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 (http://catalog.illinois.edu/schools/aces/academic-units/#text)
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.

Prescribed Courses including Campus General Education

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

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
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 09/2021
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

Concentration Requirements

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| TSM Electives

Required:

- TSM 103  Agricultural Machinery and Technology  2
- 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

- TSM 130  Basics of CAD  1
- TSM 132  Basics of Project Management  1
- TSM 232  Materials and Construction Sys  3
- TSM 233  Metallurgy & Welding Process  3
- TSM 234  Wiring, Motors and Control Sys  3
- TSM 262  Off-Road Equipment Management  3
- TSM 295  Undergrad Research or Thesis  1 to 4
- TSM 352  Land and Water Mgt Systems  3
- TSM 363  Fluid Power Systems  2
- TSM 371  Residential Housing Design  3
- TSM 372  Environ Control & HVAC Systems  3
- TSM 381  Grain Drying & Storage Systems  3
- TSM 396  UG Honors Research or Thesis  1 to 4
- TSM 425  Managing Ag Safety Risk  3
- TSM 435  Elec Computer Ctrl Sys  3
- TSM 464  Engine and Tractor Power  3
- TSM 467  Precision Agric Technology  3
- TSM 486  Grain Bioprocessing Coproducts  3
- TSM 496  Independent Study  1 to 4

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 09/2021
### 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