DATE: February 6, 2015

TO: Dr. Katherine G. Aiken
    Interim Provost and Executive Vice President

FROM: Jon Van Gerpen
      Acting Head, Biological and Agricultural Engineering

SUBJECT: Minor Change Notification Request

The University of Idaho is writing to notify the Idaho State Board of Education per Board Policy Section III.G.3.c.ii of the change(s) which we believe is minor. The change(s) will be made effective beginning summer 2015.

- **Biological Engineering (B.S.), Eliminate degree “options.”**

The following information is being provided to ensure the minor, non-substantive change(s) is in align with our institutional responsibilities and accreditation.

**Mission and Core Themes:**
The BAE curriculum has provided B.S. students with 5 different degree options for the past 11 years: Biological Systems Engineering, Bioenergy Engineering, Ecohydrological Engineering, Environmental Engineering, and Agricultural Engineering. Most of the students select 3 of the options; two of the options have very few students. These options represent specialty areas for the students and are defined by approximately 30-32 credits of course-work. There is considerable overlap in the course-work requirements for some of the options. Recent ABET reviewers have criticized the options approach, saying that such a small department cannot adequately support so many option areas. The program agrees. We propose to eliminate the options and replace them with the addition of 16 credits of course-work to the program core (BAE 461, Biol 250/255, Biol 380, Chem 277, Chem 278) plus 18 credits of technical electives (list of courses is attached). This change will make the BAE curriculum more similar to other engineering curricula. Three of the options can be completed under the new curriculum by proper selection of technical electives. The other two curricula will require that the student takes 1 or 2 extra classes. The change will greatly simplify the BAE program curriculum and minimize the challenge for advising students in the different options as well as needing to provide mentoring and support in 5 different areas.

**Educational Offerings:**
At this time, there are no plans to teach additional courses or to eliminate any courses. If they desire, students will still be able to select courses to acquire the degree of specialization offered by the options. However, students will have flexibility to choose technical elective courses that more closely match their interests. The program will have the ability to identify low-enrollment classes for elimination later. The level of administrative and advising oversight will be much less. The current 5 options require tracking of student progress in such a diverse set of programs that mistakes are frequent.
Planning:
Eliminating the option areas was motivated by a recommendation from our ABET accreditors. Their opinion was that a faculty of 7 could not adequately support 5 different option areas. Eliminating the options will provide students with a solid core curriculum while providing an appropriate level of elective courses to produce a specialization. No other organizations within UI are expected to be affected by this change. Teachout for the options will be made according to university policy in the general catalog “… when an instructional program is to be withdrawn, UI will make every reasonable effort to ensure that students who are within two years of completing graduation requirements, and who are making normal progress toward completion of those requirements, will have the opportunity to complete the program that is to be withdrawn.”

Budget:
This change will have no financial impact.

Student Services:
This change provides more flexibility to students while still allowing then to pursue a specialization, if they desire. Advising requirements will be greatly reduced because the curriculum will be much simpler.

Physical Facilities:
No effect on physical facilities.

Library and Information Resources:
No effect on library and information resources.

Faculty:
No effect on faculty.
Proposed New BAE Curriculum

Departmental Core
BAE 142 Engineering for Living Systems (2 cr)
BAE 242 Engineering Analysis and Design (2 cr)
BAE 441 Instrumentation and Measurements (3 cr)
BAE 462 Electric Power and Controls (3 cr)
BAE 478 Engineering Design I (3 cr)
BAE 479 Engineering Design II (3 cr)
BAE 491 Senior Seminar (1 cr)
Biol 115 Cells and the Evolution of Life (4 cr)
Chem 111 Principles of Chemistry (4 cr)
Chem 112 Principles of Chemistry (5 cr)
Engr 105 Engineering Graphics (2 cr)
Engr 210 Engineering Statics (3 cr)
Engr 240 Introduction to Electrical Circuits (3 cr)
Engr 320 Engrg Thermodynamics and Heat Transfer (3 cr)
Engr 335 Engineering Fluid Mechanics (3 cr)
Engr 350 Engineering Mechanics of Materials (3 cr)
Engr 360 Engineering Economy (2 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 w/lab (4 cr)
Phys 212 Engineering Physics (3 cr)
Stat 301 Probability and Statistics (3 cr)
Comm 101 Fund. Public Speaking (2 cr)
Engl 102 College Writing and Rhetoric (3 cr)
ISEM 101 Integrated Seminar (3 cr)
ISEM 301 Integrated Seminar (1 cr)
Humanities & Social Science (12 cr)
Total: 94 credits

Proposed additions to departmental core:
BAE 461 Bioprocess Engineering (3 cr)
Biol 250/255 General Microbiology & lab (5 cr)
Biol 380 Biochemistry (4 cr)
Chem 277 Organic Chemistry I (3 cr)
Chem 278 Organic Chemistry I lab (1 cr)
Total: 16 credits

Technical Electives: 18 credits

Total curriculum: 128 credits