SOUTH DAKOTA BOARD OF REGENTS
New Course Request

Institution | SDSU
Division/Department | Mechanical Engineering
Institutional Approval Signature | Laurie Stenberg Nichols
Date | 1/22/2013

Section 1. Course Title and Description

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<th>Prefix &amp; No.</th>
<th>Course Title</th>
<th>Credits</th>
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<td>ME 416/516</td>
<td>Renewable Energy Systems</td>
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Course Description: Students will learn to apply the principles of energy conversion, energy conservation, and value engineering to the analysis of energy conversion systems, renewable energy generation equipment and systems. Students will become familiar with energy consumption requirements for conventional systems and the applications of renewable energy systems to provide alternative energy sources. Energy efficiency and global environmental sustainability are emphasized. A background in basic thermodynamics is assumed.

Pre-requisites: ME 311 or ME 314 or PHYS 341 - undergraduates only

Section 2. Review of Course

Will this be a common or unique course? (select the appropriate option below)

X This course will be a unique course. (Go to Section 3.)

Section 3. Other Course Information

1. Are there instructional staffing impacts?
   
   X No, schedule management. Explain: This is a technical elective course, previously offered as special topics. It will be offered in rotation with other technical electives with no net change in staffing required.

2. Existing program in which course will be offered:
   Mechanical Engineering

3. Proposed instructional method: R (Lecture)
   Provide a brief justification: The class will be 3 contact hours per week, primarily lecture..

4. Proposed primary delivery: 001 (Face to Face Term Based Instruction )

5. Term in which change will be effective: Fall 2013

6. Can this course be repeated for additional credit? No
7. Will the grade for this course be limited to S/U (pass/fail)?  x No

8. Will section enrollments be capped?  x Yes, maximum per section  25 (15 undergrad, 10 grad)

9. Will this course be equated (i.e. considered the same course for degree completion) with any other unique or common course in the course database?  x Yes  x No

10. Is this prefix already approved for your university?  x Yes  x No

Section 4. To be completed by Academic Affairs

1. University department code: SME

2. Proposed CIP code: 141901

Is this a new CIP code for this university?  x Yes  x No
NEW COURSE REQUEST
Supporting Justification for On-Campus Review

Michael Twedt          Michael Twedt          8/31/12
Request Originator      Signature               Date

Kurt Bassett           Kurt Bassett          9/12/12
Department Chair       Signature               Date

Lewis Brown            Lewis Brown           9/12/12
School/College Dean    Signature               Date

1. Provide specific reasons for the proposal of this course and explain how the changes enhance the curriculum.

This course is one of the core courses for the Sustainable Energy Systems minor which was approved in 2011. The course has previously been offered as a Special Topics course to support the minor. The course needs to be made permanent to be an ongoing offering as a technical elective and as a core course for the minor. As new energy technologies are developed, the emphasis has shifted to renewable sources and systems. It is increasingly important for engineers to have a basic understanding of these technologies if they wish to pursue careers in energy efficiency and sustainability. This course provides the basic background in these technologies that are now treated only peripherally in the core curriculum of the Mechanical Engineering B.S.

2. Note whether this course is:

   _______ Required    _______ Elective

3. In addition to the major/program in which this course is offered, what other majors/programs will be affected by this course?

   This course is available to students in other science/technical disciplines who have completed a course in basic thermodynamics. Students from B.S. and M.S. programs in ABE and EE are most likely to enroll.

4. If this will be a dual listed course, indicate how the distinction between the two levels will be made.

   Both undergraduate students and graduate students will attend the classes and labs and will need to successfully complete required assignments and coursework. Graduate students will be assigned separate exercises and projects requiring advanced analytical and reporting skills. These exercises will be used to evaluate graduate students differently from undergraduate students.

5. Desired section size 25 (15 undergrad, 10 grad)

6. Provide qualifications of faculty who will teach this course. List name(s), rank(s), and degree(s).

   Michael Twedt, Instructor, M.S.M.E, P.E.
   Stephen Gent, Assistant Professor, Ph.D.

7. Note whether adequate facilities are available and list any special equipment that will be needed for the course.

   Adequate facilities are available. No additional special equipment is required.

8. Note whether adequate library and media support are available for the course.
Adequate library and media support already exist.

9. Will the new course duplicate courses currently being offered on this campus?
   
   □ □ □ Yes  □ x □ □ No

   If yes, provide justification.

10. If this course may be offered for variable credit, explain how the amount of credit at each offering is to be determined.

    N/A

11. Add any additional comments that will aid in the evaluation of this request.

    None