APPROVED BY SENATE
02/04/2019

EP.19.27_FINAL
Approved by EP 12/10/18

ILLINOIS

Proposal to the Senate Educational Policy Committee

Please replace all text in italic with appropriate information before submitting your proposal. Your entries should be in regular (not italic) font.

PROPOSAL TITLE:

Revision of Curriculum Requirements for the Master of Science in Agricultural and Biological Engineering, Department of Agricultural and Biological Engineering

SPONSOR:

Alan Hansen, Interim Department Head of Agricultural and Biological Engineering, 333-2969, achansen@illinois.edu

COLLEGE CONTACT:

Harry Dankowicz, Associate Dean for Graduate, Professional and Online Programs, 244-1231, danko@illinois.edu

BRIEF DESCRIPTION:

The Department of Agricultural and Biological Engineering (ABE) requests the following changes to their Master of Science in Agricultural and Biological Engineering Thesis Option degree program.

- Require ABE 501, Graduate Research (1 credit hour).
- Reduce the hours of elective coursework to 4 to 11 credit hours
- Reduce the total required credit hours to 32 hours.

JUSTIFICATION:

The current Master of Science in Agricultural and Biological Engineering Thesis Option curriculum consists of 33 credit hours. In contrast, at peer institutions, including Michigan State University, Purdue University, North Carolina State University, and University of Minnesota, similar degrees require no more than 32 credit hours. To ensure that our programs remains competitive with peer institutions, the Department of Agricultural and Biological Engineering has concluded that the Master of Science in Agricultural and Biological Engineering Thesis Option curriculum needs to be changed to require only 32 credit hours. This change is also in line with other similar programs in the College of Engineering.

In addition, based on an evaluation of its graduate-level research-oriented degree programs, ABE has concluded that all its students should complete ABE 501, Graduate Research I, a research orientation course that helps them understand research methods, presentation skills, laboratory practices, case studies, and professional and ethical conduct.

In order to accommodate these two changes, ABE is requesting that the total elective hours for the Master of Science in Agricultural and Biological Engineering Thesis Option be reduced from 4 to 13 hours to 4 to 11 hours. This change will not significantly impact the student's ability to complete elective coursework that complements their chosen field of interest.

BUDGETARY AND STAFF IMPLICATIONS: *(Please respond to each of the following questions.)*

1) Resources
   a. How does the unit intend to financially support this proposal?

      There will not be any budgetary obligations due to these changes to the ABE MS Thesis Option curriculum. These changes will be carried out with existing resources.

   b. How will the unit create capacity or surplus to appropriately resource this program? If applicable, what functions or programs will the unit no longer support to create capacity?

      There are no capacity implications with respect to the proposed changes. There is capacity to accommodate the additional enrollments in ABE 501 using existing resources.

   c. Will the unit need to seek campus or other external resources? If so, please provide a summary of the sources and an indication of the approved support.

      No, there will be no additional financial obligations resulting from these changes.

   d. Please provide a letter of acknowledgment from the college that outlines the financial arrangements for the proposed program.

      There are no financial implications for these requested changes.

2) Resource Implications
   a. Please address the impact on faculty resources including the changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc.

      The proposed change to the MS Thesis Option curriculum will not impact faculty resources. ABE has the capacity with existing faculty to handle the increased enrollment in the ABE 501 course.

   b. Please address the impact on course enrollment in other units and provide an explanation of discussions with representatives of those units. *(A letter of acknowledgement from units impacted should be included.)*

      The proposed changes will not have impact on course enrollments in other units.

   c. Please address the impact on the University Library.

These proposed changes would not impact the University Library.

d. Please address the impact on technology and space (e.g. computer use, laboratory use, equipment, etc.).

There will be no impact on technology and space.

For new degree programs only:

3) Briefly describe how this program will support the University's mission, focus, and/or current priorities. Include specific objectives and measurable outcomes that demonstrate the program's consistency with and centrality to that mission.

N/A

4) Please provide an analysis of the market demand for this degree program. What market indicators are driving this proposal? What type of employment outlook should these graduates expect? What resources will be provided to assist students with job placement?

N/A

5) If this is a proposed graduate program, please discuss the programs intended use of waivers. If the program is dependent on waivers, how will the unit compensate for lost tuition revenue?

N/A

DESIRED EFFECTIVE DATE: Fall 2019

STATEMENT FOR PROGRAMS OF STUDY CATALOG: See Appendix B

CLEARANCES: *(Clearances should include signatures and dates of approval.* ***These signatures must appear on a separate sheet.*** *If multiple departments or colleges are sponsoring the proposal, please add the appropriate signature lines below.)*

Signatures:

Unit Representative: 11/1/2018 Date:

College Representative: 11-9-2018 Date:

Graduate College Representative: 11/19/18 Date:

Council on Teacher Education Representative: Date:

Appendix A: Proposed Curriculum Revisions

Current Requirements:	Current Hours	Revised Requirements:	Revised Hours
Major Core Requirement		***Major Core Requirement***	
No ABE 501 Required	NA	ABE 501	1 Hours
Elective Requirement	4-13 Hours	Elective Requirement	4-11 Hours
Total Required Hours	33 Hours	**Total Required Hours**	32 Hours

Appendix B: Program of Study

Interim Head of the Department: Alan Hansen
Director of Graduate Studies: Xinlei Wang
338 Agricultural Engineering Sciences Building
1304 West Pennsylvania Avenue
Urbana, IL 61801
(217) 333-3570

Department Website: abe.illinois.edu
E-mail: abe@illinois.edu
Major: Agricultural and Biological Engineering
Degrees offered: M.S. and Ph.D.

Major: Technical Systems Management
Degrees offered: M.S.
Graduate Concentration: Professional Science Master's

Graduate Degree Programs

The Department of Agricultural and Biological Engineering offers a graduate degree program which is at the forefront of the application of engineering principles to solve problems of agricultural production, utilization, environmental control, and biological systems, and to improve the quality of life of humankind. Students may concentrate study in one of the faculty research interest areas listed below. Supporting course work includes: mathematics; computer science; statistics; engineering mechanics; chemical, civil, electrical, and mechanical engineering; animal science; crop sciences; food science; and other appropriate fields. Opportunity also exists for specializing in

1. computational science and engineering via the Computational Science and Engineering (CSE) Option
2. energy and sustainability engineering via the Energy and Sustainability Engineering (EaSE) Option

Admission

Admission requirements for either master's program include completion of an undergraduate program equivalent to the Agricultural and Biological Engineering (ABE) curriculum (in the case of the ABE M.S.) or the Technical Systems Management (TSM) curriculum (in the case of the TSM M.S,) with at least a 3.0 grade point average (A = 4.0) for the last two years of undergraduate course work. Applicants must submit Graduate Record Examination (GRE) scores.

Admission to the Ph.D. program is limited to individuals who have demonstrated exceptional ability through outstanding performance in obtaining a Master of Science degree and/or through a high degree of technical and professional accomplishment. Candidates must also satisfy entrance requirements for the M.S. degree program.

All applicants whose native language is not English must submit a minimum TOEFL score of 88 (iBT), 230 (CBT) or 570 (PBT); or minimum International English Language Testing System

(IELTS) academic exam scores of 6.5 overall and 6.0 in all subsections. Applicants may be exempt from the TOEFL if criteria are met. For those taking the TOEFL or IELTS, full admission status is granted for scores greater than 102 (TOEFL iBT), 253 (TOEFL CBT), 610 (TOEFL PBT), or 6.5 (IELTS). Limited status is granted for lesser scores and requires enrollment in English as a Second Language (ESL) courses based on an ESL Placement Test (EPT) taken upon arrival to campus.

Graduate Teaching Experience

Experience in teaching is considered a vital part of the graduate program and is required as part of the academic work of all Ph.D. candidates in this program. For details of expectations, see the department's Graduate Handbook.

Faculty Research Interests

Current research interests of the faculty include off-road equipment engineering (robotics and machinery automation, remote sensing and precision agriculture, machinery management systems, pesticide application technology, engines and biofuels); soil and water resources (hydrology, erosion and sediment transport, water management, wetlands, and water quality); bioenvironmental engineering (building environment and energy conservation, air quality, renewable energy, biomass to bioenergy conversion, structural analysis and facility design, building materials evaluation, environmental control and ergonomic design for plant, animal, and human housing systems and facilities); food and bioprocess engineering (engineering properties of foods, physical properties of biological products, grain drying, grain quality evaluation, dry-grind corn processing, wet and dry milling, modified bioprocesses for improved co-products, fuel and chemicals, fermentation, and transport phenomenon in biological materials); or electronic and electrical systems (biosensors and controls, energy systems, machine vision, near-infrared spectroscopy applications, bionanotechnology, microfabricated devices, bioconjugation techniques, transcriptional control, modeling life support systems, and multiscale biological processes). For more details, visit the department's graduate program Web site.

Financial Aid

Illinois PSM students may not hold assistantships or other tuition and fee waiver-generating appointments; statutory waivers and tuition scholarships are accepted. For all other students, fellowships, supported by University, College of Agricultural, Consumer and Environmental Sciences, and College of Engineering funds, are available on a competitive basis. A limited number of assistantships, providing both teaching and research experience, are often available on a half-time basis. All applicants, regardless of U.S. citizenship, whose native language is not English and who wish to be considered for teaching assistantships must demonstrate spoken English language proficiency by achieving a minimum score of 24 on the speaking subsection of the TOEFL iBT or 8 on the speaking subsection of the IELTS. For students who are unable to take the iBT or IELTS, a minimum score of 4CP is required on the EPI test, offered on campus. All new teaching assistants are required to participate in the Graduate Academy for College Teaching conducted prior to the start of the semester.

Agricultural and Biological Engineering, MS

Thesis Option

Code	Title	Hours
ABE 599	Thesis Research	8
ABE 594	Graduate Seminar (Registration of 0 hours required every term while in residence)	0
ABE 501	Graduate Research	1
One MATH course beyond differential equations from an approved list		3-4
One course in statistical design and analysis from an approved list		3-5
One course in instrumentation and measurement from an approved list		3-5
One 500-level course (taken for at least 3 credit hours) in an area of specialization – chosen in consultation with advisor		3-5
Elective courses – chosen in consultation with advisor (subject to Other Requirements and Conditions below)		4-11
Total Hours		**32**

Course List

Other Requirements and Conditions[1]

Requirement	Description
Other Requirements and Conditions may overlap	
	A maximum of 4 hours of ABE 597 (or other independent study) may be applied toward the elective course work requirement.
	A minimum of 12 500-level credit hours applied toward the degree.
Minimum GPA	3.0

Grad Other Degree Requirements

[1] *For additional details and requirements refer to the department's Graduate Handbook and the Graduate College Handbook*

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Office of the Provost and Vice Chancellor
for Academic Affairs

Swanlund Administration Building
601 East John Street
Champaign, IL 61820

November 20, 2018

Gay Miller, Chair
Senate Committee on Educational Policy
Office of the Senate
228 English Building, MC-461

Dear Professor Miller:

Enclosed is a proposal from the College of Engineering and the Graduate College to revise the Master of Science in Agricultural and Biological Engineering.

Sincerely,

Kathryn A. Martensen
Assistant Provost

Enclosures

c: A. McKinney
J. Hart
R. McElroy
H. Dankowicz
A. Hansen

telephone (217) 333-6677 • *fax* (217) 244-5639

UNIVERSITY OF ILLINOIS
AT URBANA–CHAMPAIGN

Graduate College

110 Coble Hall
801 South Wright Street
Champaign, IL 61820-6210

November 19, 2018

Kathy Martensen
Office of the Provost

Dear Kathy,

Included is a proposal from the College of Engineering to **"Revise the Curriculum Requirements for the Master of Science in Agricultural and Biological Engineering, Department of Agricultural and Biological Engineering"**.

The proposal was received on November 9, 2018 and reviewed at the Graduate College Executive Committee meeting on November 16, 2018. The committee approved the proposal without revision.

We find that this proposal meets the standards of Graduate Education at Illinois and we now forward for your review.

Sincerely,

Wojtek Chodzko-Zajko
Dean
Graduate College

c: A. Hansen
H. Dankowicz
R. McElroy

ILLINOIS

COLLEGE OF ENGINEERING

Office of the Dean
306 Engineering Hall, MC-266
1308 W. Green St.
Urbana, IL 61801

November 9, 2018

Allison McKinney
Graduate College
204 Coble Hall
MC-322

Via: Rashid Bashir, Engineering College

Dear Allison,

The College of Engineering Executive Committee has reviewed and approved the following program revision. We now submit for campus approval.

"ABE Curriculum revision Proposal for the Master of Science in Agricultural and Biological Engineering These Option degree program".

Attached is a copy of the request.

Sincerely yours,

Henrique Reis, Vice Chair
Executive Committee

Approval Recommended:

11-9-2018

Rashid Bashir, Dean Designate
College of Engineering

Date

Harry Dankowicz
Rhonda McElroy
Henrique Reis

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Senate Educational Policy Committee
Proposal Check Sheet

PROPOSAL TITLE (Same as on proposal): Revision of Curriculum Requirements for the Master of Science in Agricultural and Biological Engineering, Department of Agricultural and Biological Engineering

PROPOSAL TYPE (select all that apply below):

A. ☒ Proposal for a NEW or REVISED degree program. Please consult the Programs of Study Catalog for official titles of existing degree programs.

1. Degree program level:

   ☒ Graduate ☐ Professional ☐ Undergraduate

2. ☐ Proposal for a new **degree** (e.g. B.S., M.A. or Ph.D.):

   Degree name, "*e.g., Bachelor of Arts or Master of Science*": _____

3. ☒ Proposal for a new or revised **major, concentration, or minor**:

   ☐ New or ☒ Revised **Major** in (name of existing or proposed major): Master of Science in Agricultural and Biological Engineering

   ☐ New or ☐ Revised **Concentration** in (name of existing or proposed concentration): _____

   ☐ New or ☐ Revised **Minor** in (name of existing or proposed minor): _____

4. ☐ Proposal to rename an existing major, concentration, or minor:

   ☐ Major ☐ Concentration ☐ Minor

   Current name: _____

   Proposed new name: _____

5. ☐ Proposal to terminate an existing degree, major, concentration, or minor:

   ☐ Degree ☐ Major ☐ Concentration ☐ Minor

   Name of existing degree, major, or concentration: _____

6. ☐ Proposal involving a multi-institutional degree:

☐ New ☐ Revision ☐ Termination

Name of existing Illinois (UIUC) degree: _____

Name of non-Illinois partnering institution: _____

Location of non-Illinois partnering institution:

☐ State of Illinois ☐ US State: _____ ☐ Foreign country: _____

B. ☐ Proposal to create a new academic unit (college, school, department, program or other academic unit):

Name of proposed new unit: _____

C. ☐ Proposal to rename an existing academic unit (college, school, department, or other academic unit):

Current name of unit: _____

Proposed new name of unit: _____

D. ☐ Proposal to reorganize existing units (colleges, schools, departments, or program):

1. ☐ Proposal to change the status of an existing and approved unit (e.g. change from a program to department)

   Name of current unit including status: _____

2. ☐ Proposal to transfer an existing unit:

   Current unit's name and home: _____

   Proposed new home for the unit: _____

3. ☐ Proposal to merge two or more existing units (e.g., merge department A with department B):

   Name and college of unit one to be merged: _____

   Name and college of unit two to be merged: _____

   Proposed name and college of new (merged) unit: _____

4. ☐ Proposal to terminate an existing unit:

   Current unit's name and status: _____

E. ☐ **Other educational policy proposals** (e.g., academic calendar, grading policies, etc.)

Nature of the proposal: _____