

**Course Evaluation Measures Menu**

**Course number:** CET 144

**Course title:** Surveying Principles

**Campus location(s):** Georgetown, Dover, Stanton

**Effective Semester:** 2022-51

**Core Course Performance Objectives:**

1. Distinguish between the different types of surveying, and use this comparison to determine how surveying field data is used to produce a civil drawing.

(CCC 1, 2, 4, 6; PGC: CET 1; SET 1, 5; EET 1; CTO 1)

1. Identify common practices of every surveying project, including field notes, safety, and care of equipment.

(CCC 1, 2, 4, 6; PGC: CET 1, 5; SET 1, 5, 6; EET 1, 3; CTO 1, 4)

1. Apply the pacing method through field procedures, field book entry, and evaluations.

(CCC 1, 2, 3, 6; PGC: CET 1, 4, 5; SET 1, 4, 5, 6; EET 1, 3, 4; CTO 1, 2, 3, 4)

1. Demonstrate the use of surveying tapes through field procedures, field book entries, and evaluations.

(CCC 1, 2, 3, 6; PGC: CET 1, 4, 5; SET 1, 3, 4, 5, 6; EET 1, 3, 4; CTO 1, 2, 3, 4)

1. Employ vertical leveling, including running a level loop in the field and calculating elevations in a field book.

(CCC 1, 2, 3, 6; PGC CET 1, 4, 5; SET 1, 3, 4, 5, 6; EET 1, 2, 3, 4; CTO 1, 2, 3, 4)

1. Use elevations through field procedures and/or in class projects.

(CCC 1, 2, 3, 6; PGC: CET 1, 4, 5; SET 1, 4, 5, 6; EET 1, 3, 4; CTO 1, 2, 3, 4)

1. Set up and demonstrate competent field use of a total station theodolite.

(CCC 2, 3, 6; PGC CET 1, 4, 5; SET 1, 3, 4, 5, 6; EET 1, 3, 4; CTO 1, 2, 3, 4)

1. Integrate turning vertical and horizontal angles in the field, and use these angles to perform classroom calculations and/or drawings.

(CCC 1, 2, 3, 6; PGC: CET 1, 4, 5; SET 1, 4, 5, 6; EET 1, 3, 4; CTO 1, 2, 3, 4)

1. Perform calculations common for a field stakeout using both coordinate measurements and radial stakeout measurements.

(CCC 2, 3, 6; PGC: CET 1, 4, 5; SET 1, 3, 4, 5, 6; EET 1, 2, 3, 4; CTO 1, 2, 3, 4)

1. Describe the fundamentals of a boundary survey.  (CCC 1, 2, 4, 6; PGC: CET 1; SET 1, 5; EET 1; CTO 1)
2. Use a Global Positioning System (GPS).

(CCC 2; PGC: CET 1, 4, 5; SET 1, 4, 5, 6; EET 1, 2, 3, 4; CTO 1, 2, 3, 4)

1. Calculate the area of a traverse.

(CCC 2; PGC: CET 1, 4, 5; SET 1, 3, 4, 5, 6; EET 1, 3, 4; CTO 1, 2, 3, 4,)

1. Demonstrate professional and ethical conduct as expected in industry.

(CCC 1, 2, 3, 4, 6; PGC: CET 1, 4, 5; SET 1, 3, 4, 6; EET 1, 3; CTO 1, 2, 4)

**Summative Evaluations**

*Please note: All courses must have a* ***minimum******of four*** *summative evaluation measures, and those measures should include a variety of evaluation methods (e.g., test, oral presentation, group project).* ***Please list all summative evaluation measures.*** *In addition to these summative measures, a variety of formative exercises/quizzes/other assignments should be used to guide instruction and learning* *but do not need to be included on this template.*

*For each measure, please include a scope of the assignment: for example, if requiring a research paper, include the range of required number of words and numbers and types of sources; for a test, include the types and numbers of questions; for a presentation, include the minimum and maximum time, and so on.*

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| **Evaluation Measures:** Include each agreed upon measure and scope of that measure (see above). | **Which CCPO(s) does this evaluation measure?**  |
| **Surveying Labs\* – 5-7 Labs Including:*** Pacing
* Taping
* Differential Leveling
* Topographic Grid
* Closing the Horizon
* Traverse
* Construction Stakeout
* GPS Survey

\*At least one lab must include a proposed grading element. | **1,2,3,4,5,6, 13** |
| **Tests (4 equally weighted)*** 20-30 Questions
* Selected from a pool of questions developed by all instructors
* Open book and notes
* 2.0 hours
* Only 1 attempt
 | **Test 1 - 1,2,3,4,13****Test 2 - 1,2,5,6,13****Test 3 - 1,2,7,8,13****Test 4 - 1,2,7,8,9,10,11,12,13** |
| **Topographic Survey Plan*** Size B drawing or larger
* Create plan with title block, north arrow, and scale
* Plot spot elevations from topographic survey
* Draft and label interpolated contours with proper linetypes and lineweights
* Grade a proposed design element provided by instructor
 | **6,13** |
| **Traverse Plot Plan*** Size B drawing or larger
* Create plan with title block, north arrow, and scale
* Plot traverse points using corrected latitudes and departures
* Label bearings and distances
* Insert point table showing point number, northing and easting of each traverse point
* Label area of traverse with acreage and square feet
 | **1,2,7,8,9,10,11,12,13** |
| **Field Test*** Setup total station
* Turn angle and duplicate it in reverse
* Read Philadelphia rod
 | **1,2,3,4,5,6,7,8,9,10,11,12,13** |
| **Assignments*** Minimum of ten classroom assignments
* Selection of: homework, activities, practice problems, practice calculations, quizzes, and participation
 | **1,2,3,4,5,6,8,9,10,12,13** |

**FINAL COURSE GRADE**

(Calculated using the following weighted average)

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| **Evaluation Measure** | **Percentage of final grade** |
| Formative: Assignments | 5% |
| Formative: Surveying Lab – Pacing, Taping, Leveling, Topographic Grid, Closing the Horizon, Traverse, Construction Survey, GPS Survey (weighted equally) | 40% |
| Summative: Traverse Closure Calculations | 5% |
| Summative: Traverse Plot Plan | 5% |
| Summative: Topographic Plan | 5% |
| Summative: Tests (4) (weighted equally) | 32% |
| Summative: Field Test | 8% |
| **Final Course Grade** | **100%** |

 (Electronic Signature Permitted)

**Submitted by (Collegewide Lead):** \_\_Diane M. Calloway\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_05/28/2020\_\_\_\_\_\_\_\_\_

**[x] Approved by counterparts**  Date \_\_05/28/2020\_\_\_\_\_\_\_\_

**[x] Reviewed by Curriculum Committee**  Date \_\_\_6/16/20\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_