

IDAHO STATE BOARD OF EDUCATION
ACADEMIC/PROFESSIONAL-TECHNICAL EDUCATION
NOTICE OF INTENT

to initiate a
NEW, EXPANDED, COOPERATIVE, DISCONTINUED, PROGRAM COMPONENT OR OFF-CAMPUS
INSTRUCTIONAL PROGRAM OR ADMINISTRATIVE/RESEARCH UNIT

University of Idaho
Institution Submitting Proposal

College of Engineering / Biological and Agricultural Engineering
Name of College, School, or Division Name of Department(s) or Area(s)

Indicate if this NOI is for an Academic [X] or Professional-Technical [] Program

A New, Expanded, Cooperative, Contract, or Off-Campus Instructional Program or Administrative/Research Unit
(circle one) leading to:

Biological and Agricultural Engineering (B.S.B.A.E.)
(degree or certificate)

Proposed Starting Date: Fall 2004

FOR NEW PROGRAMS ONLY

FOR OTHER ACTIVITY:

Program (i.e., degree) Title & CIP 2000
(CIP assigned upon receipt of NOI in
Provost Office)

- Program Component (major/minor/option/emphasis)
Off-Campus Activity/Resident Center
Administrative/Research Unit
Addition/Expansion
Discontinuance/consolidation
Contract Program

This Notice of Intent has been approved by:

College Dean (Institution) Date

State Administrator, SDPTE Date

Graduate School Dean (as applicable) Date

Chief Fiscal Officer (Institution) Date

SBOE/OSBE Approval Date

Chief Academic Officer (Institution) Date

President Date

Before completing this form, refer to the "Board Policy Section III.G. Program Approval and Discontinuance.

1. Briefly describe the nature of the request e.g., is this a new program (degree, program, or certificate) or program component (e.g., new, discontinued, modified, addition to an existing program or option).
This request is to consolidate the B.S. AgE and B.S. BSyE degrees into one B.S.B.A.E. degree and within this consolidation, provide 5 option areas. These option areas will be: Agricultural Engineering Option, Biological Systems Engineering Option, Environmental Engineering Option, Food and Bioprocess Engineering Option, and Soil and Water Engineering Option. These option areas will allow our engineering students to gain an educational background within these option areas that will make them more employable and able to meet the needs of the State and Region. The options areas provide a more clearly defined statement of what the current emphasis areas provide for our program. This proposal does not create any new areas beyond what we currently cover.
2. Briefly describe how the institution will ensure the quality of the program (e.g., accreditation, professional societies, licensing boards, etc.).
The Department will seek accreditation from ABET. Both of the current degrees have ABET accreditation until the next general review in 2008.
3. Duplication--Is this request unique to the system? If not, briefly describe the rationale for the duplication.
The BAE Program is unique to Idaho and several surrounding states.
4. Succinct statement of need for program or program modification. Include student and state need, demand, and employment potential. Attach a Scope and Sequence, DPTE Form Attachment B, for professional-technical education requests. (Use additional sheets if necessary.)
The current curriculum requirements for our AgE and BSyE students have many courses that are the same. All of the existing courses offered by the department use a BAE prefix. The department's M.E., M.S., and Ph.D. degrees are Biological and Agricultural Engineering so this change will bring our undergraduate degree in common with the advanced degree. By having a core requirement of 90 credits plus several 38 credit options we more clearly identify the commonality of the program while still providing for the diverse interests and employment opportunities of our students. We believe this change will enhance our ability to attract and hold top students in Idaho and the Pacific Northwest. We also believe it will enhance our ability to sell our program to potential employers of our students. In addition, the students from the two degree areas will have more interaction in the single merged degree, and as we have found in combining the ASM Senior Capstone Course with our BAE Senior Capstone course, each group has it's own strengths that compliment the other group, and has increased the students' ability to think outside the box. We believe that the same result would be evident with the combined BAE degree.
This change has been developed with the assistance of our departmental advisory board. Each of the option areas has been developed from an emphasis area which is available to current students.
5. Describe how this request is consistent with the State Board of Education's policy or role and mission of the institution. (i.e., centrality).
The University of Idaho is the only public educational institution to offer degrees in Biological Systems Engineering and Agricultural Engineering. With the announced termination of the Biological Systems Engineering Program at WSU and along with keeping in step with the University and Departmental mission in attaining optimum efficiency while meeting the diverse needs of our students and our geographical area, there is an obvious need for this consolidation. By merging our two degrees, we simplify our program. The use of options will improve our ability to attract top students from the State of Idaho and the Pacific Northwest. We will provide more flexibility in cross-over of interest areas for our

students, and the end result for them will be increased employability after graduation.

6. Resources--Faculty/Staff/Space Needs/Capital Outlay. (Use additional sheets if necessary.):

Estimated Fiscal Impact: **NONE** FY _____ FY _____ FY _____

A. Source of Funds

- 1. Appropriated-reallocation _____
- 2. Appropriated-new _____
- 3. Federal _____
- 4. Other: _____ _____

B. Nature of Funds

- 1. Recurring * _____
- 2. Non-recurring** _____

- Grand Total _____

*** Recurring is defined as ongoing operating budget for the program, which will become of the base.**

**** Non-recurring is defined as one-time funding in a fiscal year and not part of the base.**

BIOLOGICAL AND AGRICULTURAL ENGINEERING (B.S.B.A.E.)

Required course work includes the university requirements (see regulation J-3) and:

- BAE 142 Engineering for Living Systems (2 cr)
- BAE 143 Engineering Problem Solving or CS 112 Introduction to Problem Solving and Programming (3 cr)
- BAE 355 Fundamentals of Hydrologic Engineering (3 cr)
- BAE 441 Instrumentation and Measurements (3 cr)
- BAE 462 Electric Power and Controls (3 cr)
- BAE 478 Engineering Design I (2 cr)
- BAE 479 Engineering Design II (2 cr)
- BAE 491 Senior Seminar (1 cr)
- Chem 111 Principles of Chemistry I (4 cr)
- Chem 112 Principles of Chemistry II (5 cr)
- Engl 102 College Writing and Rhetoric (3 cr)
- Engr 105 Engineering Graphics (2 cr)
- Engr 210 Engineering Statics (3 cr)
- Engr 240 Introduction to Electrical Circuits (3 cr)
- Engr 320 Engineering Thermodynamics and Heat Transfer (3 cr)
- Engr 335 Engineering Fluid Mechanics (3 cr)
- Engr 350 Engineering Mechanics of Material (3 cr)
- Engr 360 Engineering Economy (3 cr)
- Math 170 Analytic Geometry and Calculus I (4 cr)
- Math 175 Analytic Geometry and Calculus II (4 cr)
- Math 275 Analytic Geometry and Calculus III (3 cr)

Math 310 Ordinary Differential Equations (3 cr)
Phys 211 Engineering Physics I (4 cr)
Phys 212 Engineering Physics II (4 cr)
Soil 205 The Soil Ecosystem (3 cr)
Stat 301 Probability and Statistics (3 cr)
Communications Elective (2 cr)

And one of the following options:

A. AGRICULTURAL ENGINEERING OPTION

BAE 242 Agricultural Engineering Analysis and Design (2 cr)
BAE 352 Soil and Water Engineering or CE 322/323 Hydraulics and Lab (3-4 cr)
BAE 372 Agricultural Power and Machines (3 cr)
BAE 459 Irrigation System Design (3 cr)
BAE 461 Bioprocess Engineering (3 cr)
CE 211 Engineering Measurements (3 cr)
CE 342 Theory of Structures (3 cr)
Engr 220 Engineering Dynamics (3 cr)
Biological Science Electives (3 cr)
Technical Electives (8 cr)
Electives to total 128 cr for the degree

B. BIOLOGICAL SYSTEMS ENGINEERING OPTION

BAE 242 Agricultural Engineering Analysis and Design (2 cr)
BAE 461 Bioprocess Engineering (3 cr)
Biol 115 Cells and the Evolution of Life (4 cr)
Chem 277 Organic Chemistry I (3 cr)
Chem 278 Organic Chemistry I: Lab (1 cr)
MMBB 250 General Microbiology (5 cr)
MMBB 380 Introductory Biochemistry (4 cr)
Biological Science Electives (3 cr)
Technical Electives (9 cr)
Electives to total 128 cr for the degree

C. ENVIRONMENTAL ENGINEERING OPTION

BAE 432 Bioreactor Theory and Design for Waste Treatment (3 cr)
BAE 433 Bioremediation (3 cr)
BAE 452 Environmental Water Quality (3 cr)
BAE 461 Bioprocess Engineering (3 cr)
Biol 115 Cells and the Evolution of Life (4 cr)
ChE 223 Material and Energy Balances (3 cr)
Chem 277 Organic Chemistry I (3 cr)
Chem 278 Organic Chemistry I: Lab (1 cr)
CE 330 Fundamentals of Environmental Engineering (3 cr)
MMBB 250 General Microbiology (5 cr)
MMBB 380 Introductory Biochemistry (4 cr)
Electives to total 128 cr for the degree

D. FOOD AND BIOPROCESS ENGINEERING OPTION

BAE 242 Agricultural Engineering Analysis and Design (2 cr)
BAE 461 Bioprocess Engineering (3 cr)
Biol 115 Cells and the Evolution of Life (4 cr)
Chem 277 Organic Chemistry I (3 cr)
Chem 278 Organic Chemistry I: Lab (1 cr)

FST 303 Food Processing (3 cr)
MABB 250 General Microbiology (5 cr)
MABB 380 Introductory Biochemistry (4 cr)
Technical Electives (3 cr)
Food Engineering Electives (3 cr)
Food Science Electives (3 cr)
Electives to total 128 cr for the degree

E. SOIL AND WATER ENGINEERING OPTION

BAE 242 Agricultural Engineering Analysis and Design (2 cr)
BAE 352 Soil and Water Engineering (3 cr)
BAE 451 Engineering Hydrology (3 cr)
BAE 458 Open Channel Hydraulics (3 cr)
BAE 459 Irrigation System Design (3 cr)
CE 211 Engineering Measurements (3 cr)
Engr 220 Engineering Dynamics (3 cr)
Technical Electives (8 cr)
Soil and/or Water Engineering Electives (3 cr)
Biological Science Electives (3 cr)
Electives to total 128 cr for the degree

A grade of C or better is required in each of the following courses before registration is permitted in upper-division engineering courses: BAE 143, BAE 242, Chem 111, Engr 210, Math 275, and Phys 211.

To graduate in this program, a grade of C or better is required in each of the following courses: BAE 143, BAE 242, Chem 111, Engr 210, Math 275, and Phys 211.

Students are required to submit a course plan and a statement of how the humanistic and social course requirements complement the technical content of the curriculum and are consistent with the program and institution objectives.