# Degree Offerings

- Aerospace
- Agricultural
- Biological Systems
- Chemical
- Civil/Environmental
- Construction

#### Minors

- Biomedical Engineering
- Energy Systems
- Nondestructive Evaluation

- Computer
- Electrical
- Industrial
- Materials
- Mechanical
- Software

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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

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course</th>
<th>Course Description</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>Engr. Problems</td>
</tr>
<tr>
<td>5.0</td>
<td>Phys 221</td>
<td>Physics I</td>
</tr>
<tr>
<td>R</td>
<td>Engr 101</td>
<td>Orientation</td>
</tr>
<tr>
<td>1.0</td>
<td>Lib 160</td>
<td>Information Literacy (Library)</td>
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</table>

**Iowa State University**

**College of Engineering**
English Placement

Engl 150: Critical Thinking and Communication

• ACT-E $\geq 24$ or ACT-E = 23 and HSR of $\geq 75$

• SAT-EWR $\geq 600$ or SAT-EWR $\geq 590$ and HSR of $\geq 75$
  • Evidence-based Writing and Reading—test date of March 2016 or later

• SAT-CR $\geq 550$ or SAT-CR $\geq 540$ and HSR of $\geq 75$
  • Critical Reading—test date before March 2016

Above scores allow 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 above.

English AP exam $\geq 3$ Language or $\geq 4$ Literature = 150 credit
English Placement and Library 160

Engl 250: Written, Oral, Visual, Electronic Communication
- Take after Engl 150 (unless already met entry criteria for 150 credit)
- Students typically take beginning sophomore year

Engl 250 Test-out opportunity
- Offered 2nd week of class
- $100 fee and must complete online registration form
- 2 essay exam includes rhetorical analysis and reflective essay on selected reading (recommend ACT-English ≥ 29 & top 5% HS Rank)

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 (must register with Library office)
English for Non-Native Speakers

Students whose native language is not English:

- Must take **English Placement Test (EPT)** for non-native speakers of English before taking an English class at ISU
  - Offered at beginning of each semester
  - Exemption for students graduating from U.S. high school with ACT-E 16+ or SAT-EWR 450+ or SAT-CR 410+
  - Exemption for students placing into Engl 250 with 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, can take with Engl 150/250
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

- Do not need to take these courses if passed Trig/Algebra in ALEKS placement assessment or have college transfer credit for them
- Math placement score determines your math course and academic adviser for first semester as well as any required academic programming

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)
Chemistry Placement

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

**Chem 167: Chemistry for Engineers** *(must be in Math 143 or higher)*
- Required for non-chemistry based engineering majors
- Lab required for A E and BSE 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)
- Required prerequisite for students who do not have the equivalent of one 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; 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
• 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 and connect for study groups
- Learn about policies, procedures and campus resources
- Acquire 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**
- Credit or enrollment in Math 143
- Required for A E and BSE (ABE 170); C E and ConE (C E 170); and M E (M E 170)

**Com S 227: Intro Object Oriented Programming**
- Required for CPR E and S E

**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 for all *except* CHE, CPRE/EE/SE, MAT E
- Must have completed Math 166 and Phys 221

**Phys 222: Introduction to Classical Physics II**
- Required for all majors *except* AE, BSE, C 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
- Sophomore classification with Chem 167 or 177 and Math 165
Social Sciences/Humanities (General Education Courses)

- 12-15 credits (varies depending on major)
- 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
  - **Recommend waiting one year before deciding to add to allow time for exploration**
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 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 Mag & Elec=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 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 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 per semester and fewer if heavy 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

<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>
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<tr>
<td>Math 143 (4)</td>
<td>Engr 160 (3)</td>
<td>Phys 222 (5)</td>
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<tr>
<td>SSH (3)</td>
<td>Chem 167 (4)</td>
<td>EM 274 (3)</td>
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<td>Chem 167 (4)</td>
<td>Lib 160 (1)</td>
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</tr>
<tr>
<td>15 Credits</td>
<td>15 Credits</td>
<td>15 Credits</td>
</tr>
</tbody>
</table>

*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 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
- Military Veteran Center
- Student Clubs & Organizations

*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!
• 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

For more information, contact:
Engineering International Programs
www.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
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

• 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:

1. Arrive on time for your advising appointment!
2. Get your ISU student ID card at 0530 Beardshear Hall; bring photo ID
3. Register for ISU email (CyMail) at Answer Center, ground floor Beardshear Hall

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