

**Oregon Institute of Technology  
Computer Systems Engineering Technology Department  
Software Engineering Technology Program Assessment Plan  
2014-2015**

**I. Introduction**

The Software Engineering Technology (SET) program was implemented in Klamath Falls in 1984 and was initially accredited by TAC of ABET in 1991. The Portland program was established in Fall 1996 under the same accreditation and is currently located on the Wilsonville campus. The Associate degree was accredited by TAC of ABET in 2009. The program has continuously evolved as industrial changes have warranted.

**A. Enrollment**

Table 1.1 shows the number of students that have listed Software Engineering Technology (SET) as their major at the end of Week 4, Fall Term 2015.

Table 1.1 SET Enrollment Data Fall 2015

<b>Campus</b>	<b>Frosh</b>	<b>Soph</b>	<b>Junior</b>	<b>Senior</b>	<b>Master's</b>	<b>PostBacc</b>	<b>NonAdmit-UG</b>	<b>NonAdmit-G</b>	<b>Total</b>
Klamath	33	47	35	58	0	2	2	0	<b>177</b>
Wilsonville	9	19	27	55	0	20	1	0	<b>131</b>
<b>Totals</b>	<b>42</b>	<b>66</b>	<b>62</b>	<b>113</b>	<b>0</b>	<b>22</b>	<b>3</b>	<b>0</b>	<b>308</b>

**B. Employment**

Table 1.2 shows employment data for our 2015 graduates.

Table 1.2 SET Employment data

Engaged in full time employment	18
Enrolled in a program of continuing education	1
Looking for employment	11
Not looking for employment	1
Average Salary	\$66,000

**II. Mission, Objectives and Student Learning Outcomes**

On February 19, 2015, the software faculty met with our Industry Advisory Board and reviewed and approved its program mission, objectives and student learning outcomes. It was agreed that we would adopt ABET's learning outcomes as our Student Learning Outcomes instead of maintaining a separate list and have to show the correlation between the two lists. We continue to maintain ABET's learning outcomes as our Student Learning Outcomes.

The mission statement, objectives and program outcomes for the baccalaureate program are located on the OIT website at [www.oit.edu/provost/learningoutcomes/cset/swbs](http://www.oit.edu/provost/learningoutcomes/cset/swbs). The associate

program's mission statement, objectives and program outcomes are located at [www.oit.edu/provost/learningoutcomes/cset/swae](http://www.oit.edu/provost/learningoutcomes/cset/swae).

### **Bachelor Program Mission**

The mission of the Software Engineering Technology (SET) Bachelor's Degree program within the Computer Systems Engineering Technology (CSET) Department at Oregon Institute of Technology is to prepare our students for productive careers in industry and government by providing an excellent education incorporating industry-relevant, applied laboratory based instruction in both the theory and application of software engineering. The program is to serve a constituency consisting of our alumni, our employers, and our Industrial Advisory Board. Major components of the SET program's mission in the CSET Department are:

- I. To educate a new generation of Software Engineering Technology students to meet current and future industrial challenges and emerging software trends.
- II. To promote a sense of scholarship, leadership, and professional service among our graduates.
- III. To enable our students to create, develop, apply, and disseminate knowledge within the software development environment.
- IV. To expose our students to cross-disciplinary educational programs.
- V. To provide government and high tech industry employers with graduates in software engineering and related professions.

### **Bachelor Program Educational Objectives**

The Program Educational Objectives of OIT's Software Engineering Technology program are to produce graduates that:

- A. Use their knowledge of engineering to creatively and innovatively solve difficult computer systems problems.
- B. Regularly engage in exploring, learning and applying state-of-the-art hardware and software technologies to the solution of computer systems problems.
- C. Will be an effective software development team member that contributes innovative software design solutions to the resolution of business, scientific or government computer systems problems.
- D. Will communicate effectively and successfully, both individually and within multi-disciplinary teams.

### **Bachelor Program Student Learning Outcomes**

Software Engineering Technology baccalaureate graduates will have demonstrated:

- a. an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities;
- b. an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies;
- c. an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes;
- d. an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives;
- e. an ability to function effectively as a member or leader on a technical team;
- f. an ability to identify, analyze, and solve broadly-defined engineering technology problems;
- g. an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- h. an understanding of the need for and an ability to engage in self-directed continuing professional development;
- i. an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity;
- j. a knowledge of the impact of engineering technology solutions in a societal and global context; and
- k. a commitment to quality, timeliness, and continuous improvement.

### **Associate Program Mission**

The mission of the Software Engineering Technology (SET) Associate Degree program within the Computer Systems Engineering Technology (CSET) Department at Oregon Institute of Technology is to prepare our students for entry level careers in the software industry and government by providing applied laboratory based instruction. The program is to serve a constituency consisting of our alumni, our employers, and our Industrial Advisory Board. Major components of the SET program's mission in the CSET Department are:

- I. To provide a new generation of Software Engineering Technology students with a solid background in computer programming.

- II. To enable our students to create, develop and apply knowledge within a technical software environment.
- III. To provide government and high tech industry employers with entry level graduates in computer programming and related professions.

### **Associate Program Educational Objectives**

The Program Educational Objectives of OIT's Software Engineering Technology program are to produce graduates that:

- A. Assist in solving computer systems problems using their knowledge of computer programming.
- B. Regularly engage in learning and applying state-of-the-art hardware and software technologies to the solution of computer systems problems
- C. Will communicate effectively and successfully in the workplace.

### **Associate Program Outcomes**

Software Engineering Technology associates graduates will have demonstrated:

- a. an ability to apply the knowledge, techniques, skills, and modern tools of the discipline to narrowly defined engineering technology activities;
- b. an ability to apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require limited application of principles but extensive practical knowledge;
- c. an ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments;
- d. an ability to function effectively as a member of a technical team;
- e. an ability to identify, analyze, and solve narrowly defined engineering technology problems;
- f. an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- g. an understanding of the need for and an ability to engage in self-directed continuing professional development;

- h. an understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity; and
- i. a commitment to quality, timeliness, and continuous improvement.

### III. Three-Year Cycle for Assessment of Student Learning Outcomes

The department assesses the program educational objectives and student learning outcomes on a three-year cycle. During the six-year ABET cycle, the objectives and learning outcomes will thus be fully assessed twice.

All appropriate accreditation documents are housed on a SharePoint site maintained by the department. All department members have access to this site, but the documents are not viewable by the general public. The public can view the baccalaureate outcomes at [www.oit.edu/provost/learningoutcomes/cset/swbs](http://www.oit.edu/provost/learningoutcomes/cset/swbs) and the associate outcomes at [www.oit.edu/provost/learningoutcomes/cset/swbs](http://www.oit.edu/provost/learningoutcomes/cset/swbs).

#### Bachelor Degree Assessment Cycle

We changed Student Learning Outcomes mid-year. Since we started the year with the old outcomes, we finished this year with those same outcomes. Beginning next year, we will assess the new outcomes. Table 3-1 shows the plan for assessing our learning outcomes.

Table 3-1 Assessment plan for the new Student Learning Outcomes

#	Learning Outcome	2015-2016	2016-2017	2017-2018
a	an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities	X		
b	an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies		X	
c	an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes			X
d	an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives	X		
e	an ability to function effectively as a member or leader on a technical team	X		
f	an ability to identify, analyze, and solve broadly-defined engineering technology problems			X
g	an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature		X(I)	
h	an understanding of the need for and an ability to engage in self-directed continuing professional development		X(I)	
i	an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity	X(I)		
j	a knowledge of the impact of engineering technology solutions in a societal and global context			X
k	a commitment to quality, timeliness, and continuous improvement		X(I)	

## Associate Degree Assessment Cycle

Table 3-2 Assessment plan for the new Student Learning Outcomes

#	Learning Outcome	2015-2016	2016-2017	2017-2018
a	an ability to apply the knowledge, techniques, skills, and modern tools of the discipline to narrowly defined engineering technology activities	X		
b	an ability to apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require limited application of principles but extensive practical knowledge		X	
c	an ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments			X
d	an ability to function effectively as a member of a technical team	X		
e	an ability to identify, analyze, and solve narrowly defined engineering technology problems			X
f	an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature		X(I)	
g	an understanding of the need for and an ability to engage in self-directed continuing professional development		X(I)	
h	an understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity	X(I)		
i	a commitment to quality, timeliness, and continuous improvement		X(I)	

### IV. Summary of Assessment Activities

From the three years cycle matrix, the 2015-2016 outcomes are extracted, courses/instructors are chosen and specific assignments are given to assess the outcomes. Table 4.1 and 4.2 below outline the assignments for 2014-2015 for respectively Klamath Falls and Wilsonville campuses.

Klamath Falls:

Learning Outcome	Direct Assessment	Direct Assessment	Indirect Assessment
A) an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities	CST 326 Todd Breedlove Documentation developed winter quarter	CST 422 Calvin Caldwell Code as final deliverable for senior project	Senior Exit Survey Phil
D) an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives	CST 316 Todd Breedlove Design documentation	CST 412 Calvin Caldwell Use Cases, Object Model, and Dynamic Model documents	Senior Exit Survey Phil

I) an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity	ANTH 452 Globalization	CST 120	Senior Exit Survey Phil
K) a commitment to quality, timeliness, and continuous improvement	CST 336 Todd Breedlove Gant charts developed across all three quarters	CST 422 Calvin Caldwell Project plans developed and maintained throughout the quarter	Senior Exit Survey Phil

Wilsonville:

Wilsonville Assess 15-16	Direct 1	Direct 2	Indirect
A: an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities	CST 126 winter Database using pointer Assgnmnt#1 PE3 Phong	CST 422 Winter Senior Project Sherry	Senior Exit Survey Phil
D: an ability to design systems, components, or processes for broadly -defined engineering technology problems appropriate to program educational objectives	CST 130 Winter Grade Quiz on Logic Design Phong	CST 407** Fall Observe on Check-off and Hand-in work of Caesar Assignment Phong DONE	Senior Exit Survey Phil
I: an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity	CST 120 Spring Paper on Ethics Phong	CST 407** Fall Paper on Ethics Phong DONE	Senior Exit Survey Phil
K: a commitment to quality, timeliness, and continuous improvement	None. No need in lower level class	CST 432 Spring Senior Project Sherry	Senior Exit Survey Phil

\*\* Will become CYB 427 Crypto I when Dual in Cybersecurity begins.



## ASSESSMENT RESULTS

### Klamath Falls Campus

**A) an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities**

Rubric:

Category: A	4 Highly Proficient	3 Proficient	2 Some Proficiency	1 Limited or no Proficiency
Applies the knowledge, techniques, skills of Software Engineering Technology to broadly-defined engineering technology activities	Works independently to find and implement good solutions to technical problems	Can solve many technical problems, but their solutions are not always of highest quality	Has difficulty finding solutions to technical problems	Unable to solve many technical problems
Selects modern tools of Software Engineering Technology broadly-defined engineering technology activities	Were able to identify and use appropriate tools on their own	Required assistance in choosing tools but were able to learn and use them on their own	Required some assistance in both choosing and learning tools.	Highly dependent on others for tool choice and use

CST 326

Assessment method: Design documents and project reports were analyzed to determine the student's proficiency.

Criterion	Average	Meets	Does not meet
Applies Knowledge	3.0	20	9
Selects Tools	3.4	26	3

### Analysis and Actions

Too many students failed to meet the “applies knowledge” criterion. The rubric focused on problem solving ability, so this suggests we need to work on the problem solving ability of our students. Junior year contains many courses where students develop their problem solving skills. Next year we will re-asses this outcome at both the junior and senior levels: at the junior level to see if the problem is with this cohort of students or if it is systemic in our program. We will assess at the senior level to see if these students improved their problem solving ability over the course of their junior year.

CST 422

Assessment method: Design documents and project reports were analyzed to determine the student's proficiency.

Criterion	Average	Meets	Does not meet
Applies Knowledge	3.3	21	3
Selects Tools	3.3	20	4

Analysis and Actions

The majority of our students met these criteria. No action is required.

Exit Survey

Last year's graduating class responded to an exit survey. On one of the questions, the students were asked to rate their proficiency using quantitative/numerical to solve problems, evaluate claims, and support decisions. The results are as follows:

High proficiency	14
Proficiency	14
Some proficiency	1
No/limited proficiency	2

Based on these survey responses, our students meet this criterion. No action is required.

**D) an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives**

Rubric:

<b>Performance Criteria</b>	<b>High Proficiency (4)</b>	<b>Proficiency (3)</b>	<b>Developing Proficiency (2)</b>	<b>Limited/No Proficiency (1)</b>
Identify critical elements of the design	Identified at least 85% of the critical design elements.	Identified at least 75% of the critical design elements.	Identified at least 60% of the critical design elements.	Identified less than 60% of the critical design elements.
Create a detailed design specification addressing each of the identified critical design elements	The document is sufficiently complete and clear so that another developer could pick it up and	Some aspects of the document need additional clarification.	Major portions of the design are not sufficiently documented.	The design is poorly documented.

	complete the project.			
Generate a implementable solution for each of the identified critical design elements	Student has a reasonable chance of implementing the entire design within the project timeline with minimal changes to the design.	There are some aspects of the design that may need to be reworked or re-scoped for the project to be completed.	Project design requires significant rework in order to be implementable.	Project can't be implemented as designed.

### CST 316

Assessment activity: Design documents developed over throughout the course were analyzed to determine if students meet the criteria.

Criteria	Average	Meets	Does not meet
Identify critical elements	2.7	5	2
Design Spec.	2.9	4	3
Generate implementable solution	2.9	4	3

Note: This class is group based and this assessment was applied to groups rather than individuals.

Analysis and activity:

Too many of our student failed to meet the criteria. We suspect that the underlying problem is problem solving – the same as identified by our (A) outcome assessment. Our action is the same as for the (A) outcome: we will assess again next year to see if the junior year problem solving activities improved our students skills in this area.

### CST 412

Assessment activity: Documents developed over throughout the course were analyzed to determine if students meet the criteria.

Criteria	Average	Meets	Does not meet
Identify critical elements	3.3	20	4
Design Spec.	3.3	20	4
Generate implementable solution	3.3	20	4

Analysis and action: Most of our students met the criteria, so no action is required.

## Exit Survey

Last year's graduating class responded to an exit survey. On one of the questions, the students were asked to rate their proficiency using quantitative/numerical to solve problems, evaluate claims, and support decisions. The results are as follows:

High proficiency	14
Proficiency	14
Some proficiency	1
No/limited proficiency	2

Based on these survey responses, our students meet this criterion. No action is required.

### **I) an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity**

We did not receive any data from the ANTH 452 course on the performance of our students in this area. The other class we planned on assessing in was CST 120. This was not done for the following reasons:

1. This was a new course this year. We put all our effort into making the course as profitable for students as possible in its start-up year, and thus we did not take the time to do an assessment suitable for this outcome (we focused on near-term program objectives instead of this program-wide objective).
2. Since this is a freshmen class, the data obtained from a program-wide assessment in this class would not be reflective of the final outcomes for our students. We plan to move assessment of this outcome to another course.

## Exit Survey

Last year's graduating class responded to an exit survey. One question asked the students to rate their proficiency in making ethical judgments. Another asked students to rate their proficiency in understanding diverse perspectives. The results are as follows:

Category	High proficiency	Proficiency	Some proficiency	No/Limited proficiency
Make ethical judgments	18	8	4	1
Understand diverse perspectives	10	16	3	2

While the data say that our students meet this criterion, there is room for improvement. The new essential studies program that will begin implementation next year should address these issues. Instead of making program changes based on this survey, we will wait and see the impact of the essential studies program.

### **K) a commitment to quality, timeliness, and continuous improvement**

Rubric:

Category: K	4 Highly Proficient	3 Proficient	2 Some Proficiency	1 Limited or no Proficiency
a commitment to quality	Self motivated to only submit work of highest quality	Self motivated to only submit their best work, even if their best is not of highest quality	Student submits low quality work, but wants to improve	Doesn't seem bothered by submitting low quality work
a commitment to timeliness	Consistently meets deadlines	Meets most deadlines and works hard even if they can't meet a specific deadline	Consistently misses deadlines but knows they need to do better	Consistently misses deadlines and isn't bothered by that.

CST 326

Assessment activity: Gant charts used to plan and chart progress throughout the year were analyzed to determine if the students met the criteria.

Criterion	Average	Meets	Does not meet
Commitment to Quality	3.1	21	8
Commitment to Timeliness	2.9	22	7

Analysis and Action: Too many of our students failed to meet the criteria. Next year, a greater emphasis will be placed on the importance of both quality and timeliness beginning in fall quarter of our junior project sequence.

CST 422

Assessment activity: Project plans used to plan and chart progress throughout the year were analyzed to determine if the students met the criteria.

Criterion	Average	Meets	Does not meet
Commitment to Quality	3.3	20	4
Commitment to Timeliness	3.2	18	6

Analysis and Action: Although a majority of our students met these criteria, for this particular outcome, we feel the percentage that meet should be higher. As a result, next fall at the beginning of the senior project course sequence we will place more emphasis on the importance of both quality and timeliness.

## Wilsonville Campus

ABET A: an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities

Direct Assessment- Data Collection Date: Winter 2016

Coordinator: Phong Nguyen

Assessment Method: Laboratory exercise-Use pointer to create a database to add, edit, delete, display stock and exit program. Stock items include names, company and prices. 11 students in CST 126 C++ II class were assessed.

A summary of the grades is provided below.

### SUMMARY

Numbers provided are percentages out of 11 students

	High Proficiency	Proficiency	Some Proficiency	Limited or no Proficiency	% Highly Proficient or Proficient
Knowledge	4	4	1	2	73
Techniques	6	3	0	2	82
Skills	8	1	0	2	82
Tools	7	2	0	2	82

Evaluation (1/26/2016): Out of 11 students

Other than “knowledge”, around 80% of 11 students achieved proficiency or high proficiency. “Knowledge” had a 73% proficient or high proficient. The assignment is based on a detailed database that requires programming skills required of a student who has completed an introductory course in C++ as well as newly learned skills in pointers. There are two students who simply cannot complete the program despite over two to three hours of extra instruction by the instructor and other tutors. Given this result, the assessment succeeded in showing whether or not students have retained prior course knowledge and skills to further succeed in programming.

Follow-up: two students who are unable to complete have decided to drop the course. The instructor will keep track of whether they will retake the course or drop the program altogether

CST 422

Assessment method: The students are asked to conduct a usability test of their senior project.

Note: The Wilsonville campus used a different rubric

	High Proficiency	Proficiency	Some Proficiency	Limited or no Proficiency	% Highly Proficient or Proficient

Knowledge	12	2	3	0	82
Techniques	10	4	3	0	82
Skills	10	4	3	0	82
Tools	NA	NA	NA	NA	NA

### Analysis and Actions

Most students understood the goal of the activity and conducted the usability testing correctly (82% proficiency). There are not major concerns with anyone not be able to apply what's required. A few students were not as thorough and thus produced questionable results. No action is required.

### **ABET D: an ability to design systems, components, or processes for broadly defined engineering technology problems appropriate to program educational objectives**

Direct Assessment- Data Collection Date: Winter 2016  
 Coordinator: Phong Nguyen

Assessment Method: Students in CST 130 are given an assembly program to write. The program involves inputting two numbers and depending on the values of the numbers, output the sum or product of the two numbers.

#### SUMMARY

Numbers provided are percentages out of 18 students

Performance Criteria	Limited or No Proficiency	Some Proficiency	Proficiency	High Proficiency	% Proficient or Highly Proficient
Used all appropriate semantics of MARIE		1	8	9	94
Used correct SKIPCOND and JUMP instructions to affect "if" and "while"		2	9	7	89
Understand where to place instructions and data			5	13	100

Evaluation (3/18/2016): Out of 18 students, over 89% achieved proficiency or high proficiency. MARIE is an introductory pedagogic architecture. As such its assembly language programming is informative at this level, freshman/second quarter. As students move on to an actual assembly class, MIPS architecture and assembly are used. Given this assessment, the process is working.

Follow-up: No need to change the assessment.

ABET D: an ability to design systems, components, or processes for broadly -defined engineering technology problems appropriate to program educational objectives

Direct Assessment- Data Collection Date: Fall 2015  
 Coordinator: Phong Nguyen

Assessment Method: Students in CST 407/ CYB 417 (Class is also for Proposed Dual in Cybersecurity) were given a design problem involving the design and test of a C++ or C# program to implement the encryption, decryption and cryptanalysis of the Caesar cryptosystem. The total number of students in this assessment is 20. A summary of the grades is provided below.

**SUMMARY**

Numbers provided are percentages out of 20 students

Performance Criteria	Limited or No Proficiency	Some Proficiency	Proficiency	High Proficiency	% Proficient or Highly Proficient
Design the C++ or C# Caesar Encryption Program		1	14	5	95
Design the C++ or C# Caesar Decryption Program		1	12	7	95
Design the C++ or C# program that performs the cryptanalysis of a block of Caesar ciphertext		3	15	2	85

Evaluation (10/30/2015): Out of 20 students, over 85% achieved proficiency or high proficiency. CSET students at this level re expected to program at a high proficiency. They proved that is this assignment. One noticeable fact emerges in that this assignment was given to 6 students in Wilssonville and 14 in Klamath. The success rate was equal in both campuses.

Follow-up: No need to change the assessment. Will present it to a freshman level class to see the difference.

**ABET I: an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity**

Direct Assessment- Data Collection Date: Fall 2015  
 Coordinator: Phong Nguyen



Assessment Method: Students in CST 407/ CYB 417 (Class is also for Proposed Dual in Cybersecurity) were also given a scenario containing an ethical problem and asked to evaluate the ethical issues, parties involved, analyze possible approaches, and choose and discuss an approach. The student papers were graded by Professor Nguyen using the OIT Ethics rubric and the following scale: Limited or No proficiency, Some Proficiency, Proficiency and High Proficiency. The total number of students in this assessment is 20. A summary of the grades is provided below.

### SUMMARY

Numbers provided are percentages out of 20 students

Performance Criteria	Limited or No Proficiency	Some Proficiency	Proficiency	High Proficiency	% Proficient or Highly Proficient
Using a code of ethics, describes the issue(s)	0	4	12	4	80
Describes the parties involved and discusses their points of view	0	6	12	2	70
Describes and analyzes possible / alternative approaches	0	2	13	5	90
Chooses an approach and explains the benefits and risks	0	2	14	4	90

Evaluation (10/15/2015): Out of 20 students, 12 had seen ethics problems in CST 102/105. Overall grades showed that students took the scenario seriously since it is framed in a class on cryptography where ethic issues are real-world problems presented weekly on the news. As a result, nearly every students achieved proficient or highly proficient grades. The scenario was later discussed as a re-enactment of the Walker spy case. Students expressed great interest in the case and their own work on the scenario.

Follow-up: No need to change the assessment. Will present it to a freshman level class to see the difference.

## Closing the loop from previous assessments

Many changes have happened since the last time we were in this assessment cycle.

1. As a department, we changed our program student learning outcomes
2. As a university, we changed from ISLOs to ESLOs
3. As a department, we changed what courses we assess and the rubrics we use to do the assessment.

Because of these changes, it is difficult to draw conclusions based on longitudinal data from previous assessments. Some of the changes we made will streamline the assessment process thus making it possible to assess some outcomes more often. So although we can't meaningfully close the loop from previous assessments, we feel that we are in a better position to make program improvements going forward.

### **Summary of plans moving forward**

On the Klamath Falls campus, we intend to reassess Outcomes A and D next year to determine if the course work and projects students encounter during their junior year address the problem solving short comings we detected in this round of assessments. If not, we will have to address problem solving during the first two years of our curriculum.

On the Klamath Falls campus, we also need to reassess Outcome I because we did not collect sufficient data this year.

## **Appendix A**

### **Course Mapping Matrices**

Next year we anticipate the university switching to a new essential studies program. The assignment of courses to Essential Student Learning Outcomes will have to be re-evaluated based on that new program. Instead of placing a matrix here showing the mapping, we will wait until next fall so that we can align with the new essential studies program once it is finalized.