The Agricultural Engineering Curriculum (Power and Machinery Option) at Iowa State University requires a total of 128 credits for graduation. The curriculum is divided into several sections: Communications, Mathematical Sciences, Biological, Chemical, Physical Sciences, Social Sciences and Humanities, Engineering Core, Agricultural Engineering Core, etc.

### Communications (10 credits)
- 3 cr. Engl 150 (FSSS) Critical Thinking and Communication
- 3 cr. Engl 250 (FSSS) Written, Oral, Visual, and Electronic Composition
- 3 cr. Comm. Elect. Select one of the courses below:
  - Engl 309 (FS) Report and Proposal Writing
  - Engl 314 (FSSS) Technical Communication
  - Sp Cm 212 (FSSS) Fundamentals of Public Speaking
  - Ag Eds 311 (FS) Presentation and Sales Strategies for Ag Audiences
  - Mkt 343 (FS) Personal Sales
- 1 cr. Lib 160 (FSSS) Library Instruction

### Mathematical Sciences (14 credits)
- 4 cr. Math 165 (FSSS) Calculus I
- 4 cr. Math 166 (FSSS) Calculus II
- 3 cr. Math 266 (FSSS) Elementary Differential Equations
- 3 cr. Stat 305 (FSSS) Engineering Statistics

### Biological, Chemical, Physical Sciences (13 credits)
- 3 cr. Biology Elect. Select one of the courses below:
  - BIOL 251 (S) Biological Processes in the Environment
  - BIOL 211 (FS) Principles of Biology I
- 4 cr. CHEM 167 (FS) General Chemistry for Engineering Students
- 1 cr. CHEM 167L (FS) Laboratory in General Chemistry for Engineering
- 5 cr. PHYS 221 (FSSS) Introduction to Classical Physics I

### Social Sciences and Humanities (12 credits)
- 3 cr. U. S. Diversity Course (Select from University-approved list).
- 3 cr. International Perspectives Course (Select from University-approved list).
- 6 cr. Social Science and Humanities Electives (Select from CALS-approved list).

### Engineering Core (23 credits)
- 1 cr. ENGR 101 (FS) Engineering Orientation
- 1 cr. A B E 110 (S) Experiencing Agricultural and Biosystems Engineering
- 3 cr. A B E 160 (FS) Engineering Problems with Computer Applications Laboratory
- 3 cr. A B E 170 (FS) Engineering Graphics and Introductory Design
- 3 cr. E M 274 (FSSS) Statics of Engineering
- 3 cr. E M 324 (FSSS) Mechanics of Materials
- 1 cr. E M 327 (FSSS) Mechanics of Materials Laboratory
- 3 cr. E M 378 (FSSS) Mechanics of Fluids
- 3 cr. I E 305 (FSSS) Engineering Economic Analysis
- 3 cr. M E 231 (FS) Thermodynamics

### Agricultural Engineering Core (22 credits)
- 1 cr. A B E 201 (FS) Entrepreneurship and Internship Seminar
- 3 cr. A B E 216 (F) Fundamentals of Agricultural and Biological Engineering
- 2 cr. A B E 218 (S) Project Management and Design
2 cr. Computer Graphics
   Select two of the courses below:
   
   \textit{\text{A B E 271 (FS)}} \quad \textit{Engineering Applications of Parametric Solid Modeling}
   \textit{\text{A B E 272 (FS)}} \quad \textit{Parametric Solid Models, Drawings, Assemblies using Pro/ENGINEER}
   \textit{\text{A B E 273 (FS)}} \quad \textit{CAD for Process Facilities and Land Use Planning}

3 cr. \textit{A B E 316 (FS)} \quad \text{Computer Applications and Systems Modeling}

4 cr. \textit{A B E 363 (FS)} \quad \text{Agri-Industrial Applications of Electric Power and Electronics}

3 cr. \textit{A B E 404 (F)} \quad \text{Instrumentation for Agricultural and Biological Engineering}

2 cr. \textit{A B E 415 (FS)} \quad \text{Agricultural Engineering Design I}

2 cr. \textit{A B E 416 (FS)} \quad \text{Agricultural Engineering Design II}

\section*{VII. Power and Machinery Engineering Option (34 credits)}

3 cr. \textit{A B E 340 (F)} \quad \text{Functional Analysis and Design of Agricultural Field Machinery}

3 cr. \textit{A B E 342 (S)} \quad \text{Agricultural Tractor Power}

3 cr. \textit{A B E 410 (S)} \quad \text{Elect. System Integration for Ag. Machinery & Production Systems}

3 cr. \textit{A B E 413 (F)} \quad \text{Fluid Power Engineering}

3 cr. \textit{AB E Elective} \quad \text{Select one of the courses below:}
   
   \textit{\text{A B E 431 (F)}} \quad \textit{Design and Evaluation of Soil and Water Conservation Systems}
   \textit{\text{A B E 469 (S)}} \quad \textit{Grain Processing and Handling}
   \textit{\text{A B E 472 (S-even)}} \quad \textit{Design of Environmental Modification Systems for Bio Products}
   \textit{\text{A B E 478 (S-odd)}} \quad \textit{Design of Agricultural Structures}
   \textit{\text{A B E 480 (F)}} \quad \textit{Engineering Analysis of Biological Systems}

3 cr. \textit{AGRON 182 (FS)} \quad \text{Introduction to Soil Science}

3 cr. \textit{E M 345 (FSSS)} \quad \text{Dynamics}

3 cr. \textit{MAT E 273 (FSSS)} \quad \text{Principles of Materials Science and Engineering}

3 cr. \text{Math/Science Elect.} \quad \text{Select one of the courses below:}
   
   \textit{\text{AGRON 181 (S)}} \quad \textit{Introduction to Crop Science}
   \textit{\text{CHEM 178 (FSSS)}} \quad \textit{General Chemistry II}
   \textit{\text{MATH 207 (FSSS)}} \quad \textit{Matrices and Linear Algebra}
   \textit{\text{MATH 265 (FSSS)}} \quad \textit{Calculus III}
   \textit{\text{PHYS 222 (FSSS)}} \quad \textit{Introduction to Classical Physics II}

3 cr. \textit{M E 324 (FSSS)} \quad \text{Manufacturing Engineering}

1 cr. \textit{M E 324L (FSSS)} \quad \text{Manufacturing Engineering Lab}

3 cr. \textit{M E 325 (FS)} \quad \text{Machine Design}

\textit{Please check the current catalog and Schedule of Classes for most recent offerings.}