

# ENGINEERING TECHNOLOGY & MANAGEMENT FOR AGRICULTURAL SYSTEMS: CONSTRUCTION MANAGEMENT, BS

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

Students in the Construction Management concentration are trained in construction skills and concepts, as well as management practices and principles. Students learn to 1) manage residential, agricultural, and industrial construction technologies; 2) operate and manufacture systems that provide the desired environmental conditions for animals, people, crop storage, and greenhouses; 3) maintain systems to handle and treat biowaste; and 4) develop alternative housing and nutrient management practices. Graduates of the Construction Management concentration are prepared for careers with private construction companies, 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
<b>Composition I and Speech</b>		
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	
<b>Advanced Composition</b>		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	
<b>Cultural Studies</b>		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
<b>Introductory Related Courses</b>		
Select two courses from this list:		
LEAD 260	Foundations of Leadership	
NRES 201	Introductory Soils	
UP 101	Introduction to City Planning	

UP 136	Urban Sustainability	
<b>ETMA</b>		<b>20</b>
ETMA 232	Materials and Construction Sys	3
ETMA 371	Residential Housing Design	3
ETMA 372	Environ Control & HVAC Systems	3
Select an additional 11 hours from the list below 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 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 396	UG Honors Research or Thesis	
ETMA 425	Managing Industrial and Agricultural Safety Risks	
ETMA 435	Elec Computer Ctrl Sys	
ETMA 496	Independent Study	

**Concentration Electives** 18

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

**At least two of:**

CEE 320	Construction Engineering
CEE 420	Construction Productivity
CEE 421	Construction Planning
CEE 422	Construction Cost Analysis

**At least one of:**

BADM 300	The Legal Environment of Bus
BADM 310	Mgmt and Organizational Beh
BADM 320	Principles of Marketing
FIN 221	Corporate Finance
FIN 241	Fundamentals of Real Estate

**At least one of:**

UP 406	Urban Ecology
UP 446	Sustainable Planning Seminar
UP 466	Energy & the Built Environment
UP 475	Real Estate Development Fundamentals
UP 480	Sustainable Design Principles

**May select from the below list to achieve 18 hours:**

ACE 345	Finan Decision Indiv Sm Bus
CEE 424	
ESE 482	Challenges of Sustainability

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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
		<b>17</b>	<b>14</b>

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 232		3 Introductory related course	3
Business Elective		3 General Education course	3
General Education course (choose a Humanities or Social/Behavioral Science course with Cultural Studies designation)		3	
		<b>16</b>	<b>17</b>

Third Year			
First Semester	Hours	Second Semester	Hours
ETMA 372		3 ETMA 339	3
Concentration Elective		3 ETMA 371	3
Concentration Elective		3 Concentration Elective	3
Introductory Related Course		3 Business Elective	3
General Education course		3 General Education course	3
		<b>15</b>	<b>15</b>

Fourth Year			
First Semester	Hours	Second Semester	Hours
ETMA 430		2 ETMA 439	4
Concentration Elective		3 ETMA Elective	2
Concentration Elective		3 ETMA Elective	3
General Education course		3 Concentration Elective	3
Free Elective course		3 General Education course	3
General Education course		3	
		<b>17</b>	<b>15</b>

**Total Hours 126**

for the degree of Bachelor of Science Major in Engineering Technology & Management for Agricultural Systems: Construction Management 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](mailto: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](mailto: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](mailto:visitACES@illinois.edu)  
217-333-3380  
University of Illinois Undergrad Admissions (<https://www.admissions.illinois.edu/>)