

**AGRICULTURAL ENGINEERING CURRICULUM**  
**AGRICULTURAL AND ENVIRONMENTAL SYSTEMS ENGINEERING OPTION**  
**(2009-20011 Catalog)**

A total of 127.5 credits required for graduation

- I. Communications (9.5 credits)**
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|-----------|-----------------|--|
| 3 cr.     | Engl 150 (FSSS) | Critical Thinking and Communication                                |
| 3 cr.     | Engl 250 (FSSS) | Written, Oral, Visual, and Electronic Composition                  |
| 3 cr.     | Engl 309 (FS)   | Report and Proposal Writing  |
| <b>or</b> | 3 cr.           | Engl 314 (FSSS) Technical Communication                            |
| <b>or</b> | 3 cr.           | Sp Cm 212 (FSSS) Fundamentals of Public Speaking                   |
| <b>or</b> | 3 cr.           | Ag Eds 311 (FS) Presentation and Sales Strategies for Ag Audiences |
|           | 0.5 cr.         | Lib 160 (FSSS) Library Instruction                                 |
- II. Mathematical Sciences (14 credits)**
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|-------|-----------------|-----------------------------------|
| 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            |
- III. Physical Sciences (15 credits)**
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|-------|-----------------|---|
| 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             |
| 5 cr. | Phys 222 (FSSS) | Introduction to Classical Physics II            |
- IV. Agricultural and Biological Sciences (6 credits)**
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|-------|---|-------------------------|
| 3 cr. | Select from departmental-approved list. |                         |
| 3 cr. | Biol 211 (FS)                           | Principles of Biology 1 |
- V. Social Sciences and Humanities (12 credits)**
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|-------|---|--|
| 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). |  |
- VI. Engineering (3 credits)**
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|-------|-----------------|---|
| R cr. | Engr 101 (FS)   | Engineering Orientation                             |
| 3 cr. | Engr 160 (FSSS) | Engineering Problems with Computer Applications Lab |
| 3 cr. | Engr 170 (FS)   | Engineering Graphics and Introductory Design        |
- VII. Agricultural Engineering (29 credits)**
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|-----------|--------------|--|
| 1 cr.     | A E 110 (S)  | Experiencing Agricultural and Biosystems Engineering                         |
| 1 cr.     | A E 201 (FS) | Entrepreneurship and Internship Seminar                                      |
| 3 cr.     | A E 216 (S)  | Fundamentals of Agricultural and Biological Engineering                      |
| 1 cr.     | A E 271 (FS) | Engineering Applications of Parametric Solid Modeling                        |
| <b>or</b> | 1 cr.        | A E 272 (FS) Parametric Solid Models, Drawings, and Assemblies Using Pro/ENG |
| 3 cr.     | AE 316 (F)   | Computer Applications and Systems Modeling                                   |
| 4 cr.     | A E 363 (F)  | Agri-Industrial Applications of Electric Power and Electronics               |

	3 cr.	A E 340 (F)	Functional Analysis and Design of Agricultural Field Machinery
<b>or</b>	3 cr.	A E 478 (Alt. S11)	Design of Agricultural Structures
<b>or</b>	3 cr.	BSE 480 (S)	Engineering Analysis of Biological Systems
	3 cr.	A E 404 (F)	Instrumentation for Agricultural and Biological Engineering
	*2 cr.	A E 415 (FS)	Agricultural Engineering Design I
	*2 cr.	A E 416 (FS)	Agricultural Engineering Design II
	3 cr.	A E 431 (F)	Design and Evaluation of Soil and Water Conservation Systems
	3 cr.	A E 472 (Alt. S10)	Design of Environmental Systems for Agricultural Structures

**VIII. Mechanical Engineering (3 credits)**

	3 cr.	M E 330 (FS)	Thermodynamics
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**IX. Engineering Mechanics (10 credits)**

	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

**X. Civil Engineering (7 credits)**

	3 cr.	C E 332 (FS)	Structural Analysis I
	4 cr.	C E 372 (S)	Engineering Hydrology and Hydraulics

**XI. 2 crs. Free Electives**

**XII. Technical Electives\*\* (to be selected with adviser guidance) (14 credits)**

	3 cr.	A E 325 (F)	Biorenewable Systems
	3 cr.	AE 410/510X	Electronic Sys Integration for Ag Mach & Prod Systems
	3 cr.	A E 436/536 (Alt. S11)	Design and Evaluation of Soil and Water Monitoring Systems
	3 cr.	A E 533 (Alt. F10)	Erosion and Sediment Transport
	3 cr.	A E 478/578 (Alt. S11)	Design of Agricultural Structures
	3 cr.	A E 469/569 (S)	Grain Processing and Handling
		A E Courses	Other AE courses not required in this option may be selected
	3 cr.	AGRON 505 (Alt. S11)	Environmental Biophysics (Biometeorology)
	4 cr.	Econ 451 (F)	Agricultural Law
	3 cr.	C E 326 (FS)	Principles of Environmental Engineering
	3 cr.	C E 333 (FS)	Structural Steel Design I
	3 cr.	C E 334 (FSSS)	Reinforced Concrete Design I
	3 cr.	C E 360 (FS)	Soil Engineering
	3 cr.	Con E 380 (FS)	Engineering Law
	3 cr.	I E 305 (FS)	Engineering Economic Analysis
	4 cr.	M E 436 (FS)	Heat Transfer
	2 cr.	TSM 424(F)	Impacts of Agriculture on Water Quality
	3 cr.	TSM 426 (F)	Technology Applications in Bioprocessing
	3 cr.	TSM 470 (S)	Industrial Hygiene: Physical, Chemical, and Biological Hazards
	*3 cr.	Engr 466 (FS)	Multidisciplinary Engineering Design (may be repeated and can replace AE 415 and AE 416)

\*\* This list is not complete; other electives may be selected with the approval of the Curriculum Committee. Any 300-/400- level AE/BSE course will be accepted.