MEMORANDUM

To: University Curriculum Committee
From: Dr. Elliot Douglas, Associate Chair
RE: Nuclear Engineering Curriculum Changes
Date: November 23, 2011

The faculty of the Nuclear Engineering Program, under the direction of the Materials Science and Engineering Department, wish to modify the requirements for the Nuclear Engineering degree. Below is a synopsis of what is proposed:

1. REDUCTION OF CREDITS (128 to 127). This is the net effect of three changes.
   a. Adding ENU 1XXX, Introduction to Nuclear Engineering, 1 credit, to freshman year (with ENU 4934 moved to sophomore) to provide NE-specific content for each academic year.
   b. Changing from 3 credits to 4 in ENU 4134 (Reactor Thermal Hydraulics 2) to make up content displaced by switching from ENU 4133 to EGN 3353C (discussed below). (The credit change is not being requested now, to allow 2008-2011 catalog year students to do the 3 credit version.)
   c. Removal of ENU 4104, Reactor Analysis and Computation 2 - Dynamics, 3 credits, by fusing content in ENU 4104, Reactor Analysis and Computation 1 - Statics. Previously, UF had 7 credits of required reactor physics, compared to 3-6 for programmatic peers. This brings us into line with other programs.

2. REMOVAL OF ENU 4133. ENU 4133 (Reactor Thermal Hydraulics 1) is to be replaced with EGN 3353C (Fluid Mechanics). There is approximately 75% overlap between the courses. The remaining topics -- introduction to turbulence, nuclear applications, and power cycles -- involve approximately 10 lectures and will be added to ENU 4134, which requires a fourth credit be added. The corresponding ABET outcomes will also be transferred.

3. REQUIREMENT OF ENU 4XXX (Nuclear Materials). This change brings us better in line with programmatic peers, who now recognize this area as a sub-discipline within NE that requires its own required course. Increased local expertise through migration of program to MSE was an enabling factor, but not a motivating one. Appropriate reductions in elective counts were made due to this change.

4. REDUCTION OF ELECTIVE CREDITS (Total of 6). Students are required to complete a total of 6 credits of technical electives. A minimum of 3 credits must be ENU3000 or above or ENV4212. No more than 3 credits may be from ENU4905 or ENU4949. The remaining 3 credits may be any engineering, mathematics, or science course 3000 or above.

5. RESHUFFLE OF COURSE SEQUENCING. Courses were reordered in some cases to achieve the following goals:
   a. Move engineering content earlier in the curriculum when possible.
   b. Accommodate changes above.
   c. Strengthen critical tracking in the sophomore year.
   e. To accommodate mandatory summer enrollment prior to the Junior and Senior years, to enable internships or related experiences. (The nominal mandatory summer term is now after the Sophomore year.)
   f. Increase opportunities for Freshmen and Sophomore NE students to meet in common courses and bond as a cohort.

6. AMENDMENT OF GENERAL EDUCATION-BIOLOGICAL SCIENCE (GE-B) TO SPECIFIC COURSES. The faculty felt that a Gen Ed Biology course was not of sufficient technical depth for the NE degree. The choice of CHM 2046 or BSC2010 is being provided so that students have some flexibility based on their particular interest. David Julian, Associate Chair for the Department of Biology and Philip Brucat, Director of the General Chemistry Program in the Department of Chemistry, have confirmed that there will be seats in these courses for the Nuclear Engineering students.

The approval of the University Curriculum Committee will be greatly appreciated.

Cc: Dr. Mark Law
    Martha McDonald