Colorado State University – Pueblo Academic Program Assessment Report for AY 2013-2014   **Due: June 2, 2014**

Program: Bachelor of Science in Civil Engineering Technology (BSCET) __   **Date:** ___May 31, 2014____

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Please complete this form for each undergraduate, minor, certificate, and graduate program (e.g., B.A., B.S., M.S.) in your department. Please copy any addenda (e.g., rubrics) and paste them in this document, and submit it to the dean of your college/school as per the deadline established. The dean will forward it to me as an email attachment before June 2, 2014. You'll also find the form at the assessment website at http://www.colostate-pueblo.edu/Assessment/ResultsAndReports/Pages/default.aspx.

Listed below are the CET student learning objectives:

Generic Engineering Technology student learning outcomes: Students who complete the CET program at CSU-Pueblo will have the ability to:

a. apply knowledge, techniques, skills, and tools of the civil engineering discipline to engineering technology activities,
b. select and apply a knowledge of mathematics, science, engineering, and technology to civil engineering technology problems,
c. conduct standard tests and measurements; analyze and interpret experimental data; and apply experimental results to improve processes,
d. design systems, components, or processes for civil engineering technology problems,
e. function effectively as a members or leaders on a technical team,
f. identify, analyze, and solve broadly-defined engineering technology problems,
g. communicate effectively regarding subjects related to engineering technology activities,
h. demonstrate a disposition to engage in self-directed continuing professional development,
i. demonstrate an understanding of professional and ethical responsibilities,
j. demonstrate an understanding of the impact of engineering technology solutions to society, and
k. demonstrate commitment to quality, timeliness, and continuous improvement.

Civil Engineering Technology Student learning outcomes: In order to enable graduates to attain the CET program educational objectives, CET students are trained to acquire specific skills and the ability to:

A. utilize principles and appropriate technology to produce drawings, reports, quantity estimates, and other documents related to civil engineering;
B. conduct standardized field and laboratory tests related to civil engineering;
C. utilize surveying methods and equipment to perform land measurement or construction layout;
D. apply fundamental computational methods and elementary analytical techniques to solve civil engineering technology problems.
E. plan and prepare documents appropriate for design and construction;
F. perform economic analyses and cost estimates related to design, construction, operations and maintenance of systems associated with civil engineering;
G. select appropriate engineering materials and practices; and
H. perform standard analysis and design of elements for structures, hydraulic and hydrologic systems, construction operations, and transportation systems.

Please describe the 2013-2014 assessment activities for the program in Part I. Use Column H to describe improvements planned for 2014-2015 based on the assessment process. In Part II, please describe activities engaged in during 2013-2014 designed to close-the-loop (improve the program) based on assessment activities and the information gathered in 2012-2013. Thank you.

I. Program student learning outcomes (SLOs) assessed in this cycle, processes, results, and recommendations.

A. Which of the program SLOs were assessed during this cycle? **Please include the outcome(s) verbatim from the assessment plan.** Please indicate the semester and year.	B. When was this SLO last assessed?	C. What method was used for assessing the SLO? **Please include a copy of any rubrics used in the assessment process.**	D. Who was assessed? Please fully describe the student group(s) and the number of students or artifacts involved.	E. What is the expected achievement level and how many or what proportion of students should be at it?	F. What were the results of the assessment?	G. What were the department's conclusions about student performance?	H. What changes/improvements to the program are planned based on this assessment?
b. Select and apply knowledge of mathematics, science, engineering, and technology to civil engineering technology problems.	Fall 2013 and spring 2014	Tests and semester exams	Students enrolled in Engineering Mechanics (CET 202 Statics, CET 222 Dynamics and CET 206 Strength of Materials of)	Seventy -five (75) percent of students achieve an overall score of 70% in each of the three courses.	Only 42% of students in CET 202, 40% of students in CET 206, and 57% of students in CET 222 achieved scores of 70% or better in the respective classes.	Expectations NOT attained in statics, strength of materials and in dynamics.	Review current pre-requisites, determine if change is required, and implement the necessary changes to help students perform better in engineering mechanics.
c. Conduct standard tests and measurements; analyze and interpret experimental data; and apply experimental results to improve processes.	Spring 2014	Evaluate lab reports conducted during the semester	Students enrolled in CET 315 Soil Mechanics Technology	Seventy -five (75) percent of students achieve an overall score of 70% in each of the courses.	95% of all students achieved a score of 70% or better and preparing reports.	Expectations attained lab activities	
A. Utilize principles and	Fall 2013	Senior Design	Graduating	75% of all	75% of student	Expectation	Review this

appropriate technology to produce drawings, reports, quantity estimates, and other documents related to civil engineering.	and spring 2014	Project	Seniors	project teams select project construction materials to the satisfaction external reviewers	achieved a score of 70% or better	barely attained	course and identify improvement opportunities for this area of the program.
B. Conduct standardized field and laboratory tests related to civil engineering.	Spring 2014	Evaluate lab reports conducted during the semester	Students enrolled in CET 315 Soil Mechanics Technology	Seventy -five (75) percent of students achieve a score of 70%.	95% of students achieved a score of 70% or better in	Expectations attained lab activities	
C. Utilize surveying methods and equipment to perform land measurement or construction layout.	Fall 2013 and spring 2014	Course tests and semester exam	Students enrolled in surveying courses: CET 102 and CET 103	Seventy -five (75) percent of students achieve an overall score of 70% in each of the courses.	83.7% of student achieved a score of 70% or better	Expectations attained	Need to strengthen the application of trigonometry in this area.
D. Apply fundamental computational methods and elementary analytical techniques to solve civil engineering technology problems.	Fall 2013	Tests and End of semester exam for a computer applications in problem solving	CET students enrolled in the computer application class (CET 226)	75% of students demonstrate proficiency in M.S. Excel and ability to write simple computer programs using a selected system	About 83% of the student demonstrated proficiency in M.S. Excel and ability to write simple computer programs using a selected system	Expectation satisfied	Student exhibited problems with the math elements required to develop computer solutions. Therefore, it is recommended to monitor the Algebra background of student. Algebra is a pre-requisite to the computer

							course.
E. plan and prepare documents appropriate for design and construction;	Spring 2014	Senior Design Project	Graduating Seniors	75% of all project teams select project construction materials and methods and achieve a score 70% of better.	90 % of student achieved a score of 70% or better	Expectation attained	Review this course and identify improvement opportunities.

Comments: (a) Student outcomes for CET are listed in two sets. One set consists of outcomes (a) through (k); the second set comprises outcomes (A) through (H).
(b) This is Cycle #3 of 4 cycles that the CET program expects to complete the assessment of all student outcomes for the program

II. Follow-up (closing the loop) on results and activities from previous assessment cycles. In this section, please describe actions taken during this cycle that were based on, or implemented to address, the results of assessment from previous cycles.

A. What SLO(s) did you address? Please include the outcome(s) verbatim from the assessment plan.	B. When was this SLO last assessed? Please indicate the semester and year.	C. What were the recommendations for change from the previous assessment?	D. Were the recommendations for change acted upon? If not, why?	E. What were the results of the changes? If the changes were not effective, what are the next steps or the new recommendations?
a. Apply knowledge, techniques, skills, and tools of the civil engineering discipline to engineering technology activities.	Spring, 2013	Make sure student appropriate considerations for project cost.	Yes, the recommendations were acted upon. Students were explicitly required to make project cost estimates based on real-world costs	All project teams complete economic analyses and cost estimates for a senior project based on expected practice, including all of the key cost items.

Comments:

APPENDIX 1: CET Senior Project Oral Presentation Rubric

Student Learrning Outcome: 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.

Source of Evidence: Oral presentations of CET Senior Design Project (Held on April 26, 2013)

Program Expectations: At least 75% of project teams should receive a score of 15 or better on a scale of 20 points

	4-Outstanding	3-Acceptable	2-Developing	1 - Unacceptable
Presentation Materials **Score:** _____	• The presentation layout is neat and attractive, and is supported by graphics that are relevant to the discussion topic. • Presentation text is easily legible by the audience. • The graphics are easy to view or read, and help the audience to understand the material. • The presentation is free of grammatical mistakes and typographical errors.	• The presentation layout is neat and attractive, and is supported by graphics that are relevant to the discussion topic. • Most of the presentation text is easily legible by the audience. • Most of the graphics are easy to view, and help the audience to understand the material • The presentation has one or two grammatical mistakes or typographical errors.	• The presentation layout is slightly disorganized. • A significant number of graphics are not clear or not relevant to the topic. • Most of the text cannot be read by the audience • There are two or more grammatical mistakes or typographical errors in the presentation.	• The presentation layout is not organized • graphics are not relevant to the discussion topic. • Presentation text is not easily legible by the audience. • Graphics are hard to view • Presentation has many grammatical mistakes or typographical errors.
Technical Information **Score:** _____	• Appropriate level of relevant detail is provided to enable the audience to form independent opinion regarding the subject matter. • Presenters were well prepared to answer questions and to provide clarification on difficult parts of the material.	• Relevant detail is provided to enable the audience to form independent opinion regarding the subject matter. • Presenters adequately prepared to answer questions and clarify difficult parts of the material	• Presentation difficulty to understand due to occasional lack of adequate information or inordinately too much detail. • Presenters were marginally prepared and not able to answer questions about fundamental elements of the project.	• Presentation lacks the necessary technical detail and the audience cannot understand the technical aspects of the project. • Presenters did not answer expected questions.
Design Solution Score: _____	• The presenters provided a logical project design process. • Presenters clearly stated the design assumptions and governing constraints. • All design assumptions were appropriate. • Design alternatives were presented and the value of the selected design solution is apparent.	• The presenters provided a logical project design process. • Presenters stated the design assumptions and governing constraints. • Most design assumptions were appropriate. • Design alternatives were presented and the value of the selected design solution is supported.	• Presenters did not provide a consistent logical design process. • Presenters stated some design assumptions but did not articulate adequately support them. • Most design assumptions were not properly articulated. • The design alternatives presented did not merit consideration.	• The presentation does not provide a logical project design process. • Design assumptions and governing constraints not clearly stated. • No alternative design solutions were presented.
Interaction with Audience **Score:** _____	• The presenters drew interest from the audience and engaged the audience during the entire presentation period. • Presenters allowed the audience to ask questions	• The presenters drew interest from the audience and engaged the audience during most of the presentation period. • Presenters allowed the audience to ask questions	• The presenters lost the audience interest during a significant amount of time. • Presenters lost contact with audience during the presentation	• Presenters did not engage the audience. • Presenters did not allow the audience to ask questions
Professional Etiquette **Score:** _____	• Presenters were dressed well and appropriately for the occasion • Presenters were very considerate in there responses to questions. • Presentation was started and concluded within the expected time limits. • Presenters exhibited high level of team coordination.	• Presenters were dressed well and appropriately for the occasion. • Some presenters had body language or speech that could be improved. • Presentation conducted in a timely manner but had a rough start or end. • Presenters exhibited good team coordination.	• Presenters were dressed well and appropriately for the occasion. • Some presenters' body language or speech needs significant improvement. • Presenters exhibited unpreparedness and did not conclude within the expected time limit. • Evidence of lack of teamwork during the presentation.	• Presenters were not dressed well or appropriately for the occasion • Presenters were not considerate in their responses to questions. • The presentation was not completed within the expected time limits. • Presenters exhibited poor team coordination.
Total Score _____				

Name of evaluator: _____   Name person evaluated _____

Complete this assessment of participation for each participant including yourself.

	1	2	3	4	5	SCORE
Availability to Meet and Work with Team	Never	Only occasionally	Most meetings	Missed only one or two meetings	Never missed a meeting	
Willingness to Voluntarily Accept Assignments	Never	Rarely cooperative	Mostly cooperative	Most assignments	Missed only one or two deadlines	
Completed Assignments on Time	Never	Only occasionally	Most assignments	Missed only one or two deadlines	Never missed a deadline	
Quality of Completed Assignments	None or little completed	Many mistakes or omissions	Few mistakes or omissions	Only minor mistakes or omissions	Excellent	
Quantity of Work	None or little completed	Much less than other team members	Somewhat less than other team members	Same as other team members	More than other team members	
Collaboration and Leadership	None	Rarely offered suggestions or was willing to compromise	Reluctant to offer and/or consider suggestions	Offered suggestions and respected other opinions	Respected as team leader by others	

Total Score_____

What was the individual's primary contribution (s) to the project?

_____
_____
_____

What was the most significant problem your team encountered throughout the entire project (e.g. communications, schedule conflicts, personality

clashes)?_____

_____

Considering both *quality and quantity* of the individual's contribution, and based on a scale of **1** to **10**, what score do you think the individual has earned on this project?

Other comments on the performance of the person evaluated _____

_____