	What do the program faculty expect all students to know or be able to do as a result of completing this programetc.).		1. What artifacts of student learning will be used to determine if students have achieved thirtied8 (8 .16 7i.68 0.96 0.959.Q(r)1.6 (2t.2 (g)]TJ0 Tc 99.96 -))]TJ0 f9a41arnin8

	An ability to communicate effectively with a range of audiences.	CVNG 3020 Structural Analysis (R) CVNG 3140 Hydraulic Engineering (R) CVNG 4500 Capstone Design I (A) CVNG 4510 Capstone Design II (A)	CVNG 3020 – Final Project Oral Presentation and Report CVNG 3140 – Water Resources and Entrepreneurship Presentation CVNG 4500 – Capstone Preliminary Design Alternatives Project Presentation and Report CVNG 4510 – Capstone Final Design Project Presentation and Report	Same as above
	An ability to recognize ethical and professional responsibilities in civil engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	PHIL 3400 Engineering Ethics (I) CVNG 3040 Sustainability and Env. Eng. (I) CVNG 3120 Transportation Engineering Lab (R) CVNG 3140 Hydraulic Engineering Lab (R)	PHIL 3400 – Final overall grade CVNG 3040 –	

	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	CVNG 4500 Capstone Design I (D) CVNG 4510 Capstone Design II (R)	CVNG 4500 – Assignment on Design Criteria CVNG 4510 – Assignment on pursuit of external resources not typically taught in classes	Same as above
	An ability to design a system, component, or process in more than one civil engineering context (e.g. construction, environmental, geotechnical, structural, transportation, water resources).	CVNG 3110 Transportation Engineering (I/D) CVNG 3130 Hydraulic Engineering (I/D) CVNG 3150 Intro to Structural Design (I/D) CVNG 4510 Capstone Design I (A)	CVNG 3110 – Combined homework on pavement design and long-range transportation planning CVNG 3130 - Exam questions focused on culvert design CVNG 3150 - Exam questions focused on design of steel beams and columns CVNG 4510 – Capstone Final Design	Same as above
	An ability to explain basic concepts in management, business, public policy, and leadership.	CVNG 3040 Sustainability and Env. Eng. (I) CVNG 3070 Project Management (I/D)		

1. How and when will analyzed data be used by program

2. How and when will the program faculty evaluate the impact of assessment-informed changes made in previous years?

The continuous improvement approach will maintain a review cycle involving a long-term feedback loop occurring every three years, while other assessment, such as outcome achievement, will be evaluated on a one-year cycle. Thus, data for changes made to the curriculum will include three-year data sets each review cycle moving forward. Fig. 1(a) shows the general review cycle for student outcomes and Fig. 1(b) shows a linear representation from the assessment at the course level, through the independent faculty review of a student outcome as a whole, concluding with the plan of action implementation.

(a) (b)

Fig. 1—(a) General anncu-0 0 11.04 84.16.9 (315 0 T 012)0.001 Tw 0.902 (y)-7.5 (r)8.1 (e)-6a0.004 Tw 51

Dr. Carroll presented a sample of the CATME results from CVNG 3020 along with a draft rubric for teamwork loosely based on the AAC&U teamwork value rubric. The CATME results include scores in five different categories for each individual student along with peer comments.

- Two representative binders for Outcome 1 and Outcome 5 were presented to the Civil Engineering Program faculty. All student work used for assessment along with the actual assessment will be placed in each respective binder. The binder for each outcome will include a tab for each course from which the assessment was taken along with divisions for each academic year that materials were recorded and assessed. The outcome binders will be housed in the Civil Engineering Adjunct Office.

- The Civil Engineering Program faculty agreed to develop the rubrics for the assignments selected for assessment in their respective courses. The rubric development tasks are listed in Table 1. Dr. Luna volunteered to develop the General Written Communication rubric and Dr. Carroll volunteered to develop the Oral Communication rubric, both of which will be developed based on the corresponding AAC&U value rubrics. While those rubrics will be developed in their general form, they may need further modifications to align with a specific assignments in a specific course. Each capstone design advisor will complete the written communication rubric for their respective group and all faculty attending the Capstone presentations will complete the oral communication rubric for every group.

Adams	Carroll	Cox	Kianfar	Luna
Stoichiometry Assignment (1)	Virtual work exam question (1)	Backwater modeling final exam question (1)	Exam question on simple frames or machines (1)	Assignment on project management (9)
Water quality assignment (2)	Force method exam question (1)	Culvert design exam question (8)	Geometric roadway design assignment (1)	Project management exam question (9)
Term paper (4)	General Oral Communication (3)	Social justice presentation (4)	Pavement design & long-range trans. planning (8)	Hydraulic conductivity of soils lab (6)
Term paper (9)	General Teamwork (5)	Pump characteristics curves lab (6)	Eval. and assessment of corridor traffic imp. (2)	Consolidation lab with proj. mang. focus (9)
Total carbonate and non-carbonate lab (6)	Fiber-reinforced concrete project (6)		Transportation news project (4)	Capstone prelim. design alt. project report (2)
	Steel beam design exam question (8)			General Written Communication (3)
	Steel column design exam question (8)			Design criteria assignment (7)
	Reinforced concrete frame project (2)			Pursuit of external resources assignment (7)
				Capstone final design (8)

Note: number in parentheses corresponds to ABET outcome

CVNG 3040 – Sustainability and Environmental Engineering

Final exam question on water treatment plant claifier design

1 – Does not meet expectations	2 – Meets expectations	3 – Exceeds expectations
Dimensions of clarifier was calculated incorrectly or with significant math errors.	Dimensions of clarifier calculated using correct procedure with only very minor math or unit errors.	Dimensions of clarifier calculated correctly.
Calculation of critical settling velocity was calculated incorrectly or with significant math errors.	Calculation of critical settling velocity was correct with only very minor math or unit errors.	

CVNG 3040 – Sustainability and Environmental Engineering

Final Exam Question on Water Quality for Human Consumption

1 – Does not meet expectations	2 – Meets expectations	3 – Exceeds expectations
Water hardness fractions were calculated incorrectly or with significant math errors.	Water hardness fractions were calculated with only very minor math or unit errors.	Water hardness fractions were calculated correctly or with only very minor math or unit errors.
Dosages of soda ash and lime calculated incorrectly or with significant math errors.	Dosages of soda ash and lime were calculated with only very minor math or unit errors.	Dosages of soda ash and lime were calculated correctly or with only very minor math or unit errors.

CVNG 3120 – Transportation Engineering Lab

Evaluation and assessment of corridor traffic improvement lab

1 – Does not meet expectations	2 – Meets expectations	3 – Exceeds expectations
Students were able to propose, model, and evaluate three corridor traffic improvement alternatives		
Students selected the preferred		

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CVNG 3160 – Intro to Structural Design Lab
Reinforced Concrete Frame Project

1 – Does not meet expectations	2 – Meets expectations	3 – Exceeds expectations
The virtual work/force method calculations have significant errors (e.g. integration is blatantly incorrect) or steps in the process are missing completely.	The virtual work/force method calculations are mostly correct with only minor mistakes (e.g. unit errors, dimensional errors, wrong moment of inertia) but the cracking load is determined by setting cracking moment equal PL/4 rather than using the virtual work/force method calculations.	The virtual work/force method calculations are correct with only minimal mistakes (e.g. unit errors) and the process to calculate the cracking load is correct using the results fro (s)9.5loV3 (h)2.2 (V9 -1.217 To
The ultimate flexural strength calculations have significant errors (e.g. Mn is wrong) or the nominal strength is calculated correctly but the ultimate flexural strength is determined by setting the nominal flexural strength equal to PL/4 rather than account for negative moment capacity at the ends.	The ultimate load is predicted incorrectly because of minor errors (e.g. unit errors) in the flexural strength calculations or shear calculations or the wrong failure mechanism is selected.	
The shear calculations are missing or have significant errors.		

CVNG 3020 – Structural Analysis Lab

Final Project Oral Presentation (Oral Communication)

1 – Does not meet expectations	2 – Meets expectations	3 – Exceeds expectations
The presentation is not well organized (e.g. material out of order) and the supporting materials insufficiently supports the topic.		
The language choices are		

CVNG 3140 – Hydraulic Engineering Lab

Water Resources and Entrepreneurship Presentation (Oral Communication)

1 – Does not meet expectations	2 – Meets expectations	3 – Exceeds expectations
The presentation is not well organized (e.g. material out of order) and the supporting materials insufficiently supports the topic. The language choices are unclear and minimally support the topic. The delivery technique detracts from the understandability of the presentation and the speaker(s) appears uncomfortable.	The presentation is organized and the supporting materials make appropriate reference to information that supports the topic. The language is appropriate for the audience and supports the topic. The delivery techniques make the presentation interesting and the speaker(s) appears comfortable.	The presentation is very well organized and the supporting materials make reference to information that significantlydg64 353.28 696.96 Tm[(Th)5

CVNG 4500 – Capstone Design I

Capstone Preliminary Design Alternatives Project Report (Written Communication)

The report is not well organized (e.g. sections out of order) and the necessary detail to describe the work completed is lacking. The authors demonstrate minimal attention to context and purpose. The language sometimes impedes the meaning because of errors in usage.	The report is organized and mostly includes the necessary detail to describe the work completed. The background theory is adequate, but relevant source information may be lacking. The authors demonstrate awareness of context and purpose. The language is clear and the writing contains few grammatical errors.	The report is very well organized and includes the necessary detail to describe the work completed. The background theory is adequate, complete with relevant source information. The authors demonstrate a thorough understanding of context and purpose. The language is clear and the writing is virtually error-free.

CVNG 4510 – Capstone Design II

Capstone Final Design Project Presentation (Oral Communication)

CVNG 3040 – Sustainability and Environmental Engineering
Final Exam Question on Climate Change

1 – Does not meet expectations 2 – Meets expectations

CVNG 3140 – Hydraulic Engineering Lab

Social justice presentation including economic, environmental, and societal contexts

1 – Does not meet expectations	2 – Meets expectations	3 – Exceeds expectations
Lacks detail of the social justice issue from a local perspective related to their assigned viewpoint (i.e., activate levee to protect citizens of Cairo or not activate levee to protect farmland).	Details the social justice issue from a local perspective related to their assigned viewpoint (i.e., activate levee to protect citizens of Cairo or not activate levee to protect farmland).	Details the social justice issue from a local perspective related to their assigned viewpoint (i.e., activate levee to protect citizens of Cairo or not activate levee to protect farmland).
Lacks historical context and relevant policies.	Provides some historical context and relevant policies.	Provides appropriate historical context and relevant policies.
Does not recognize the impact of inequity from the assigned viewpoint.	Identifies the impact of inequity from the assigned viewpoint.	Identifies the impact of inequity from the assigned viewpoint.
		Highlights the balance between economic, environment and societal needs

CVNG 3100 – Geotechnical Engineering Lab

Compaction Test of Soils Laboratory

The student group conducted a compaction laboratory experiment, but did not relate the results to engineering specifications. They interpreted and analyzed the data, but limited the work to presentation of results only. They did not make engineering recommendations for construction.	The student group conducted a compaction laboratory experiment to meet engineering specifications for a soil specimen. They interpreted and analyzed the data, but limited the work to presentation of results only. They did not make engineering recommendations for construction.	The student group conducted a compaction laboratory experiment to meet engineering specifications for a soil specimen. They interpreted and analyzed the data, and extended the results to make engineering recommendations for construction.

CVNG 3140 – Hydraulic Engineering Lab

Pump characteristics curves laboratory

1 – Does not meet expectations	2 – Meets expectations	3 – Exceeds expectations
The student group conducted a pump characteristic curves laboratory experiment; Tw teorveab;sabris		

CVNG 4500 – Capstone Design I

Assignment on Design Criteria

Students assembled the design criteria list, which include: constraints, assumptions, laws and codes. Only a few of the items were considered and was not adequate. Their senior design capstone project did not adhere to the design criteria and it was not consistent in the design of the engineered built system.	Students assembled the design criteria list, which include: constraints, assumptions, laws and codes. Some of the items were not considered. Their senior design capstone project only sometimes adhered to the design criteria and it was not consistent in the effective design of the engineered built system.	Students assembled the design criteria list, which include: constraints, assumptions, laws and codes. Their senior design capstone project continued to include adherence to the design criteria and used it effectively for the design of the engineered built system.

CVNG 4500 – Capstone Design I

Assignment on Pursuit of External Resources not Typically Taught in Classes

Students did not assemble a list of the resources that they were to pursue for senior design capstone class. However, they did not contact profes (e)-6 (n)EMC ee[t)-6 (o)-9-143.52 484.2 0.4810r.8 (s)-1.3 (i3-4.5 ( )]TJ-0.004 Tc 0.006-9-143.w 0 -1.2484.9 (		

CVNG 3110 – Transportation Engineering

Combined homework assignment on pavement design and long-range transportation planning

1 – Does not meet expectations	2 – Meets expectations	3 – Exceeds expectations
Student was not able to identify the process of roadway infrastructure design (i.e. long--		

CVNG 3150 – Introduction to Structural Design

Exam question focused on design of columns

1 – Does not meet expectations	2 – Meets expectations	3 – Exceeds expectations
Calculated the slenderness ratios correctly for the x-axis and the y-axis, but calculated the design strength of the column incorrectly (e.g. used the wrong axis, used the wrong equation, left off the strength reduction factor, used the wrong effective length in Table 4-1a). Calculate the slenderness ratio(s) incorrectly (e.g. wrong K value or units error), and calculated the design strength of the column incorrectly (e.g. used the wrong axis, used the wrong equation, left off the strength reduction factor, used the wrong effective length in Table 4-1a).	Calculated the slenderness ratio(s) incorrectly (e.g. wrong K value or units error), but calculated the design strength of the column correctly based on the controlling ratio or correctly used Table 4-1a to determine the design strength based on effective lengths.	Calculated the slenderness ratios correctly for the x-axis and the y-axis. Calculated the design strength of the column correctly based on the controlling slenderness ratio or used Table 4-1a to determine the design strength.

CVNG 4510 – Capstone Design II

Capstone Final Design

The design project as seen on the report, plans, and specifications do not show a		

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CVNG 3040 – Sustainability and Environmental Engineering
Homework Problem on Climate Change

1 – Does not meet expectations	2 – Meets expectations	3 – Exceeds expectations
Did not sufficiently list or describe three means that society may use to sequestration carbon dioxide to inhibit climate change. Did not sufficiently describe the major negative impact or impacts for each carbon sequestration method.	Listed and somewhat described three means that society may use to sequestration carbon dioxide to inhibit climate change. Properly described the major negative impact or impacts for each carbon sequestration method.	

CVNG 3070 – Engineering Project Management

Exam question on project management

When asked the play the role of a project manager on construction project, the student was able to explain "Safety". However, it struggles differentiating form different roles (Owner, Engineer, or		