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**3**

**31**

**The SEM specific Student Outcomes are covered in the three courses listed below included as degree requirements in the SEM dual major program. The courses where assessment is performed are indicated with an asterisk (\*). Outcome (a) is assessed in SEM 21, and outcome (b) is assessed in SEM 22. F**

### 331

**Final assessment of the two SEM student outcomes was conducted during the 2020-2021 academic year using direct measures such as course projects and assignments.**

**In addition to direct assessment measures, the student outcomes (a) and (b) were indirectly assessed through a senior exit survey. Senior exit surveys are conducted every year in the spring term. The indirect assessment data used in the 2020-2021 report was collected after the end of the corresponding assessment year.**

### 332

**At the beginning of the assessment cycle, an assessment plan was generated by the Assessment Coordinator in consultation with the Assessment Handbook. The plan includes the outcomes to be assessed during the particular assessment cycle, as well as the courses and terms in which these outcomes are to be assessed.**

**The SEM assessment process uses assignments and projects in SEM courses specifically to assess programmatic student outcomes. These assignments are assessed based on rubrics created by Oregon Tech SEM faculty. A systematic, rubric-based process is used to assess the level of attainment of a given program outcome, based on a set of performance criteria. The work produced by each student is evaluated according to the different performance criteria, and assigned a level of 1-developing, 2-accomplished, or 3-exemplary. The results for each outcome are then summarized in a table and reviewed by the faculty at the annual Closing the Loop meeting. The acceptable performance level is to have at least 80% of the students obtain a level of accomplished or exemplary in each of the performance criteria for any given**

**target level, and the evidence indicates that there is sufficient data and an adequate assessment methodology already in place, and therefore there is no reason to question the results obtained**

**If the faculty decide to take this last course of action and implement curriculum changes, the data from the direct assessments is analyzed and the faculty come up with a plan for continuous improvement, which specifies what changes will be implemented to the curriculum to improve outcome performance**

**In addition to direct assessment measures, indirect assessment of the student outcomes is performed on an annual basis through a senior exit survey**

**The results of the direct and indirect assessment, as well as the conclusions of the faculty discussion at the Closing the Loop meeting are included in the annual SEM Assessment Report, which is reviewed by the Department Chair and the Director of Assessment for the university. The suggested changes to the curriculum are presented and discussed with all the**

**Table(a)1 summarizes the results of this target classment. Table(a)1 summarizes the results of this target classment. The results indicate that the minimum acceptable performance level of 80% was not on all performance criteria for this program outcome, that is, 80% of students were able to apply systems engineering methods to practical problems involving core or non-engineering disciplines.**

<b>Outcome(a): ability to apply systems engineering methods to practical problems involving core or non-engineering disciplines</b>				
<b>Performance Criteria</b>	<b>1-Developing</b>	<b>2-Accomplished</b>	<b>3-Exemplary</b>	<b>%Students &gt;= 2</b>
<b>1- Knowledge</b>	<b>0</b>	<b>2</b>	<b>5</b>	<b>100%</b>
<b>2- Application</b>	<b>0</b>	<b>2</b>	<b>5</b>	<b>100%</b>

**335**





Date Presented

Term

Instructor: James Eastham

	1: Developing	2: Competent	3: Exemplary	Score
<u>Organization:</u>	<input type="checkbox"/> Missing outline <input type="checkbox"/> Missing summary <input type="checkbox"/> Does not follow organized pattern	<input type="checkbox"/> Well organized <input type="checkbox"/> Easy to follow <input type="checkbox"/> Contains outline <input type="checkbox"/> Contains summary <input type="checkbox"/> Follows clear logical pattern	<input type="checkbox"/> Competent plus additional organization methods	
<u>Problem Statement:</u>	<input type="checkbox"/> Poor/ Unclear problem statement <input type="checkbox"/> Poor/ Unclear why problem is important	<input type="checkbox"/> Good/ Clear Problem Statement OR Why problem is important	<input type="checkbox"/> Good/ Clear problem statement AND <input type="checkbox"/> Good/ Clear why problem is important	
<u>Hypothesis &amp; Method:</u>	<input type="checkbox"/> Poor hypothesis AND <input type="checkbox"/> Poor method followed to analyze problem	<input type="checkbox"/> Sound hypothesis OR clear method	<input type="checkbox"/> Sound hypothesis AND <input type="checkbox"/> Clear method followed to analyze problem	
<u>Problem Summary &amp; Analysis:</u>	<input type="checkbox"/> Attempts to discuss issues, but fails to recognize any of the key problems of the case	<input type="checkbox"/> Identifies one or more key problems. Provides only a superficial discussion of the problems with no discussion of relevant importance	<input type="checkbox"/> Identifies and thoroughly describes multiple problems; indicates relevant importance among the issues and explains why.	
<u>Decision Model Criteria &amp; Formation:</u>	<input type="checkbox"/> Limited research and documented links to model development	<input type="checkbox"/> Good research and links to cause learning in model development	<input type="checkbox"/> Excellent research into the issues with clearly documented links to model development	
<u>Data Driven Approach:</u>	<input type="checkbox"/> Lacks clear methods for data acquisition, criteria, analysis, model	<input type="checkbox"/> Some examples of how data was acquired for criteria, analysis, model	<input type="checkbox"/> Clear use of how data used to drive criteria, analysis, model	
<u>Connections: Theory and Practice:</u>	<input type="checkbox"/> Miles little or vague co-Pr			

**Date Presented**  
**Instructor: James Eastham**

**Term**

**Organization**

<b>1-Developing</b>	<b>2-Competent</b>	<b>3-Exemplary</b>	<b>Score</b>
<input type="checkbox"/> Does not follow organization	<input type="checkbox"/> Well organized		
<input checked="" type="checkbox"/> Organizational	<input type="checkbox"/> Easy to Enrich	<input type="checkbox"/>	<input type="checkbox"/>