

# Agricultural Engineering

## Power and Machinery Option

2020-2021 Catalog

**128 Total Credits**

### First Year

#### Semester 1

- 4 Chem 167 (Chem for Engrs)
- 1 Chem 167L (Chemistry Lab)
- 3 Engr 150 (Critical Think & Comm)
- R Engr 101 (Engr Orientation)
- 3 ABE 170 (Engr Graphics/Design)
- 4 Math 165 (Calculus I)
- 1 Lib 160 (Library)

*16 Total Credits*

#### Semester 2

- 1 ABE 110 (Experience ABE)
- 3 ABE 160 (Engr Problem Solving)
- 4 Math 166 (Calculus II)
- 5 Phys 221 (Classical Physics I)
- 3 Engr 250 (WOVE Comp)

*16 Total Credits*

### Sophomore Year

#### Semester 3

- 3 ABE 216 (Fundamentals of ABE)
- 3 CE 274 (Statics)
- 3 Agron 182 (Soil Science)
- 3 Mat E 273 (Principles of Materials)
- 3 Math/Science Elective

*15 Total Credits*

#### Semester 4

- 1 ABE 201 (Prep for the Workplace)
- 2 ABE 218 (Project Mgmt & Design)
- 3 EM 324 (Mechanics of Materials)
- 3 Math 266 (Differential Equations)
- 3 International Perspectives Elective
- 3 Stat 305 (Engineering Statistics)

*15 Total Credits*

### Junior Year

#### Semester 5

- 4 ABE 363 (Ag Power/Electronics)
- 3 ABE 340 (Analysis Ag Mach Sys)
- 3 Communication Elective
- 3 ME 231 (Thermodynamics)
- 3 ME 345 (Dynamics)
- 1 EM 327 (Mech of Materials Lab)

*17 Total Credits*

#### Semester 6

- 3 Biol 251 or 211 (Biology)
- 3 ABE 316 (Systems Modeling)
- 3 ABE 342 (Tractor Power)
- 2 Computer Graphics Elective
- 1 ME 324L (Manufacturing Lab)
- 3 EM 378 (Mechanics of Fluids)

*15 Total Credits*

### Senior Year

#### Semester 7

- 3 ABE 404 (Instrumentation)
- 2 ABE 415 (ABE Design I)
- 3 ABE 413 (Fluid Power Engr)
- 3 ME 324 (Manufacturing Engr)
- 3 ME 325 (Machine Design)
- 3 US Diversity Elective

*17 Total Credits*

#### Semester 8

- 2 ABE 416 (ABE Design II)
- 3 ABE Elective
- 3 IE 305 (Engr Economics)
- 3 SSH Elective
- 3 SSH Elective
- 3 ABE 410 (Elec Sys Integration)

*17 Total Credits*

*Shading indicates Basic Program courses*

*Compiled from official ISU catalog 4-year plans ([catalog.iastate.edu/undergraduatemajors-alpha/](http://catalog.iastate.edu/undergraduatemajors-alpha/))*

# Agricultural Engineering

Land and Water Resources Option

2020-2021 Catalog

126 Total Credits

## First Year

### Semester 1

4	Chem 167 (Chem for Engrs)
1	Chem 167L (Chemistry Lab)
3	Engl 150 (Critical Think & Comm)
R	Engr 101 (Engr Orientation)
3	ABE 170 (Engr Graphics/Design)
4	Math 165 (Calculus I)
1	Lib 160 (Library)

16 Total Credits

### Semester 2

1	ABE 110 (Experience ABE)
3	ABE 160 (Engr Problem Solving)
4	Math 166 (Calculus II)
5	Phys 221 (Classical Physics I)
3	Engl 250 (WOVE Comp)

16 Total Credits

## Sophomore Year

### Semester 3

3	ABE 216 (Fundamentals of ABE)
3	CE 274 (Statics)
3	Math 266 (Differential Equations)
3	Agron 181 (Crop Science)
3	Agron 182 (Soil Science)

15 Total Credits

### Semester 4

1	ABE 201 (Prep for the Workplace)
2	ABE 218 (Project Mgmt & Design)
3	EM 324 (Mechanics of Materials)
3	ME 231 (Thermodynamics)
3	Stat 305 (Engineering Statistics)
3	Biol 251 (Bio Processes in Environmt) OR Biol 211 (Principles of Biology)

15 Total Credits

## Junior Year

### Semester 5

3	ABE 316 (Systems Modeling)
4	ABE 363 (Ag Power/Electronics)
1	EM 327 (Mech of Materials Lab)
3	EM 378 (Mechanics of Fluids)
3	GIS Elective
3	Communication Elective

17 Total Credits

### Semester 6

1	ABE 273 (CAD for Facilities/Land)
3	CE 372 (Hydrology/Hydraulics)
3	US Diversity Elective
3	CE 326 (Principles of Env Engr)
2	MICRO 201(Intro to Microbiology)
1	MICRO 201L (Lab)
3	ABE Breadth Elective

16 Total Credits

## Senior Year

### Semester 7

3	ABE 404 (Instrumentation)
2	ABE 415 (ABE Design I)
3	ABE 431 (Conservation Systems)
3	GEOL 201 (Geol for Engineers)
3	International Perspective Elective
3	SSH Elective

17 Total Credits

Shading indicates Basic Program courses

### Semester 8

2	ABE 416 (ABE Design II)
3	IE 305 (Engr Economics)
3	Subsurface Systems Elective
3	Water Quality Elective
3	SSH Elective

14 Total Credits

# Agricultural Engineering

Animal Production Systems Option

2020-2021 Catalog

128 Total Credits

## First Year

### Semester 1

- 4 Chem 167 (Chem for Engrs)
- 1 Chem 167L (Chemistry Lab)
- 3 Engr 150 (Critical Think & Comm)
- R Engr 101 (Engr Orientation)
- 3 ABE 170 (Engr Graphics/Design)
- 4 Math 165 (Calculus I)
- 1 Lib 160 (Library)

16 Total Credits

### Semester 2

- 1 ABE 110 (Experience ABE)
- 3 ABE 160 (Engr Problem Solving)
- 4 Math 166 (Calculus II)
- 5 Phys 221 (Classical Physics I)
- 3 Engr 250 (WOVE Comp)

16 Total Credits

## Sophomore Year

### Semester 3

- 3 ABE 216 (Fundamentals of ABE)
- 3 CE 274 (Statics)
- 3 Math 266 (Differential Equations)
- 3 Math/Science Elective
- 3 US Diversity Elective

15 Total Credits

### Semester 4

- 1 ABE 201 (Prep for the Workplace)
- 2 ABE 218 (Project Mgmt and Design)
- 3 EM 324 (Mechanics of Materials)
- 3 ME 231 (Thermodynamics)
- 3 Stat 305 (Engineering Statistics)
- 3 BIOL 211 (Principles of Biology I)  
**OR** BIOL 251 (Bio Proc in Environmt)

15 Total Credits

## Junior Year

### Semester 5

- 4 ABE 363 (Ag Power/Electronics)
- 3 C E 332 (Structural Analysis I)
- 3 EM 378 (Mechanics of Fluids)
- 2 AN S 114 (Survey Animal Industry)
- 3 ABE 316 (Systems Modeling)
- 1 EM 327 (Mech of Materials Lab)

16 Total Credits

### Semester 6

- 3 IE 305 (Engr Economics)
- 3 ABE 478 (Wood Frame Struc Design)
- 3 CE 333 (Structural Steel Design I)
- 1 Computer Graphics Elective
- 3 Communication Elective
- 3 International Perspective Elective

16 Total Credits

## Senior Year

### Semester 7

- 3 ABE 404 (Instrumentation)
- 2 ABE 415 (ABE Design I)
- 3 An Sci/Agron Elective
- 3 ABE Elective
- 4 ME 436 (Heat Transfer)
- 3 SSH Elective

18 Total Credits

### Semester 8

- 2 ABE 416 (ABE Design II)
- 3 ABE 469 (Grain Process/Handling)
- 3 ABE 472 (Dsn Animal Housing Sys)
- 2 ABE 475 (Design in Anml Production)
- 3 C E 334 (Concrete Design I)
- 3 SSH Elective

16 Total Credits

*Shading indicates Basic Program courses*

Compiled from official ISU catalog 4-year plans ([catalog.iastate.edu/undergraduatemajors-alpha/](http://catalog.iastate.edu/undergraduatemajors-alpha/))