

**Transportation Drafting
DFTG 2476
Semester and Year**

Synonym: XXXXX
Section Number: XXX
Class Hours: XXXX
Instructor: XXXX XXXX
Phone: XXXX
Email: XXXX
Office: XXXX
Office Hours: XXXX

Please contact me if you wish to meet with me outside of regular office hours or to report an excused absence.

COURSE RATIONALE

Introduce students to accepted principles, methods and best practices in drafting with AEC software, involving the creation of construction documents for transportation projects, based on local needs of the Texas Department of Transportation (TXDOT). Provide students with necessary skill sets suitable for entry level employment as a Civil CAD technician.

COURSE DESCRIPTION

This is an advanced level course with emphasis on transportation projects. Students will create construction drawings based on concepts and principles learned in previous courses. Students will implement local jurisdiction design criteria while utilizing industry standard software including MicroStation, GEOPAK, OpenRoads and others.

PREREQUISITES

DFTG 2421 Topographical Drafting

REQUIRED TEXTS/MATERIALS

Textbook: DFTG 2476 Student Guide

Materials: Engineer's Scale, Calculator, Pencil & Eraser, Personal Headphones (for viewing video tutorials), Yellow Highlighter, 3 ring binder, Notebook paper

ACC EMAIL

All College e-mail communication to students will be sent solely to the student's ACCmail account, with the expectation that such communications will be read in a timely fashion. ACC will send important information and will notify you of any college related emergencies using this account. Students should expect to receive email communication from their instructor using this account unless other arrangements have been made. Likewise, it is suggested that students use their ACCmail account when communicating with instructors and staff. Instructions for activating an ACCmail account can be found at <http://www.austincc.edu/accmail/index.php>.

BLACKBOARD (Bb)

Blackboard will be used for some portion of this course to include but not limited to:

- Distribution of handouts and readings
- Submissions of assignments and activities
- Grading

As instructed by your professor, students may be required to access instructional materials via Blackboard.

STUDENT LEARNING OUTCOMES

Course-Level Student Learning Outcomes

Upon successful completion of the course, students will be able to:

- Define terminology and criteria related to GEOPAK\OpenRoads and MicroStation
- Create typical sections for a project
- Apply Surface Adjustment Factors to imagery
- Utilized Project Manager as a workflow guide
- Become proficient with OpenRoads Horizontal Geometry commands
- Create and store horizontal alignments
- Learn how to export Geometry and TIN information between OpenRoads and GEOPAK
- Calculate contours based off grid elevations
- Extract topographical data from Graphical Filters
- Create and store Existing and Proposed Profiles
- Become proficient with OpenRoads Vertical Geometry commands
- Prepare construction Plan and Profile Sheets
- Calculate Superelevation
- Learn how to create and modify Templates
- Utilize Corridor Modeling to generation Proposed Surface
- Calculate earthwork
- Create custom reports
- Generate Proposed Cross Sections Sheets
- Integrate hydraulic designs with roadway designs
- Utilize the Roadway Design Manual to develop design criteria for a proposed highway improvement
- Utilize OpenRoads technology

PROGRAM-LEVEL STUDENT LEARNING OUTCOMES

- C1.** Utilize CAD drafting & design software to plan and prepare construction documents, technical graphics and visualizations appropriate to the civil infrastructure industry.
 - C2.** Demonstrate knowledge of civil drafting and design procedures; familiarity with design criteria, and their appropriate uses in civil infrastructure projects.
 - C3.** Perform analyses and calculations suitable for civil infrastructure drafting & design processes.
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- I1.** Utilize CAD software to plan and prepare documents and technical graphics appropriate to a range of design, manufacturing, and construction industries.

ARCHITECTURAL & ENGINEERING CAD SCANS FIVE COMPETENCIES

* = Capstone

ARCHITECTURAL & ENGINEERING CAD SCANS COMPETENCIES

FOUNDATION SKILLS

Courses	Basic Skills					Thinking Skills					Personal Qualities					
	Reading	Writing	Arithmetic/Mathematics	Listening	Speaking	Creative Thinking	Decision Making	Problem Solving	Visualizing	Knowing How to Learn	Reasoning	Responsibility	Self-Esteem	Sociability	Self-Management	Integrity/Honesty
ARCE 1452	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
DFTG 1405	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DFTG 1413	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DFTG 1417	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DFTG 1433	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DFTG 1445	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DFTG 1458	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DFTG 1475	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DFTG 1491*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DFTG 1493	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DFTG 1494	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
DFTG 1495	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
DFTG 2400	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DFTG 2402	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
DFTG 2405	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
DFTG 2412	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DFTG 2419	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DFTG 2421	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DFTG 2427	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DFTG 2428	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DFTG 2430	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DFTG 2431	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			✓	✓
DFTG 2432	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DFTG 2436	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DFTG 2440	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DFTG 2470	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
DFTG 2471	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
DFTG 2473	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DFTG 2474	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			✓	✓
DFTG 2475	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
DFTG 2476	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
DFTG 2477	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MCHN 1419	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ENGLISH																
MATH																
Oral Communication																
Arts & Humanities																
Social Behavior & Science																

* = Capstone

COURSE EVALUATION/GRADING SCHEME

Drawing assignments will be graded based on:

- Completeness
- Accuracy
- Appropriate use of tools and techniques
- CAD standards & aesthetics
- Meets or exceeds design criteria (if applicable)
- Submitted on time (date set by instructor)

Grades will be determined as follows:

- 20% 2 Tests
- 30% 2 Comprehensive Assignments
- 50% 10 Graded Exercises
- 100% Total

The grade range for completed assignments is as listed:

- 90 to 100 = A
- 80 to 89 = B
- 70 to 79 = C
- 60 to 69 = D
- Below 60 = F
- A final grade of D or lower requires that the student retake the entire course.

***The final course average will be reduced by 1 point for each unexcused absence. A student is considered absent if arrival is more than 10 minutes after the official class start time. Five late arrivals equal one absence. Attendance for lecture and lab will be recorded by the instructor. Drawing assignments turned in late may receive a penalty of 5 points for each day it is late.**

INSTRUCTIONAL METHODOLOGY

This course is taught in the classroom in a lecture/laboratory format. The lecture will generally introduce concepts and skills, which will then be developed and applied in the laboratory.

OPEN LABS

Hours for the open lab will coincide with the tutoring schedule which will be posted during the first week or two of the semester. **You may not be able to complete all the assignments in class**, so the open lab is one of your best opportunities to get help in finishing the lab exercises.

COURSE OUTLINE/CALENDAR

(Note: Schedule subject to changes deemed appropriate by the instructor)

GPK = Legacy\Native Format

Class 1	Course overview\ Syllabus & Introduction to MicroStation
Class 2	Design Process & Typical Sections, MicroStation Basics
Class 3	MicroStation Basics (Continued), Geocoordinate Tools,
Class 4	Project Manager (GPK), Civil Workspace and Settings (CIVIL STARTS)

Class 5	Feature Management, Horizontal Geometry (Alignments)
Class 6	Coordinate Geometry (COGO) (GPK), Design & Computation Manager (GPK)
Class 7	Horizontal Geometry, Civil Cells 2D
Class 8	Terrain Modeling
Class 9	Vertical Geometry (Continued), Plan & Profile Sheets (GPK)
Class 10	JULY 4th HOLIDAY
Class 11	EXAM 1 Review, Comp Exercise
Class 12	EXAM 1 , Design Process Overview
Class 13	Templates
Class 14	Corridor Modeling
Class 15	Corridor Modeling (cont.)
Class 16	Linear and Surface Templates
Class 17	Superelevations, Civil Cells Placement
Class 18	Linear and Surface Templates , Civil Cells 3D Creation
Class 19	Cross Section Sheets and Annotation
Class 20	Earthwork, Reports (GPK)
Class 21	EXAM 2 Review , Comp Exercise 2
Class 22	EXAM 2

COURSE EVALUATION/GRADING SCHEME

Grades will be determined as follows:

Students can earn a total of 100 points. 90-100 points=A, 80-89 Points=B, 70-79 Points=C

“C” Option- produce a **professional quality portfolio** (as judged by the professor-containing a minimum of 25 drawings) of A&E CAD work suitable for seeking employment in the technical drawing field. 70 Points total as broken down below:

35 Points for the Midterm Portfolio Review & Submission:

The midterm portfolio should include all sheets in the portfolio case, in their intended order, with either the redlines from previous semesters completed and printed or the actual redlined drawing sheets as a placeholder. The student should prepare an outline or schematic of their proposed portfolio and present this at the midterm review. Students are responsible for obtaining redlined final drawings from previous instructors at the beginning of this semester and should set appointments to review drawings with former faculty before the midterm review. Faculty members will review portfolios individually with students at this review and may provide redlines, markups, comments and/or corrections to projects, but no redlines or markups will be provided after the Midterm Review. Students are also responsible for recovering digital files

for revision from coursework in previous semesters. The final resume and references are due at this meeting.

Attendance at the Midterm Portfolio Review is mandatory—students who do not attend this review on Friday, TBA, at 10:00am (or other date as defined by instructor) in NRG Room 3218, may be dropped from the course.

35 Points for the Final Portfolio Review & Submission:

The final portfolio should include all sheets in the portfolio case, in their intended order, with all corrections completed, divider pages and cover sheets included, and any other requirements as outlined in the course material. At the Final Portfolio Review, students shall make a portfolio presentation to the full-time faculty noting projects and drawings which demonstrate the skills, behaviors, and competencies defined by the Program-Level Student Learning Outcomes have been mastered for the award (degree or certificate) the student is seeking.

“B” Option: Complete “C” work and produce a **professional quality resume* and references** suitable for seeking employment in the A&E CAD field. 15 Points total as broken down below:

7.5 Points for the Resume

7.5 Points for the References

***The first draft of the Resume is due by 5:00pm** on Friday, TBS. A Word document containing the resume should be e-mailed to the instructor by the due date. The final resume and references are due at the mid-term meeting.

“A” Option: Complete “C” and “B” work and complete the extra interviewing option described in the student guide. 15 Points total.

Incomplete Grades: The grade of "I" (for Incomplete) may be given by an instructor for a course in which a student is unable to complete all of the objectives for the passing grade. A grade of "I" cannot be carried beyond the established date in the following semester or session. The completion date is determined by the instructor, but may not be later than two weeks prior to the end of the semester. The Task Force Chair will approve a change from "I" to a performance grade (A, B, C, D, F) for the course prior to or at the deadline. Consideration should be given to course load and job and family obligations when carrying an "I" grade into a new semester for completion. Grades of "I" that are not resolved by the deadline will automatically be converted to a grade of "F." In extreme cases, permission may be granted to carry an "I" grade for longer than the following semester or session deadline; this must have the approval of the Dean.

Course Contract:

The majority of the course is self-paced; students will plan their own course of study and submit it to the professor for approval. **AFTER** this plan is approved, the student will prepare a **COURSE CONTRACT** (see attachment) which will be signed by both the student and the professor. The contract is due on the date assigned by the instructor.

The contract should include the following:

1. A detailed list of the work to be performed;

2. The date the work will be completed by;
3. Places for signatures of both student and instructor.

It is the **STUDENT'S RESPONSIBILITY** to keep the professor apprised of his/her progress. Students are expected to keep in weekly contact with the professor via phone, email, fax, during professor's office hours, or through appointments. Course contracts are renegotiable (with the approval of both parties), however the finished work must be submitted by the last day specified by the professor (all work must be submitted by the deadline assigned by the instructor).

INSTRUCTIONAL METHODOLOGY

This is a hybrid distance education course with three mandatory meetings. The final meeting will involve a review of each student's portfolio by the full-time faculty of the Architectural and Engineering Computer Aided Design department.

OPEN LABS

Hours for the open lab will coincide with the tutoring schedule which will be posted during the first week or two of the semester. **You may not be able to complete all the assignments in class**, so the open lab is one of your best opportunities to get help in finishing the lab exercises.

COURSE/DEPARTMENTAL POLICIES

Attendance/Class Participation

Students accruing more than two (2) UNEXCUSED absences may be withdrawn from the course at the instructor's discretion. Students may make-up absences by attending other classes. It is the student's responsibility to inform instructor when circumstances prevent him/her from attending class. An instructor may lower a student's final grade for a course due to excessive absences. **Attendance at the Midterm and Final Portfolio Reviews are mandatory—students who do not attend these reviews may be dropped from the course.**

Cell Phones and Electronic Devices

To avoid disturbing or distracting others during class or open lab times, students are requested to conduct personal communications of any sort outside of the classrooms. For this reason, the use of cell phones and other PDA's by students is prohibited inside A&E CAD classrooms (this includes placing or receiving phone calls, text messages and emails). When conducting personal communication in the hallways, please control the volume of your voice so as not to disturb students in nearby classrooms.

Withdrawal Policy

Course withdrawals may occur at any time after the official reporting date of a semester and up to the established deadline for withdrawals in each semester. The established deadline is listed in the course schedule and on the Web.

It is the responsibility of each student to ensure that his or her name is removed from the roll if he or she decides to withdraw from the class. The instructor does, however, reserve the right to drop a student should he or she feel it is necessary. If a student decides to withdraw, he or she should also verify that the withdrawal is submitted before the Final Withdrawal Date. The student is also strongly encouraged to retain their copy of the withdrawal form for their records.

Initiation of Withdrawals:

Withdrawals from a course result in a grade of "W" and may be affected through action taken by either the student, the course instructor, or the instructor's immediate supervisor in the instructor's absence. Students who wish to withdraw from specific courses should initiate withdrawal procedures with the Campus Admissions and Records Office prior to the published deadline for withdrawals. Students who are not withdrawn as of the established deadline will receive a performance grade (A, B, C, D, or F). Students must present a picture I.D. to withdraw from the course.

Students who enroll for the third or subsequent time in a course taken since Fall 2002, may be charged a higher tuition rate, for that course.

State law permits students to withdraw from no more than six courses during their entire undergraduate career at Texas public colleges or universities. With certain exceptions, all course withdrawals automatically count towards this limit. Details regarding this policy can be found in the ACC college catalog.

Incompletes

The grade of "I" (for Incomplete) may be given by an instructor for a course in which a student was unable to complete all of the objectives for the passing grade. A grade of "I" cannot be carried beyond the established date in the following semester or session. The completion date is determined by the instructor, but may not be later than two weeks prior to the end of the semester. The Department Chair will approve a change from "I" to a performance grade (A, B, C, D, F) for the course prior to or at the deadline. Consideration should be given to course load and job and family obligations when carrying an "I" grade into a new semester for completion. Grades of "I" that are not resolved by the deadline will automatically be converted to a grade of "F." In extreme cases, permission may be granted to carry an "I" grade for longer than the following semester or session deadline; this must have the approval of the Dean.

Policy on Late or Missing Work

Instructors may impose a late penalty on work that is submitted after the assigned due date.

Statement on Scholastic Dishonesty

Representing the work of another person as your own work is considered scholastic dishonesty by the A&E CAD department. Academic work submitted by students shall be the result of their own thought, research or self-expression. For purposes of this rule, academic work is defined as, but not limited to tests and quizzes, whether taken electronically or on paper; projects, either individual or group; papers; classroom presentations; and homework. When students borrow ideas, wording or organization from another source, they shall reference that information in an appropriate manner.

Reproduction or transmission of A&E CAD Departmental Check Prints in any manner (including photography and scanning) is a violation of the A&E CAD department's Scholastic Dishonesty policy.

Sharing a drawing file of a class project with another student, or representing the file of another student as your own work, is a violation of the department's Scholastic Dishonesty policy.

Violation of this policy may result in, but is not limited to, the following: reduction of the grade on the project, a grade of zero being recorded for the project, the assignment being replaced with a different project with a reduced maximum grade, the reduction of the final course grade, and in the most extreme cases, withdrawal from the course. Students accused of scholastic dishonesty will be subject to the procedures outlined in the Policies and Procedures for Academic Dishonesty section of the ACC Student Handbook.

Student Rights and Responsibilities

Students at the college have the rights accorded by the U.S. Constitution to freedom of speech, peaceful assembly, petition, and association. These rights carry with them the responsibility to accord the same rights to others in the college community and not to interfere with or disrupt the educational process. Opportunity for students to examine and question pertinent data and assumptions of a given discipline, guided by the evidence of scholarly research, is appropriate in a learning environment. This concept is accompanied by an equally demanding concept of responsibility on the part of the student. As willing partners in learning, students must comply with college rules and procedures.

Statement on Students with Disabilities

Each ACC campus offers support services for students with documented disabilities. Students with disabilities who need classroom, academic or other accommodations must request them through the Office for Students with Disabilities (OSD). Students are encouraged to request accommodations when they register for courses or at least three weeks before the start of the semester, otherwise the provision of accommodations may be delayed.

Students who have received approval for accommodations from OSD for this course must provide the instructor with the 'Notice of Approved Accommodations' from OSD before accommodations will be provided. Arrangements for academic accommodations can only be made after the instructor receives the 'Notice of Approved Accommodations' from the student.

Students with approved accommodations are encouraged to submit the 'Notice of Approved Accommodations' to the instructor at the beginning of the semester because a reasonable amount of time may be needed to prepare and arrange for the accommodations.

Additional information about the Office for Students with Disabilities is available at <http://www.austincc.edu/support/osd/>.

Safety Statement

Austin Community College is committed to providing a safe and healthy environment for study and work. You are expected to learn and comply with ACC environmental, health and safety procedures and agree to follow ACC safety policies. Additional information on these can be found at <http://www.austincc.edu/ehs>. Because some health and safety circumstances are

beyond our control, we ask that you become familiar with the Emergency Procedures poster and Campus Safety Plan map in each classroom. Additional information about emergency procedures and how to sign up for ACC Emergency Alerts to be notified in the event of a serious emergency can be found at <http://www.austincc.edu/emergency/>.

You are expected to conduct yourself professionally with respect and courtesy to all. Anyone who thoughtlessly or intentionally jeopardizes the health or safety of another individual will be immediately dismissed from the day's activity, may be withdrawn from the class, and/or barred from attending future activities.

Freedom of Expression

Each student is strongly encouraged to participate in class. In any classroom situation that includes discussion and critical thinking, there are bound to be many differing viewpoints. These differences enhance the learning experience and create an atmosphere where students and instructors alike will be encouraged to think and learn. On sensitive and volatile topics, students may sometimes disagree not only with each other but also with the instructor. It is expected that faculty and students will respect the views of others when expressed in classroom discussions.

All discussion or conversation in the classroom should be appropriate and respectful of others.

Students and Instructional Services

ACC strives to provide exemplary support to its students and offers a broad variety of opportunities and services. Information on these services and support systems is available at: <http://www.austincc.edu/s4/>

Links to many student services and other information can be found at:

<http://www.austincc.edu/current/>

For help setting up your ACCeID, ACC Gmail, or ACC Blackboard, contact ACC Helpdesk at helpdesk.austincc.edu or 223-HELP.

Ownership of Student Work

The Architectural & Engineering Computer Aided Design (A&E CAD) Department reserves the right to retain any and all student work (including but not limited to: original work, scans, photographs, and copies of student work) completed as A&E CAD course work for the purposes of documentation, accreditation, evidence of student performance, university transfer, marketing or any other purpose supporting the mission of the Department and Austin Community College.

Concealed Handgun Policy

The Austin Community College District concealed handgun policy ensures compliance with Section 411.2031 of the Texas Government Code (also known as the [Campus Carry Law](#)), while maintaining ACC's commitment to provide a safe environment for its students, faculty, staff, and visitors.

Beginning August 1, 2017, individuals who are licensed to carry (LTC) may do so on campus premises except in locations and at activities prohibited by state or federal law, or the college's concealed handgun policy.

It is the responsibility of license holders to conceal their handguns at all times. Persons who see a handgun on campus are asked to contact the ACC Police Department by dialing 222 from a campus phone or 512-223-7999.