Boise State University
Foundational Studies Program Course Application Form
Due to the Foundational Studies Program by August 19, 2011

After the Foundational Studies Program has approved a course, departments will continue through the regular department and college procedures. The approved course should be submitted to the University Curriculum Committee by October 1, 2011.

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Instructions:

1. Complete one form per course.
2. Attach this Foundational Studies Course Application Form to the back of the University Curriculum Committee “Request for Curriculum Action” form. Both forms should be submitted to the Foundational Studies Program Office by August 19, 2011.

Part I. Course Information

Course Number and Title: ENGR 100: Energy for Society

Type of Foundational Studies Course – (Choose One):

[ ] DLS (Disciplinary Lens – Social Science)
[ ] DLL (Disciplinary Lens – Literature and Humanities)
[ ] DLV (Disciplinary Lens – Visual and Performing Arts)
[ ] DLM (Disciplinary Lens – Mathematics)
[x] DLN (Disciplinary Lens – Natural, Physical, and Applied Sciences)
  Includes Lab: [ ] Yes [x] No
[ ] CID (Communication in the Discipline)
[ ] FF (Finishing Foundations)

Delivery Format(s) – (Check all that apply):

[x] Face to Face
[x] Fully Online
[ ] Hybrid
[ ] Concurrent Enrollment
[ ] Other (briefly describe):
Part II. Syllabus Statement

Boise State's Foundational Studies Program provides undergraduates with a broad-based education that spans the entire university experience. ENGR 100 satisfies 3 credits of the Foundational Studies Program's Disciplinary Lens – Natural, Physical and Applied Science requirements. It supports the following University Learning Outcomes, along with a variety of other course-specific goals.

ULO 8. Apply knowledge and methods characteristic of scientific inquiry to think critically about and solve theoretical and practical problems about physical structures and processes.

ENGR 100: Energy for Society is a general interest course having no prerequisite. A basic understanding of energy and how it has been put to use is developed to promote a better understanding of our present technological society with its energy, environmental, social, and political problems. Alternative as well as conventional energy solutions are considered. This course helps to achieve the goals of the Foundational Studies Program by focusing on the following course learning outcomes.

After successful completion of this course, you will be able to:

- Differentiate between accepted facts on energy, energy estimates, and energy opinions.
- Think critically about the theoretical and practical issues related to energy.
- Evaluate different forms of energy (electrical, solar, wind, petroleum) as they relate to cost in dollars and environmental impact.

Part III. Design for Accessibility

In the space below, briefly describe plans for providing access to course materials and activities (or equivalent alternatives) to all students in adherence with the Americans with Disabilities Act. Although these plans may vary from instructor to instructor, the descriptions provided below should be representative of intended departmental and instructor practices. (See example statements appended to this form.)

ENGR 100: Energy for Society: Materials utilized or distributed in class will also be posted on Blackboard, with sufficient resolution to allow magnification with fidelity. PowerPoints used in class lectures, insofar as they contain graphs or other visual representations of content, will be verbally described to students on an as-needed basis. We will add textual descriptions accessible by screen readers to images used on the course web site. Extra time on tests, oral examinations, or other accommodations will be provided to students as needed per the policies of the Disability Resource center.
Part IV. Evidence of Quality Course Design

Please use the table below (column headings for this table should not be changed) to provide evidence that the course has been carefully designed and is clearly aligned with Foundational Studies Program desired ULOs. All sections of the course should share similar student learning outcomes. Teaching and Learning Activities and Assessment Methods may vary from instructor to instructor. Please use the table to report representative strategies that may be used. Assessment activities used for reporting to the Foundational Studies Program should be consistent across different sections of the course.

Please see below.
Boise State University  
Foundational Studies Course  
Spring 2014

Course Number and Title: ENGR 100: Energy for Society

**Course Design Table**

<table>
<thead>
<tr>
<th>Foundation ULO 8 Criteria</th>
<th>Foundation ULO 8 Notions of Exemplary Work</th>
<th>Course Learning Outcomes: By the end of this course, each student should be able to...</th>
<th>Assessment Method: Evidence of Student Learning</th>
<th>Planned Teaching &amp; Learning Activities / Pedagogy</th>
</tr>
</thead>
</table>
| ULO 8.1: Process of Inquiry and Analysis in Response to Evidence or Observation | * Skillfully and thoroughly formulates a research question or testable hypothesis.  
* Constructs a model to test evidence and observations  
* Skillfully uses model to either confirm existing explanations or formulate new hypotheses | Differentiate between accepted facts on energy, energy estimates, and energy opinions. | * Assignment: Comment on quotations from the various publications.  
* Develop a rubric to assess such an assignment, using (for example) a four-point scale. Apply to one or two assignments completed by all students in class; analyze results. | Example: Comment on the quotation ... “the more energy-efficient a technology grows, the faster it metastasizes and finds new applications.”  
Or  
“The more efficient they grew, the more of them we built, and the more we used them – and the more energy they consumed overall.”  
Both of these quotes are from “The Bottomless Well” by P. W. Huber and M. P. Mills, 2005 |
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| **ULO 8.3:** Communication of Scientific and/or Technological Understandings | * Produces clear, accurate, well-organized written and oral communications about scientific and technological understandings  
* Use of scientific language, representational tools, and notation covered in the course is skillful. | Think critically about the theoretical and practical issues related to energy. | * Assignment: Comment in writing on the implications of using a particular form of energy conversion.  
* Develop a rubric to assess such an assignment, using (for example) a four-point scale. Apply to one or two assignments completed by all students in class; analyze results. | Example: Comment in writing on the implications of using a solar concentrator to drive a heat engine to generate electricity to heat a home as compared with using the same solar concentrator to directly heat a home located in Boise, Idaho. |
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<tbody>
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<td>ULO 8.4: Understanding of interactions of science and technology with humans and environment</td>
<td>* Skillfully assesses the potential connection of scientific and/or technological developments to humans and the environment * Able to articulate possible implications of these relationships</td>
<td>Evaluate different forms of energy (electrical, solar, wind, petroleum) as they relate to cost in dollars and environmental impact.</td>
<td>* Assignment suitable for homework, in class assignment, quiz or exam question: Ask students to explain in a paragraph the extraction, manufacturing, operating, environmental impact (to include greenhouse gases and water consumption), and cost per kw-hr of a given form of energy conversion. * Develop appropriate rubric; apply to one or two assignments completed by all students in class; analyze results.</td>
<td>Example: Characterize the extraction, manufacturing, operating, environmental impact (to include greenhouse gases and water consumption), and cost per kw-hr associated with a natural gas powered peaking generator operated by Idaho Power.</td>
</tr>
</tbody>
</table>

5-16-2013

Foundational Studies Program Director Signature

Date