Course Description: A careful examination of computer aided drafting as a tool of technical communications and for solving graphical problems pertaining to land development. Emphasis is on furthering of basic drafting skills, visualization, solutions of spatial problems. It covers the plotting of surveyor’s field notes, deeds, the plotting of elevations, contours, alignments, parcels and plans and profiles. Develop map data using specific software.

Prerequisite: DFTG 1305

Text, References, and Supplies:

Mastering AutoCAD Civil 3D 2012,
Richard Graham and Louisa Holland;
ISBN-10:  
ISBN-13:  

This class will utilize the required text throughout the entire semester; therefore, having a book is essential.

Software: AutoCAD, AutoCAD Civil 3D

The student will need to provide his/her own:
USB Flash Drive
Pen / Pencil
Paper for taking notes

These supplies may be needed in future classes.

Course Goals/Objectives:

Upon successful completion of this course the student will have a working knowledge of how to properly assemble from varied sources, information and it is to be represented using a CAD system and how it applies to the industry. Emphasis is placed on drawing setup; creating and modifying geometry; placing, rotating, and scaling objects, adding text and dimensions, using layers, and a variety of coordinating systems. This is the introductory course to familiarize the student with terminology of surveying using total stations, GPS systems, computers and CAD software utilization. Practical aspects include all drawing and editing features of the AutoCAD computer graphics software. The student will develop skills in the use of drafting with computer and plotter.

Upon successful completion of the course the student will have demonstrated the ability to:

1. List the basic components used in the field for data storage and processing.
2. List and describe the relationship between horizontal and vertical datums.
3. Recognize and convert point data to an equivalent of a different data set.
4. List the major parts of a total station and describe their function.
5. Describe ellipsoids, geoids and surfaces.
6. Describe the purpose of a land surveying.
7. Understand how to navigate through the computer program to produce a topographic plat.
8. Understand issues which affect the choice of informational data collection.
9. Explain features common to most data gathering instruments.
10. Describe how to start a new drawing.
11. Utilize various coordinate systems.
12. Apply the AutoCAD shortcut commands.
13. Construct templates and use them to control software customizations; layers, linetypes, objects and commands.
14. Apply Line, Circle and Arc correctly to a drawing.
15. Explain the Model and Layouts tabs.
16. Explain the difference in horizontal and vertical alignments.
17. Discuss the different options in relation to labeling styles.
18. Discuss the options in creating curves.
19. Explain the Parent/Child relationship in Civil 3d.
20. Discuss the different options in the Toolspace.
21. Explain the use of Styles on a drawing.
22. Explain how access Point Label Styles.
23. Describe two ways to work on Model space through a viewport.
24. Explain how to change and save Label Sets.
25. Discuss the difference between Block and an Xref.
26. Discuss the placement of Text and Styles.
27. Understand the basic commands used in the construction of a drawing.
28. Describe ways to prepare the drawing for export.
Student Contributions and Class Policies:

1. Students are expected to exhibit professional behavior during scheduled class times.
2. Regular and punctual attendance is expected of all students in all classes for which they have registered.
3. All absences are considered to be unauthorized unless the student is absent due to sickness or emergencies.
4. The instructor is responsible for judging the validity of any reasons given for absence.
5. Students will not be allowed to make up an examination missed due to an absence unless they have reasons acceptable to the instructor.
6. Students may be dropped from a class by the registrar, on or before the twelfth day of class, upon recommendation of the instructor who feels the student has been unjustifiably absent or tardy a sufficient number of times to preclude meeting the course objective.
7. After the twelfth day of class, it is the student's responsibility to initiate the drop in the Office of Student Services. Failure to do so may result in the students receiving a grade of “F.”
8. Students are responsible for maintaining, organizing, and backing-up copies of all digital files. Failure to maintain an up-to-date backup may result in data loss.
9. Students MUST actively participate by completing an academic assignment required by the instructor by the official census date. Students who do not actively participate in an academically-related activity will be reported as never attended and dropped from the course.

Evaluation of Students:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Regular daily work</td>
<td>40%</td>
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<tr>
<td>Periodic tests</td>
<td>10%</td>
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<tr>
<td>Participation</td>
<td>10%</td>
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<tr>
<td>Attendance</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
</tr>
</tbody>
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Grading Scale:
- 90 and above: A
- 80-89: B
- 70-79: C
- 60-69: D
- 0-59: F

Course Schedule:

This class meets two or four times a week, for a total of two (2) lecture hours and four (4) lab hours.

Due dates for course assignments will be announced throughout the semester. This will be subject to the progression of the class, therefore attendance is very important.
INFORMATION:
Students will acquire and evaluate information from existing sources and determine its relevance and accuracy as needed to build a systematic information base. Students will employ computers to acquire, organize, analyze, and communicate information.

TECHNOLOGY:
Applies technology to task, understands overall intent and proper procedures for setup and operation of equipment and computer hardware and software.

READING:
Students will locate, understand, and analyze data in documents including manuals, graphs, and schedules to perform tasks. The students will learn from a text to determine the main idea or essential message, the relevant facts and specifications, the meaning of unknown or technical vocabulary, and the appropriateness of theories of other writers.

MATHEMATICS:
Approaches practical problems by choosing appropriately from a variety of math techniques. Students will use basic math calculations throughout the course work.

LISTENING/SPEAKING:
Students will receive, attend to, interpret, and respond to verbal messages and other cues such as body language in ways that are appropriate to the purpose; for example, to comprehend; to learn; to critically evaluate; to appreciate; or to support the speaker.

PERSONAL QUALITIES:
The students will display responsibility, self-esteem, sociability, self-management, integrity and honest toward goal attainment and perseverance.

Students with Disabilities:
Midland College provides services for students with disabilities through Student Services. In order to receive accommodations, students must place documentation on file with the Counselor/Disability Specialist. Students with disabilities should notify Midland College prior to the beginning of each semester. Student Services will provide each student with a letter outlining any reasonable accommodations. The student must present the letter to the instructor at the beginning of the semester.
Program Information:
Derek Gasch, Faculty
E-Mail: dgasch@midland.edu
Office Phone: (432) 681-6314
Mobile Phone: (432) 934-8492
ATC Fax: (432) 697-9887

Rm 129 ATC
Advanced Technology Center

Office Hours: TBA

Curt Pervier, Dean
Applied Technology

Division Office
Applied Technology

Lisa Tanner
Division Secretary
Room 143A TC
(432) 685-4676
Fax: (432) 685-6472

Helen Arrieta
Division Clerk
Applied Technology
(432) 685-4664

Instructor Information:
Kevin Starnes, Instructor
E-Mail: kstarnes@midland.edu
Mobile Phone: (432) 349-0410
Daytime Phone: (432) 684-5548 – Schumann Engineering
ATC Fax: (432) 697-9887