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 departmental and college procedures. The approved course should be submitted to the University Curriculum Committee by October 1, 2011.

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: **ECE 480-2 Senior Design**

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)

[ ] DLN (Disciplinary Lens – Natural, Physical and Applied Sciences)

Includes Lab [ ] Y [ ] N

[ ] CID (Communication in the Discipline)

[ ] FF (Finishing Foundations)

Delivery Format(s) - (check all that apply):

[ ] Face to Face [ ] Fully Online [ ] Hybrid

[ ] Concurrent Enrollment [ ] Other (briefly describe):

Part II. Syllabus Statement

In the space below, include the syllabus statement for this course which will appear on the first page of the syllabus for each section of this course. (Template and examples are appended to this application form.) Attach additional pages if needed.

**Boise State's Foundational Studies Program provides undergraduates with a broad-based education that spans the entire university experience. ECE 480-2 Senior Design satisfies 3 credits of the Foundational Studies Program Finishing Foundations requirements. It supports**
the following University Learning Outcome, along with a variety of other course-specific goals:

- Critical Inquiry (ULO 3)
- Innovation (ULO 4)

ECE 480-2 Senior Design provides a culminating capstone experience for senior Electrical and Computer Engineering majors. The course provides students the opportunity to demonstrate technical competence in the principles and practice of electrical engineering in individual and team projects. The team projects also allow students to exhibit interpersonal and organizational skills that will contribute to their overall professional success. The senior design series also encourages students to practice electrical engineering using the highest standards of ethical and professional responsibility and to strive for continuous professional development by improving knowledge and skills appropriate to each chosen career path and by managing increasingly complex contemporary issues, products, and systems. 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:

- plan a design project within a specified time and a specified budget
- write and present a technical design report
- search on patents and write them
- ethically judge situations that might arise in work place
- write a professional resume and conduct a job interview
- learn about statistical process control
- define a project based on an understanding of the customer’s needs
- set objectives for the project requirement specifications and constraints or requirements
- evaluate alternative strategies for achieving the objectives
- outline a specific strategy with a plan of action by listing tasks and priorities, scheduling tasks, and assigning responsibilities
- conduct a scientific literature search from several sources
- work in a team environment
- identify risk factors and know how to manage them
- write and present a mini-proposal

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.) Attach additional pages if needed.

All posted PDF reading assignments will be checked for readability by a screen reader. The Department may also seek the assistance of Academic Technologies in reviewing electronic materials. Whenever possible, videos chosen for use in the course will be those that have been close-captioned by the content producer to provide access to students with hearing impairment. PowerPoint presentations that contain graphs or other visual content should be referenced and explained in text; these items may also be verbally described to students on an
as-needed basis. Extra time on tests, oral examinations, or other accommodations will be provided to students as needed per the policies of the Disability Resource Center. In addition, web content will adhere to U.S. Federal Government Section 508 Guidelines and follow priorities 1 & 2 of the W3C Web Content Accessibility Guidelines. All static pages validate as HTML 4.01 Transitional.

Part IV. Evidence of Quality Course Design

Attach a separate document including a table like the one below. (A link to the Word template that allows rows to be adjusted as needed may be found at: Course Design Table. Column headings for this table should not be changed.) The purpose of the table is 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.

See attached document, ECE 480-2 Course Design Table

Part V. Additional Justification (optional)

If the brief justification provided to the University Curriculum Committee in the proposal to accompany the “Request for Curriculum Action” is not sufficient to make the case for including the course in the Foundational Studies Program, additional (optional) narrative can be added here.

N/A

Electronically signed by Vicki S fle, 
Director, Foundational Studies Program
Boise State University

Certified for approval with revisions as indicated below. 10/2/2011

Foundational Studies Program, Director

Date
# Boise State University
## Foundational Studies Course
### Fall 2011

**Course Number and Title:** ECE 480-2 *Senior Design*

## Course Design Table

<table>
<thead>
<tr>
<th>Foundational Studies ULO Criteria and Notions of Exemplary Work</th>
<th>Course Learning Outcomes</th>
<th>Assessment Method: Evidence of Student Learning</th>
<th>Planned Teaching and Learning Activities/Pedagogy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>These are drawn from the appropriate rubric for the ULO supported by the course.</strong></td>
<td>&quot;By the end of this course, each student should be able to...&quot;</td>
<td>How will the outcomes be assessed in the course? (Note key assessments to be used for reporting student learning outcomes.)</td>
<td>What kind of activities will be used to support students' success on the planned assessments?</td>
</tr>
<tr>
<td>Articulating the Problem/Question/Issue (ULO 3a)</td>
<td>Identify and describe problems and explain how it fits within the sphere of inquiry; describe multiple possible approaches to addressing problems.</td>
<td>Students conduct research that integrates previous design work with design theory and methodology. They then write a report and present their findings to their peers.</td>
<td>Group activities designed to aid students in the discovery of contemporary issues in electrical engineering. Group project that integrates specifications based upon customer and engineering requirements, computer modeling, simulation, and reliability analysis.</td>
</tr>
<tr>
<td><strong>Writes effectively: sources (ULO 1.d)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collecting and Organizing Evidence/Data/Reasons (ULO 3b)</td>
<td>Adhere to and clearly explain best practices with respect to thoroughness and accuracy of data collection.</td>
<td>Student teams work with industry sponsors to evaluate and design a project within the parameters specified by sponsors. Project update presentations occur regularly throughout the semester.</td>
<td>Project reports, formal presentations, and a final written report.</td>
</tr>
<tr>
<td><strong>Making contributions/addressing a need/solving problems (ULO 1.a,b)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluative Reasoning (ULO 3c)</td>
<td>Accurately diagnose failures of reasoning and clearly distinguish reasoning quality according to evaluative standards specific to Electrical and Computer Engineering.</td>
<td>Students observe, evaluate, and report on the reports of fellow students and invited guests. Reports are assessed according to content (including thesis support, organization, and accuracy), quality reasoning, effectiveness of presentation, and mechanics.</td>
<td>Learning teams use CRAAP test activity used to help evaluate the timeliness, depth, importance, source, reliability, and possible biases of information.</td>
</tr>
<tr>
<td><strong>Write effectively: purpose, conventions, mechanics, genre, rhetorical situation (ULO 1.a,c,f,g,h)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comment [VS1]:** Appears to articulate to ULO 1. Please verify/revise if necessary. Formatted: Highlight

**Comment [VS2]:** Appears to be either a Teamwork ULO (4b) or an Innovation ULO (4a) I have inserted criteria that seem logical to me. Can you please verify/revise as necessary? Formatted: Highlight

**Comment [VS3]:** Is this an oral presentation? If so, this would be connected to ULO 2. I have indicated ULO 1 based on the assessment discussed below. Formatted: Highlight
### Demonstrative Reasoning

**ULO 3d**

Make effective use of evidence and principles to produce chains of reasoning that are of superior quality.

| project requirement | Team projects examine constraint requirements, evaluate alternative strategies for achieving objectives, and require students formulate a specific strategy with a plan of action by listing tasks and priorities, scheduling tasks, and assigning responsibilities. | Participation in activities, attendance of seminars, and participation in workshops that develop skills used in the engineering profession: teamwork, effective meetings, safety, ethics, project management, and time management. |

---

**Boise State University**

**Foundational Studies Review Committee: Course Application Evaluation Form**

**Fall 2011**

---

**Course Information**

<table>
<thead>
<tr>
<th>Course Number and Title: ECE 482 – Senior Design Project II</th>
<th>Number of Credits: 3</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Type of Foundational Studies Course (choose one)</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ DLS (Disciplinary Lens – Social Science)</td>
</tr>
<tr>
<td>☐ DLL (Disciplinary Lens – Literature and Humanities)</td>
</tr>
<tr>
<td>☐ DLM (Disciplinary Lens – Math)</td>
</tr>
<tr>
<td>☐ DLN (Disciplinary Lens – Natural, Physical and Applied Science)</td>
</tr>
<tr>
<td>☐ CID (Communication in the Discipline)</td>
</tr>
<tr>
<td>☐ FF (Finishing Foundations)</td>
</tr>
</tbody>
</table>

**Review Committee Checklist**

- See below. Syllabus Statement - statement introduces the student to the purpose and role of the course in the Foundational Studies Program curriculum.

- _x_ An appropriate number of Course Learning Outcomes are specified for the course and are clearly designed to support the Foundational Studies Program ULOs. See comments below.

- _x_ Course Learning Outcomes are appropriately designed for level of the course and address both content mastery and skill-based outcomes.

- _x_ The types and numbers of assessments planned for the course are appropriate for measuring the content or skills being assessed.
Course learning activities are likely to promote the achievement of the stated outcomes.

Course design and materials have considered best practices for accessibility to course materials and ideas by all students (e.g., alternatives to auditory and visual content).

Feedback from Review Committee:

The syllabus statement does not explain how the course will meet the needed ULO 1 or 2. Also, the committee recommends that the syllabus statement explicitly write out ULO 1, ULO 3 and ULO 4. That is, an actual statement of what each ULO is. For example, ULO 1: write effectively in multiple contexts for a variety of audiences.

The course design table does not identify what ULO each row addresses, and what subcategory of the ULO as well. For example, ULO1 – Write effectively: Voice, should be explicitly in column 1. The review committee cannot tell how many and which ULOs are being addressed by the table.

Judging from the catalog description and from one of the committee members experience in engineering, the course appears to be a genuine capstone course that could certainly meet the appropriate university learning outcomes for a finishing foundations course. The course has been taught before and is already routinely assessed for engineering accreditation purposes.

There is a mistake in the course number and title. From the catalog, the course is either 480 or 482 and is called Senior Design Project I or Senior Design Project II. It is unclear from the provided document which course is to be used to meet this requirement – is it one or the other, or both? Only one is needed (e.g. ECE 482).

The syllabus statement seems to be a list of what has been on the syllabus in the past. How do those stated (bulleted) items fit into the university ULOs? For example, a syllabus statement might specifically address the required ULOs as follows:

"By the end of this course, each student will be able to:

1. ULO 1: Write effectively in multiple contexts, for a variety of audiences. After successful completion of this course you will be able to:
   - write and present a technical design report
   - search on patents and write them
write a professional resume and conduct a job interview
write and present a mini-proposal

(2) ULO 2: Etc.

The committee notes that not all the bulleted items currently on the bulleted list in the syllabus statement may naturally fit into the Finishing Foundations first four ULO criteria, which is fine. For example, “ethically judge situations that might arise in workplace,” fits under ULO 5. The finishing foundations courses are not required to meet any ULOs other than 1 or 2 and 3 and 4. It is optional whether that information is included in this proposal.

Overall – it seems that some attention was paid to thinking about how the course meets the intent of the finishing foundations course, but the connections to the syllabus statement – the closing of the loop in terms of what the professor is doing and what the student sees (the syllabus statement) has not been done.

For your reference, we have highlighted the section in the FFN description that is the basis for these suggestion(s):


“Finishing Foundations 400 (FF 400) courses are capstone courses (1-3 credits) taught in each department at the University. FF400 courses support University Learning Outcomes (ULOs) 3 and 4, as well as either ULO 1 or 2; that is, they teach students to “engage in effective critical inquiry” and to “think creatively about complex problems … often as one member of a team,” as well as either to “write effectively in multiple contexts for a variety of audiences” or to “communicate effectively in speech.” Many FF400 courses incorporate interdisciplinary research, team teaching, and community-based projects. Capstone courses at most universities are typically intended to provide students with opportunities to bring all their disciplinary knowledge and skills to bear on important real-world issues.

FF400 courses are part of a comprehensive plan for written and oral communication at Boise State, a plan that includes English 101 and 102, a CID course, and a Finishing Foundations (capstone) course, as well as opportunities across a student’s career to learn, practice, and use communication skills for many purposes and audiences.”

Feedback from Foundational Studies