EASTERN ARIZONA COLLEGE
Civil Drafting
Course Design
2017-2018

Course Information
Division: Industrial Technology Education
Course Number: DRF 230
Title: Civil Drafting
Credits: 3
Developed by: Doug Griffin
Lecture/Lab Ratio: 1 Lecture/4 Lab
Transfer Status:

<table>
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<th></th>
<th>ASU</th>
<th>NAU</th>
<th>UA</th>
</tr>
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<tbody>
<tr>
<td>GIT Dept Elective</td>
<td>CTE Departmental Elective</td>
<td>Non Transferable</td>
<td></td>
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Activity Course: No
CIP Code: 15.1300
Assessment Mode: Pre/Post Test (26 Questions/26 Points)
Semester Taught: Fall
GE Category: None
Separate Lab: No
Awareness Course: No
Intensive Writing Course: No

Prerequisites
DRF 154

Educational Value
Drafting majors as well as other students interested in learning about civil engineering concepts of mapping and surveying. Map drafting is advanced training for the drafting major who wishes to enter the job market with these specific skills. This course introduces the universal language of communications between engineer, technician, laborer, and consumer.

Description
Studies basic elements of map drafting including symbols, plotting contour lines, grid maps, elevation and profiles, closed and open traverse, legal descriptions, grading, volumes, street construction, and basic use of GPS systems. All drawings will meet the AASHTO Green Book, American Architectural Graphic Standards, the International Building Code, the International Residential Code, ADA, and any additional local building and zoning requirements.

Supplies
None
Competencies and Performance Standards

1. Demonstrate through lab problems, a knowledge of map drafting terms, the use of special equipment and how to produce industrial quality drawings.

   Learning objectives
   What you will learn as you master the competency:
   a. Review the terms used in map making.
   b. Change inch dimensions to decimal dimensions.

   Performance Standards
   You will demonstrate your competence:
   o when all assignments related to unit are successfully completed

   Your performance will be successful when:
   o learner answers all unit questions

2. Determine how maps and surveys are made and how they are used.

   Learning objectives
   What you will learn as you master the competency:
   a. Interpret map scales.
   b. Identify map features.
   c. Identify various kinds of maps.
   d. Discover how land surveys are made.
   e. Identify bench marks, monuments, station points and other datum points.
   f. Create legal descriptions pertaining to survey monuments.

   Performance Standards
   You will demonstrate your competence:
   o when all assignments related to unit are successfully completed

   Your performance will be successful when:
   o learner answers all unit questions

3. Produce contour maps from field notes.

   Learning objectives
   What you will learn as you master the competency:
   a. Identify contour map related terms.
   b. Identify contour lines.
   c. Analyze contour surveys.
   d. Label major and minor contours.
   e. Arrange contour layout.

   Performance Standards
   You will demonstrate your competence:
   o when all assignments related to unit are successfully completed

   Your performance will be successful when:
   o learner assigns contour maps correctly
4. Plot closed and open traverses when given surveying data.

Learning objectives
What you will learn as you master the competency:
  a. Identify plotting deflection angles.
  b. Plot open and closed traverse.
  c. Find angles between bearings.
  d. Define surveying related terms.
  e. Measure in the field.
  f. Read a rod.
  g. Ascertian turning points.
  h. Utilize aerial photographs.

Performance Standards
You will demonstrate your competence:
  o when all assignments related to unit are successfully completed

Your performance will be successful when:
  o learner completes assigned traverses

5. Plot legal descriptions.

Learning objectives
What you will learn as you master the competency:

Performance Standards
a. Plot multiple sites through typing in bearings.
b. Create a parcel.
c. Calculate area of site.
d. Utilize parcel, line, and curve tables.
e. Properly label all bearings and tags.

You will demonstrate your competence:
  o when all assignments related to unit are successfully completed

Your performance will be successful when:
  o learner completes assigned traverses

6. Operate a hand-held GPS unit.

Learning objectives
What you will learn as you master the competency:
  a. Access GPS unit
  b. Identify accurate methods in using GPS unit.
  c. Confirm that GPS readings are accurate.

Performance Standards
You will demonstrate your competence:
  o when all assignments related to unit are successfully completed
Your performance will be successful when:

- learner completes assigned unit questions

7. **Generate alignments.**

**Learning objectives**

*What you will learn as you master the competency:*

a. Create and edit alignments.
b. Generate road alignments.
c. Generate station labels on roads alignments.

**Performance Standards**

*You will demonstrate your competence:*

- when all assignments related to unit are successfully completed

Your performance will be successful when:

- learner completes assigned unit questions

8. **Produce earthwork quantities.**

**Learning objectives**

*What you will learn as you master the competency:*

a. Create cross-sectionals.
b. Identify hatching materials.
c. Generate cut and fill volumes of multiple surfaces.

**Performance Standards**

*You will demonstrate your competence:*

- when all assignments related to unit are successfully completed

Your performance will be successful when:

- learner completes assigned unit questions

9. **Create profiles.**

**Learning objectives**

*What you will learn as you master the competency:*

a. Create and edit alignments.
b. Create and edit profiles.
c. Generate profiles of multiple surfaces.

**Performance Standards**

*You will demonstrate your competence:*

- when all assignments related to unit are successfully completed

Your performance will be successful when:

- learner completes assigned unit questions
10. Generate grading.

**Learning objectives**

*What you will learn as you master the competency:*

a. Create grading objects.
b. Utilize grading volumes.
c. Generate grading corridors.

**Performance Standards**

*You will demonstrate your competence:*

- when all assignments related to unit are successfully completed

*Your performance will be successful when:*

- learner completes assigned unit questions

11. Create profiles.

**Learning objectives**

*What you will learn as you master the competency:*

a. Create alignments.
b. Create features.
c. Create profiles of multiple surfaces.

**Performance Standards**

*You will demonstrate your competence:*

- when all assignments related to unit are successfully completed

*Your performance will be successful when:*

- learner completes assigned unit questions

**Types of Instruction**

- Classroom
- Lab

**Grading Information**

**Grading Rationale**

Each instructor has the flexibility to develop evaluative procedures within the following parameters:

- The Post Test will represent 10% of the course grade.
- Course learning activities shall represent 90% of the course grade.

**Grading Scale**

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<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>90% - 100%</td>
</tr>
<tr>
<td>B</td>
<td>80% - 89%</td>
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<tr>
<td>C</td>
<td>70% - 79%</td>
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<tr>
<td>D</td>
<td>60% - 69%</td>
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<tr>
<td>F</td>
<td>59% and below</td>
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