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

department website: https://abe.illinois.edu/undergraduate/
department faculty: https://abe.illinois.edu/directory/faculty

overview of college admissions & requirements: Agricultural, Consumer & Environmental Sciences

college website: https://aces.illinois.edu/

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.

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

Prescribed Courses including Campus General Education

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHET 105 &amp; CMN 101</td>
<td>Writing and Research and Public Speaking (or equivalent (see college Composition I requirement))</td>
<td>6-7</td>
</tr>
<tr>
<td>CMN 111 &amp; CMN 112</td>
<td>Oral &amp; Written Comm I and Oral &amp; Written Comm II</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Advanced Composition

Select from the below list
- 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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESE 360</td>
<td>Environmental Writing</td>
<td></td>
</tr>
<tr>
<td>LEAD 230</td>
<td>Leadership Communications</td>
<td></td>
</tr>
<tr>
<td>NRES 419</td>
<td>Env and Plant Ecosystems</td>
<td></td>
</tr>
<tr>
<td>PLPA 200</td>
<td>Plants, Pathogens, and People</td>
<td></td>
</tr>
<tr>
<td>TSM 311</td>
<td>Humanity in the Food Web</td>
<td></td>
</tr>
</tbody>
</table>

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

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<td>CMN 111 &amp; CMN 112</td>
<td>Oral &amp; Written Comm I and Oral &amp; Written Comm II</td>
</tr>
</tbody>
</table>

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

Natural Sciences and Technology
- 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
- ACE 101 Contemporary Issues in ACES 2

TSM Required
- CS 105 Intro Computing: Non-Tech 3
- TSM 100 Technical Systems in Agr 3
- TSM 339 Optimization in Engineering Technology and Management 3
- TSM 421 Ag Safety-Injury Prevention 3
- or TSM 422 Ag Health-Illnesses Prevention
- TSM 430 Project Management 2
- TSM 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

Information listed in this catalog is current as of 07/2021
ACCY 211 Understanding Financial Statements 3
ACCY 212 Understanding Accounting for Business Decisions 3
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 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 Leadership in Groups and Teams 3
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

**TSM 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**
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. 126

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**Concentration Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td><strong>Introductory Related Courses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select two courses from this list:</td>
<td></td>
</tr>
<tr>
<td>ACES 102</td>
<td>Intro Sustainable Food Systems</td>
<td>3</td>
</tr>
<tr>
<td>ANSC 100</td>
<td>Intro to Animal Sciences</td>
<td>4</td>
</tr>
<tr>
<td>CPSC 112</td>
<td>Introduction to Crop Sciences</td>
<td>4</td>
</tr>
<tr>
<td>HORT 100</td>
<td>Introduction to Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>FSHN 101</td>
<td>The Science of Food and How it Relates to You</td>
<td>3</td>
</tr>
<tr>
<td>LEAD 260</td>
<td>Foundations of Leadership</td>
<td>3</td>
</tr>
<tr>
<td>MFST 101</td>
<td>Experiencing Food Systems</td>
<td>3</td>
</tr>
<tr>
<td>NRES 201</td>
<td>Introductory Soils</td>
<td>4</td>
</tr>
<tr>
<td><strong>TSM Electives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Required:</td>
<td></td>
</tr>
<tr>
<td>TSM 103</td>
<td>Agricultural Machinery and Technology</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>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</td>
<td></td>
</tr>
<tr>
<td>TSM 130</td>
<td>Basics of CAD</td>
<td>1</td>
</tr>
<tr>
<td>TSM 132</td>
<td>Basics of Project Management</td>
<td>1</td>
</tr>
<tr>
<td>TSM 232</td>
<td>Materials and Construction Sys</td>
<td>3</td>
</tr>
<tr>
<td>TSM 233</td>
<td>Metallurgy &amp; Welding Process</td>
<td>3</td>
</tr>
<tr>
<td>TSM 234</td>
<td>Wiring, Motors and Control Sys</td>
<td>3</td>
</tr>
<tr>
<td>TSM 262</td>
<td>Off-Road Equipment Management</td>
<td>3</td>
</tr>
<tr>
<td>TSM 295</td>
<td>Undergrad Research or Thesis</td>
<td>1 to 4</td>
</tr>
<tr>
<td>TSM 352</td>
<td>Land and Water Mgmt Systems</td>
<td>3</td>
</tr>
<tr>
<td>TSM 363</td>
<td>Fluid Power Systems</td>
<td>2</td>
</tr>
<tr>
<td>TSM 371</td>
<td>Residential Housing Design</td>
<td>3</td>
</tr>
<tr>
<td>TSM 372</td>
<td>Environ Control &amp; HVAC Systems</td>
<td>3</td>
</tr>
<tr>
<td>TSM 381</td>
<td>Grain Drying &amp; Storage Systems</td>
<td>3</td>
</tr>
<tr>
<td>TSM 396</td>
<td>UG Honors Research or Thesis</td>
<td>1 to 4</td>
</tr>
<tr>
<td>TSM 425</td>
<td>Managing Ag Safety Risk</td>
<td>3</td>
</tr>
<tr>
<td>TSM 435</td>
<td>Elec Computer Ctrl Sys</td>
<td>3</td>
</tr>
<tr>
<td>TSM 464</td>
<td>Engine and Tractor Power</td>
<td>3</td>
</tr>
<tr>
<td>TSM 467</td>
<td>Precision Agric Technology</td>
<td>3</td>
</tr>
<tr>
<td>TSM 486</td>
<td>Grain Bioprocessing Coproducts</td>
<td>3</td>
</tr>
<tr>
<td>TSM 496</td>
<td>Independent Study</td>
<td>1 to 4</td>
</tr>
</tbody>
</table>

**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

- 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 Farm Management

*Information listed in this catalog is current as of 07/2021*
Pick four classes from no more than two of these categories:

**Animal Production & Processing**
- ANSC 219 Meat Technology
- 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