IOWA STATE UNIVERSITY
College of Engineering
Degree Offerings

Aerospace
Agricultural
Biological Systems
Chemical
Civil/Environmental Construction

Computer
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

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course</th>
<th>Course Description</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>3.0</td>
<td>Engl 250</td>
<td>WOVE Composition</td>
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<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>Library</td>
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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 ≥ 75% = Engl 150*

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

English AP exam ≥ 3 Language or ≥ 4 Literature = 150 credit
English Placement and Library 160

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

**Engl 250 Test out:**
- Offered first Saturday 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 take it in fall, some in spring
- Take with first English class at ISU
- May take it second 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 at ISU
  • Offered at beginning of each semester
  • Exemption for students graduating from U.S. high school with ACT-E 16+ or SAT-V 410+ or placing into Engl 250

• 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
• 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 for both Calc I and II has been transferred to ISU

Trig and Algebra courses are required prerequisites to 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)
• 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

**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 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 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

**Engineering Graphics and Design**
- Credit or enrollment in Math 143 (C E 170 requires Math 165)
- ABE 170 for A E and BSE; C E 170 for C E and Con E; M E 170 for M E

**Com S 227: Intro to 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 of all majors *except* Ch E, Cpr E/E E/S E
- Must have had Math 166 and Phys 221

**Phys 222: Introduction to Classical Physics II**
- Required for all majors *except* C E, S E
- Must have had 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
Additional Mechanical Engineering Requirements

Mechanical engineering (M E) majors also require a 2.0 GPA in the M E foundation courses before moving to the M E core courses

- **M E Foundation courses** (25 credits)
  - Math 265, 267
  - Phys 222
  - E M 274, 324
  - Mat E 273
  - M E 231

- **M E Core Courses** (20 credits):
  - M E 324, 325, 332, 335, 370, 421
Social Science/Humanities
General Education 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 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 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 time for exploration
Advanced Placement/International Baccalaureate (AP/IB)

- It is student’s responsibility to tell adviser of AP/IB courses
- Chemistry department 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 Mag & 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 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
<table>
<thead>
<tr>
<th>Example A</th>
<th>Example B</th>
<th>Example C</th>
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<tbody>
<tr>
<td>Engl 150 (3)</td>
<td>Math 166 (4)</td>
<td>Math 267 (4)</td>
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<td>Math 143 (4)</td>
<td>Engr 160 (3)</td>
<td>Phys 222 (5)</td>
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<td>SSH (3)</td>
<td>Chem 167 (4)</td>
<td>EM 274 (3)</td>
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<td>Lib 160 (1)</td>
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<tr>
<td><strong>15 Credits</strong></td>
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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
• Study Skills Class (Psych 131)

Help Rooms/Sessions
• Chemistry
• English

Other Resources
• Multicultural Liaison Officer
• Disability Resources
• Student Counseling

• Tutoring Services
• Academic Coaching

• Math
• Physics

• Military Veteran Center
• 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 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
  • $12 fee

• 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 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 cumulative 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
BE > YOU IMAGINED

Questions? We are here to help!