

COURSE

DRFT 2263 Civil Design

CATALOG DESCRIPTION

This course will introduce concepts in using AutoCAD in the preparation of Civil Engineering drawings for communication and design. There will be exercises in surveying, mapping, plan and profiles, earthwork, geometrics, coordinate systems, object linking and embedding, and setting up a set of drawings.

This course will introduce students to the skills that will be required in a civil engineering environment utilizing the features of AutoCAD to produce a complete drawing as a unit, thus being able to take the ideas of a designer and communicate them completely. This course will consist of a lecture and a lab. Approximately 75% of your time spent will be in the lab format, the remaining time with lecture. The instructor will be available during the lab time to answer any questions that may arise. (Offered Fall Semester)

PREREQUISITES

DRFT 2143 or Consent of Instructor

CREDIT HOURS

3 credit hours, counting toward all of the CADD Program Degree Options

TARGET AUDIENCE AND TRANSFER

In general, DRFT 2273 students have had moderate to no experience in Civil Design employment. This first course in Civil Design therefore assumes no previous experience or training, so the initial emphasis is on the use of equipment and basic AutoCAD skills for Civil employment. This non-transfer course is required for all options of our CADD Degree Program.

GENERAL COURSE OBJECTIVES The four general goals of this course are:

- ◆ Orient students to the range of methods, topics, and occupations that characterize the field of Civil Design.
- ◆ Introduce students to the use of AutoCAD commands, procedure and standards for work in industry.
- ◆ Introduce students to time and quality drafting techniques that provide opportunity for employee advancement.
- ◆ Provide students with opportunities to develop basic drafting skills with respect to Civil Engineering production.

LEARNING OBJECTIVES for all NWACC CADD sections establish that a successful student will be able to:

1. Use their intellect
2. Share divergent views as expressed in research
3. Examine and grow in understanding of values
4. Participate in criteria that are clearly defined, coherent, and intellectually rigorous
5. Resolve to a level of proficiency in skills and competencies essential for college-educated adults
6. Engage critical thinking skills and independent problem solving
7. Combine theory and application

TECHNOLOGY OBJECTIVES for all NWACC CADD sections establish that a successful student will be able to:

1. Demonstrate fundamental CAD skills necessary for a variety of occupational settings.
2. Apply principles of CAD technologies & problem solving to complete a variety of project task.
3. Share new production techniques and topics with business and industry.
4. Perform within guidelines that are ethical and practical to a mix of businesses.
5. Meet the changing demands of our regional CAD workforce.

REQUIRED TEXTS, RESOURCES, & SUPPLIES

Text Civil Drafting Technology, By David A. Madsen & Terence M. Shumaker

Supplies Engineering Scale

Drawing Resources

NWACC CADD Faculty are a collective group of licensed professionals in fields of Architecture, Landscape Design, & Engineering. Students are encouraged to ask any CADD faculty for particular details and drawing reference data. The Northwest Arkansas Community College has a limited supply of reference documents due to the nature of copyright laws.

CAD PROGRAM SURVEY

All CADD Degree Program students must respond to the CAD program survey. This survey, given to all program students on the first day of class, is used to set responsive computer lab hours, identify program option interest, and include student feedback into the overall course outline for a particular semester.

TOPICS (REQUIRED COVERAGE) **Civil Design**

Introduction to Civil Drafting Technology

Surveying Fundamentals

Location and Direction

Mapping Scales

Mapping Symbols

Legal Descriptions and Plot Plans

Contour Lines

Profiles and Grades

Highway Layout – Horizontal

Highway Layout – Vertical

Earthwork- Concept

Earthwork – CAD

Introduction to GIS

COURSE INFORMATION FOR INSTRUCTORS ONLY

CONTACT/ LOAD HOURS: 3 contact hours per week / 3 load hours for remuneration.

REQUIRED INSTRUCTIONAL ACTIVITIES

- ◆ It is required that all instructors who teach this course cover all the topics listed above. If difficulties arise, early contact must be made with the lead faculty to find and share ideas to deliver remaining content. Naturally, no optional section can be done in lieu of required section(s).
- ◆ Individual instructors' syllabi must contain any required components. The upper portion of this course outline may be distributed but is not sufficient alone as a syllabus.
- ◆ Topics listed as General, Learning, & Technology Objectives should be covered thoroughly enough so students can smoothly transition into the next course sequence.
- ◆ A key objective for every course is that students should be able to work through the applications in any covered section. Student success in Civil Design, is dependent on these skills. Instructors may bring in applications, but students must be able to perform those in the text as well.
- ◆ Students should be required to attempt some of the harder questions at the end of chapter sections in the synthesis portion. This also helps the transition to later courses.
- ◆ Check student method and process, not just answers, to ensure that logical process and thinking are involved.
- ◆ The standard grading scale should be as follows, unless otherwise approved: [90,100]=A, [80,90)=B, [70,80)=C, [60,70)=D
- ◆ A final exam or project is recommended to be comprehensive, must include application problems, proportionally represent the material covered in class, and be in the range of 10% - 25% of the final grade. The curving of final exam grades is discouraged.
- ◆ Given the full curriculum of required topics and beneficial optional content, instructors should conduct all classes for the duration of the class period.

INSTRUCTOR RESOURCES

1. Instructor supplements for Civil Drafting Technology, By David A. Madsen & Terence M. Shumaker are made available by the CADD Program Director. Additional copies may be obtained from the publisher.
2. Projection equipment will be made available in the MAT Rm. #106. Tack surfaces are available outside the room 106 door.
3. Faculty workrooms in most buildings offer computer, mail, and copier access, some classroom supplies, a phone, and storage space. Additional NWACC Library books, professional development resources, and databases can be used. Phone: 619-4244.
4. NWACC's Testing Center, 619-4317, can assist with testing accommodations.
5. NWACC Student Services and the Life Development Center can assist with Early Alert Referrals (619-4230), student recognition (619-4133), and the Office of Disabilities (619-4384).
6. The Faculty Handbook, NWACC Board of Trustees Policy Manual, and other materials are available in the division office and on the shared "K" drive of the College network.
7. Bound instructor syllabi from past semesters, indicating evaluation and attendance methods used, are available in the division office.