Degree Offerings

Aerospace
Agricultural
Biological Systems
Chemical
Civil/Environmental
Construction
Computer

Cyber Security
Electrical
Industrial
Materials
Mechanical
Software

Minors

Biomedical Engineering
Cyber Security
Energy Systems
Nondestructive Evaluation
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 ISU cumulative before moving to upper level engineering courses

• Enables students to easily change engineering majors early in their program
<table>
<thead>
<tr>
<th>Credits</th>
<th>Course</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0</td>
<td>Math 165</td>
<td>Calculus I</td>
</tr>
<tr>
<td>4.0</td>
<td>Math 166</td>
<td>Calculus II</td>
</tr>
<tr>
<td>3.0</td>
<td>Engl 150</td>
<td>Critical Think/Comm</td>
</tr>
<tr>
<td>4.0</td>
<td>Chem 167 or Chem 177</td>
<td>Chemistry</td>
</tr>
<tr>
<td>3.0</td>
<td>Engr 160</td>
<td>Engineering Problems</td>
</tr>
<tr>
<td>5.0</td>
<td>Phys 221</td>
<td>Classical Physics I</td>
</tr>
<tr>
<td>R</td>
<td>Engr 101</td>
<td>Engineering Orientation</td>
</tr>
<tr>
<td>1.0</td>
<td>Lib 160</td>
<td>Information Literacy (Library)</td>
</tr>
</tbody>
</table>
ENGL 150: Critical Thinking and Communication

- ACT-English $\geq 24$ or SAT-EWR (Evidence-based Writing & Reading) $\geq 600$
  - Placement into ENGL 250 as first English class at ISU

*Must pass ENGL 250 with “C” or better at ISU to get credit for ENGL 150 from ACT/SAT scores

English AP exam $\geq 3$ Language or $\geq 4$ Literature = 150 credit
ENGL 250: Written, Oral, Visual, Electronic Communication
• Take after ENGL 150 (unless already met entry criteria for 150 credit)
• Students typically take sophomore year

ENGL 150/250 Test-out opportunity
• Offered 2nd week of class
• $100 fee and must complete online registration form

LIB 160: Information Literacy (some take fall semester, some spring)
• Take with first English class at ISU
• May take it second half of the semester
• Test-out opportunity available during the semester
  • $100 fee and must complete registration form
English for Non-Native Speakers

Students whose native language is not English:

- Must take **English Placement Test (EPT)** for non-native speakers of English
  - Offered at beginning of each semester
  - Exemption for students graduating from U.S. high school with ACT-E 16+ or SAT-EWR 450+
  - Exemption for students placing into ENGL 250 based on ACT or SAT score
  - Transfer credit for ENGL 150/250 **does not** exempt students from EPT

- If placed in ENGL 101B or 101C, must complete **before** taking ENGL 150 or ENGL 250
- If placed in ENGL 99S ($480 fee*), can take with ENGL 150/250
- These additional EPT English classes are considered prerequisites and **must be completed as part of the engineering Basic Program**

*Fees subject to change*
Math Placement

Placement based on online placement assessment and college transfer courses

- All students are required to take the ALEKS math placement assessment prior to being scheduled in a math course unless college credit with final grades of “C” or better in both Calc I and II has been transferred to ISU

Trigonometry and Algebra background required prerequisites to calculus and engineering

- Need to take these courses unless passed Trig/Algebra in ALEKS placement assessment or have college transfer credit equivalent
- Math placement score determines your math course for first semester

Options for starting schedules in math:

- Math 10 (Algebra—$530 fee*, not college credit)
- Math 140 (College Algebra)
- Math 143 (Trigonometry/Prep for Calculus)
- Math 165 (Calculus I)
- Math 166 (Calculus II)
- Higher: Math 265 (Calculus III), Math 266/267 (Differential Equations)

*Fees subject to change
Chemistry Placement

**CHEM 177: General Chemistry** *(must be in Math 143 or higher)*
- Lab must be taken with the class
- Required for Chemical (Ch E), Civil (C E), and Materials (Mat E) engineering majors

**CHEM 167: Chemistry for Engineers** *(must be in Math 143 or higher)*
- Required for non-chemistry based engineering majors
- Lab required for Agricultural (A E) and Biological Systems (BSE) engineering majors
- CHEM 177 credits can be used for CHEM 167 (additional chemistry may be needed)

**CHEM 50: College Chemistry Preparation** ($350 fee*)
- Required prerequisite for students who do not have the equivalent of one year of high school chemistry

*Fees subject to change*
Engineering and Physics Classes

**ENGR 160: Engineering problem solving and computer programming**
- Two-part class: must pass both problem-solving and programming to pass class
- Some majors offer a departmental version: ABE 160; AER E 160; C E 160; CH E 160; CPR E/E E/SE 185; I E 148; M E 160
- Any version of ENGR 160 taken meets requirement for any major
- Must be finished with Math 143 and enrolled in Math 165 for AER E 160, CPR E/E E/SE 185, ENGR 160, C E 160, CH E 160, M E 160
  - Or enrolled in Math 143 for ABE 160 or I E 148

**PHYS 221: Calculus-based Physics**
- Credit or enrollment in Math 166 is required for Phys 221
- Time-consuming course with 10-15 hours of homework per week
- Avoid Phys 221 first semester, if possible, to allow for adjustment to ISU
Orientation to Engineering

“R” credit course – required for your major

Engr 101 Objectives:

• Weekly adviser contact
• Meet engineering students and connect for study groups
• Learn about policies, procedures and campus resources
• Acquire/improve study skills
• Choose or confirm an engineering major
  • What are the disciplines and specialties within the major?
Examples of Other Required Engineering Courses

ENGR 170: Engineering Graphics and Design
- Required for A E and BSE (ABE 170); C E and ConE (C E 170); and M E (M E 170)
- Credit or enrollment in Math 143 for ME 170

COM S 227: Intro Object Oriented Programming
- Required for Cpr E, Cyb E, and S E
- Placement into Math 143 or higher

CHEM 178 and lab: General Chemistry II
- Required for C E (environmental), Ch E, Mat E
- Continuation of Chem 177

IE 305: Engineering Economics
- Required for A E, BSE, Con E, E E, I E
- Must have completed Math 166

C E 274: Engineering Statics
- Required of all majors except Ch E, Cpr E, Cyb E, E E, Mat E, SE
- Must have completed Math 166 and Phys 221

PHYS 232/232L: Introduction to Classical Physics II
- Required for all majors except A E, BSE, C E, Cyb E, S E
- Must have completed Phys 221 and Math 166

MAT E 273: Principles of Materials Science and Engineering
- Required for AER E, A E, I E, M E
- Must have completed Chem 167 or 177 and Math 165
Social Sciences/Humanities (General Education Courses)

- 12-15 credits over academic career required for all engineering majors
- Examples – Psychology, Sociology, History, Economics, World Languages, Anthropology, Political Science
- 3 credits must be from U.S. Diversity list and 3 credits from International Perspective list
- Some departments require specific courses and/or have sequence requirements
- Typically take at least one Gen Ed elective first year

*Consider interest areas prior to your registration appointment!*
Engineering World Language Requirement

• All engineering students must have the equivalent of 2 years of high school world language

• Requirement can be met 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 Professions (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

- Other common minors: Business, Economics, Math, Music Technology, Physics, Sustainability Studies, Entrepreneurial Studies

- Must declare major before adding minor/second major
Advanced Placement/International Baccalaureate (AP/IB)

- It is the student’s responsibility to tell adviser of AP/IB courses (and to have scores sent to Iowa State)
- Chemistry department must review AP lab notebook material and syllabus before chem lab credits applied
- All other AP/IB credits applied automatically
- You have the option to repeat these courses at ISU

Scores required:
- 4 in AP Chem or 5 in IB HL Chem for Chem 177/178
- 5 in AP Com S A for Com S 227
- 4 in AP Math AB or 3 in AP Math BC for Math 165
- 4 in AP Math BC for Math 165 and Math 166
- 6 in IB HL Math 165
- 4 in AP Phys C-Mech=Phys 221 or 4 on Elec & Mag =Phys 222
Transfer Credits

- The **Transfer Credit Evaluation (TCE)** from the Office of Admissions shows how a class transfers into ISU (shown in student record 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 and approved by a faculty member from the course content area. Students must initiate this review with their academic adviser during the school year.
- TRANSIT allows you to enter courses and see how they transfer to your engineering degree [www.transit.iastate.edu/](http://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 schools; final 32 credits must be taken at ISU.
Plan Your Schedule for Success

• Schedule no more than three problem solving courses first semester and fewer if heavy outside commitments

Examples of problem solving classes:

• Math
• Chemistry
• Computer Science

• Engineering 160
• Physics

• 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 (very difficult to catch up)
Example 1st Semester Schedules

**Example A**
- Engl 150 (3)
- Math 143 (4)
- SSH (3)
- Chem 177 (4)
- Chem 177L (1)
- Engr 101 (R)

**Example B**
- Math 166 (4)
- Engr 160 (3)
- Chem 167 (4)
- Lib 160 (1)
- SSH (3)
- Engr 101 (R)

**Example C**
- Math 267 (4)
- Phys 232/L (5)
- CE 274 (3)
- Engr 101 (R)
- SSH (3)

15 Credits 15 Credits 15 Credits

Typically take between 14-16 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 and 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 (SI)
- Study Skills Class (Psych 131)

**Help Rooms/Sessions**
- Chemistry
- English

**Other Resources**
- Multicultural Liaison Officer
- Student Accessibility Services
- Student Counseling
- Tutoring Services
- Academic Coaching
- Math
- Physics
- Veterans Center
- Student Clubs & Organizations
- International Student Liaison

*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 prior assigned problems
- Research shows that students who are not afraid to ask for help are more successful

- Read the syllabus – and *follow it*
- Attend class
- Visit with your instructor as often as possible
Study Abroad

The College of Engineering maintains partnerships with universities worldwide
- Examples: Australia, Germany, Ireland, Singapore, France
- Summer, semester, full-year options
- Credits may transfer to Engineering degree
- English and non-English speaking programs
- Plan early with your academic adviser

For more information, contact:
Engineering International Programs
engineering.iastate.edu/studyabroad/
Student Clubs

More than 90 engineering student clubs and organizations

Professional Organizations

The Engineering Ambassador & Mentor Program (TEAM)

Engineers’ Week

Solar Car

IOWA STATE UNIVERSITY

College of Engineering
Engineering Work Experience

Paid Internship/Work experiences
• Summer, semester, full-year options

Benefits
• Salary earnings average $3,000/month
• Higher placement rate at graduation

For more information, contact:
Engineering Career Services
engineering.iastate.edu/ecs
Policies and Procedures

• Schedule changes during first week of each semester
  • Student can complete online through AccessPlus

• Schedule changes after first week of classes
  • Adviser and instructor signatures required

• Last day to drop a full-semester course
  • Typically one week after mid-term grade reports
    • AccessPlus schedule will show date on top line under each course
Policies and Procedures

• **Maximum course drops for ISU degree:**
  - Transfer students - May drop no more than 4 classes
  - Dropped courses during the first semester at ISU and the first week of class each semester are not counted against 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 cumulative GPA