



# Fall 2022

## CSWA Workshop

Brought to you by : ASME, BMES, ESW, SWE  
October 18, 2022

# American Society of Mechanical Engineers (ASME)

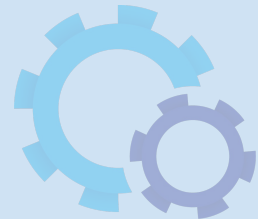
General Meetings:

Bi-Weekly Wednesdays 3:00 - 4:00pm

Pumpkin Patch Social October 27th 4-6pm

Fusion 360 CAD workshop with Autodesk Week 6

Linktree





# ADVANCED WORKSHOP

# Anthony and Adrian

3rd year Mechanical Engineer

ASME President

UCI HyperXite

Redline Detection Intern Manager

Human Powered Vehicle Competition

CAD Experience:

- ❖ CSWA certified
- ❖ Taken MAE 52
- ❖ Taught at previous

Solidworks Workshops



3rd/4th major in Aerospace Engineering, “tall”, “outgoing”, “amicable”

ASME Project Director

UCI HyperXite

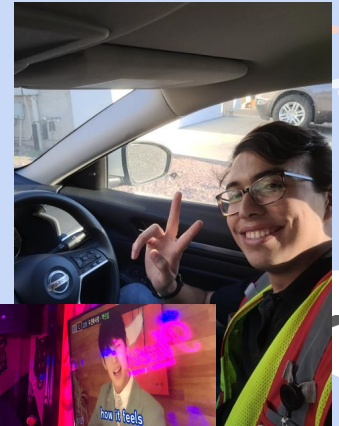
Kisailus Research Lab

Human Powered Vehicle Competition

Amazon Manager

CAD Experience:

- ❖ 26 200+ Mate Assemblies and several tears
- ❖ 3D printer illness



# What is CSWP

The CSWP is the Certified Solidworks Professional Exam and it is the next test after the CSWA.

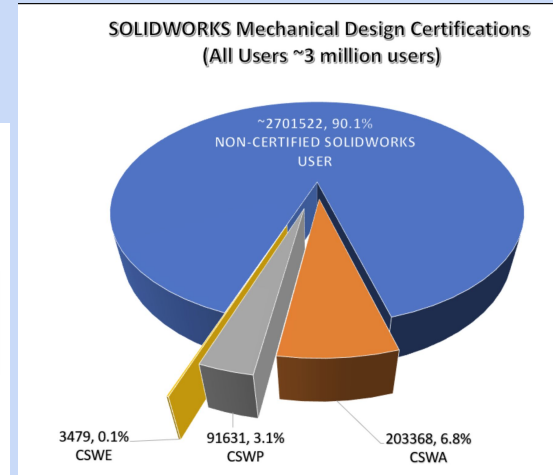
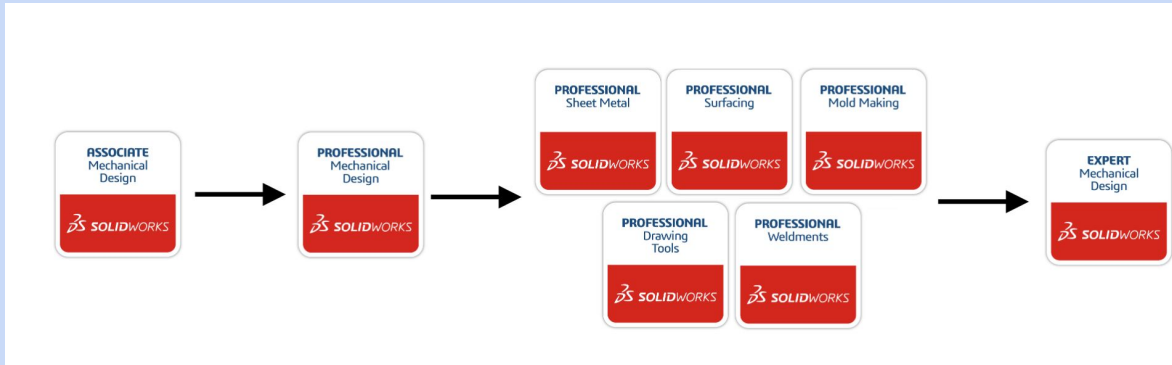
It is a test that helps show your proficiency in Solidworks to future employers

**PROFESSIONAL**  
Mechanical  
Design

*3D* **SOLIDWORKS**

# Why CSWP is useful

- Proves to Future employers you are very proficient in Solidworks
- Some Companies may consider certifications part of professional development
- Personal satisfaction of completing the CSWP



# What do I need to know for CSWP

## How is it different from CSWA

### CSWP Topics from CSWA

- Models and Assemblies are more difficult to create
  - More complex and detailed models

### CSWP New Topics

- Configurations and Modification for existing models
  - emphasis on part modification

# How to take the CSWP

## Vouchers for CSWA and CSWP exams

- Please contact Lisa Preble [lpreble@uci.edu](mailto:lpreble@uci.edu) to obtain a voucher if you're interested in taking the CSWA or CSWP exams outside of your Solidworks course.
- Scroll down to find exams you can take

- Email Lisa Preble
- Ask for a CSWP Academic Voucher

### Certified SOLIDWORKS Professional Academic

- CSWP - Academic \$99 value each

### Certified SOLIDWORKS Associate Academic

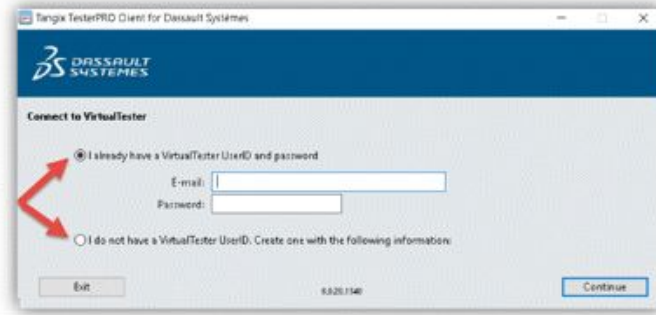
- CSWA - Academic \$99 value each



# How to take the CSWP

## How to TAKE AN EXAM?

- 1** **DOWNLOAD** 
- 2** **INSTALL** IN ANY LOCATION OF YOUR CHOICE
- 3** **LAUNCH** THE APPLICATION
- 4** **LOGIN** OR CREATE AN ACCOUNT



# How to take the CSWP

## How to TAKE AN EXAM?

- 5** SELECT THE **BRAND**  

- 6** ENTER YOUR **VOUCHER CODE**  
- IF YOU HAVE ONE -
- 7** **SCROLL** TO FIND YOUR EXAM
- 8**  Start Exam



# General Tips and Tricks

- **Design Intent**—Know what you're up against. Read the question set and know the model. Take advantage of symmetry, patterns and other geometric constraints to simplify your work.
- **Input**—Assign Global variables and the material properties. Save the part.
- **Meditation**—It's ok to spend a good amount of time on this one. Plan and choose the best default planes and profiles.
- **Construction**—Don't let unknown challenges crumble the foundations of your training. Remember: Create material, remove material and apply features like fillets and chamfers.

# Tips and Tricks to Passing the CSWP

- Check your answers and make sure you measure from the right reference points
- Do not assume anything not explicitly stated in the problems
- Take your time in developing your first model (you use it a lot and modify it) first segment is all about modifying components
- Do not move on from multiple choice question unless your answer is an exact match to the answer(if they don't match you are wrong)
- If you have to try and hack the question to get it right you are probably doing it wrong

# Tips and Tricks to Passing the CSWP

- use your measuring tool to check for mistakes
- Type the dimensions as they appear on the drawing
- use keyboard shortcuts and such to shave time (or just use the search bar if you can't find something (s key)) (Try Direct Editing(can be found by right clicking tabs))
- Save the part after every question(you can have them ready in case you need to modify or change somethings use as review if you fail)
- If you mess up a part go to the File Reload in order to go back to a state that you've saved before
- If you don't know how to use a feature just google it lol don't be afraid to research a tool

# Variables and Equations

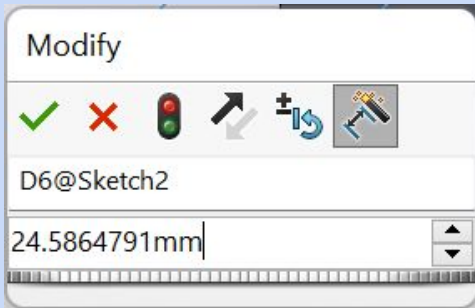
Solidworks offers powerful parametric design options

As opposed to having to change several variables manually, you can instead represent them in terms of Global Variables and Equations using simple to read syntax that shares a lot with Microsoft Excel

The CSWP heavily relies on Variables and Equations to mimic design iteration in industry!

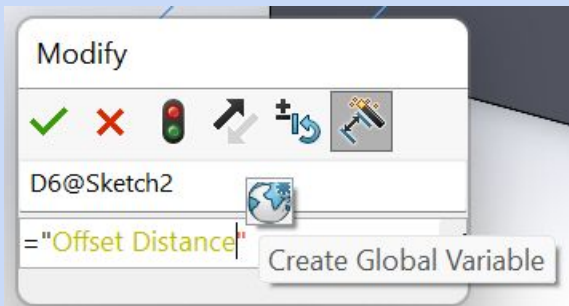
# Adding Global Variables

Global Variables can be added either in a dedicated menu or on the fly



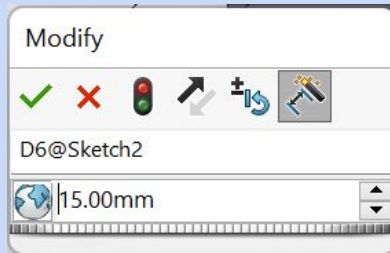
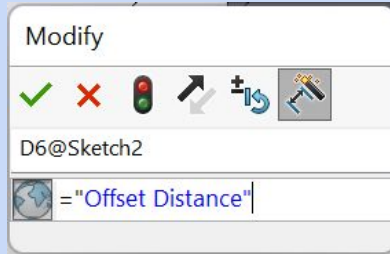
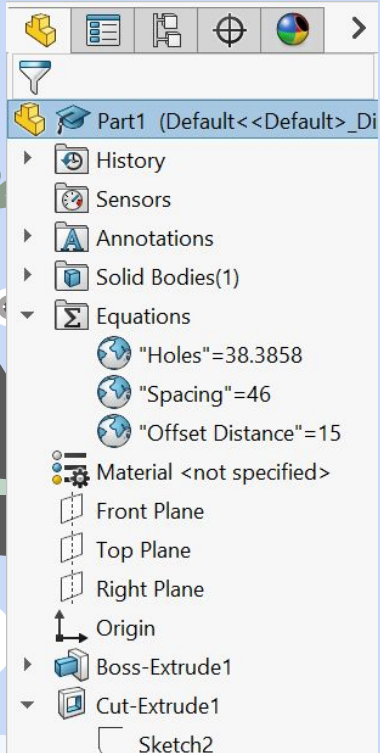
The Modify Dimensions box is very similar to a standard cell in Google Sheets or Microsoft Excel

A variable in solidworks can be used as any number with all of the basic mathematical symbols (and Visual Basic but that is for the CSWE (expert))



A variable in Solidworks is surrounded by double "", if the variable does not yet exist, you can define it just by pressing the Create Global Variable button that appears (It will inherit the previous dimension it is replacing)

# Modifying Global Variables





You are able to change Variables either by modifying their definition in the part itself (you can toggle between viewing the variable name or value with the globe button) or through the feature tree like any other Solidworks Feature




# Equations, Global Variables, and Dimensions Menu

Equations, Global Variables, and Dimensions

 Filter All Fields 

	Name	Value / Equation	Evaluates to	Comments
<b>Global Variables</b>				
	"Holes"	= 38.3858	38.3858	
	"Spacing"	= 46	46	
	"Offset Distance"	= 15	15	
	<i>Add global variable</i>			
<b>Features</b>				
	<i>Add feature suppression</i>			
<b>Equations</b>				
	"D1@Sketch2"	= "Holes"	38.39mm	
	"D2@Sketch2"	= "Spacing"	46mm	
	"D3@Sketch2"	= "Spacing"	46mm	
	"D4@Sketch2"	= "Spacing"	46mm	
	"D6@Sketch2"	= "Offset Distance"	15mm	
	<i>Add equation</i>			

Automatically rebuild  Angular equation units: Degrees  Automatic solve order

Link to external file:

OK  
Cancel  
Import...  
Export...  
Help

# Advanced Workshop Slides Resources

<https://www.solidworks.com/sites/default/files/cswpsampleexam.pdf>

<https://www.solidworks.com/certifications/mechanical-design-cswp-mechanical-design>

<https://www.solidworks.com/how-to-buy/subscription-services-certification-offers>

<https://3dexperience.virtualtester.com/#home>

Great resource:

<https://www.engineersrule.com/certification-game-ultimate-strategy-guide-walk/>