

Northwest Arkansas Community College
Business and Computer Information Systems Division

Discipline Code

DRFT

Course Number

2263

Course Title

Civil Engineering Fundamentals

Catalog Description

This course will review Civil Engineering Principles using AutoCAD Civil 3D in the preparation of AutoCAD drawings. Topics include AutoCAD Civil 3D advanced tools, commercial site design and layout, and boundary topographic surveys. The students will be introduced proper civil set design standards pertaining to demolition, site, grading, utility and landscape plans. Further topics include advanced feature line grading, pipe and pressure networks, and profile creation.

Prerequisites

DRFT 1234, DRFT 2114

Credit Hours

3 credit hours

Contact hours

45 contact hours

Load hours

3 load hours

Semesters Offered

Fall

ACTS Equivalent

None

Grade Mode

A-F

Learning Outcomes

Students will:

- Demonstrate how to process a survey file from an outside source.
- Determine what items pertaining to site work will require demolition or relocation.
- Design site development plans, including parking layout, entry drives, and building orientation per local code and development standards.
- Create a proposed grading plan using feature lines.
- Create drainage layout including pipes and structures.
- Design proper utility placement for water, sewer, gas, and electric.
- Determine landscape minimums per local code and implement in plan set.
- Draw plan and profile sheets for storm sewers, sanitary sewers, and water lines using pipe and pressure networks.

General Education Outcomes Supported

None

Standard Practices

Topics list

- Processing a survey file for use in design development drawings.
- Understanding what elements on the subject site will need to be removed or relocated.
- Site plan layout that will include building location, drive isles, parking, etc.,
- Site grading is a large part of this class and using the feature line and other tools within Civil 3D to show existing grade vs. design grade.
- Drainage layout will be produced using pipe networks.
- Full utility design for all items needed to serve the subject site.
- Research landscape requirements for site design and utility conflict.
- Plan and profile sheets will be created using Civil 3D tools for stormwater and utility components.

Learning activities

Assessments

- Technical drawing and modeling assignments
- Projects

Grading guidelines

- A = 90-100%
- B = 80-89%
- C = 70-79%
- D = 60-69%
- F = 0-59%