

**AGRICULTURAL ENGINEERING CURRICULUM  
AGRICULTURAL POWER AND MACHINERY ENGINEERING OPTION  
(2013-2014 CATALOG)**

A total of 128 credits required for graduation

**I. Communications (10 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. | Comm. Elect.            | Select one of the courses below:                          |
|       | <i>Engl 309 (FS)</i>    | <i>Report and Proposal Writing</i>                        |
|       | <i>Engl 314 (FSSS)</i>  | <i>Technical Communication</i>                            |
|       | <i>Sp Cm 212 (FSSS)</i> | <i>Fundamentals of Public Speaking</i>                    |
|       | <i>Ag Eds 311 (FS)</i>  | <i>Presentation and Sales Strategies for Ag Audiences</i> |
|       | <i>Mkt 343 (FS)</i>     | <i>Personal Sales</i>                                     |
| 1 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. Biological and/or Natural Resource Sciences (6 credits)**

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|-------|----------------|------------------------------|
| 3 cr. | Agron 154 (FS) | Fundamentals of Soil Science |
| 3 cr. | Biol 211(FS)   | Principles of Biology I      |

**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 (6 credits)**

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|-------|---------------|--|
| R cr. | Engr 101 (FS) | Engineering Orientation                                    |
| 3 cr. | Engr 160 (FS) | Engineering Problems with Computer Applications Laboratory |
| 3 cr. | A E 170 (FS)  | Engineering Graphics and Introductory Design               |

**VII. Agricultural Engineering (34 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 (F)  | Fundamentals of Agricultural and Biological Engineering |

2 cr.	A E 218 (S)	Project Management and Design
1 cr.	Computer Graphics	Select one of the courses below:
	A E 271 (FS)	<i>Engineering Applications of Parametric Solid Modeling</i>
	A E 272 (FS)	<i>Parametric Solid Models, Drawings, Assemblies using Pro/ENGINEER</i>
3 cr.	A E 316 (F)	Computer Applications and Systems Modeling
3 cr.	A E 340 (F)	Functional Analysis and Design of Agricultural Field Machinery
3 cr.	A E 342 (S)	Agricultural Tractor Power
4 cr.	A E 363 (F)	Agri-Industrial Applications of Electric Power and Electronics
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 413 (F)	Fluid Power Engineering
3 cr.	AE Elective	Select one of the courses below:
	A E 431 (F)	<i>Design and Evaluation of Soil and Water Conservation Systems</i>
	A E 469 (S)	<i>Grain Processing and Handling</i>
	A E 472 (S-even#)	<i>Design of Environmental Modification Systems for Bio Products</i>
	A E 478 (S-odd#)	<i>Design of Agricultural Structures</i>
	BSE 480 (S)	<i>Engineering Analysis of Biological Systems</i>

**VIII. Mechanical Engineering (10 credits)**

3 cr.	M E 324 (FSSS)	Manufacturing Engineering
1 cr.	M E 324L (FSSS)	Manufacturing Engineering Lab
3 cr.	M E 325 (FS)	Machine Design
3 cr.	M E 231 (FS)	Thermodynamics

**IX. Materials Engineering (3 credits)**

3 cr.	Mat E 273 (FSSS)	Principles of Materials Science and Engineering
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**X. Engineering Mechanics (13 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 345 (FSSS)	Dynamics
3 cr.	E M 378 (FSSS)	Mechanics of Fluids

**XI. Technical Elective \*\*(to be selected with adviser guidance) (5 credits)**

1 cr.	A E 271 (FS)-OR-	Engineering Applications of Parametric Solid Modeling
1 cr.	A E 272 (FS)	Parametric Solid Models, Drawings, and Assemblies (Pro/Engineer)
3 cr.	A E 325 (F)	Biorenewable Systems Technology and Management
3	AE 388 (F)	Sustainable Engineering and International Development
3	BSE 380 (S)	Principles of Biological Systems Engineering
3	CE 360 (FS)	Geotechnical Engineering
3	CE 372 (FS)	Engineering Hydrology and Hydraulics
3	Con E 322 (FS)	Construction Equipment and Heavy Construction Methods
3	Con E 380 (FS)	Engineering Law
3	EM 350 (S)	Introduction to Nondestructive Evaluation Engineering
3	EM 362 (S)	Principles of Nondestructive Testing
1	EM 362L (S)	Nondestructive Testing Laboratory

3	ME 335 (FSSS)	Fluid Flow
3	IE 305 (FSSS)	Engineering Economic Analysis
3	IE 312 (F)	Optimization
3	IE 361 (FS)	Statistical Quality Assurance
3	AGRON 354 (FS)	Soils and Plant Growth
1	AGRON 354L (FS)	Soils and Plant Growth Laboratory
3	AGRON 356 (F)	Site-Specific Crop and Soil Management
3	AGRON 405/505 (S-odd#)	Environmental Biophysics
3	AGRON 477/577 (S)	Soil Physics
3	TSM 310 (S)	Total Quality Improvement
3	TSM 333/433 (F)	Precision Farming Systems
3	TSM 340 (F)	Advanced Automated Manufacturing Processes
3	TSM 370 (S)	Occupational Safety
3	TSM 440 (F)	Cellular Lean Manufacturing Systems
3	TSM 465 (S)	Automation Systems

1. Any non-seminar/internship/travel 300, 400 and 500 level AE/BSE course not required for P&M option.
2. Any non-seminar/internship/travel 400 and 500 level Engineering course not required for P&M option.
3. Any non-seminar/internship/travel 500 level TSM course
4. Any non-seminar/internship/travel 300 and 400 level Econ course
5. Any non-seminar/internship/travel 300 and 400 level Mgmt course

***\*Please check the current catalog and Schedule of Classes for most recent offerings***