A. Brief Introductory Statement:

Please review the Introductory Statement and contact information for your department displayed on the assessment site: http://www.weber.edu/portfolio/departments.html - if this information is current, please indicate as much. No further information is needed. We will indicate “Last Reviewed: [current date]” on the page.

If the information is not current, please provide an update:

WSU offers a BS degree in Electronics Engineering. The Electronics Engineering Program is housed in the Department of Engineering, which was formed July 1, 2011 as part of a reorganization in the College of Applied Science and Technology. The Electronics Engineering program was approved by the Utah State Board of Regents spring 2010. As of November 15, 2012, the program had 203 declared majors. The program produced its first group of graduates in the 2011-2012 academic year. One student graduated in December 2011, and seven students graduated in April 2012.

Because the Electronics Engineering program is new, the assessment plan was designed and initially implemented during the 2011-2012 academic year. We are seeking EAC (Engineering Accreditation Commission) ABET accreditation, so the assessment plan was specifically designed to satisfy ABET requirements.

The Electronics Engineering program had its initial ABET on-site visit fall semester 2012. The visiting team reported two weaknesses and one concern, all of which are straightforward to address and remedy. Responses to these findings that state how the weaknesses and concern will be remedied will be submitted to ABET in February 2013. Accreditation of the Electronics Engineering program is anticipated July 2013.
B. Mission Statement
Please review the Mission Statement for your department displayed on the assessment site: http://www.weber.edu/portfolio/departments.html - if it is current, please indicate as much; we will mark the web page as “Last Reviewed [current date]”. No further information is needed.
If the information is not current, please provide an update:

The mission statement is current as of Nov. 15, 2012.
C. Student Learning Outcomes
Please review the Student Learning Outcomes for your department displayed on the assessment site: http://www.weber.edu/portfolio/departments.html - if they are current, please indicate as much; we will mark the web page as “Last Reviewed [current date]”. No further information is needed.
If they are not current, please provide an update:

The student learning outcomes are current as of November 15, 2012.
D. Curriculum
Please review the Curriculum Grid for your department displayed on the assessment site:
http://www.weber.edu/portfolio/departments.html - if it is current, please indicate as much; we will mark the web page as “Last Reviewed: [current data]”. No further information is needed.
If the curriculum grid is not current, please provide an update:

The curriculum grid is current as of November 15, 2012.

E. Assessment Plan
Please review the Assessment Plan for your department displayed on the assessment site:
http://www.weber.edu/portfolio/departments.html - if the plan current, please indicate as much; we will mark the web page as “Last Reviewed [current date]”. No further information is needed.
If the plan is not current, please provide an update:

The site should contain an up-to-date assessment plan with planning going out a minimum of three years beyond the current year. Please review the plan displayed for your department at the above site. The plan should include a list of courses from which data will be gathered and the schedule, as well as an overview of the assessment strategy the department is using (for example, portfolios, or a combination of Chi assessment data and student survey information, or industry certification exams, etc.).

The assessment plan consists of three instruments for assessing student learning outcomes:

1. Graduate survey
2. Course rubrics
3. Internship employer survey

These instruments are briefly summarized below.
**Graduate Survey**

The graduate survey, administered to students in the spring semester of their senior year, consists of eleven questions. Each question pertains, respectively, to each of the eleven student learning outcomes defined by ABET. The questions ask the students to rate the importance of and their preparation for each student learning outcome. Using a five-point scale, the difference between the importance and preparation scores, \((I - P)\), is calculated for each outcome. The expected level of attainment is -1 to +1. A result outside this range triggers action by the faculty.

During the on-site accreditation visit, the ABET evaluators reported that a survey that asks students to rate the importance of the ABET student learning outcomes is largely irrelevant since the ABET outcomes are established and imposed by ABET and are therefore not subject to evaluation by students. The evaluators reported this problem as a program weakness. We will submit an official response to this weakness in February 2013. We anticipate significantly modifying the survey or replacing it with a more direct assessment instrument.

**Course Rubrics**

The course rubric is an instrument that articulates the expectations for student performance. The three elements of the course rubric are:

1. Dimensions (performance indicators)
2. Scale (levels of performance)
3. Descriptors (descriptions of the levels of performance)

Each course has its own unique rubric that measures students' performance with respect to specific learning outcomes. As an example, the course rubric for EE 2260 Fundamentals of Electric Circuits is shown below.
Each Electronics Engineering course has a unique rubric that specifically addresses the ABET student learning outcomes indicated by an “H” (highly applicable) in the curriculum grid. Each time the course is taught, the instructor of the course completes the rubric. Through the continuous use of these rubrics, direct program assessment at the course level is an ongoing process that provides a measurable means of program improvement.

**Internship Employer Survey**

The internship employer survey is administered to employers of student interns each time EE 3890 is taught. The internship employer survey is the same instrument as the graduate survey. Here again, the ABET evaluators reported that the importance of ABET student learning outcomes are not subject to evaluation. We anticipate either modifying this survey, removing the “importance” component of the questions, or designing a different instrument altogether. In any case, we will submit our plan to ABET in February 2013.
F. Report of assessment results for the most previous academic year:

The following table summarizes the assessment process and the results for the 2011-2012 academic year.

<table>
<thead>
<tr>
<th>Assessment Instrument</th>
<th>Frequency of Application</th>
<th>Expected Level of Attainment</th>
<th>Summary of Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Survey</td>
<td>Annually (spring)</td>
<td>(-1 &lt; (I - P) &lt; +1)</td>
<td>-0.25 &lt; (I - P) &lt; 0.63</td>
</tr>
<tr>
<td>Course Rubrics</td>
<td>Each time the course is taught</td>
<td>(S = 3) or (4) (course level)</td>
<td>(S = 1: 1) (1.0%) (S = 2: 25) (23.8%) (S = 3: 71) (67.6%) (S = 4: 8) (7.6%) (2.0 &lt; (I - P) &lt; 4.0) (program level) (2.3 &lt; X &lt; 3.1)</td>
</tr>
<tr>
<td>Internship Employer</td>
<td>Each time EE 3890 is taught</td>
<td>(-1 &lt; (I - P) &lt; +1)</td>
<td>(-0.43 &lt; (I - P) &lt; 0.71)</td>
</tr>
</tbody>
</table>

The quantities I and P are the importance and preparation scores, respectively, for each student learning outcome. The quantity S is a performance indicator (PI) score that is given by the instructor at the conclusion of the course. The quantity X is a mean value of PI scores for a given course. If \(S = 1\) or \(2\), the instructor of the course takes action to bolster the course for that PI. If \(X\) is less than 2.0, the program faculty take action at the department level.

As shown in the table above, 24.8 percent of performance indicators received a score of 1 or 2, which means that one-fourth of the performance indicators in the program require attention by individual faculty. The EE faculty are currently taking measures to strengthen their courses for the performance indicators with scores of 1 or 2. The mean scores, however, indicate that department level action is not required at this time.
### G. Summary of Artifact Collection Procedure

<table>
<thead>
<tr>
<th>Artifact</th>
<th>Learning Outcomes Measured</th>
<th>When/How Collected?</th>
<th>Where Stored?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Survey</td>
<td>ABET student learning outcomes (a) through (k)</td>
<td>Near end of senior year. Department secretary distributes and collects surveys.</td>
<td>Department chair’s files</td>
</tr>
<tr>
<td>Course Rubrics</td>
<td>ABET student learning outcomes (a) through (k) designated as “H” (highly applicable). See curriculum grid in Section D.</td>
<td>At the conclusion of the course. Instructors score the rubrics and submit the spreadsheets to the department chair.</td>
<td>Electronic version: Department chair’s computer. Hard copy: ABET binders in office mail room.</td>
</tr>
<tr>
<td>Internship Employer Survey</td>
<td>ABET student learning outcomes (a) through (k)</td>
<td>Each time EE 3890 is taught. Surveys are sent/retrieved to/from employers via email by department chair or instructor of EE 3890.</td>
<td>Department chair’s files</td>
</tr>
</tbody>
</table>
Please respond to the following questions.

1) Reflecting on this year’s assessment(s), how does the evidence of student learning impact your faculty’s confidence in the program being reviewed; how does that analysis change when compared with previous assessment evidence?

To answer this question, compare evidence from prior years to the evidence from the current year. Discuss trends of evidence that increases your confidence in the strengths of the program. Also discuss trends of concern (e.g. students struggling to achieve particular student outcomes).

The Electronics Engineering program has been in existence for only two years, and the assessment program was instituted in the second year (2011-2012). Hence, no comparison can be made from prior years. However, during the on-site ABET visit, the evaluators reported that the Electronics Engineering program is strong in the respect that it is fully supported by faculty and staff and is very student centered. The initial assessment of student learning, feedback from our industrial advisory board and the ABET on-site evaluation gives us confidence that the program is well designed, meets the needs of the engineering industry and will be accredited by ABET July 2013.

2) With whom did you share the results of the year’s assessment efforts?

Assessment results were submitted to EAC (Engineering Accreditation Commission) of ABET. The Electronics Engineering program is seeking its initial ABET accreditation. The self study report was submitted to ABET July 1, 2012, and ABET conducted an on-site accreditation visit September 23-25, 2012. We anticipate accreditation by ABET July 2013.

Assessment results were also communicated to our industrial advisory board during the fall 2012 meeting. The board is pleased with our progress and did not recommend any program changes.

3) Based on your program’s assessment findings, what subsequent action will your program take?

During the ABET on-site visit, the evaluators reported three findings--two weaknesses and one concern:

Weaknesses:
1. The survey instrument used to measure student learning outcomes is ineffective in the respect that students are not in a position to rate the importance of ABET-defined learning outcomes.
2. There is little or no evidence that engineering applications of probability and statistics are taught in the program.

Concern:

1. As the program grows, it must have sufficient faculty and staff to support it.

Actions:

We believe that the course rubric assessment instrument is an effective tool, so we plan to continue using it. The graduate and internship employer surveys need to replaced or modified to address the weakness reported by ABET. The EE faculty are considering either replacing the survey tool altogether or significantly modifying it.

For all findings, we will submit an official response to ABET in February 2013.

For weakness 1, we anticipate replacing this survey with a more direct assessment instrument. For weakness 2, we are meeting the Mathematics Department to discuss how to integrate engineering applications into Math 3410. For the concern, we have two faculty positions open, one tenure-track to replace a retiring faculty member and one visiting professor to fill in for a faculty member who will be on sabbatical leave during the 2013-2014 academic year.