IOWA STATE UNIVERSITY
College of Engineering
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

IOWA STATE UNIVERSITY

College of Engineering
## Basic Program – 27 credits

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course</th>
<th>Course Title</th>
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<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>3.0</td>
<td>Engl 250</td>
<td>WOVE Composition</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>
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</table>
English Placement

ENGL 150: Critical Thinking and Communication

- ACT-English ≥ 24 or SAT-EWR (Evidence-based Writing & Reading) ≥ 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 ≥ 3 Language or ≥ 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
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

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

PHYS 222: 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

<table>
<thead>
<tr>
<th>Example A</th>
<th>Example B</th>
<th>Example C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 150 (3)</td>
<td>Math 166 (4)</td>
<td>Math 267 (4)</td>
</tr>
<tr>
<td>Math 143 (4)</td>
<td>Engr 160 (3)</td>
<td>Phys 222 (5)</td>
</tr>
<tr>
<td>SSH (3)</td>
<td>Chem 167 (4)</td>
<td>EM 274 (3)</td>
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<tr>
<td>Chem 177 (4)</td>
<td>Lib 160 (1)</td>
<td>Engr 101 (R)</td>
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<tr>
<td>Chem 177L (1)</td>
<td>SSH (3)</td>
<td>SSH (3)</td>
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<tr>
<td>Engr 101 (R)</td>
<td>Engr 101 (R)</td>
<td></td>
</tr>
</tbody>
</table>

| 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, China
- 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/
Engineering Work Experience

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

Benefits
• 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:
  • Direct from high school students – May drop no more than **5** classes
  • 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
Final Notes

Please remember to:

• Arrive on time for your advising appointment!
• Get your student ID (ISU Card) at 0530 Beardshear Hall; bring photo ID
• Register for ISU email (CyMail) at Student Answer Center, Ground Floor Beardshear Hall

After your academic advising appointment, you will be registered for your first semester of classes

Thank you!
BE > YOU IMAGINED

Questions? We are here to help!