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

ASU	NAU	UA
GIT Dept Elective	CTE Departmental Elective	Non Transferable

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. Ascertain 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:

o   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:

o   when all assignments related to unit are successfully completed

Your performance will be successful when:

o   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:

o   when all assignments related to unit are successfully completed

Your performance will be successful when:

o   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:

o   when all assignments related to unit are successfully completed

Your performance will be successful when:

o   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:

   o   when all assignments related to unit are successfully completed

   Your performance will be successful when:

   o   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:

   o   when all assignments related to unit are successfully completed

   Your performance will be successful when:

   o   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

A   90% - 100%

B   80% - 89%

C   70% - 79%

D   60% - 69%

F   59% and below