over 50 project teams or organizations! There is something here for everybody.

OSU Student Activities and Organizations <http://www.ohiounion.osu.edu/studentorgs/orgs.asp>

Interested in an activity outside of engineering? Go here to find a list of all student organizations campus-wide.

Student Employment Opportunities <http://sfa.osu.edu/jobs>

Information on work-study, student employment, and employment opportunities in the campus area can be found at this site.

National Council of Examiners for Engineering and Surveying <http://www.ncees.org>

Information on taking the Fundamentals of Engineering exam and on earning your professional engineering license can be found here.

Explore Columbus <http://explorecolumbus.osu.edu>

Did you know that as an OSU student you can get into the Columbus Art Museum for free? Or that you can get a ticket to Cedar Point for \$25? Explore Columbus is a discount ticket program run through the University. Use it, and make the most out of being a student!

City of Columbus – Visit Columbus <http://home.columbus.gov/about/visitcoc.asp>

Are you new to the Columbus area? This is the official website of Columbus, Ohio, and has links to everything from The Short North Arts District website to cable and internet providers.

Experience Columbus <http://www.experiencecolumbus.com>

Designed for visitors, this site has a wealth of information about the activities and attractions Columbus has to offer in an easy to view format.

STUDENT HEALTH AND WELLNESS

Student Wellness Center <http://swc.osu.edu>

The Student Wellness Center is committed to educating the student community about the 7 Dimensions of Wellness (Emotional, Occupational, Social, Spiritual, Physical, Financial, and Intellectual), and assisting student needs in each of these areas by offering programs and services to individuals and groups.

Student Health Services <http://shc.osu.edu>

Are you sick? Do you think you need to see a doctor? The Wilce Student Health Center is an accredited outpatient facility that provides students at the Ohio State University with health care services.

Ohio State Recreational Sports <http://recsports.osu.edu>

Check out this website to get information on the facilities and programs run through the Department of Recreational Sports.

OTHER

Orientation Resource Guide <http://www.fye.osu.edu/publications.html>

An online copy of the resource guide presented to every incoming student at orientation.

First Year Experience <http://fye.osu.edu>

First Year Experience focuses on helping students make a successful transition to college. Check their website for information on the Buckeye Book Community, First Year Success Series seminars, and more!

Professional Engineering Licensure

OVERVIEW

Licensure as a professional engineer is encouraged for all mechanical engineering graduates. According to the National Council of Examiners for Engineering and Surveying (NCEES) “Licensure is the mark of a professional. It demonstrates accomplishment of the high standards of professionalism to which the engineering profession subscribes.” By becoming a professional engineer, you:

- Demonstrate that you’ve accomplished a recognized standard,
- Set yourself apart from others in your profession, and
- Open the door for career options and opportunities that might not have otherwise been available to you.*

Licensure is becoming an increasingly common requirement *by law* for many engineers. The National Society of Professional Engineers (<http://www.nspe.org>) publishes an extensive list of reasons to earn your professional engineering license†:

- Only a licensed engineer may prepare, sign and seal, and submit engineering plans and drawings to a public authority for approval, or seal engineering work for public and private clients.
- Licensure for individuals who wish to pursue a career as a consulting engineer or a private practitioner is not something that is merely desirable; it is a legal requirement for those who are in responsible charge of work, be they principals or employees.
- Licensure for engineers in government has become increasingly significant. Many federal, state, and municipal agencies require that certain governmental engineering positions, particularly those considered higher level and responsible positions, be filled only by licensed professional engineers.
- For those considering a career in education, many states have been increasingly requiring that those individuals teaching engineering must be licensed. Exemptions to state laws are under attack, and in the future, those in education, as well as industry and government, may need to be licensed to practice. Also, licensure helps educators prepare students for their future in engineering.
- With the growing complexity and the increasing diversity of modern construction processes and techniques, the engineer in construction must readily be able to communicate and exchange ideas and views with other licensed design engineers.
- For those pursuing careers in industry, licensure has recently taken on increased meaning with heightened public attention concerning product safety, environmental issues, and design defects. Employers have found it advantageous to identify to the courts and the public those employees who have met at least a minimum level of competence.
- Engineers in the military must have the credentials to stay with the service in the face of downsizing or to make the transition to the private sector.
- The scope of engineering practice is constantly changing, and engineering activities that may be exempt today may eventually shift into a practice area that one day requires a license (for example, research and development may find practical application in the facilities design/construction process, requiring the practitioner to be licensed).

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† The following list is reprinted by permission of the National Society of Professional Engineers, www.nspe.org.

- State engineering boards are increasingly seeking and obtaining the authority to impose civil penalties against unlicensed individuals who unlawfully engage in the practice of engineering.
- Engineers must adapt to a rapidly changing workplace—restructuring, downsizing, outsourcing, privatization, and re-engineering. Engineers should prepare to make the transition into a consulting relationship with former employers and clients in the event of a corporate outsourcing and respond if their corporation decides to bring design and engineering services in-house. Only by becoming licensed can an engineer perform the broad scope of engineering services within an area of competence as defined under state law.

LICENSURE PROCESS (http://www.ncees.org/licensure/licensure_for_engineers) *

The process for licensure in each state and territory varies slightly, but in general, there is a four-step process required to obtain engineering licensure (see below).

Step 1: Graduation

The first step is graduating from an ABET-accredited engineering program at a college or university. ABET stands for Accreditation Board for Engineering and Technology, the nationally recognized accrediting organization for engineering and technology curricula.

Step 2: FE Exam

The first exam in the licensure process is the Fundamentals of Engineering (FE). This exam is offered in April and October every year. Most students take the exam right before graduation or soon after while the technical information they've studied is still fresh in their minds. Once you pass the exam, you are classified as an intern, also known as Engineering Intern (EI) or Engineer-in-Training (EIT).

Step 3: Work Experience

After passing the FE exam, you will continue your journey toward professional licensure by gaining engineering experience. Many jurisdictions have specific requirements about the type of experience you need to gain. Most require that you gain experience under the supervision of someone who is already licensed, and that your experience involve increasing levels of responsibility. Once you begin work, contact your licensing board to find out what experience is needed and talk with professional engineers in your company to find out how you can gain this experience.

Step 4: PE Exam

Once you have gained the appropriate experience required, you can take the second exam in the licensure process, the Principles and Practice of Engineering (PE). This exam is given in a variety of engineering disciplines. Most disciplines are offered in both April and October, but some are offered only in October.

After completing all the steps in the engineering licensure process—education, experience, and examinations—you are eligible for licensure by your licensing board. Once you are granted licensure, you may use the distinguished designation "professional engineer," or P.E.

* This section (Licensure Process) reprinted with permission of the National Council of Examiners for Engineering and Surveying www.ncees.org.

THE FUNDAMENTALS OF ENGINEERING (FE) EXAM

(<http://www.ncees.org/exams/fundamentals>)

The best time to take the FE exam is before or immediately after graduation while the technical information is still fresh in your mind. You are eligible to take the exam as soon as you are within 6 months of graduation.

The Fundamentals of Engineering Exam is offered in the state of Ohio twice a year – in April and in October. An exam schedule can be found at <http://www.ncees.org/exams/schedules>. To download the application for eligibility to take the exam, go to <http://ohiopeps.org/exams/student.html>. You will need to start the application process approximately four months ahead of when you wish to take the test, so plan ahead!



A very nice student-oriented website with information about professional licensure is <http://www.engineeringlicense.com>.



ENGINEERING 510 – FUNDAMENTALS OF ENGINEERING (FE) EXAMINATION REVIEW

The College of Engineering offers a review course, ENG 510, to assist students in preparation for this exam. ENG 510 is offered every winter quarter, and is worth 1 credit hour.

**Students who entered the University before W104 may use ENG 510 as List A TE credit.*

Graduate and Professional Study Options

Your B.S.M.E. does not need to be the end of your education! Strong students who have the desire to continue their studies are encouraged to pursue graduate and professional school.

GRADUATE STUDY

Students with their B.S.M.E. degree most commonly pursue graduate studies in mechanical engineering or a related math, science, or engineering field of study. *It is never too early to start thinking about graduate school!*

Some websites of interest to students who are considering graduate study at Ohio State are listed below. Please consult with your undergraduate and/or faculty advisor for more information on graduate study programs and for guidance on preparing for these programs.

The Ohio State University Graduate Admissions <http://gradadmissions.osu.edu>

The Ohio State University Graduate School <http://www.gradsch.ohio-state.edu>

College of Engineering Graduate Programs
<http://www.eng.ohio-state.edu/graduate>

College of Engineering Graduate Program Department Contacts
<http://www.eng.ohio-state.edu/graduate/gradinfo.php>

Department of Mechanical Engineering Graduate Program
<http://www.mecheng.osu.edu/graduate-students>

PROFESSIONAL STUDY

The B.S.M.E. degree provides a strong foundation for professional studies such as business, law, and medicine. Requirements for admission to professional programs of study differ, but the mechanical engineering curriculum is easily coordinated with the additional studies that can be required of these programs.

Some websites of interest to students who are considering professional school at the Ohio State University are listed below. The College of Engineering has an advisor that specializes in helping students prepare for professional school. If you are interested in professional school, please consult Judith McDonald, Director of Academic Advising, in the College of Engineering office at 122 Hitchcock Hall by email (mcdonald.6@osu.edu) or by phone (292-3894), or go to <http://preprofessional.osu.edu>.

The Ohio State University College of Medicine <http://www.medicine.osu.edu/>

The Ohio State University Moritz College of Law <http://moritzlaw.osu.edu/index.php>

The Ohio State University Fisher College of Business <http://www.cob.ohio-state.edu>