

Student Learning Outcomes Assessment Summary

AAS, PROCESS TECHNOLOGY

Community and Technical College

AY 2012/13-2013/14

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1. Assessment information collected

Note: "Test Results" reflect aggregated data from several test questions selected during each semester, reflecting the individual SLOA topic. Target is to have at least 75% of class reach the desired outcome. Individual topic observations are included in the discussion session.

Note: "Skill Observation" on capstone courses reflect instructor observation of overall class performance on specific activities.

a. SLOA 1: Safety Awareness

i. Test Results from PRT 130

1. 2013 Final Exam – 85% correct on 6 tracked questions
2. 2014 Final Exam – 83% correct on 5 tracked questions

ii. Skill Observation from PRT 231 (capstone course)

1. 2014 Student Procedure Project: Student-developed procedures met the goal of addressing safety awareness in important areas of proper PPE, LOTO procedures, SDS, and safety systems.

b. SLOA 2: Operating Procedures

i. Skill Observation from PRT 231 (capstone course)

1. 2014 Student Procedure Project: Student-developed procedures met the industry-standard goals of clarity, proper sequence, required authorizations, and completeness. Students successfully executed their procedures, then completed peer reviews and necessary revisions.

ii. Skill Observation from PRT 250 (capstone course)

1. 2014 Start-Up procedures for process simulator. Students successfully followed the proper procedures, per simulator manufacturer.

c. SLOA 3: Records of Process Events

i. Test Results from PRT 255 - % of class to reach desired outcomes:

Final Exam PRT 255	2012	2013
Basic: ID data tools (5 questions)	96.8%	98.4%
Higher level: Interpret data (3 questions)	73.4%	86.9%

Note: some changes in classwork implemented in 2013 – scores improved.

d. SLOA 4: Read and Interpret Piping & Instrumentation Drawings (P&ID's)

i. Completion scores on PRT 101 P&ID training book

1. 2013 Fall: 94% of all students who completed the class received 85% or higher on completion of the PID training book.

ii. Test Results from PRT 230 - % of class to reach desired outcomes:

Final Exam PRT 230	2012	2013
Basic – identification, configuration	79.9% (7 questions)	69.4% (2 questions)
High level - interpretation	62.2% (4 questions)	73.1% (3 questions)

Note: fewer questions tracked in 2013; results on the two tracked questions are similar to those on the same questions in 2012.

iii. Test Results from PRT 140

1. 2013 Final Exam – 81.4% met outcomes on 6 tracked questions
2. 2014 Final Exam – 86.0% met outcomes on 5 tracked questions

e. SLOA 5: Equipment Knowledge

i. Test Results from PRT 130:

1. 2013 Final Exam: 70.3% correct 3 tracked questions
2. 2014 Final Exam: 55.7% correct on 2 tracked questions (fewer questions tracked in 2014)

2. Conclusions drawn from the information summarized above

- a. SLOA 1: Safety Awareness
 - i. Test results show that student learning outcomes were met in safety awareness areas. Material is adequately covered. Note that there is always value in increasing safety awareness discussions, we will continue to build that.
- b. SLOA 2: Operating Procedures
 - i. Skill Observation implemented in 2014 – students have been successfully demonstrating the required skills.
- c. SLOA 3: Records of Process Events
 - i. PRT 255: See note re: changes made in 2013 class – showed an improvement in students' skills in data analysis. Continue developing class materials to improve these skills.
- d. SLOA 4: Read and Interpret Piping & Instrumentation Drawings (P&ID's)
 - i. PRT 230: Reworked some class activities in 2013; most of the 2012 activities were new, or done in different order, to add more work with PID's. Qualitative observation from 2013 class was that PID drawing skills were more sophisticated than in the past; but test question tracking didn't match this. Data tracking for SLOA's should be standardized from year-to-year.
- e. SLOA 5: Equipment Knowledge
 - i. We had some concerns about student performance in equipment identification questions. The course has a large amount of material to memorize; students seem overwhelmed with the volume of it. Note that questions tracked on tests were previously provided as homework problems, and on tests earlier in the semester (possibly a studying issue?). Material appears to be covered sufficiently in class. See notes below about focusing the SLO.

3. Curricular changes resulting from conclusions drawn above

- a. PRT 255: In 2013, expanded class sessions dealing with data recording tools, rescheduled the final class meeting to provide more follow-up time; adding more homework to address the graphing question. Qualitative observation: many students struggle with plotting data over time frame – add more problems to work in 2014.
- b. Select questions to use in PRT 110 for safety awareness tracking; pass on to adjuncts as well as faculty-taught classes.
- c. Most core courses are under continual development – new in-class activities added to reinforce skills. More skill observations planned. This process will continue.
- d. Plan for next year: focus on identifying specific SLO for equipment knowledge and P&ID fluency in some of the core courses to focus the classwork and streamline the assessment process.

- e. Note from previous SLOA report: Most recommendations were implemented, included in course work this year. Appears successful.
 - i. Emphasizing the use of process drawings and safety practices – SLOA shows strong coverage of this material in classes.
 - ii. Writing – homework is graded on writing skills, to an extent. Writing of procedures in capstone classes; essays in some of the elective classes
 - iii. Startup/shutdown – new skills observations, procedures writing exercises. SLOA shows solid coverage of this material in classes.
 - iv. Mock interviews/career services: PRT held several workshops with UAF Career Services, Jackie Debevec, and BP, to help students work on resumes. Faculty did mock interviews with students to help prepare for internship/job interviews. We plan to continue working with the student Operators' Club on these types of activities.
 - v. SLOA assessments to be shared with students – We have had discussions with students about the importance of skills taught in the classes, rather than simply memorizing information.
- 4. Identify the faculty members involved in reaching the conclusions drawn above and agreeing upon the curricular changes resulting**
- a. Brian Ellingson, Assistant Professor, Program Coordinator
 - b. Robert Hook, Assistant Professor
 - c. Teresa Lantz, Assistant Professor