

**Engineering Faculty Document # 63-00
October 3, 2000**

To: The Faculty of the Schools of Engineering
From: The Department of Agricultural and Biological Engineering
RE: Changes in Curriculum and Course Requirements, Agricultural and Biological Engineering

The Faculty of the Department of Agricultural and Biological Engineering has approved the following changes in curriculum and course requirements effective for those students entering as freshmen in fall of 2000 and thereafter. This action is now submitted to the Engineering Faculty with a recommendation for approval.

Plan to be changed:

Agricultural and Biological Engineering Curriculum

Biological Sciences Elective (currently 4th sem) moves to 6th semester

ME 274 (currently 5th sem) moves to 4th semester

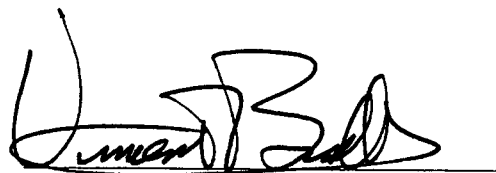
Engineering Technical Elective (currently 5th sem) moves to 7th semester

CE 340 and CE 343 or ME 309 (currently 6th sem) moves to 5th semester

Free elective (currently 7th sem) moves to 6th semester

See attached Plan of Study (changes bolded)

Reason: Shifting of courses is needed to satisfy the previously approved prerequisites/corequisites of ABE 325.



Vincent F. Bralts, Head
Department of Agricultural and Biological Engineering

APPROVED FOR THE FACULTY
OF THE SCHOOLS OF ENGINEERING
BY THE COMMITTEE ON
FACULTY RELATIONS

CFR Minutes #948

Date 5/14/01

Chairman CFR C.D. Litter

Proposed Agricultural and Biological Engineering Plan of Study

(Credit Hours Required for Graduation: 130)

Freshman Year – in accordance with the requirement of the Schools of Engineering

A technical graphics course is recommended in the agricultural and biological engineering curriculum. It is recommended that ASM 211 be taken in the freshman year.

ABE 120 is recommended for students interested in agricultural and biological engineering, but it is not required for admission to the program.

Sophomore Year

Third Semester

3 ABE 205 Engineering Computations for Biological Systems
 4 MA 261 Multivariate Calculus
 4 Biological Sciences Elective
 3 ME 270 Basic Mechanics I
 3 PHYS 241 Electricity and Optics
 17

Fourth Semester

3 ABE 210 Biological Material and Energy Balances
 3 CE 273 Mechanics of Materials
 4 MA 262 Linear Algebra & Differential Equations
 3 **ME 274 Mechanics II**
 3 General Education Elective**
 16

Junior Year

Fifth Semester

3 ABE 305 Physical Properties of Biological Materials
 4 ABE 325 Soil & Water Resource Engineering
 3 AGR Y 255 Soil Science
 4 **CE 340 Hydraulics (3) and CE 343 (1) / OR
 ME 309 Fluid Mechanics (4)**
 3 General Education Elective**
 17

Sixth Semester

3 ABE 330 Design of Machine Components
 4 **Biological Sciences Elective**
 3 EE 201 Linear Circuit Analysis I
 3 General Education Elective**
 3 **Free Elective**
 16

Senior Year

Seventh Semester

3 ABE 435 Hydraulic Control Systems for Mobile Equipment
 3 ABE 450 Finite Element Method in Design & Optimization
 1 ABE 490 Professional Practice in Ag & Bio Engineering
 3 **Engineering Technical Elective†**
 3 Agriculture Elective
 3 General Education Elective**
 16

Eighth Semester

4 ABE 485 Agricultural Engineering Design
 3 Engineering Technical Elective†
 6 General Education Elective**
 4 Free Elective
 17

* Add ENGL 102 (3 credit hours) if grade in ENGL 101 is less than a B, thereby increasing the graduation requirements to 133 credit hours.

** In accordance with the requirements of the Schools of Engineering and Agriculture.

† See suggested list

Schools of Engineering 1999-2001 Catalog

Plan of Study for Agricultural and Biological Engineering

Credit Hours Required for Graduation: 130*

A technical graphics course is required in the agricultural and biological engineering curriculum and should be taken in the freshman year – ASM 211 is recommended, but CGT 155 also would be acceptable.

ABE 120 is recommended for students interested in agricultural and biological engineering or food process engineering, but it is not required for admission to the programs.

Freshman Year, see page 24.

Sophomore Year

Third Semester

- (3) **ABE 205** (Engineering Computations for Biological Systems)
- (4) **MA 261** (Multivariate Calculus)
- (3) **ME 270** (Basic Mechanics I)
- (3) **PHYS 241** (Electricity and Optics)
- (4) Biological sciences elective

(17)

Fourth Semester

- (3) **ABE 210** (Biological Applications of Material and Energy Balances)
- (3) **CE 273** (Mechanics of Materials)
- (4) **MA 262** (Linear Algebra and Differential Equations)
- (4) Biological sciences elective
- (3) General education elective†

(17)

Junior Year

Fifth Semester

- (3) **ABE 305** (Physical Properties of Biological Materials)
- (4) **ABE 325** (Soil and Water Resource Engineering)
- (3) **AGRY 255** (Soil Science)
- (3) **ME 274** (Basic Mechanics II)
- (3) Engineering technical elective

(16)

Sixth Semester

- (3) **ABE 330** (Design of Machine Components)
- (4) **CE 340** (Hydraulics) or **ME 309** (Fluid Mechanics)
- (3) **EE 201** (Linear Circuit Analysis I)
- (6) General education electives†

(16)

Senior Year

Seventh Semester

- (3) **ABE 435** (Hydraulic Control Systems for Mobile Equipment)
- (3) **ABE 450** (Finite Element Method in Design and Optimization)
- (1) **ABE 490** (Professional Practice in Agricultural Engineering)
- (3) Agricultural elective
- (3) General education elective†
- (3) Electives

(16)

Eighth Semester

- (4) **ABE 485** (Agricultural Engineering Design)
- (3) Engineering technical elective
- (6) General education elective†
- (3) Elective

(16)

*Add ENGL 102 (3 credit hours) if grade in ENGL 101 is less than a B, thereby increasing the graduation requirement to 133 credit hours.

†Eighteen credit hours of general education electives must be chosen in accordance with the general education document (available in the Student Academic Center, Room 201, Agricultural and Biological Engineering Building). Of the 18 credit hours, 3 must be economics (ECON 251 or 252), 3 must be an additional communication elective, and 6 must meet School of Agriculture International Understanding requirements.

Minimum Degree Requirements - Agricultural and Biological Engineering

CURRENT	Credit Hours Required for Graduation: 130	Credit Hours
Mathematics and Basic Sciences		
Calculus: MA 165, 166, 261, 262		16
Chemistry: CHM 115, 116		8
Physics: PHYS 152, 241		7
Biological Sciences		8
Agricultural Sciences		
AGRY 255		3
Elective		3
Computing		
ENGR 106, CS 156		4
Professional Development		
ENGR 100, ABE 490		2
Communication		
English Composition: ENGL 101		3
Speech: COM 114		3
Humanities and Social Sciences (General Education)		
Must be chosen in accordance with the approved General Education list and with the help of a faculty advisor.		
Of the 18 credit hours, 3 must be an additional communication elective, and 3 must be economics.		
Core Engineering Courses		
Computations: ABE 205		3
Basic Mechanics of Materials: CE 273, ME 270, ME 274		9
Thermodynamics: ABE 210		3
Physical Properties: ABE 305		3
Soil & Water Conservation: ABE 325		4
Basic Fluid Mechanics/Hydraulics: ME 309 or CE 340		4
Machine Design: ABE 330		3
Electronics: EE 201		3
Hydraulics for Mobile Equipment: ABE 435		3
Numerical Methods/Modeling: ABE 450		3
Capstone Design: ABE 485		4
Technical electives		6
Free electives		7

PROPOSED	Credit Hours Required for Graduation: 130	Credit Hours
Mathematics and Basic Sciences		
Calculus: MA 165, 166, 261, 262		16
Chemistry: CHM 115, 116		8
Physics: PHYS 152, 241		7
Biological Sciences		8
Agricultural Sciences		
AGRY 255		3
Elective		3
Computing		
ENGR 106, CS 156		4
Professional Development		
ENGR 100, ABE 490		2
Communication		
English Composition: ENGL 101		3
Speech: COM 114		3
Humanities and Social Sciences (General Education)		
Must be chosen in accordance with the approved General Education list and with the help of a faculty advisor.		
Of the 18 credit hours, 3 must be an additional communication elective, and 3 must be economics.		
Core Engineering Courses		
Computations: ABE 205		3
Basic Mechanics of Materials: CE 273, ME 270, ME 274		9
Thermodynamics: ABE 210		3
Physical Properties: ABE 305		3
Soil & Water Conservation: ABE 325		4
Basic Fluid Mechanics/Hydraulics: ME 309 or CE 340 & CE 343		4
Machine Design: ABE 330		3
Electronics: EE 201		3
Hydraulics for Mobile Equipment: ABE 435		3
Numerical Methods/Modeling: ABE 450		3
Capstone Design: ABE 485		4
Technical electives		6
Free electives		7