Washington State University  
School of EECS  
Electrical Engineering Course Assessment Report

Course Number  EE 120  
Course Title  Electrical Engineering Laboratory  
Semester Offered  Spring 2006  
Instructor  Wells  
10th Day Enrollment 62  Number Completing Successfully (C grade or better) 59

I. Assessment Outcomes from the Course Syllabus

X (A) Ability to apply knowledge of mathematics, science and engineering.  
X (B) Ability to design and conduct experiments as well as analyze and interpret data.  
X (C) Ability to design a system, component, or process to meet desired needs.  
X (D) Ability to function on multidisciplinary teams.  
X (E) Ability to identify, formulate, and solve engineering problems.  
X (F) An understanding of professional and ethical responsibility.  
X (G) Ability to communicate effectively in written and oral formats.  
X (H) A broad education necessary to understand the impact of engineering solutions in global, economic, and societal context.  
(I) Recognize the need for, and have the ability to engage in life long learning.  
(J) Have a broad education and knowledge of contemporary issues.  
(K) Ability to use techniques, skills and modern engineering tools necessary for engineering practices.

II. List of Course Topics from the Course Syllabus

1. Introduction –What is Engineering, Engineering Disciplines  
2. Engineering Design  
3. Engineering Problem Solving Techniques  
4. Teamwork  
5. Beam Breaking project  
6. Energy Conservation project  
7. Electronic Timer project  
8. Technical Communication  
9. Robotics project  
10. Ethics
### III. Course Assessment Summary Table: one row of the table should be devoted to each of the checked outcomes in part I.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Topics</th>
<th>Specific Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Ability to apply knowledge of mathematics, science and engineering.</td>
<td>5,6,7</td>
<td>Group projects require applying basic math and science concepts and formulas</td>
</tr>
<tr>
<td>(B) Ability to design and conduct experiments as well as analyze and interpret data</td>
<td>5,6,7</td>
<td>Group projects are experiments related to civil, mechanical, &amp; electrical engineering</td>
</tr>
<tr>
<td>(C) Ability to design a system, component, or process to meet desired needs.</td>
<td>2, 9</td>
<td>Groups are taught the design process and are required to design a robot to perform a certain task</td>
</tr>
<tr>
<td>(D) Ability to function on multidisciplinary teams.</td>
<td>4,5,6,7,9</td>
<td>Groups are a combination of civil, electrical, mechanical, &amp; bioengineering students</td>
</tr>
<tr>
<td>(E) Ability to identify, formulate, and solve engineering problems</td>
<td>3,5,6,7,9</td>
<td>Group reports require an understanding of basic concepts, laws, and methods</td>
</tr>
<tr>
<td>(F) An understanding of professional and ethical responsibility.</td>
<td>10</td>
<td>Ethical dilemmas are discussed, such as product liability and placing safety as paramount</td>
</tr>
<tr>
<td>(G) Ability to communicate effectively in written and oral formats.</td>
<td>5,6,7,8,9</td>
<td>Written group reports, individual assignments and a group poster are submitted</td>
</tr>
<tr>
<td>(H) A broad education necessary to understand the impact of engineering solutions in global, economic, and societal context.</td>
<td>1</td>
<td>Homework assignments related to lectures by other faculty members in other engineering disciplines, and relevant topics in engineering.</td>
</tr>
</tbody>
</table>

### IV. Using the table as a guide, for each outcome summarize your evaluation of the students’ achievement of that outcome; cite student performance on the identified measures as evidence to support your conclusions.

**ABET Criterion A**
Understand basic engineering concepts related to civil, electrical and mechanical engineering. Group reports contained calculations and a description of basic science and math concepts used in engineering.

**ABET Criterion B**
Conduct experiments that illustrate how to use basic engineering concepts related to civil, electrical and mechanical engineering and to analyze and interpret data. Group reports are illustrations on how these experiments were conducted.

**ABET Criterion C**
Design a robot to meet specified criteria. Groups used the design process to perform the given task. Assessment was determined by the robot’s performance. Overall, every group accomplished the given task in the allotted time.
ABET Criterion D
Function on multi-disciplinary teams for course projects. Groups had a combination of undergraduate students in biological, civil, mechanical, and electrical engineering.

ABET Criterion E
Apply the design process on engineering projects. The robots project required the students to brainstorm and select a reasonable solution in accomplishing a task. Overall performance was satisfactory under the time constraints.

ABET Criterion F
Understand professional and ethical responsibility through lecture and discussion. Video tape on product liability was shown followed by class discussion. No assessment was given.

ABET Criterion G
Effectively communicate through written project reports. All group reports and posters were to be self-explanatory. Overall, students did a good job communicating their procedures and results.

ABET Criterion H
Study the variety of engineering professions in terms of what they do, option areas, job functions, etc. Attendance is taken and homework assignments given to require students to listen to faculty from other engineering disciplines. Students were encouraged to attend student engineering professional societies, but weren’t assessed. Homework #4 required students to read current topics in civil, mechanical, and electrical engineering. Homework #7 related to learning about an engineering society they were interested in.
V. Qualitative Assessment of Student Performance: using the arguments above and other data support the claim that students who completed this course with a grade of C or better have achieved each of the intended outcomes of this course.

Group projects and homework assignments demonstrated that the students did achieve the desired outcomes of competency for ABET Criterion (A) through (E), (G) & (H). ABET Criterion (F) wasn’t assessed.

VI. Concerns: state any concerns you may hold about this class – were the students adequately prepared coming into it? Are there topics or outcomes where (some) students were weak after completing the course? Other concerns? Were there any comments on students’ course evaluations that should be addressed in future instances of the course? This section is very important for improving our program: it provides critical input to the curriculum committee for identifying areas requiring attention.

No concerns

Signature ___________________________________________ Date: _____________________________

Please email a copy of the completed form to Patricia Arnold, patricia@eeecs.wsu.edu and deliver a signed hardcopy to her mailbox.