BIOLOGICAL SYSTEMS ENGINEERING, B.S.

Biological systems engineering (BSE), an accredited engineering program in the College of Agricultural and Life Sciences, applies engineering principles to natural systems and machinery design that impact production of food, water, energy, and more. Uniquely positioned at the intersection of engineering and sustainability with multiple flexible study options to match a wide range of interests, students can follow defined tracks in natural resources and environmental engineering, food or bioprocess engineering, machinery systems engineering, or customize their classes using the general option.

Students benefit from a high faculty to student ratio and individualized advising that fosters teamwork. They have access to all resources for UW–Madison students in the College of Engineering, plus those available to students in the College of Agricultural and Life Sciences. Admission is not competitive, meaning all students who meet the criteria are admitted. The program provides a broad education in physical sciences and engineering, but also teaching skills in fabrication, electronics, design, product development, and management.

The BSE program, like all undergraduate engineering programs on the UW–Madison campus, is accredited by ABET (the Accreditation Board for Engineering & Technology) and prepares students for licensure as a professional engineer. Students who graduate from the program are well prepared for research and engineering careers in industry or government, or to continue their studies in graduate school.

LEARN THROUGH HANDS-ON, REAL WORLD EXPERIENCES

BSE offers hands-on courses and experiences. First-year and senior-level design courses challenge students to develop solutions, build and test prototypes, and analyze results. Students integrate practical work experience through co-operative education (co-op) programs where students earn full-time salaries while working for a firm or through for-credit internships (paid or unpaid).

BUILD COMMUNITY AND NETWORKS

The program fosters community building through advising, coursework and outside activities. Students can join the UW–Madison student chapter of the professional American Society of Agricultural and Biological Engineers (ASABE) to meet professionals, tour companies, explore career paths, and participate in national design competitions. Additionally, the department hosts student events, such as our fall mixer or harvest meal, to allow students to get to know each other and the faculty.

CUSTOMIZE A PATH OF STUDY

All majors take core engineering courses, then specialize in areas including machinery systems, natural resources and engineering, food engineering, or bioprocessing. Students can also develop their own customized focus areas. Many students also complete certificates in sustainability or renewable energy.

MAKE A STRONG START

An introductory engineering design course allows students to make personal connections with peers and learn fabrication skills on various industry machines in the BSE shop. In all courses, instructors offer homework help sessions to support students and encourage the formation of study groups.

GAIN GLOBAL PERSPECTIVE

Students can choose from study abroad options, including courses taught in English, offered through the College of Agricultural and Life Sciences, the College of Engineering, or campus wide opportunities. Recent students have traveled to China, France, Costa Rica, Africa, and more. Programs occur over full semesters or during summer and winter breaks. International internships, many with summer options, offer additional opportunities to gain global experience.

HOW TO GET IN

Entry to this professional program requires students to meet the five admission requirements detailed below. Students are admitted to the department as pre-Biological Systems Engineering until they meet the admission criteria. **Admission eligibility must be confirmed by the department.**

1. Must complete a minimum of 24 degree credits.
2. Must have completed a minimum of 17 graded credits of calculus, statistics, chemistry, computer science, statics, biology, and physics courses required for a BSE degree.
3. Must have a math and science grade point average (M&SGPA) of at least 2.65 with a minimum grade of C in every course used to calculate the M&SGPA. The M&SGPA is based on: math courses numbered 217 and above (MATH 228 is excluded); statistics courses numbered 224 and above; all chemistry courses; any biology courses (courses with biological science breadth; maximum three courses, any required course must be included if taken); computer sciences courses numbered 302 and above (COMP SCI 402 is excluded); E M A 201; BSE 380; and physics courses numbered 201 and above. For any course that a student repeats, only the most recent grade will be used in the calculation. Any transfer course from another university that is included in the previous list must be included in the GPA calculation.
4. Must be in good academic standing—i.e., not on academic probation or dropped status.
5. Must successfully complete introductory chemistry (CHEM 103 & CHEM 104, or CHEM 109, or equivalent) and math through MATH 222.

REQUIREMENTS

UNIVERSITY GENERAL EDUCATION REQUIREMENTS

All undergraduate students at the University of Wisconsin–Madison are required to fulfill a minimum set of common university general education requirements to ensure that every graduate acquires the essential core of an undergraduate education. This core establishes a foundation for living a productive life, being a citizen of the world, appreciating aesthetic values, and engaging in lifelong learning in a continually changing world. Various schools and colleges will have requirements in addition to the requirements listed below. Consult your advisor for assistance, as needed. For additional information, see the university Undergraduate

General Education Requirements (http://guide.wisc.edu/undergraduate/#requirementsforundergraduatestudytext) section of the *Guide*.

General Education	• Breadth—Humanities/Literature/Arts: 6 credits • Breadth—Natural Science: 4 to 6 credits, consisting of one 4- or 5-credit course with a laboratory component; or two courses providing a total of 6 credits • Breadth—Social Studies: 3 credits • Communication Part A & Part B * • Ethnic Studies * • Quantitative Reasoning Part A & Part B *

* The mortarboard symbol appears before the title of any course that fulfills one of the Communication Part A or Part B, Ethnic Studies, or Quantitative Reasoning Part A or Part B requirements.

COLLEGE OF AGRICULTURAL AND LIFE SCIENCES REQUIREMENTS

In addition to the University General Education Requirements, all undergraduate students in CALS must satisfy a set of college and major requirements. Courses may not double count within university requirements (General Education and Breadth) or within college requirements (First-Year Seminar, International Studies, Science, and Capstone), but courses counted toward university requirements may also be used to satisfy a college and/or a major requirement; similarly, courses counted toward college requirements may also be used to satisfy a university and/or a major requirement.

COLLEGE REQUIREMENTS FOR ALL CALS B.S. DEGREE PROGRAMS

Code	Title	Credits
Quality of Work: Students must maintain a minimum cumulative grade point average of 2.000 to remain in good standing and be eligible for graduation.		
Residency: Students must complete 30 degree credits in residence at UW–Madison after earning 86 credits toward their undergraduate degree.		
First Year Seminar (http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#requirementstext)		1
International Studies (http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#requirementstext)		3
Physical Science Fundamentals		4-5
CHEM 103	General Chemistry I	
or CHEM 108	Chemistry in Our World	
or CHEM 109	Advanced General Chemistry	
Biological Science		5
Additional Science (Biological, Physical, or Natural)		3
Science Breadth (Biological, Physical, Natural, or Social)		3
CALS Capstone Learning Experience: included in the requirements for each CALS major (see "Major Requirements") (http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#requirementstext)		

NAMED OPTIONS WITHIN THE MAJOR

Students may complete the Biological Systems Engineering General Program or select a Named Option. The course requirements on this page represent the general program. Students are encouraged to consider one of the Named Options (Food and Bioprocess Engineering; Machinery Systems Engineering; or Natural Resources and Environmental Engineering). Links to learn more about these options, including the course requirements, are included below.

View as listView as grid

- BIOLOGICAL SYSTEMS ENGINEERING: FOOD AND BIOPROCESS ENGINEERING (HTTP://GUIDE.WISC.EDU/UNDERGRADUATE/AGRICULTURAL-LIFE-SCIENCES/BIOLOGICAL-SYSTEMS-ENGINEERING/BIOLOGICAL-SYSTEMS-ENGINEERING-BS/BIOLOGICAL-SYSTEMS-ENGINEERING-FOOD-BIOPROCESS-ENGINEERING-BS/)
- BIOLOGICAL SYSTEMS ENGINEERING: MACHINERY SYSTEMS ENGINEERING (HTTP://GUIDE.WISC.EDU/UNDERGRADUATE/AGRICULTURAL-LIFE-SCIENCES/BIOLOGICAL-SYSTEMS-ENGINEERING/BIOLOGICAL-SYSTEMS-ENGINEERING-BS/BIOLOGICAL-SYSTEMS-ENGINEERING-MACHINERY-SYSTEMS-ENGINEERING-BS/)
- BIOLOGICAL SYSTEMS ENGINEERING: NATURAL RESOURCES AND ENVIRONMENTAL ENGINEERING (HTTP://GUIDE.WISC.EDU/UNDERGRADUATE/AGRICULTURAL-LIFE-SCIENCES/BIOLOGICAL-SYSTEMS-ENGINEERING/BIOLOGICAL-SYSTEMS-ENGINEERING-BS/BIOLOGICAL-SYSTEMS-ENGINEERING-NATURAL-RESOURCES-ENVIRONMENTAL-ENGINEERING-BS/)

MAJOR REQUIREMENTS

Code	Title	Credits
Major Requirements		
Common Requirements		53
General Program Classes and Technical Electives		43
Capstone		5
Total Credits		**101**

COMMON REQUIREMENTS

Code	Title	Credits
The Biological Systems Engineering program requires completion of a minimum of 125 credits to be eligible for graduation. Note that this is higher than the minimum for other CALS programs.		
Mathematics and Statistics		
MATH 221	Calculus and Analytic Geometry 1	5
MATH 222	Calculus and Analytic Geometry 2	4

MATH 234	Calculus--Functions of Several Variables	4
MATH 319	Techniques in Ordinary Differential Equations	3
or MATH 320	Linear Algebra and Differential Equations	
STAT 324	Introductory Applied Statistics for Engineers	3
Chemistry		
Select one of the following:		5-9
CHEM 109	Advanced General Chemistry (Recommended)	
CHEM 103 & CHEM 104	General Chemistry I and General Chemistry II [1]	
Biology		
BSE 349	Quantitative Techniques for Biological Systems	3
One additional Biological Science breadth Course; the following courses are preferred choices: [2]		2-5
BIOLOGY/ BOTANY/ ZOOLOGY 151	Introductory Biology	
ZOOLOGY 153	Introductory Biology	
BIOLOGY/BOTANY 130	General Botany	
BIOLOGY/ ZOOLOGY 101	Animal Biology	
AN SCI/ DY SCI 101	Introduction to Animal Sciences [2]	
AGRONOMY 100	Principles and Practices in Crop Production [2]	
MICROBIO 101	General Microbiology [3]	
MICROBIO 303	Biology of Microorganisms [3]	
Physics		
E M A 201	Statics [4]	3
PHYSICS 202	General Physics	5
Foundation		
BSE 270	Introduction to Computer Aided Design	3
BSE 380	Introductory Data Science for the Agricultural and Life Sciences (preferred)	3
or COMP SCI 310	Problem Solving Using Computers	
BSE 310	Project Economics & Decision Analysis (preferred)	3
or I SY E 313	Engineering Economic Analysis	
Core		
BSE 249	Engineering Principles for Biological Systems [5]	3
or CBE 250	Process Synthesis	
BSE 365	Measurements and Instrumentation for Biological Systems	3
BSE 308	Career Management for Engineers	1
Total Credits		**53-60**

1

Taking the combination of CHEM 103 and CHEM 104 instead of CHEM 109 may increase the total minimum number of credits required to complete the program.

2

Machinery Systems students may select AN SCI/DY SCI 101 or AGRONOMY 100 to also satisfy the Production Agriculture requirement. Any biological science course of 2 or more credits is accepted. Additional courses taken may be counted as Technical Electives.

3

MICROBIO 101 or MICROBIO 303 required for Food & Bioprocess Engineering specialization.

4

E M A 201 Statics is an acceptable prerequisite for PHYSICS 202 General Physics.

5

Students selecting the Food & Bioprocess Engineering option who plan to enroll in CBE 310 Chemical Process Thermodynamics and CBE 320 Introductory Transport Phenomena must take CBE 250 here as a prerequisite. Students selecting the Food & Bioprocess Engineering option who plan to enroll in M E 361 Thermodynamics and M E 363 Fluid Dynamics are recommended to take BSE 249 here.

GENERAL PROGRAM REQUIREMENTS

Code	Title	Credits
M E 361	Thermodynamics [1]	3
or CBE 310	Chemical Process Thermodynamics	
Select one of the following: [1]		3-4
M E 363	Fluid Dynamics	
CIV ENGR 310	Fluid Mechanics	
CBE 320	Introductory Transport Phenomena	
BSE 464	Heat and Mass Transfer in Biological Systems	3
E M A 303	Mechanics of Materials	3
or M E 306	Mechanics of Materials	
Select a minimum of three of the following:		6-9
BSE 301	Land Information Management	
BSE 364	Engineering Properties of Food and Biological Materials	
BSE/ ENVIR ST 367	Renewable Energy Systems	
BSE/CIV ENGR/ SOIL SCI 372	On-Site Waste Water Treatment and Dispersal	
BSE 405	Intelligence and Automation in Agriculture	
BSE 460	Biorefining: Energy and Products from Renewable Resources	
BSE 461	Food and Bioprocessing Operations	
BSE 472	Sediment and Bio-Nutrient Engineering and Management	
BSE 473	Water Management Systems	
BSE/M E 475	Engineering Principles of Agricultural Machinery	

BSE/M E 476	Engineering Principles of Off-Road Vehicles	
BSE 571	Small Watershed Engineering	
Select a minimum of 9 credits of 300 level or above non-BSE engineering courses		9
Total Credits		**27-31**

1

Take BSE 249 and M E 361 and M E 363, or take CBE 250 and CBE 310 and CBE 320.

TECHNICAL ELECTIVES

Select courses from one or more of the following four technical elective categories to bring the total number of credits in the General Program Area or in the selected specialization area to 43. See the BSE Undergraduate Student Handbook for a list of recommended technical electives for various areas of specialization.

A. INTRODUCTION TO ENGINEERING COURSES (FRESHMEN ONLY)

Code	Title	Credits
INTEREGR 170	Design Practicum	3
BSE 170	Product Design Practicum	2

B. INDEPENDENT STUDY/INSTRUCTION COURSES

CALS or CoE courses with a 001, 299, 399, or 699 course number. No more than 3 credits of coursework in this category can be used to meet technical elective requirements.

C. UPPER-LEVEL COURSES

Part 1. Upper-Level Engineering Courses

This includes BSE courses not taken to meet other curricular requirements. This does not include independent study/instruction courses.

Code	Title	Credits
Any Engineering course numbered 300 or above		
E M A 202	Dynamics	3
or M E 240	Dynamics	

Part 2. Upper-Level Science Courses

This includes BSE courses not taken to meet other curricular requirements. This does not include independent study/instruction courses.

Code	Title	Credits
Advanced biological, natural, and physical science courses (i.e., courses with a B, N, or P designation)		
CHEM 341	Elementary Organic Chemistry	3
CHEM 342	Elementary Organic Chemistry Laboratory	1
CHEM 343	Organic Chemistry I	3
CHEM 344	Introductory Organic Chemistry Laboratory	2
CHEM 345	Organic Chemistry II	3
CHEM/M S & E 421	Polymeric Materials	3
AGRONOMY/ATM OCN/SOIL SCI 532	Environmental Biophysics	3

D. LOWER-LEVEL SCIENCE AND ENGINEERING COURSES, BREADTH COURSES

Elementary and intermediate biological, natural and physical science courses except elementary and intermediate math courses; College of Engineering courses with a 100 or 200 level designation; College of Agricultural and Life Sciences courses, Institute of Environmental Studies courses, and/or School of Business courses. Independent study/instruction courses cannot be counted in this category. No more than 12 credits of coursework in this category can be used to meet technical elective requirements.

CAPSTONE

Code	Title	Credits
BSE 508	Biological Systems Engineering Design Practicum I	2
BSE 509	Biological Systems Engineering Design Practicum II [1]	3
Fundamentals of Engineering Exam [1]		

1

Grades for BSE 509 will not be posted until proof of examination is presented.

UNIVERSITY DEGREE REQUIREMENTS

Total Degree	To receive a bachelor's degree from UW–Madison, students must earn a minimum of 120 degree credits. The requirements for some programs may exceed 120 degree credits. Students should consult with their college or department advisor for information on specific credit requirements.
Residency	Degree candidates are required to earn a minimum of 30 credits in residence at UW–Madison. "In residence" means on the UW–Madison campus with an undergraduate degree classification. “In residence” credit also includes UW–Madison courses offered in distance or online formats and credits earned in UW–Madison Study Abroad/Study Away programs.
Quality of Work	Undergraduate students must maintain the minimum grade point average specified by the school, college, or academic program to remain in good academic standing. Students whose academic performance drops below these minimum thresholds will be placed on academic probation.

LEARNING OUTCOMES

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. Display effective communication with a range of audiences.
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the

impact of engineering solutions in global, economic, environmental, and societal contexts.

5. Display teamwork skills, functioning effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

FOUR-YEAR PLAN

FOUR-YEAR PLAN

SAMPLE BIOLOGICAL SYSTEMS ENGINEERING FOUR-YEAR PLAN—GENERAL PROGRAM

First Year

Fall	Credits	Spring	Credits
MATH 221[1]	5	MATH 222	4
CHEM 109[2]	5	BSE 170 or INTEREGR 170	2-3
Biological Science Course	3	BSE 310	3
Humanities	3	LSC 100 (or other COMM A)	3
		Ethnic Studies	3
	16		**15-16**

Second Year

Fall	Credits	Spring	Credits
E M A 201	3	BSE 308	1
MATH 234	4	BSE 349	3
BSE 249	3	MATH 320	3
BSE 270	3	PHYSICS 202	5
BSE 380	3	BSE General Program Elective	3
	16		**15**

Third Year

Fall	Credits	Spring	Credits
M E 306	3	INTEREGR 397 (or other COMM B)	3
M E 361	3	M E 363	3
STAT 324	3	BSE 365	3
300 level or higher non-BSE engineering course	3	BSE 508	2
Technical Elective Course	3	BSE General Program Elective	3
Elective	3	CALS International Studies	3
	18		**17**

Fourth Year

Fall	Credits	Spring	Credits
BSE 509	3	BSE 464	3
300 level or higher non-BSE engineering course	3	300 level or higher non-BSE engineering course	3
Technical Electives	4	Technical Electives	4
BSE General Program Elective	3	Elective Course	3
Humanities	3		
	16		**13**

Total Credits 126-127

Students must complete at least 125 total credits to be eligible for graduation.

1

MATH course dependent on placement score and transfer credit evaluation.

2

If CHEM 103 & CHEM 104 are taken in place of CHEM 109, it is suggested to take CHEM 103 in the fall semester and CHEM 104 in the spring semester of the first year, and move BSE 310 to the fall semester of the second year.

ADVISING AND CAREERS

ADVISING

All students are assigned an advisor when they join the department. First-year students work with a professional staff advisor; more advanced students transition to a faculty advisor in their specialization area. The BSE department promotes personalized advising through accessible appointments and requires advising meetings at least once each semester.

CAREER OPPORTUNITIES

BSE graduates have great careers developing new products, processes and systems to protect soil, air and water quality while meeting demand for food, materials, and energy. Alumni hold positions in research and engineering in organizations developing off-road equipment, food production, renewable energy systems, animal housing, environmental control systems, irrigation and drainage systems, and with engineering consulting companies. Earning a BSE degree puts students on track to become a professional engineer and take the Fundamentals of Engineering (FE) exam, the first step toward licensure which opens even more career opportunities.

PEOPLE

First contact for prospective students is Betsy Wood, Advising and Student Services, (608) 262-3310, betsy.wood@wisc.edu

PROFESSORS

Robert Anex, Christopher Choi, Matt Digman, Sundaram Gunasekaran, Awad Hanna, Margaret Kalcic, Krishnapuram Karthikeyan, Rebecca Larson, Brian Luck, Xuejun Pan, Douglas Reinemann, Troy Runge (chair), John Shutske, Paul Stoy, Anita Thompson, and Zhou Zhang

INSTRUCTORS

Jessica Drewry, Kody Habeck, and Jeff Nelson

STUDENT ADVISOR

Betsy Wood

Click here for the full BSE directory of contacts (https://bse.wisc.edu/people/)

WISCONSIN EXPERIENCE

STUDENT ORGANIZATIONS

The American Society of Agricultural and Biological Engineers (ASABE) Pre-professionals Club (https://asabe.bse.wisc.edu/) connects students to professional development opportunities.

UW—Madison offers many other student groups to encourage networking and development of leadership skills. Some cater to agricultural interests, others focus on engineering and biosciences. Many food and bioprocess engineering students are active in the Food Science Club. Other options include Minorities in Agriculture, Natural Resources and Related Sciences (https://win.wisc.edu/organization/manrrs/), Engineers for a Sustainable World (UW-Madison Chapter) (https://win.wisc.edu/organization/esw-uwmadison/), and more. Many student organizations exist to support engineering students who identify as Native American, Black, Latinx, or part of the LGBTQIA+ community in professional development and academic success.

Find more student organizations (https://win.wisc.edu/organizations/).

COMPETITIVE TEAMS

The BSE department is the home of several engineering design teams that compete in one of several National Student Design Competitions through the American Society of Agricultural and Biological Engineers (ASABE). The Quarter-Scale Tractor Team (https://badgerpulling.bse.wisc.edu/) designs and builds a small-scale tractor judged by industry experts and put to the test in performance events against other national and international university teams. The Robotics Student Design Competition allows students to develop skills in robotic systems, electronics, and sensing technologies by simulating a fully autonomous robotic solution to a common agricultural process.

Many BSE students participate in or hold leadership positions in other engineering design competition teams, such as: Formula SAE (https://vehicles.wisc.edu/formula/formulaabout.html), SAE Clean Snowmobile (https://vehicles.wisc.edu/SNOWMOBILE/SNOWMOBILEabout.html), ASCE Concrete Canoe (https://win.wisc.edu/organization/canoe/), Human Powered Vehicle Challenge (https://hpvc.slc.engr.wisc.edu/new/), Collegiate Wind Power Competition, (https://energy.wisc.edu/news/uw-madison-team-compete-2022-collegiate-wind-competition/) Baja Team (https://vehicles.wisc.edu/BAJA/BAJAabout.html), and UW Hybrid. (https://vehicle.slc.engr.wisc.edu/)

INTERNSHIPS

Internships are an excellent way for students to ground what they have learned in practical applications. Students also participate in co-operative (co-op) education programs where they earn full-time salaries while working for a company. The program supports students in finding co-ops and internships and provides flexibility in class plans for opportunities that occur during fall or spring semesters. Students learn of pre-professional internships through on-campus career fairs—primarily by those hosted by the CoE and CALS—and through regular email announcements. Students also have opportunities to intern with professors performing research over the summer. Although not a program requirement, school credit may be earned for internships.

RESEARCH EXPERIENCE

Many professors in BSE and across campus provide opportunities for students to gain hands-on experience in research labs. Undergraduate researchers learn how knowledge is constructed, gain independence, and increase their self-confidence. These benefits are an advantage in any career path. BSE students are sought out by research groups across campus and governmental agencies because of their unique research experiences.

GLOBAL ENGAGEMENT

The program supports study abroad and international experiences with flexible scheduling. In addition to study abroad programs and internships, students can volunteer with student organizations like Engineers Without Borders (http://ewbuwmadison.weebly.com/). Students can choose to fulfill their International Studies requirement with an appropriate study abroad course.

COMMUNITY ENGAGEMENT AND VOLUNTEERING

BSE students participate in campus-wide volunteer programs like Badger Volunteers, offering their expertise in education, sustainability, and public health to support community organizations. In addition, BSE students volunteer through student organizations to work on special projects related to engineering. Past projects included the fabrication of bioreactors for communities in Uganda or Habitat for Humanity projects in Madison, WI.

RESOURCES AND SCHOLARSHIPS

SCHOLARSHIPS

Students in the College of Agricultural and Life Sciences receive more than $1.25 million in scholarships annually from a standard application (https://cals.wisc.edu/academics/undergraduate-students/financing-your-education/cals-scholarships/).

Each year dozens of outstanding Biological Systems Engineering students are awarded scholarships from funds designated exclusively for this major. These funds seek to support students based on many different criteria such as financial need, specific academic interests, extracurricular involvement, and academic success.

RESOURCES

BSE students have full access to the resources of both the College of Agricultural and Life Sciences and the College of Engineering, including Career Services, Study Abroad programs, access to specialized engineering software, and computer labs.

The Biological Systems Engineering Shop (https://bse.wisc.edu/shop-information/shop-info-for-students/) provides students hands-on experience with machining equipment commonly used in industry. Students can learn machining and metal fabrication techniques, as well as woodworking skills, and improve their understanding of design and assembly processes. Training and support are available for all skill levels. In addition, BSE students have access to all College of Engineering fabrication shops and the UW Makerspace (https://making.engr.wisc.edu/).

Other resources in the Agricultural Engineering Building include a dedicated student computer lab and a student lounge available for group study or individual work. Department-wide social events are also held here.

ACCREDITATION

Accreditation.

Accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org (http://www.abet.org/).

Note: Undergraduate Program Educational Objectives and Student Outcomes are made publicly available at the Departmental website. (In this Guide, the program's Student Outcomes are designated by our campus as "Learning Outcomes.")