Computer Aided Drafting
UWGB Course ET105 – Fundamentals of Drawing – 3 credits

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Course Description

This course introduces students to **Autodesk AUTOCAD, INVENTOR & REVIT** technology along with the traditional drafting methods (pencil and paper). The topics that will be studied include: sketching, dimensioning, multi-view, auxiliary view, and sectional view drawings, technical illustration, and other drawing concepts. Students also learn the basic concepts associated with 3-D modeling and architecture, where they will use current software programs to enhance their learning.

What you need to bring

- Pencil, notebook / paper (graph paper preferred) or binder for note-taking and a folder
- Good attitude

Attendance Guidelines

- Your attendance is necessary to achieve a successful grade.
- Enter your attendance each day when you walk in.
- You will need to be in attendance for a full mod unless a conflict has been resolved with Mr. Kamps
- IF you need to go to another class for a conflict, **YOU** are responsible to check out of this class. (You have 5 minutes to get to the other class before being marked tardy / absent)

You are expected to:

- **Follow all classroom and school rules and procedures.**
- **Use Common Sense at all times.**
- Ask before leaving the room at anytime.
- Clean-up after yourself.
- Be respectful to all individuals in the class.
- Respect the equipment that is being used.
- Submit all assignments by the due date thru the Pulaski CANVAS.

Grading:

A = 90% and up
B = 80 – 89%
C = 70 – 79%
D = 60 – 69%
F = below 60%
Your grade will be based on your scores in the following areas:

    - Assignments/Drawings
    - Quizzes/Tests
    - Attendance/ Daily Points

COURSE OUTLINE

UNIT 1 – SKETCHING (3 weeks)
1. Alphabet of Lines
2. Freehand Sketching Techniques
    a. Geometric shapes (squares, rectangles, circles, ellipses, hexagon, octagon, arcs and angles)
    b. Basic objects
3. Dimensioning
4. Pictorial Drawings
    a. Oblique
        i. Cavalier
        ii. Cabinet
    b. Isometric
        i. View selection
        ii. Orthographic view selection
        iii. Box Method
        iv. Proportion and Estimation
        v. Tonal shading
        vi. Isometric circles
    c. Perspective
        i. 1 point
        ii. 2 point
        iii. 3 point
    d. Multiview, Auxiliary View and Sectional Views

UNIT 2 – Autodesk AUTOCAD (6 weeks)
1. Introduction to CAD features
    a. Screen layout and user interface
    b. Quick and advanced set-up wizards
    c. Saving drawings
    d. Adjust grid and snap settings
    e. Line, erase, undo, oops commands
    f. Use absolute, relative and polar coordinate entry systems
    g. Use ortho and polar tracking
    h. Create and manage drawing layers
2. Drawing Basic Shapes
    a. Circle, arc, ellipse, rectangle
    b. Using offset and snap
    c. Placing text on drawings
    d. Basic editing commands
        i. Chamfer
        ii. Fillet
        iii. Trim
        iv. Extend
        v. Align
        vi. Group
3. Drawing and editing polylines and splines
    a. Use the explode command to convert polylines to individual segments
4. Basic Dimensioning Practices
    a. Adding dimensions

        b.   Editing dimensions

UNIT 3 – Autodesk INVENTOR (4 weeks)

1. Getting started with INVENTOR
   a. User interface and Shortcut menus
   b. Customizing the ribbon
   c. General settings and Color settings
2. Part Modeling Basics
   a. Creating a new project
   b. Starting a new part file
   c. Starting a sketch
   d. Adding dimensions
   e. Creating the base feature
   f. Adding an extruded feature
   g. Sketching a revolve profile
   h. Creating the revolved feature
   i. Creating the cut feature
   j. Adding a fillet
3. Assembly Basics
   a. Staring a new assembly file
   b. Inserting the base component
   c. Adding the second component
   d. Applying constraints
   e. Saving the assembly
   f. Starting the main assembly
   g. Placing the sub assembly
   h. Adding constraints
4. Creating Drawings
   a. Starting a new drawing
   b. Editing the drawing sheet
   c. Generating the base view
   d. Generating the section view
   e. Creating the detailed view
   f. Creating center marks and centerlines
   g. Retrieving dimensions
   h. Populating the Title Block
   i. Saving the drawing

UNIT 4 – Autodesk REVIT (4 weeks)

1. Getting started with REVIT
   a. Opening up the right template
   b. User interface and Shortcut menus
   c. Customizing the ribbon
   d. General settings
   e. Preparing the drawing palette
   f. Choosing the right materials in the properties window
   g. Renaming the levels one and two (floor and roof)
   h. Drawing a simple wall
   i. Construct 4 basic walls
   j. Adding a roof
   k. Adjusting the crop region
   l. Selecting the type of view

m. Saving a file
2. The Shed Assignment
    a. Create a 12' x 16' shed according to the constraints given in class. Submit the final drawing on an 11 x 17 (Size B) paper.
        i. Submittal on paper should include:
            1. Isometric view
            2. All dimensions
            3. At least 2 elevation views
            4. Floor plan
            5. Windows
            6. Asphalt shingles
            7. Section view that is properly labeled
            8. Vinyl siding

3. The Dream Home Assignment
    You are to design a single story, dream home for yourself in a new subdivision based on the information below.
    Requirements

    - Front entry – with closet

    - Master Bedroom - with private bathroom and walk-in closet

    - Master Bathroom – must include sink, toilet, and/or shower/ tub

    - At least another bedroom

    - Full bathroom (tub, sink, and toilet)

    - Living Room/Great room

    - Kitchen – with appliances and cabinets

    - Eating area or a separate Dining Room

    - Garage – 2 – 3 car capacity

    Other items which could be included

    - ½ bath (could be a powder room)–sink, toilet, and closet

    - Study

    - Exercise Room

    - Utility Room for Washer/Dryer (maybe it includes a bathroom)

        Covered porch, patio, or 3-4 season room

(Note: *The instructor may make changes in the course outline and schedule as necessary*.)

I have read and understand the syllabus.

Student's Signature _____ *Date* _____

Parent/Guardian's Signature _____*Date* _____