South Dakota Board of Regents

EXISTING PROGRAM: SUBSTANTIVE PROGRAM MODIFICATION
This form is used to request substantive changes in already existing programs (majors, minors, specializations).

1. INSTITUTION:  South Dakota State University

2. CURRENT PROGRAM NAME:  Civil Engineering

3. THIS PROPOSAL DEALS WITH A CHANGE IN:
   Distribution of Credits
   ______ total credits required within the discipline ______ Program name
   ______ total credits of supportive course work ______ Existing specialization
   ______ total credits of elective course work ______ Addition of specialization
   ______ total credits required for program ______ Other (explain)

4. LEVEL:  
   ______ Certificate
   ______ Associate Degree
   ______ Bachelor’s Degree
   ______ Master’s Degree
   ______ Doctoral Degree

5. CATEGORY:  
   ______ Minor
   ______ Associate Degree
   ______ Bachelor’s Degree
   ______ Master’s Degree
   ______ Doctoral Degree

6. EFFECTIVE DATE OF CHANGE:  Summer 2012*
   *Summer 2012 contingent on BOR approval of the new SDSU Institutional Graduation Requirements

7. IF A NAME CHANGE IS PROPOSED, THIS WILL OCCUR:
   ______ on the effective date for all students
   ______ on the effective date for students new to the program
   (enrolled students will graduate from existing program)
8. PRIMARY ASPECTS OF THE MODIFICATION:

<table>
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<tr>
<th>Pre</th>
<th>Num</th>
<th>Title</th>
<th>Cr Hrs</th>
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Program Form #3  updated AAC 02/2009
### Course Listing

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<td>CEE 311</td>
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<td>CEE 464</td>
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<td>CEE 456</td>
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<td>CEE 482</td>
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### Total Hours

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<tr>
<td>130</td>
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### Total Number of Hours

<table>
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<th>Total Number of Hours for Major, Minor, or Specialization</th>
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<tbody>
<tr>
<td>Total Number of Hours for Degree</td>
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</table>

### Explanation of the Change:

All SDSU engineering bachelor degree programs have been instructed by BOR to reduce degree requirements to 130 semester hours. Additionally, changes in national program accreditation criteria (Accreditation Board for Engineering and Technology (ABET), and American Society of Civil Engineers (ASCE)), require that the CE program consider changes in the distribution of course topics at this time.

The CE program proposes the following changes:

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*Program Form #3* updated AAC 02/2009
1. The series of Engineering Design Graphics courses (GE121, 122, 123) will be replaced by one three hour course at the sophomore level taught within the department of Civil and Environmental Engineering. The GE Design Graphics series is taught from a very historical perspective with 2/3 of the series content requiring students to complete hand drawn graphic projections. The 1/3 of the series which make use of computer aided drafting only introduces Civil Engineering software products used in the Civil Engineering profession. The course series does not address the needs of the Civil Engineering industry constituents or the needs of the CE program students in their program of study or their careers. The proposed course will provide a deeper introduction to and application of Civil 3D Computer Aided drafting within practical project experiences for the Civil Engineering profession. This course will address the three dimensional computer aided experience expected within the CE professional community for accreditation and for employment.

2. As part of the program hours reduction from 136 to 130 hours, the CE program proposes to delete the CSC 150 Computer Science course (3 hrs) as well as the program Applied Elective (2 hrs). The CE program has substantial computer application experience built into many of the program required and technical elective courses. The elimination of the CSC 150 and the Applied Elective will not affect our national accreditation as these hours were listed in the “other” category in our previous ABET reviews.

3. The current GE101 Introduction to Engineering and Technology course (1 hr) will be replaced with a new GE109-109L course (2 hr) which will meet the specifications of the SDSU Institutional Graduation Requirements (IGR 1) goal for first year experiences. A submission for the approval of the New GE109-109L course is being prepared by the College of Engineering.

4. SDSUs current IGR2 and IGR3 are being eliminated by the university.

5. The national Program Criteria for Civil and Similarly Named Engineering Programs promulgated and approved for the accreditation cycles beginning Fall of 2011 state the following as one of their requirements: “The program must prepare graduates to apply knowledge of mathematics through differential equations, calculus-based physics, chemistry, and at least one additional area of basic science, consistent with the program educational objectives.” (The italics are emphasis for this report.)

The wording was changed this year to add the word “basic.” Prior to this year the CE program had met this accreditation specification with our CEE340/340L course in Engineering Geology. The 300 level course taught within the CEE program has a substantial amount of applied science (engineering) course material. Additionally, the course has substantial course prerequisites taken by the students during their first two years of study. For these two reasons, the course is considered by ABET and ASCE to be an additional area of science, but not an additional area of “basic science.” The CE program proposes to include a list of department approved basic science courses outside of the department taken mostly from the SDSU SGR 6 basic science course list that the students can use to choose an additional basic science course to meet this national accreditation specification.
The initial approved list will include the following courses:

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<td>231/231L</td>
<td>General Microbiology and Laboratory</td>
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<td>Soils and Laboratory</td>
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<td>131/131L</td>
<td>Physical Geography: Weather and Climate and Laboratory</td>
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<td>132/132L</td>
<td>Physical Geography: Natural Landscapes and Laboratory</td>
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</table>

6. The current CEE 225 course, Principles of Environmental Science and Engineering, meets the current SDSU IGR 1 specifications. The department has submitted a request to have the CEE 225 course accepted as meeting the new SDSU IGR 2 specifications.

Laurie Stenberg Nichols  
Institutional Authorization (President or Designee)  10-11-11