

Continuous Improvement Actions – August 2018 Update

Upon graduation from the Del E. Webb School of Construction (DEWSC) construction management program, a graduate shall be able to:

- 1. Create written communications appropriate to the construction discipline.*
- 2. Create oral presentations appropriate to the construction discipline.*
- 3. Create a construction project safety plan.*
- 4. Create construction project cost estimates.*
- 5. Create construction project schedules.*
- 6. Analyze professional decisions based on ethical principles.*
- 7. Analyze construction documents for planning and management of construction processes.*
- 8. Analyze methods, materials, and equipment used to construct projects.*
- 9. Apply construction management skills as a member of a multidisciplinary team.*
- 10. Apply electronic-based technology to manage the construction process.*
- 11. Apply basic surveying techniques for construction layout and control.*
- 12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.*
- 13. Understand construction risk management.*
- 14. Understand construction accounting and cost control.*
- 15. Understand construction quality assurance and control.*
- 16. Understand construction project control processes.*
- 17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.*
- 18. Understand the basic principles of sustainable construction.*
- 19. Understand the basic principles of structural behavior.*
- 20. Understand the basic principles of mechanical, electrical and piping systems.*

DEWSC faculty annually measure the ability of each student for each of the learning outcomes listed above. Each August, the faculty review the results of the measures, as well as the results of the senior exit surveys, where each student ranks their own ability in each of the 20 outcomes.

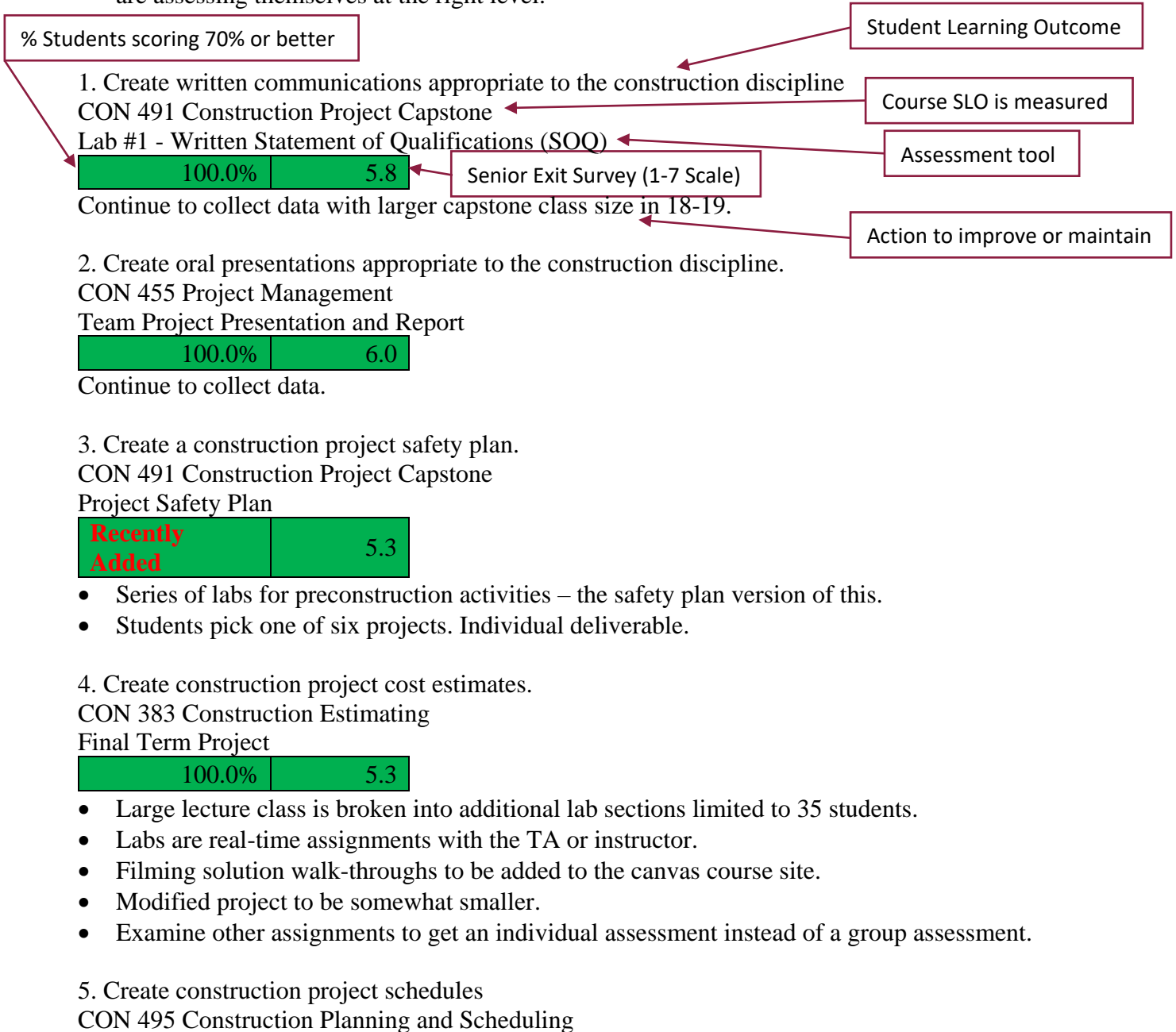
This process is part of our continuous improvement; measures, outcomes, assessment tools, and procedures can be changed to improve student learning.

August 15, 2018 – DEWSC Annual Assurance of Learning Faculty Meeting

The number in the first box is the percent of students achieving a 70% or better on the assessment tool. The number in the second box is the students rating of their own ability to do the SLO on a 1 – 7 scale.

ALL Courses

- A. Review course-learning outcomes at the beginning and again toward the end of each course, preferably before the final.
- B. Consider revising the senior exit interview to explain the levels of Bloom's, so the students are assessing themselves at the right level.



Project schedule

| | |
|-------|-----|
| 96.1% | 4.8 |
|-------|-----|

- Improve the feedback going to the students on the direct assessment tool.
- Review course learning outcomes toward the end of the course.

6. Analyze professional decisions based on ethical principles

CON 271 Construction Safety

Ethics Homework

| | |
|-------|-----|
| 71.8% | 6.4 |
|-------|-----|

- Written assignment toward the end of course; students may blow it off since it is only 10 points.
- Try moving it earlier in the course.

7. Analyze construction documents for planning and management of construction processes.

CON 491 Construction Project Capstone

Preconstruction deliverables

| | |
|----------------|-----|
| Recently Added | 5.8 |
|----------------|-----|

- Series of labs for preconstruction activities.
- Students pick one of six projects. Individual deliverable.

8. Analyze methods, materials, and equipment used to construct projects.

CON 243 Heavy Equipment Methods Materials and Equipment

Part 4 of Mass Diagram Assignment - Productivity Assessment

| | |
|-------|-----|
| 83.8% | 5.6 |
|-------|-----|

- Currently a group project.
- Look at homework assignments to be more analyze than assess level to replace this assessment tool on an individual basis.

9. Apply construction management skills as a member of a multidisciplinary team.

CON 491 Construction Project Capstone

Final Project Multidisciplinary Team Presentations

| | |
|--------|-----|
| 100.0% | 5.8 |
|--------|-----|

- Role-playing with owner, designer, contractor (PM, Super, Estimator), and subcontractor. All roles apply construction management skills. Present as a team, each is scored individually.
- Examine getting a designer to play the role of designer.
- Examine working with construction engineering students on an assignment for this outcome.

10. Apply electronic-based technology to manage the construction process.

CON 453 Construction Technology

Assignment: Site utilization plan

| | |
|-------|-----|
| 84.5% | 5.4 |
|-------|-----|

- Individual grade; most who didn't meet the threshold got around a 0.
- Need to stress the value of this exercise.

11. Apply basic surveying techniques for construction layout and control.

CON 241 Surveying

Exam Score

| | |
|-------|-----|
| 83.6% | 4.5 |
|-------|-----|

- Measured in a 200 level course.
- Stressed that it's a high liability course.
- First half is civil, second half.
- Have students refreshed on SLOs prior to their survey, and a brief explanation of bloom's taxonomy.

12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process

CON 491 Construction Project Capstone

Examination

| | |
|----------------|-----|
| Recently Added | 5.6 |
|----------------|-----|

Newly added.

13. Understand construction risk management.

CON 496 Construction Contract Administration

Homework Assignment - Risk Analysis and Planning Letter

| | |
|-------|-----|
| 93.2% | 5.6 |
|-------|-----|

Continue assignments.

14. Understand construction accounting and cost control.

CON 383 Construction Estimating

Total of Labor Production and Cost Analysis Homeworks

| | |
|-------|-----|
| 95.8% | 4.7 |
|-------|-----|

- Individual assignments!
- Surprised it's this high, since it's only 2 assignments.
- Used to have a course on this one.
- Understand a cash flow analysis, cover basics of construction accounting.
- Have students refreshed on SLOs prior to their survey, and a brief explanation of bloom's taxonomy.

15. Understand construction quality assurance and control.

CON 487 Project Controls

HW #8 - Project Quality Management

| | |
|-------|-----|
| 87.5% | 5.3 |
|-------|-----|

- Standard project management textbook.
- Understand level homework questions.
- Will separate out the student performance data from #15 and #16 for these two SLOs.

16. Understand construction project control processes.

CON 487 Project Controls

HW #8 - Project Quality Management

| | |
|-------|-----|
| 87.5% | 5.1 |
|-------|-----|

- Standard project management textbook.
- Understand level homework questions.
- Will separate out the student performance data from #15 and #16 for these two SLOs.

17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.

CON 496 Construction Contract Administration

5 HW Grades - Bid, Risk, Payment, Lien, and Change Order Letters

| | |
|-------|-----|
| 90.9% | 5.4 |
|-------|-----|

Continue.

18. Understand the basic principles of sustainable construction.

CON 448 Sustainable Construction

Comprehensive written test

| | |
|-------|-----|
| 75.0% | 5.3 |
|-------|-----|

- Will be a required class.
- Cover heat transfer calculations more in depth, to improve student performance on that part of the exam.

19. Understand the basic principles of structural behavior.

CON 424 Structural Design

Exam #1

| | |
|-------|-----|
| 75.0% | 5.3 |
|-------|-----|

Spend more time on and apply more emphasis on the analysis aspects, on load paths and load effects.

20a. Understand the basic principles of mechanical, electrical, and piping systems.

CON 273 Electrical Construction Fundamentals

Estimating Exercise

| | |
|-------|-----|
| 87.5% | 5.0 |
|-------|-----|

Improve the feedback going to the students on the direct assessment tool.

20b. Understand the basic principles of mechanical, electrical, and piping systems.

CON 345 Mechanical Systems

Final Project

| | |
|-------|-----|
| 96.9% | 5.0 |
|-------|-----|

Improve the feedback going to the students on the direct assessment tool.

April 27, 2018 – DEWSC Faculty Meeting Discussion; changes to implement

SLO #3 – Create a construction project safety plan

Changed from CON 271 to CON 491 Capstone, because the faculty voted to allow students to take CON 494 instead of CON 271, if they already possess a valid OSHA 30 card. This assessment change ensures we are assessing all students.

SLO #6 – Analyze professional decisions based on ethical principles

Changed from CON 455 to CON 271 AND CON 494, because the assignment in CON 455 is not adequate.

ABET b) an ability to design and conduct experiments, as well as to analyze and interpret data

Laboratory assignment created by the instructors of CON 310 Testing of Materials for Construction where the students will design experiments by selecting the appropriate soils tests necessary for ensuring compaction on a specific construction site. The students will conduct experiments to identify and categorize the soil type.

ABET f) changed to match SLO #6, above.

ABET h) CON 101 assignment removed from assessment, CON 455 assignment retained.