



UT Tyler™
ENGINEERING

Department of
Mechanical Engineering

MENG 4322
CAD/CAM

Wk.1 Syllabus & Drafting Policies

Dr. Shih-Feng Chou
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Catalog Description

- This course covers topics in object representation, geometric transformation, solid modeling, feature-based modeling, computer numerical control, kinematic modeling, and machining simulation and computer animation appropriate for the undergraduate level of work. Three hours of lecture per week.
- Prerequisites: (**please complete the Canvas survey**)
 1. MATH 2415 - Multivariate Calculus or equivalent
 2. MENG 1301 - Engineering Graphics and Design

Course Learning Outcomes

1. Recognize engineering drawings with geometric representations.
2. Create CAD models for parts assembly using constraints.
3. Develop concepts and steps in machining simulations.
4. Demonstrate the ability to use commercial CAD/CAM packages.

Instructor and Text(s)

**Instructor
Information:**

Dr. Shih-Feng Chou, Ronald D. Brazzel Associate Professor
3900 University Blvd., Tyler TX. 75799
Office: RBN 3005
Office Hours: TuTh 10 – 11 AM, We 1 – 2PM, or by appointment
Phone: 903-566-6209
Email: schou@uttyler.edu

Optional Text(s): (1) Autodesk Inventor 2023, A Tutorial Introduction, L. Scott Hansen, SDC Publications, ISBN: 978-1-63057-516-8.
(2) Engineering Design with SOLIDWORKS 2023, David C. Planchard, SDC Publications, ISBN: 978-1-63057-550-2.
(3) Machining Simulation Using SOLIDWORKS CAM 2023, Kuang-Hua Chang, SDC Publications, ISBN: 978-1-63057-570-0.

Software: Autodesk Inventor 2022 and SolidWorks 2019 (available at "one.uttyler.edu")

Grading

1. Inventor Drafting	15%
2. Solidworks Drafting	15%
3. Solidworks CAM	10%
3. Exams	60%

- All assignments **MUST** be submitted to Canvas for grading. ***Do not email me your assignment.***
- All assignments are required for detail drafting procedures in the form of screenshots.
- Exam#1 is an in-class modeling/drafting exam during the class hour.
- Exam#2 and #3 are take-home projects lasting for 48 hours.

CAD/CAM Assignments

Policies:

- No late submission after grading.
- Submit to Canvas only.

Reminder:

- Please make sure assignment submission to Canvas is completed prior to the deadline.
- Please review your submissions on Canvas to confirm the file and the status of the submission.
- **Do not email me your assignment.**

CAD/CAM Assignments

Policies:

- Students **MUST** comply with the **learning objectives** in the assignments to demonstrate the **level of understanding** in CAD/CAM for grading.
- The CAD/CAM course is all about using **engineering drafting/modeling** to communicate, meaning that the grader has to understand **the progression of your work**.
- Again, **do not email me your assignment**.

CAD/CAM Assignments

Reminder:

- Try not to use Canvas assignment comments function to communicate ([use plain text emails](#)).
- Cheating (e.g., *unauthorized collaborations*) in assignments will be reported to the Student Conduct and Intervention Department without notification.
- MOPP: (section 8-800. Student Standards of Conduct) <https://www.uttyler.edu/mopp/documents/8-student-conduct-discipline.pdf>

Course Plan

Week	Date	Topics	Assignments
1	1/10	Lec#1: Syllabus and Drafting Policies	Inventor#1
	1/12	Drawing#1: Getting Started on CAD	Inventor#2
2	1/17	Lec#2: Introduction to CAD	Inventor#3
	1/19	Drawing#2: Learning More Basics	Inventor#4
3	1/24	Lec#3: Engineering Design and Drafting	Inventor#5
	1/26	Drawing#3: Create a Detail Drawing	Inventor#6
4	1/31	Lec#4: Dimension and Tolerance	
	2/2	Drawing#4: Advanced Drawing Procedures	Inventor#7
5	2/7	Exam#1	
	2/9	Exam#1	
6	2/14	Lec#5: Geometric Modeling I	
	2/16	Drawing#5: Advanced Drawing using Solidworks	Solidworks#1
7	2/21	Lec#6: Geometric Modeling II	Solidworks#2
	2/23	Drawing#6: Part Assembly	Solidworks#3
8	2/28	Lec#7: Geometric Modeling III	Solidworks#4
	3/2	Drawing#7: Introduction to Stress Analysis	Solidworks#5

Course Plan

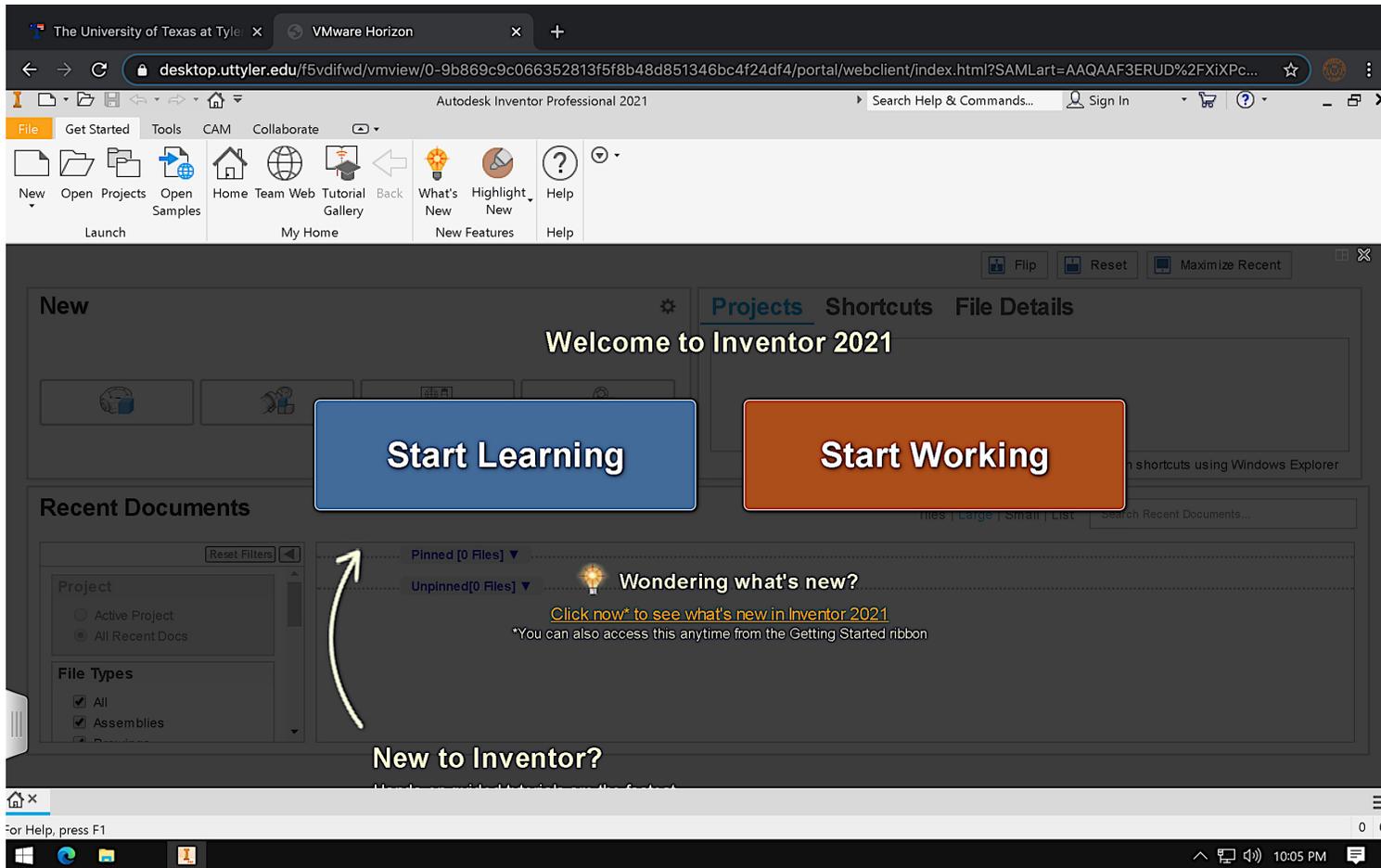
9	3/7	Lec#8: Geometric Tolerancing	Solidworks#6
	3/9	Drawing#8: Introduction to Design Accelerator	Solidworks#7
10	3/14	Spring Break – No Class	
	3/16	Spring Break – No Class	
11	3/21	Exam#2	
	3/23	Exam#2	
12	3/28	Lec#9: Introduction to CAM	
	3/30	Drawing#9: Drilling, Milling, and Turning	CAM#1
13	4/4	Lec#10: Basic Machine Calculations	CAM#2
	4/6	Drawing#10: Machining	CAM#3
14	4/11	Lec#11: Process Planning and Quality Control	CAM#4
	4/13	Drawing#11: Machining Example	CAM#5
15	4/18	Exam#3	
	4/20	Exam#3	
16	4/25	Final Exam Week – No Class	
	4/27	Final Exam Week – No Class	

(Dr. Chou reserves the right to change schedule in course plan.)

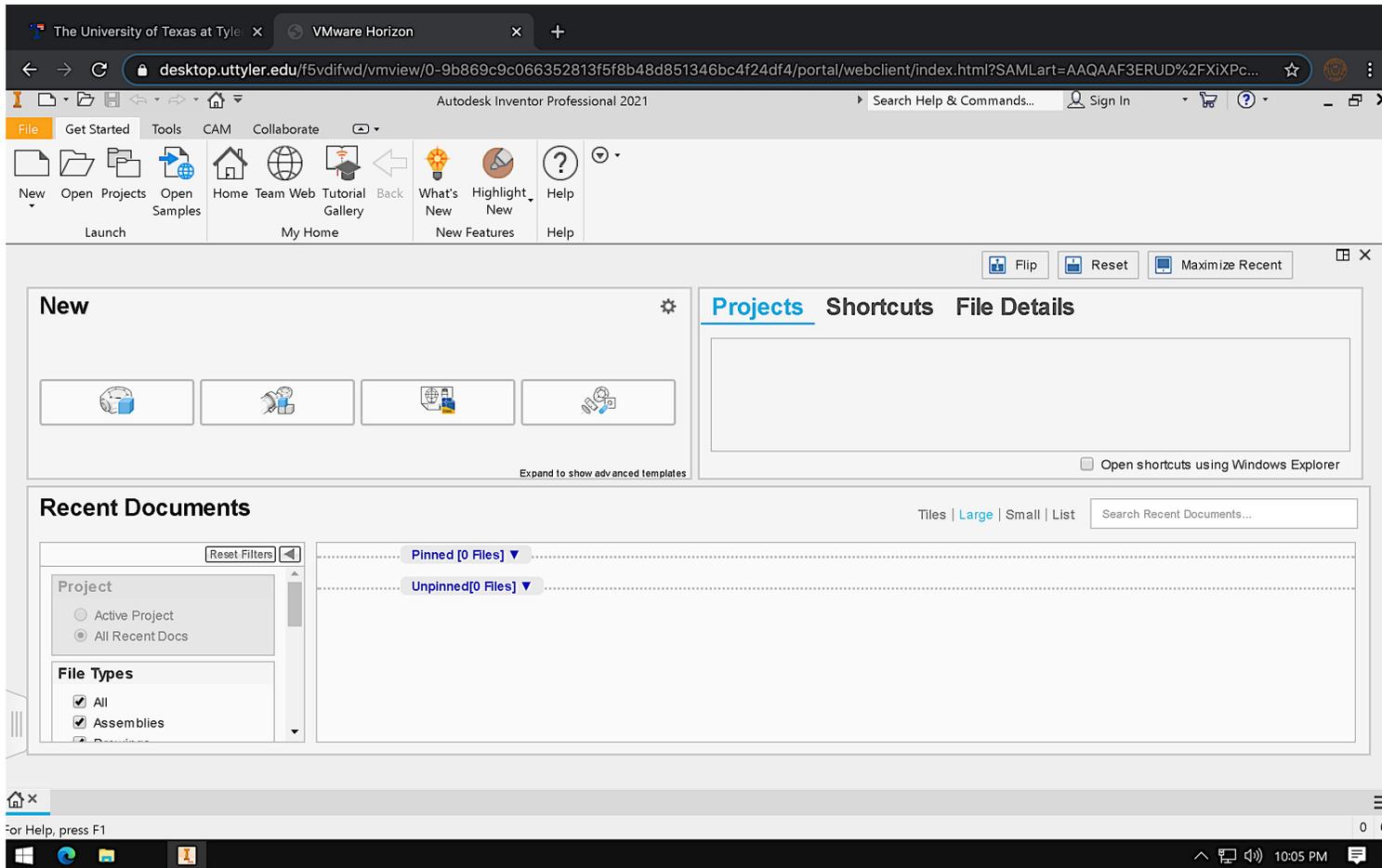
CAD Softwares

- Students are responsible to have access to [Autodesk Inventor 2022](#) and [SolidWorks 2019](#) or newer to complete the CAD/CAM course.
- Both softwares are available at the UT Tyler Virtual Machine: one.uttyler.edu (issues with VM: **Contact IT**).
- COE and ME Department require students to have laptops capable of performing works in classrooms.
- It is recommended that you [print screens during your drafting progress](#) for assignment submission.

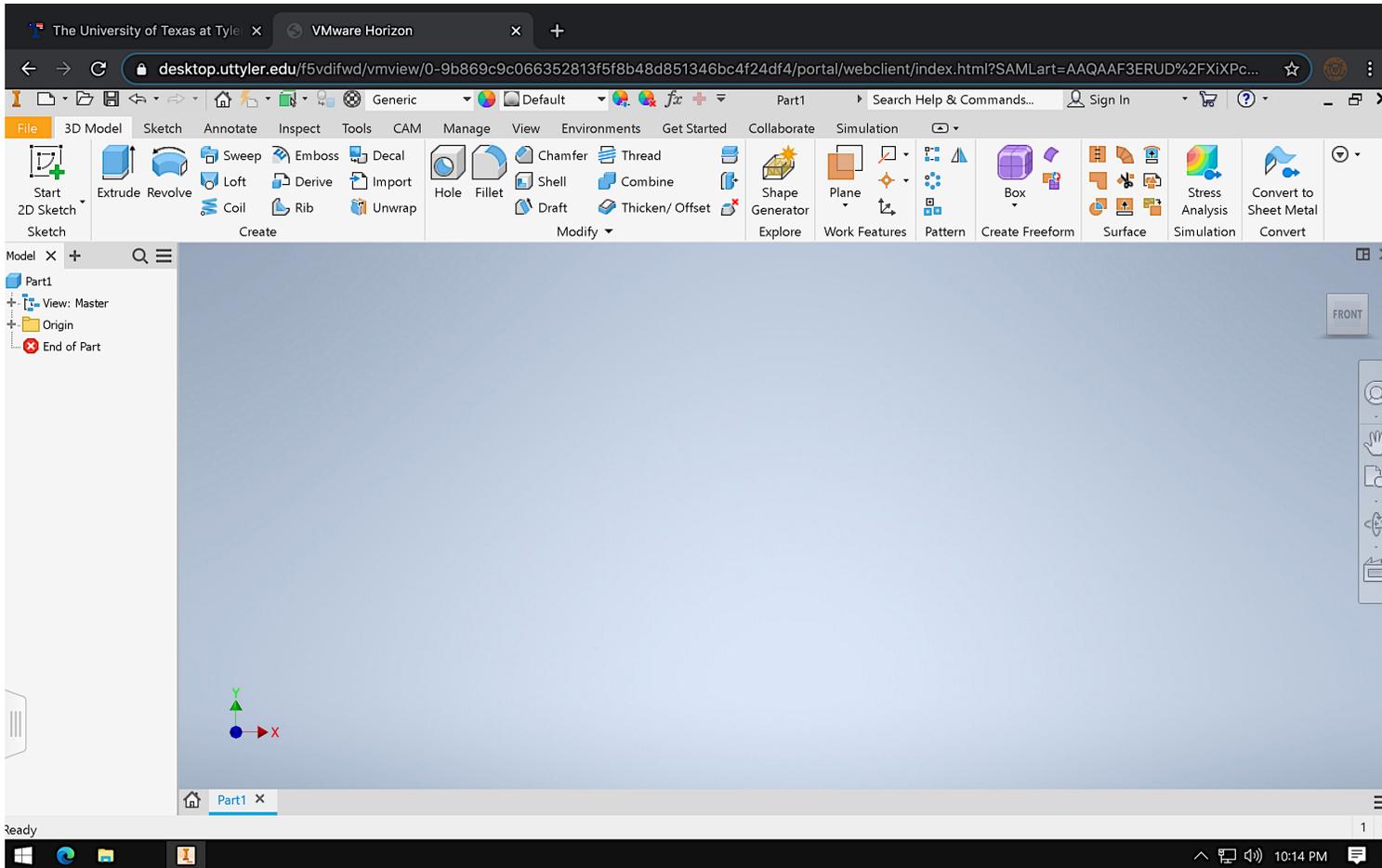
Autodesk Inventor



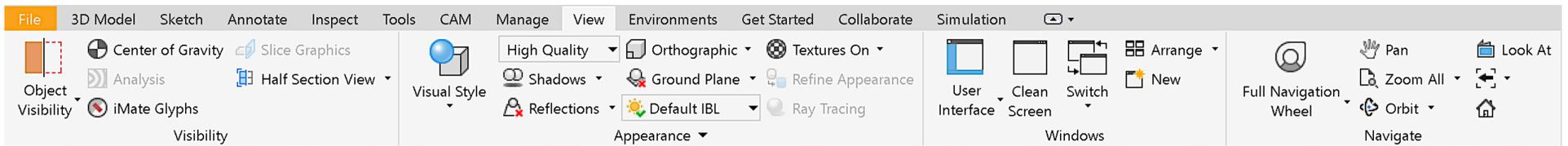
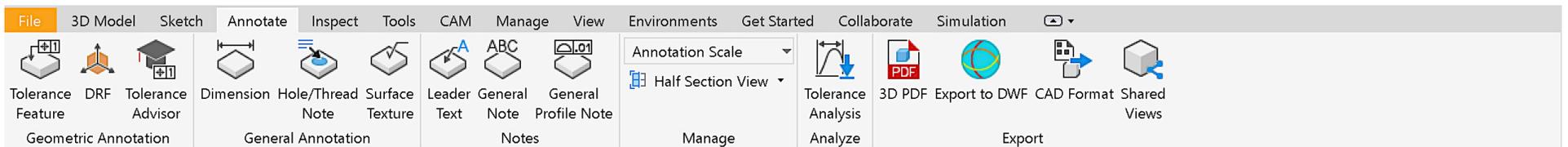
Autodesk Inventor



Autodesk Inventor

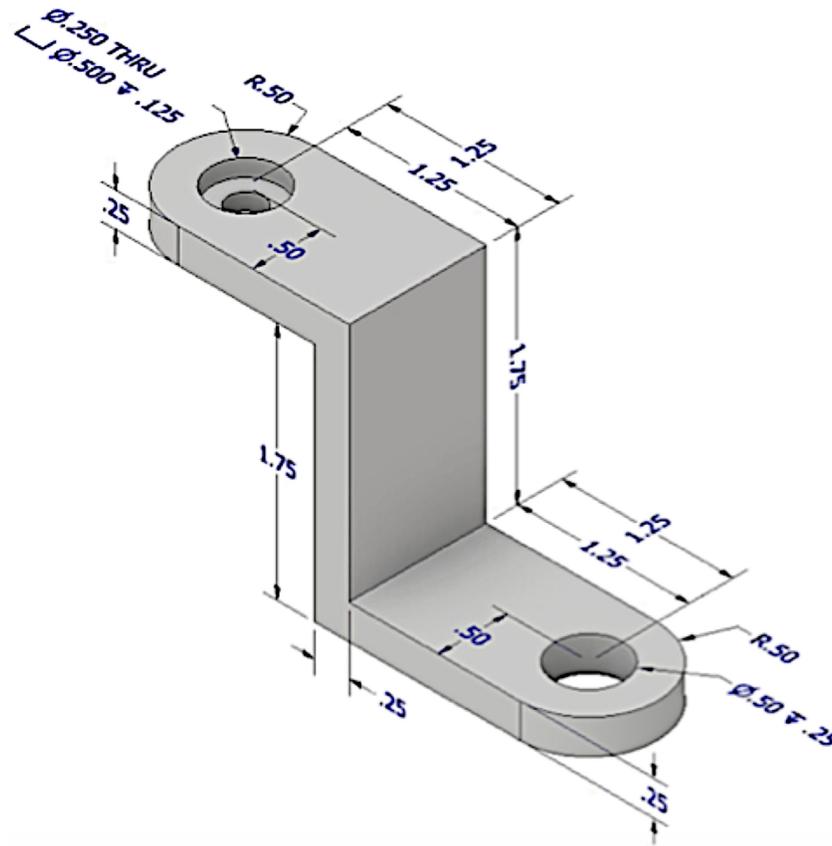


Autodesk Inventor



Inventor#1

- Goal: Complete the model using Autodesk Inventor (unit: inch).

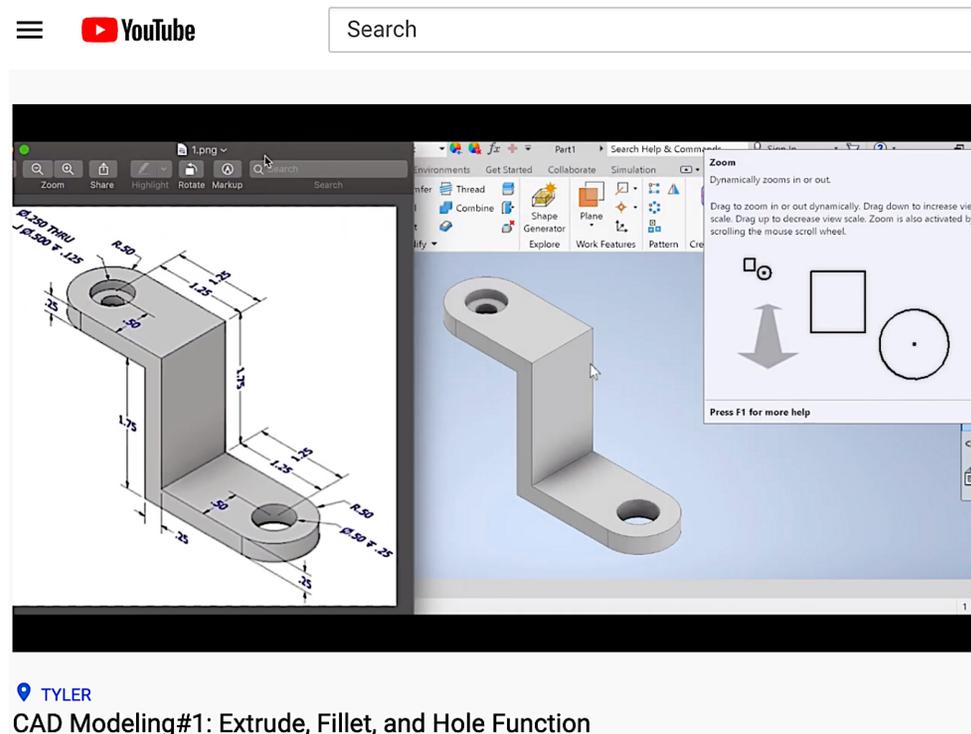


Inventor#1

- Students are required use **2 screenshots** to show the completion of the following objectives:
- **Screenshot#1:**
 - Objective 1: Extrude the 3D model from a 2D sketch (**25 points**).
 - Objective 2: Fillet the edges (**25 points**).
 - Objective 3: Holes of various features (**25 points**).
- **Screenshot#2:**
 - Objective 4: Display the 3D model with annotated dimensions (**25 points**).
- **Authenticity:** The student is required to demonstrate the uniqueness of his/her work to the instructor (**0 points**).

Inventor#1

- Please check out my Youtube instruction video!!
- <https://youtu.be/kKN0GHi1190>



Summary

- Students are responsible for using [Autodesk Inventor](#) and/or [SolidWorks](#) to complete the assignments.
- Course assignments are due on [CANVAS](#), **no exception**.
- Virtual Machine is available at: one.uttyler.edu
- Follow the instructions to complete the [Inventor#1](#) assignment due **8 PM** on 1/10/2023.
- Authenticity of the work will be introduced and implemented in the next assignments.