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

<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>
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<tr>
<td>3.0</td>
<td>Engl 150</td>
<td>Critic Think/Comm</td>
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<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>
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<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% = credit 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 = 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)
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+ 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 Engr

- 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—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 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)
  - 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; CE 160; CH E 160; CPR E/EE 185; IE 148; ME 160
- Any version of Engr 160 taken meets requirement for any major
- Must be finished with Math 143 and enrolled in Math 165 for ENGR 160, CE 160, CH E 160, ME 160
  - or enrolled in Math 143 for ABE 160, AER E 160, CPR E/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 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 & 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
- Must have had 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
Additional Mechanical Engineering Requirements

- Mechanical engineering (ME) majors also require a 2.0 GPA in the ME foundation courses before moving on to the ME core courses.

- ME Foundation courses (25 credits):
  - Math 265 & 267
  - Phys 222
  - EM 274, 324
  - Mat E 273
  - ME 231

- ME Core Courses (20 credits):
  - ME 324, 325, 332, 335, 370, 421
Social Science/Humanities Gen. Ed. Courses

- 12-15 credits over academic career depending on major
- 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 first year

*Consider interest areas prior to your registration appt!*
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 Math 166
  • 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
## Example 1st Semester Schedules

<table>
<thead>
<tr>
<th>Example A</th>
<th>Example B</th>
<th>Example C</th>
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</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>
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<tr>
<td>SSH (3)</td>
<td>Chem 167 (4)</td>
<td>EM 274 (3)</td>
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<tr>
<td>Chem 167 (4)</td>
<td>Lib 160 (1)</td>
<td>Engr 101 (R)</td>
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<tr>
<td>Engr 101 (R)</td>
<td>Engr 101 (R)</td>
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</tr>
<tr>
<td>Lib 160 (1)</td>
<td>SSH (3)</td>
<td></td>
</tr>
</tbody>
</table>

| 15 Credits      | 15 Credits      | 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
• 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 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

http://www.engineering.iastate.edu/student-services/advising/