

AGRICULTURAL ENGINEERING CURRICULUM
AGRICULTURAL POWER AND MACHINERY ENGINEERING OPTION
(2009-20011 CATALOG)

A total of 127.5 credits required for graduation

I. Communications (9.5 credits)

- 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
- or** 3 cr. Engl 314 (FSSS) Technical Communication
- or** 3 cr. Sp Cm 212 (FSSS) Fundamentals of Public Speaking
- or** 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)

- 4 Math 165 (FSSS) Calculus I
- 4 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)

- 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)

- 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)

- 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)

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

VII. Agricultural Engineering (32 credits)

- 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
- or** 1 cr. A E 272 (FS) Parametric Solid Models, Drawings, Assemblies using Pro/ENGINEER

	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.	A E 431 (F)	Design and Evaluation of Soil and Water Conservation Systems
or	3 cr.	A E 469 (S)	Grain Processing and Handling
or	3 cr.	A E 472 (Alt. S10)	Design of Environmental Modification Systems for Bio Products
or	3 cr.	A E 478 (Alt. S11)	Design of Agricultural Structures
or	3 cr.	BSE 480 (S)	Engineering Analysis of Biological Systems

VIII. Mechanical Engineering (10 credits)

	4 cr.	M E 324 (FS)	Manufacturing Engineering
	3 cr.	M E 325 (FS)	Machine Design
	3 cr.	M E 330 (FS)	Thermodynamics

IX. Materials Engineering (2 credits)

	2 cr.	Mat E 272 (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. 2 cr. Free Elective

XII. Technical Elective **(to be selected with adviser guidance) (6 credits)

	3 cr.	A E 325 (F)	Biorenewable Systems Technology and Management
	1-4 cr.	A E 490 (FSSS)	Independent Study – Any Area
	3 cr.	A E 403/503 (Alt. F10)	Modeling and Controls for Agricultural Systems
	3 cr.	A E 410/510X	Electronic Sys Integration for Ag Mach & Prod Systems
	3 cr.	AE 530 (S)	Agricultural Water Quality Engineering
	3 cr.	AE 533 (S)	Erosion and Sediment Transport
	3 cr.	AE 478/578 (Alt. S11)	Design of Agricultural Structures
	3 cr.	A E 469/569 (F)	Grain Processing and Handling
		A E Courses	Other AE courses not required in this option may be selected
	3 cr.	Agron 405/505 (Alt S09)	Environmental Biophysics (Biometeorology)
	3 cr.	Agron. 577 (S)	Soil Physics
	3 cr.	C E 360 (FS)	Soil Engineering
	3 cr.	Con E 380 (FS)	Engineering Law

4 cr.	Cpr E 210 (FS)	Introduction to Digital Design
4 cr.	Econ 451 (F)	Agricultural Law
3 cr.	E M 417 (F)	Experimental Mechanics
3 cr.	E M 425 (S)	Introduction to the Finite Element Method
3 cr.	E M 444 (F)	Mechanical Vibrations
3 cr.	I E 305 (FS)	Engineering Economic Analysis
3 cr.	I E 439 (S)	Industrial Automation
3 cr.	Mgmt 370 (FSSS)	Management of Organizations
3 cr.	M E 410 (S)	Mechanical Engineering Applications of Mechatronics
3 cr.	M E 411 (F)	Automatic Controls
3 cr.	M E 417 (S)	Advanced Machine Design I
4 cr.	M E 436 (FS)	Heat Transfer
3 cr.	M E 445 (F)	Internal Combustion Engines
*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.