

Agricultural and Biosystems Engineering

Department Information

- **Department Location:**
Agricultural and Biosystems Engineering
- **Department Phone:**
701-231-7261
- **Department Email:**
ndsusasm@ndsus.edu
- **Department Web Site:**
www.ndsu.edu/aben/ (<http://www.ndsu.edu/aben/>)
- **Credential Offered:**
B.S.A.B.En.
- **Plan Of Study Sample:**
catalog.ndsu.edu/programs-study/undergraduate/agricultural-biosystems-engineering/ (<http://catalog.ndsu.edu/programs-study/undergraduate/agricultural-biosystems-engineering/>)

SUGGESTED EMPHASIS AREA for the Agricultural & Biosystems Engineering Option: Consult with adviser when making selections.

- Agricultural Systems - Select electives with emphasis on machine, power, structural and electrical/electronic systems to solve problems involving engineering aspects of food, feed, and fiber production.
- Environmental Systems - Select electives with emphasis on areas that contribute to solving problems in environmental engineering, natural resources management, hydrology, irrigation, watershed management, and waste management.
- Biomaterial Systems - Select electives with emphasis on combining engineering, biological, and physical sciences in the application of engineering principles to handling and processing of biomaterials for food and non-food products.
- Advance Biosciences Electives - 9 credits required. Double Count with electives above. A minimum of 3 credits must be from non-ABEN prefix courses in the Advanced Biosciences tab.

Code	Title	Credits
AGRICULTURAL SYSTEMS		
ABEN 358	Electric Energy Application in Agriculture	
ABEN 444	Transport Processes	
ABEN 452	Bioenvironmental Systems Design	
ABEN 456	Biobased Energy	
ABEN 458	Process Engineering for Food, Biofuels and Bioproducts	
ABEN 464	Resource Conservation and Irrigation Engineering	
ABEN 473	Agricultural Power	
ABEN 478	Machinery Analysis & Design	
ABEN 479	Fluid Power Systems Design	
ASM 323	Post-Harvest Technology	
ASM 373	Tractors & Power Units	
ASM 374	Power Units Laboratory	
ASM 378	Machinery Principles and Management	
ASM 429	Hydraulic Power Principles and Applications	
ASM 454	Principles and Application of Precision Agriculture	
CE 343	Structural Engineering and Analysis	
CE 404	Reinforced Concrete	
ECE 275	Digital Design	
ECE 303	Electrical Engineering II	
ECE 376	Embedded Systems	
GEOG 455	Introduction to Geographic Information Systems	
GEOG 456	Advanced Geographic Information Systems	
IME 330	Manufacturing Processes	
IME 335	Welding Technology	

IME 380	CAD/CAM for Manufacturing
IME 430	Process Engineering
IME 431	Production Engineering
IME 450	Systems Engineering and Management
IME 456	Program and Project Management
IME 461	Quality Assurance and Control
ME 331	Materials Science and Engineering
ME 353	Thermodynamics II
ME 421	Theory of Vibrations
ME 442	Machine Design I
ME 454	Heat and Mass Transfer
ME 471	Experimental Stress Analysis
ME 473	Engineering with Polymeric Materials
ME 474	Mechanics of Composite Materials
ME 475	Automatic Controls
ME 487	Internal Combustion Engines
ENVIRONMENTAL SYSTEMS	
ABEN 358	Electric Energy Application in Agriculture
ABEN 444	Transport Processes
ABEN 452	Bioenvironmental Systems Design
ABEN 456	Biobased Energy
ABEN 464	Resource Conservation and Irrigation Engineering
ABEN 479	Fluid Power Systems Design
ABEN 484	Drainage and Wetland Engineering
ASM 454	Principles and Application of Precision Agriculture
CE 204	Surveying
CE 370	Introduction to Environmental Engineering
CE 371	Environmental Engineering Laboratory
CE 408	Water Resources and Supply
CE 410	Water and Wastewater Engineering
CE 421	Open Channel Flow
CE 473	
CE 477	Applied Hydrology
CE 478	Water Quality Management
CE 479	Advanced Water and Wastewater Treatment
CE 483	Contracts and Specifications
CHEM 240	Survey of Organic Chemistry
CHEM 341	Organic Chemistry I
CHEM 341L	Organic Chemistry I Laboratory
ECE 303	Electrical Engineering II
ME 454	Heat and Mass Transfer
MICR 350	General Microbiology
SOIL 210	Introduction to Soil Science
SOIL 410	Soils and Land Use
BIOMATERIAL SYSTEMS	
ABEN 358	Electric Energy Application in Agriculture
ABEN 444	Transport Processes
ABEN 452	Bioenvironmental Systems Design
ABEN 456	Biobased Energy
ABEN 458	Process Engineering for Food, Biofuels and Bioproducts
ABEN 479	Fluid Power Systems Design
ABEN 479	Fluid Power Systems Design

ABEN 484	Drainage and Wetland Engineering
BIOC 460	Foundations of Biochemistry and Molecular Biology I
BIOC 460L	Foundations of Biochemistry I Laboratory
CFS 210	Introduction to Food Science and Technology
CFS 430	Food Unit Operations
CFS 450	Cereal Technology
CFS 470	Food Processing II
CFS 471	Food Processing Laboratory
CHEM 240	Survey of Organic Chemistry
CHEM 341	Organic Chemistry I
CHEM 341L	Organic Chemistry I Laboratory
CHEM 342	Organic Chemistry II
ECE 303	Electrical Engineering II
IME 450	Systems Engineering and Management
IME 460	Evaluation of Engineering Data
IME 461	Quality Assurance and Control
ME 331	Materials Science and Engineering
ME 442	Machine Design I
ME 454	Heat and Mass Transfer
MICR 350	General Microbiology