

Course Syllabus

BSE 2304: LANDSCAPE MEASUREMENT AND MODELING

Course (Catalog) Description:

Introduction to land surveying, computer-aided design, and drafting. Representation of features in two and three dimensions for documentation and visualization of projects. Create plans, cross sections, detail drawings, and three dimensional visualizations using computer-aided design and drafting tools.

Online Reference: AutoCAD Civil 3D 2016 User's Guide, Autodesk, Inc. 111 McInnis Parkway, San Rafael, CA 94903, USA

Course Objectives:

Having successfully completed the course, a student will be able to:

1. Describe, select and apply elements used in creating 2D and 3D visualizations
2. Correctly interpret engineering drawings
3. Use modern surveying tools to measure cross sections and perform a closed loop traverse.
4. Import and export data between common data sources and analysis packages
5. Integrate data from survey instruments and databases in creating working drawings
6. Apply computer-aided design tools in land development planning
7. Conduct hydrologic analysis and design using CADD tools
8. Create project plans for applications such as land development, stream restoration, and hydraulic structure design
9. Describe basic elements of layouts and generate outputs in print and digital formats

Topics Covered:

1. General CADD functionality (Draw/Modify commands, Coordinate Systems...)
2. Importing Raw Data Collector Data
3. Importing Field Book format Data
4. Surface Modeling from Point Data
5. Surface Modeling from Contour Data
6. Assigning and Transitioning between Global Coordinate Systems
7. Site Grading Tools (creating a pond)
8. Earthwork Comparison Tools
9. Model Control through Breaklines.
10. Utilizing the Hydra-Flow Express tools
11. Basic Survey procedures.
12. Horizontal Alignment Creation
13. Profile Data Creation
14. Sub Assembly Templates, and Corridor Design
15. Drawing Layouts

Class and Laboratory Schedule:

Two classes per week, two hours Tuesday and three hour Thursday; each providing review, instruction, and lab periods.

Exams and Grading:

There will be a Midterm Exam the week before Spring break. There will be a final exam at the end of class... Each exam will be an open-book take-home exam, with a one week deadline to complete and submit all work. The exams will each be 30% of your grade, and completing and submitting assignments will be the remaining 40% of the grade.

Coursework:

Homework must be prepared in a professional manner and submitted online. Late penalty is 10% per day.

Course Instructor and/or Faculty Member Responsible for these Data:

Name: Denton Yoder

Date Submitted: 1/19/2015

"The Virginia Tech honor code will be strictly enforced in this course. All assignments submitted shall be considered graded work, unless otherwise noted. All aspects of your course work are covered by the honor system. Any suspected violations of the honor code will be promptly reported to the honor system. Honesty in your academic work will develop into professional integrity. The faculty and students of Virginia Tech will not tolerate any form of academic dishonesty."