

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

for the degree of Bachelor of Science 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.

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

Concentration Requirements:

Graduation Requirements

Minimum hours required for graduation: 126 hours.

University Requirements

Minimum of 40 hours of upper-division coursework, generally at the 300 and 400 level. These hours can be drawn from all elements of the degree. Students should consult their academic advisor for additional guidance in fulfilling this requirement.

The university and residency requirements can be found in the Student Code (<https://studentcode.illinois.edu/article3/part8/3-801/>) (§ 3-801) and in the Academic Catalog (<http://catalog.illinois.edu/general-information/degree-general-education-requirements/>).

General Education Requirements

Follows the campus General Education (Gen Ed) requirements (<https://courses.illinois.edu/gened/DEFAULT/DEFAULT/>). Some Gen Ed requirements may be met by courses required and/or electives in the program.

Code	Title	Hours
	Composition I	4-6
	Advanced Composition	3
	fulfilled by AGCM 220, BADM 340, BTW 250, BTW 261, ECE 316, ESE 360, ETMA 311, NRES 419, or PLPA 200	
	Humanities & the Arts (6 hours)	6
	Natural Sciences & Technology (6 hours)	6
	fulfilled by CHEM 102, PHYS 101; and CHEM 104 or PHYS 102	
	Social & Behavioral Sciences (6 hours)	6
	fulfilled by ECON 102 or ACE 100 and one other courses approved as Social and Behavioral Sciences	
	Cultural Studies: Non-Western Cultures (1 course)	3
	Cultural Studies: US Minority Cultures (1 course)	3
	Cultural Studies: Western/Comparative Cultures (1 course)	3
	Quantitative Reasoning (2 courses, at least one course must be Quantitative Reasoning I)	6-8
	fulfilled by MATH 234, PHYS 101, CS 105; and ACE 262, CPSC 241, ECON 202, or STAT 107	
	Language Requirement (Completion of the third semester or equivalent of a language other than English is required)	0-15

Code	Title	Hours
Department Foundation		
	ACES 101	
	Communication Option:	3 or 6
	CMN 101 Public Speaking	
	ALEC 115 Let's Talk about Food, Agriculture, and the Environment	
	CMN 111 & CMN 112 Oral & Written Comm I and Oral & Written Comm II	
	Advanced ETMA Communication Option - Select one of the following:	3-4
	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	
	NRES 419 Env and Plant Ecosystems	
	PLPA 200 Plants, Pathogens, and People	
	Statistics Option - Select one of the following:	3-4
	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	
	MATH 234 Calculus for Business I (or equivalent)	4
	CHEM 102 & CHEM 103 General Chemistry I and General Chemistry Lab I	4
	PHYS 101 College Physics: Mech & Heat	5
	Select one of the following:	4-5
	CHEM 104 & CHEM 105 General Chemistry II and General Chemistry Lab II	

OR		
PHYS 102	College Physics: E&M & Modern	
ECON 102	Microeconomic Principles	3 or 4
or ACE 100	Introduction to Applied Microeconomics	
Major Core		
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 six 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
ACE 210	Environmental Economics & Policy	3
ACE 221	Negotiation	2
ACE 240	Personal Financial Planning	3
ACE 310	Natural Resource Economics	3
ACE 345	Small Business Finance	3
ACE 346	Tax Policy and Finan Planning	3
ACE 432	Advanced Farm Management	3 or 4
ACE 435	Global Agribusiness Management	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
FIN 230	Introduction to Insurance	3
LER 290	Introduction to Employment Law	3
LEAD 260	Foundations of Leadership	3
LEAD 340	Leadership Ethics & Society: Addressing Contemporary Challenges	3
LEAD 425	Leading Teams	3
SE 361	Emotional Intelligence Skills	3
SE 400	Engineering Law	3 or 4
TE 230	Design Thinking/Need-Finding	3
TE 450	Startups: Incorporation, Funding, Contracts, & Intellectual Property	3

Code	Title	Hours
Construction Management Concentration Core		
Introductory-Related Courses		5-7
Select two courses from this list:		
ARCH 101	Introduction to Architecture	

ETMA 464	Heavy Equipment Powertrains	
LEAD 260	Foundations of Leadership	
LER 100	Introduction to Labor Studies	
NRES 201	Introductory Soils	
UP 101	Introduction to City Planning	
ETMA Electives. A minimum of 11 hours at the advanced level are required.		20
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:		
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 lists 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:		
GGIS 410	Green Development	
LER 330	Comparative Labor Relations	
UP 406	Urban Ecology	
UP 446	Sustainable Planning Seminar	
UP 475	Real Estate Development Fundamentals	
UP 480	Sustainable Design Principles	
May select from the below list to achieve 18 hours:		
ACE 345	Small Business Finance	
ESE 482	Challenges of Sustainability	

Code	Title	Hours
Total Hours		126

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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 and General 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	1	CHEM 103	1
Composition I or Communication Option	4	3 Communication Option or Composition I	4
ECON 102 or ACE 100	4	3 MATH 234	4
Language Other than English (3rd level)	3	4 ETMA Elective	3
		13	15

Total Hours 28

Second Year			
First Semester	Hours	Second Semester	Hours
PHYS 101	3	5 CHEM 104 or PHYS 102	3
CS 105	1	3 CHEM 105 (or Free Elective course)	1
ETMA 232	3	3 Statistics course	3
Business Elective	3	3 ETMA Elective	3
General Education course	3	3 Introductory-Related Course	3
		General Education course	3
		17	16

Total Hours 33

Third Year			
First Semester	Hours	Second Semester	Hours
ETMA 372	3	3 ETMA 339	3
ETMA 421 or 422	3	3 ETMA 371	3
ETMA Elective	3	3 Concentration Elective	3

Introductory-Related Course	2 Business Elective	3
General Education course	3 Advanced ETMA Communication course	3
Free Elective course	2	
		16
		15

Total Hours 31

Fourth Year			
First Semester	Hours	Second Semester	Hours
ETMA 430	2	ETMA 439	4
ETMA Elective	2	Concentration Elective	3
Concentration Elective	3	Concentration Elective	3
Concentration Elective	3	General Education course	3
Concentration Elective	3	General Education course	3
General Education course	3		
		16	16

Total Hours 32

Total Hours: 126

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1. Provide academic and technical knowledge and experiences needed for success in an increasingly technological agricultural industry and world.
2. Enhance students' abilities to formulate questions and find solutions both individually and as a part of a team.
3. Improve students' abilities to communication both written and oral forms.
4. Enhance the use and understanding of mathematics and calculation for analysis in technology and business.
5. Provide opportunities to learn and enhance professional and ethical values and leadership skills.
6. Understand their role in society and the social and cultural implications of practice in their profession.
7. Recognize the need for and develop the abilities to engage in life-long learning.

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Agricultural & Biological Engineering

Agricultural & Biological Engineering Department website (<https://abe.illinois.edu/>)

338 Agricultural Engineering Sciences Building

1304 West Pennsylvania Avenue

Urbana, IL 61801

(217) 333-3570

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

217-333-3380

aces-academics@illinois.edu

Advising

ABE Advising website (<https://abe.illinois.edu/academics/advising/>)

(217) 333-3570

tsm-etm-abe-advising@rt.aces.illinois.edu

Admissions

ACES Undergraduate Admissions (<https://aces.illinois.edu/admissions/>)

University of Illinois Urbana-Champaign Undergrad Admissions (<https://www.admissions.illinois.edu/>)

(217) 333-3380

visitACES@illinois.edu

The Grainger College of Engineering

The Grainger College of Engineering website (<https://grainger.illinois.edu/>)