

ENGINEERING TECHNOLOGY & MANAGEMENT FOR AGRICULTURAL SYSTEMS: AGRICULTURAL PRODUCTION & PROCESSING, BS

for the degree of Bachelor of Science Major in Engineering Technology & Management for Agricultural Systems: Agricultural Production & Processing concentration

Students in the Agricultural Production & Processing concentration learn the technology, machinery, and management of the agricultural production system. Students will gain knowledge and skills in topics including: 1) the agricultural industry from an operational and management perspective; 2) agricultural machinery, grain storage systems, and bioprocessing systems; 3) numerical and scientific processes to drive management decisions; and 4) the science and management of the complete food production system. Graduates of the Agricultural Production & Processing concentration are prepared for careers in industry with both small and large companies, agricultural retailers and service providers, production farming operations, government and environmental agencies, or for entrance into graduate or professional school.

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Prescribed Courses including Campus General Education

Code	Title	Hours
Composition I and Speech		
Select one of the following:		6-7
RHET 105 & CMN 101 & CMN 101	Writing and Research and Public Speaking (or equivalent (see)>CMN 101 college Composition I requirement))	
CMN 111 & CMN 112	Oral & Written Comm I and Oral & Written Comm II	
Advanced Composition		3-4
Select from the list below		
AGCM 220	Communicating Agriculture	
BADM 340	Ethical Dilemmas of Business	
BTW 250	Principles Bus Comm	
BTW 261	Principles Tech Comm	
ECE 316	Ethics and Engineering	
ESE 360	Environmental Writing	
ETMA 311	Humanity in the Food Web	
LEAD 230	Leadership Communications	
NRES 419	Env and Plant Ecosystems	
PLPA 200	Plants, Pathogens, and People	
Cultural Studies		9

Select one course from Western culture, one from non-Western culture, and one from U.S. minority culture from campus approved lists.

Foreign Language

Coursework at or above the third level is required for graduation.

Quantitative Reasoning I

MATH 234 Calculus for Business I (or equivalent) 4

Quantitative Reasoning II 3 or 4

Select one of the following:

ACE 262 Applied Statistical Methods and Data Analytics I

CPSC 241 Intro to Applied Statistics

ECON 202 Economic Statistics I

STAT 107 Data Science Discovery

Natural Sciences and Technology

CHEM 102 General Chemistry I 4
& CHEM 103 and General Chemistry Lab I

PHYS 101 College Physics: Mech & Heat 5

Select one of the following: 4-5

CHEM 104 General Chemistry II
& CHEM 105 and General Chemistry Lab II

OR

PHYS 102 College Physics: E&M & Modern

Humanities and the Arts

Select from campus approved list. 6

Social and Behavioral Sciences

ACE 100 Introduction to Applied Microeconomics 3-4
or ECON 102 Microeconomic Principles

Social and behavioral sciences. Select from campus approved list. 3 or 4

ACES Prescribed

ACES 101 Contemporary Issues in ACES 2

ETMA Required

CS 105 Intro Computing: Non-Tech 3

ETMA 100 Technical Systems in Agr 3

ETMA 339 Optimization in Engineering Technology and Management 3

ETMA 421 Industrial and Agricultural Safety-Injury Prevention 3

or ETMA 422 Industrial and Agricultural Occupational Illness Prevention

ETMA 430 Project Management 2

ETMA 439 Capstone Experience 4

Business electives 6

A total of 6 hours from the Business Electives list which do not satisfy any other requirements.

ACCY 200 Fundamentals of Accounting 3

ACCY 201 Accounting and Accountancy I 3

ACCY 202 Accounting and Accountancy II 3

ACCY 211

ACCY 212

ACE 210 Environmental Economics 3

ACE 240 Personal Financial Planning 3

ACE 310 Natural Resource Economics 3

ACE 345	Finan Decision Indiv Sm Bus	3
ACE 346	Tax Policy and Finan Planning	3
ACE 432	Advanced Farm Management	3 or 4
ACE 435	Global Agribusiness Management	3
AGCM 270	Ag Sales and Persuasive Communication	3
BADM 300	The Legal Environment of Bus	3
BADM 310	Mgmt and Organizational Beh	3
BADM 311	Leading Individuals and Teams	3
BADM 312	Designing and Managing Orgs	3
BADM 313	Strategic Human Resource Management	3
BADM 314	Leading Negotiations	3
BADM 320	Principles of Marketing	3
BADM 322	Marketing Research	3
BADM 323	Marketing Communications	3
BADM 326	Pricing Strategy	3
FIN 221	Corporate Finance	3
FIN 230	Introduction to Insurance	3
LER 290	Introduction to Employment Law	3
LEAD 140	Harnessing Your Interpersonal Intelligence	2
LEAD 260	Foundations of Leadership	3
LEAD 340	Leadership Ethics & Society: Addressing Contemporary Challenges	3
LEAD 380		
LEAD 440	Interpersonal Intelligence for Professional Success	2
SE 361	Emotional Intelligence Skills	3
SE 400	Engineering Law	3 or 4
TE 230	Design Thinking/Need-Finding	3
TE 250	From Idea to Enterprise	2
TE 333	Creativity, Innovation, Vision	4
TE 360	Lectures in Engineering Entrepreneurship	1
TE 450	Startups: Incorporation, Funding, Contracts, & Intellectual Property	3

Introductory Related Courses

Select 2 courses from the list for your concentration. 6-8

ETMA Electives

A total of 20 hours from the list for your concentration with a minimum of 11 hours at the advanced level. 20

Concentration Electives

Select 18 hours from the list for your concentration, which do not satisfy any other requirements, with a minimum of 12 hours at the advanced level. 18

Total Hours 126

ETMAS majors will need 40 hours of upper-level courses (300- and 400-level) to satisfy the campus minimum requirement of 40 hours of advanced coursework.

Concentration Requirements

Code	Title	Hours
Introductory Related Courses		
Select two courses from this list:		
ACES 102	Intro Sustainable Food Systems	
ANSC 100	Intro to Animal Sciences	
CPSC 112	Introduction to Crop Sciences	

HORT 100	Introduction to Horticulture
FSHN 101	The Science of Food and How it Relates to You
LEAD 260	Foundations of Leadership
MFST 101	
NRES 201	Introductory Soils

ETMA Electives

Required:

ETMA 103	Agricultural Machinery and Technology
Select an additional 18 hours from the below list for a total of 20 hours with a minimum of 11 hours at the advanced level	
ETMA 130	Basics of CAD
ETMA 132	Basics of Project Management
ETMA 232	Materials and Construction Sys
ETMA 233	Metallurgy & Welding Processes
ETMA 234	Wiring, Motors and Control Sys
ETMA 262	Agricultural Machine Systems Management
ETMA 295	Undergrad Research or Thesis
ETMA 352	Land and Water Mgt Systems
ETMA 363	Fluid Power Systems
ETMA 371	Residential Housing Design
ETMA 372	Environ Control & HVAC Systems
ETMA 381	Grain Drying & Storage Systems
ETMA 396	UG Honors Research or Thesis
ETMA 425	Managing Industrial and Agricultural Safety Risks
ETMA 435	Elec Computer Ctrl Sys
ETMA 464	Heavy Equipment Powertrains
ETMA 467	Precision Agric Technology
ETMA 486	Grain Bioprocessing Coproducts
ETMA 496	Independent Study

Concentration Electives

Select 18 hours from the lists below with a minimum of 12 hours at the advanced level

Select two from the Food and Agricultural Marketing Management and Law category

Food and Agricultural Marketing Management and Law

ACE 222	Agricultural Marketing
ACE 231	Food and Agribusiness Mgt
ACE 232	Farm Management
ACE 306	Food Law
ACE 403	Agricultural Law
ACE 427	Commodity Price Analysis
ACE 428	Commodity Futures and Options
ACE 430	Food Marketing
ACE 431	Agri-food Strategic Management
ACE 432	Advanced Farm Management
ACE 435	Global Agribusiness Management

Pick four classes from no more than two of these categories:

Animal Production & Processing	
ANSC 219	
ANSC 223	Animal Nutrition

ANSC 301	Food Animal Production, Management, and Evaluation
ANSC 310	Meat Selection and Grading
ANSC 322	Livestock Feeds and Feeding
ANSC 400	Dairy Herd Management
ANSC 401	Beef Production
ANSC 402	Sheep and Goat Production
ANSC 403	Pork Production
ANSC 404	Poultry Science
ANSC 424	Pet Food & Feed Manufacturing
Food Production & Processing	
FSHN 232	Science of Food Preparation
FSHN 260	Raw Materials for Processing
FSHN 345	Strategic Operations Management
FSHN 460	Food Processing Engineering
FSHN 465	Principles of Food Technology
FSHN 469	Package Engineering
FSHN 471	Food & Industrial Microbiology
FSHN 472	Applied Food Microbiology
Horticultural Production & Processing	
HORT 205	Local Food Systems
HORT 341	Greenhouse Mgmt and Production
HORT 360	Vegetable Crop Production
HORT 361	Small Fruit Production
HORT 363	Postharvest Handling Hort Crop
HORT 435	Urban Food Production
PLPA 405	Plant Disease Diagnosis & Mgmt
Crop Production & Processing	
CPSC 212	Introduction to Plant Protection
CPSC 270	Applied Entomology
CPSC 408	Integrated Pest Management
CPSC 412	Principles of Crop Production
CPSC 414	Forage Crops & Pasture Ecology
CPSC 415	Bioenergy Crops
CPSC 418	Crop Growth and Management
CPSC 426	Weed Mgt in Agronomic Crops
CPSC 473	Mgmt of Field Crop Insects
NRES 474	Soil and Water Conservation
NRES 488	Soil Fertility and Fertilizers
PLPA 405	Plant Disease Diagnosis & Mgmt

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Sample Sequence

This sample sequence is intended to be used only as a guide for degree completion. All students should work individually with their academic advisors to decide the actual course selection and sequence that works best for them based on their academic preparation and goals. Enrichment programming such as study abroad, minors, internships, and so on may impact the structure of this four-year plan. Course availability is not guaranteed during the semester indicated in the sample sequence.

Students must fulfill their Language Other Than English requirement by successfully completing a third level of a language other than English. For more information, see the corresponding section on the Degree General and Education Requirements page (<http://catalog.illinois.edu/general-information/degree-general-education-requirements/>).

First Year

First Semester	Hours	Second Semester	Hours
ETMA 100		3 CHEM 102	3
ACES 101		2 CHEM 103	1
RHET 105 or CMN 101		4 CMN 101 or RHET 105	3
ACE 100		4 MATH 234	4
Language Other than English (3rd level)		4 ETMA Elective	3
		17	14

Second Year

First Semester	Hours	Second Semester	Hours
CHEM 104		3 PHYS 101	5
CHEM 105		1 ACE 262, CPSC 241, ECON 202, or STAT 107	3
CS 105		3 ETMA Elective	3
ETMA 103		2 ETMA Elective	3
Business Elective		3 Introductory related course	3
General Education course		3	
		15	17

Third Year

First Semester	Hours	Second Semester	Hours
ETMA 422 or 421		3 ETMA 421 or 422	3
ETMA Elective		3 ETMA 339	3
Concentration Elective		3 Concentration Elective	3
Introductory Related Course		3 Business Elective	3
General Education course (choose a Humanities or Social/Behavioral Science course with Cultural Studies designation)		3 General Education course	3
		15	15

Fourth Year

First Semester	Hours	Second Semester	Hours
ETMA 430		2 ETMA 439	4
ETMA Elective		3 ETMA Elective	3
Concentration Elective		3 Concentration Elective	3
Concentration Elective		3 General Education course	3

Concentration	3 General	3
Elective	Education course	
General	3	
Education course		
	17	16

Total Hours 126

for the degree of Bachelor of Science Major in Engineering Technology & Management for Agricultural Systems: Agricultural Production & Processing concentration in the Department of Agricultural & Biological Engineering.

Agricultural & Biological Engineering

Agricultural & Biological Engineering Website (<https://abe.illinois.edu/>)
 1304 W. Pennsylvania Ave.
 Urbana, IL 61801
 217-333-3570
 Email: abe@illinois.edu

College of Agricultural, Consumer & Environmental Sciences

College of Agricultural, Consumer & Environmental Sciences Website (<https://aces.illinois.edu/>)

ACES Office of Academic Programs

128 Mumford Hall
 1301 West Gregory Drive
 Urbana, IL 61801

Advising

Phone: 217-333-3570
 Email: tsm-etm-abe-advising@rt.aces.illinois.edu
 Advising Website (<https://abe.illinois.edu/academics/advising/>)

Admissions

ACES Undergraduate Admissions (<https://aces.illinois.edu/admissions/>)
visitACES@illinois.edu
 217-333-3380
 University of Illinois Undergrad Admissions (<https://www.admissions.illinois.edu/>)