

IOWA STATE UNIVERSITY

College of Engineering

Welcome to the College of Engineering!



Degree Offerings

- Aerospace
- Agricultural
- Biological Systems
- Chemical
- Civil & Environmental
- Computer
- Construction
- Electrical
- Industrial
- Materials
- Mechanical
- Software

Minors

- Biomedical Engineering
- Energy Systems
- Nondestructive Evaluation
- Nuclear Engineering
- Sales Engineering

Undecided? Choose Undeclared Engineering

- Evaluate engineering majors during Basic Program
- Declare a major after selecting one matching your interests



Engineering Basic Program Classes (BP)

- Classes required by all engineering majors
- Typically takes 2-3 semesters to complete
- Need a 2.0 grade point average in BP and 2.0 cumulative before moving to upper level engineering courses
- Enables students to easily change engineering majors early in their program

Basic Program – 27 credits

<u>Credits</u>	<u>Course</u>	
4.0	Math 165	<i>Calculus I</i>
4.0	Math 166	<i>Calculus II</i>
3.0	Engl 150	<i>Critic Think/Comm</i>
3.0	Engl 250	<i>WOVE Composition</i>
4.0	Chem 167 or Chem 177	<i>Chemistry</i>
3.0	Engr 160	<i>Engr. Problems</i>
5.0	Phys 221	<i>Physics I</i>
R	Engr 101	<i>Orientation</i>
1.0	Lib 160	<i>Library</i>

English Placement

- Engl 150: Critical Thinking and Communication
 - ACT-E ≥ 24 or SAT-V ≥ 550 = credit for Engl 150*
 - ACT-E = 23 or SAT-V = 540 and HSR of $\geq 75\%$ = credit 150*

****Must pass Engl 250 with “C” or better at ISU to get credit for Engl 150 from above...***

- Pass English Placement Assessment taken during orientation = credit 150*
 - Adviser will have results at advising meeting
- English AP exam ≥ 3 Language or ≥ 4 Literature = credit 150

English Placement and Library 160

- Engl 250: Written, Oral, Visual, Electronic Communication
 - Take after Engl 150 unless meet criteria for 150 credit
 - Students typically take beginning Sophomore year
- Engl 250 Test out:
 - Offered 1st Sat. after classes start
 - \$100 fee and must register with Testing Services prior to taking
 - A 3-hour, 2 essay exam covering written, oral, visual, and electronic communication (recommend ACT-English ≥ 29 & top 5% HS Rank)
- Lib 160: Information Literacy: some will take it in fall, some in spring
 - Take with first English class at ISU
 - May take it 2nd half of the semester
 - Test out available during the semester (must register with Lib office)

English for Non Native Speakers

Students Whose Native Language is not English:

- Must take English Placement Test for Non-native Speakers of English before taking an English class
 - Offered at beginning of each semester
 - Exemption for students graduating from U.S. high school with ACT-E 16+ or SAT-V 410+
- If placed in Engl 101B or 101C, must complete before taking Engl 150 or Engl 250
- If placed in Engl 99L or 99R, can take with Engl 150/250

Mathematics Placement

****Placement based on online placement assessment and college transfer courses**

Trig and Algebra courses are required prerequisites to Engr

- Do not need to take these courses if passed Trig/Algebra in placement assessment or have college transfer credit

Options for starting schedules in math:

- Math 10 (Algebra—Fee of \$530)
- Math 140 (College Algebra)
- Math 143 (Trigonometry/Prep for Calculus)
- Math 165 (Calculus I - Algebra is prerequisite)
- Math 166 (Calculus II - Trigonometry is prerequisite)
- Higher: Math 265 (Calc III), Math 266/267 (Differential Equations)

Chemistry Placement Options

- **Chem 177: General Chemistry** (*must be in Math 143 or higher*)
 - Lab must be taken with the class
 - Required for ChE, CE, MatE majors
- **Chem 167: Chemistry for Engineers** (*must be in Math 143 or higher*)
 - Required for non-chemistry based engineering majors
 - Lab required for AE, BSE, and ME majors
 - Chemistry transfer credits for engineering need to come in as Chem 177
 - Chem 177 credits can be used for Chem 167 (additional chemistry may be needed)
- **Chem 50: College Chemistry Preparation** (\$350 Fee)
 - For students who do not have the equivalent of 1 year of high school chemistry

Engineering and Physics Classes

Engr 160: Engineering problem solving and computer programming

- 2 part class: must pass both parts to pass class
- Some majors prefer departmental version: ABE 160; AERE 160; CE 160; CHE 160; CPRE/EE 185; IE 148; ME 160
- Any version of Engr 160 taken meets requirements for any majors
- Must be finished with Math 143 and enrolled in Math 165 (only enrolled in Math 143 for CprE/EE185, IE 148)

Phys 221: Calculus-based physics

- Must take Math 166 before or with Phys 221
- Time consuming course with 10-15 hours of homework per week
- Avoid Phys 221 first semester if possible to allow for adjustment

Orientation to Engineering

Engr 101 Objectives:

- Weekly adviser contact
- Meet engineering students & connect for study groups
- Learn about policies, procedures & campus resources
- Acquire study skills
- Choose or confirm an engineering major
 - What are the disciplines & specialties within the major?

Examples of Other Required Engineering Courses

Engineering Graphics and Design

- Credit or enrollment in Math 143 (CE 170 requires Math 165)
- ABE 170 for AE and BSE; CE 170 for CE and ConE; ME 170 for ME

Com S 227—Intro to Object Oriented Programming

- Required for CprE and SE

Chem 178 and lab—General Chemistry

- Required for CE (environmental), ChE, MatE
- Continuation of Chem 177

EM 274—Engineering Statics

- Required of all majors **except** ChE, CprE/EE/SE
- Credit or enrollment in Math 166 and Phys 221

Phys 222—Introduction to Classical Physics II

- Required for all majors **except** CE, SE
- Must have had Phys 221 and Math 166

Mat E 273—Principles of Materials Science and Engineering

- Required for AerE, AE, IE, ME
- Sophomore classification with Chem 167 or 177 and Math 165

Social Science/Humanities Gen. Ed. Courses

- 12-15 credits over academic career depending on major
- Examples – Psych 101, Soc 134, History, Econ 101, World Languages, Anthr 201, Pol Sci 215
- 3 credits must be from U.S. Diversity list and 3 credits from International Perspective
- Some departments require specific courses and/or have sequence requirements
- Typically take at least one Gen Ed elective 1st year

Engineering World Language Requirement

- All engineering students must have the equivalent of 2 years of high school world language
- Students must show they meet this requirement by sending ISU:
 - High school transcript showing 2 years of a single world language
 - College transcript showing 2 semesters of a single world language
- Students not meeting the above requirement must take the equivalent of 2 semesters of a single world language in college for their engineering degree

Minors/Double Majors

- Languages and Cultures for Professionals (LCP)
 - World language minor/major for engineering students
 - Take online placement assessment to determine first course if have had 3-4 years of world language in high school and want to start at 300 level
- 5 Engineering Minors
- Engineering Leadership Certificate
- Other common minors: Business, Economics, Math, Music Technology, Physics, Sustainability Studies, Entrepreneurial Studies, Wind Energy
- Must declare major before adding minor/second major
 - Recommend waiting one year before deciding to add to allow for exploration

AP/IB Credits (Advanced Placement/International Baccalaureate)

- It is student's responsibility to tell adviser of AP/IB courses
- Chemistry dept. must review AP lab notebook and syllabus before chemistry lab credits applied
- All other AP/IB credits applied automatically
- You may repeat these courses at ISU
 - Need **4** in AP Chem or **5** in IB HL Chem for Chem 177/178
 - Need **5** in AP Com S A for Com S 227
 - Need **4** in AP Math AB or **3** in AP Math BC for Math 165
 - Need **4** in AP Math BC for Math 165 and Math166
 - Need **6** in IB HL Math for Math 143, 165
 - Need **4** in AP Phys C-Mech=Phys 221 or **4** on Mech & Elec=Phys 222

Transfer Credits

- The Transfer Credit Evaluation from the Office of Admissions shows how a class transfers into ISU (found on AccessPlus)
- If a transfer class shows up as a 1T, 2T, 3T, 4T it will not count towards an engineering degree unless it is reviewed by a faculty member from the course content area and approved
 - **Students must initiate this review with their academic adviser during the school year**
- TRANSIT website allows you to enter courses and see how they transfer to your engineering degree www.transit.iastate.edu/
- Engineering accepts credits for transfer courses with a grade of “ C “ or better only
- Up to 65 transfer credits from a 2-year school may apply to degree (no credit limit for 4-year) - Last 32 credits must be taken at ISU

Plan Your Schedule for Success

- Schedule no more than three problem solving courses per semester and less if lots of outside commitments
 - Examples of problem solving classes: Math, Chem, Com S, Engr 160, Phys
- Problem solving courses take more time than other classes to complete homework so need to allow for this time in your schedule
- Important to not get behind in problem solving courses because VERY hard to catch up

Example 1st Semester Schedules

Example A

Engl 150 (3)

Math 143 (4)

SSH (3)

Chem 167 (4)

Engr 101 (R)

Lib 160 (1)

15 Credits

Example B

Math 166 (4)

Engr 160 (3)

Chem 167 (4)

Lib 160 (1)

Engr 101 (R)

SSH (3)

15 Credits

Example C

Math 267 (4)

Phys 222 (5)

EM 274 (3)

Engr 101 (R)

SSH (3)

15 Credits

Typically take between 13-16 credits (problem-solving courses shown in bold above)

Use Support Resources

- Advisers
- Academic Success Center
- Instructors

Advisers – Facilitators of Information

3 Types: Financial Aid, Residential, Academic

Academic advisers provide:

- Course guidance & selection
- Referrals to resources
- Assistance with making informed career-related decisions
- Student advocacy and support

Advising in the College of Engineering

- Faculty adviser, professional adviser, or both, depending on the department

Student Support Resources

- **Academic Success Center**

- Supplemental Instruction – Tutoring Services
- Study Skills Class (Psych 131) – Academic Coaching

- **Help Rooms/Sessions**

- Chemistry – English – Math – Physics

- **Other Resources**

- Student Counseling – Multicultural Liaison Officer
- Disability Resources – Clubs & Organizations
- Military Veteran Center—room 3578 Memorial Union

Remember, your assigned academic adviser is a source of help too...

Ask for Help *EARLY*

- First 2-4 weeks are critical
- Problems build on the knowledge learned from the prior assigned problems
- Research shows that students who are not afraid to ask for help are more successful
- Read the Syllabus – and *Follow it!*
- YOU MUST ATTEND CLASS!
- Please visit with your instructor as often as possible as well!

Study Abroad Opportunities

The College maintains partnerships with universities worldwide

- Examples: Australia Germany Ireland
Singapore France China
- Summer, semester, full-year options
- Credits may be transferred to Engr degree
- English and non-English speaking programs

For more information, contact:

Engineering International Programs
www.engineering.iastate.edu/studyabroad/



Engineering Work Experience

- Internship work experiences
 - Summer, Semester, Full-year options
- Benefits
 - Earn on average \$3000/month salary
 - Higher placement rate at graduation

For more information, contact:

Engineering Career Services
www.engineering.iastate.edu/ecs



Policies and Procedures

- Schedule changes during first week of each semester:
 - Student does online through AccessPlus
- Schedule changes after first week of classes:
 - Adviser and Instructor signatures required
 - \$12 fee
- Last day to drop a full-semester course
 - Typically one week after mid-term grade reports

Policies and Procedures

- Maximum course drops for ISU degree:
 - Direct from High School students – MAY DROP UP TO (5) CLASSES
 - Transfer students - MAY DROP UP TO (4) CLASSES
 - Dropped courses during the first semester at ISU and the first week of class each semester do not count towards this limit
- Maximum “Designated Repeats” for retaking courses:
 - 15 Credits (new class grade replaces old grade for cumulative GPA)
 - Repeats above 15 credit limit will have both new class grade and old grade averaged for cum GPA

Final Notes

Please remember to:

1. Get your ISU student ID card at 0530 Beardshear Hall; bring photo ID.
2. Register for ISU email (CyMail) at Answer Center Ground Floor Beardshear Hall (if not already done online).
3. **Arrive on time to your advising appointment!**
4. After visiting with your academic adviser, you will be registered for your first semester of classes.

Questions? We are here to help!

Engineering Student Services

