CALYPSO Live Online Training Classes

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Live Online Training

What Students are saying

"Thank you for the class this week. I took the first Live Online curve class as well. I seem to prefer these types of classes over the in-office class I took. I Very much enjoy being able to work at my CMM and workstation I feel like I can retain what I am doing better. I hope to take the advanced class and PiWeb class in the future. "

"I have to say that you and your training team have done an excellent job pivoting to online training. While I've never been to your in-person class, the online training has been exceptional. There is a lot of value in NOT having to leave the office (still being able to run the business) along with doing the exercises on our machine."

"I want to thank you for the excellent training. The instructor's teaching style is very good, very authentic. Teaching is an art and you have it. I have learned more than you think you taught me this week."

Live Online Training

What are “LIVE ONLINE TRAINING CLASSES”?

- *A **DIRECT EQUIVALENT** to traditional ZEISS Classroom Training*
- *Live, Interactive, Instructor-led training via the GoToTraining platform*
- *Organized individual Hands-On activities with required deliverables*
- *One-on-One “office hours“ with the instructor via phone or web meeting*

Live Online Training

Advantages of Live Online Training Classes

- *No Travel for Customer*
- *Organized, uniform training experience compared to onsite training*
- *Customer learns on their equipment*
- *Customer has their programs developed during class on their machine for future reference*
- *ZEISS has record of the customer's participation and understanding of material (from exercise deliverables)*
- *Entire Group is not slowed down by individuals taking more time to complete exercises*
- *Those needing special help receive it one-on-one during "office hours" after formal training sessions*

Live Online Training

Classes Currently Available

- ***CALYPSO BASIC*** *(delivered by Charlotte QEC)*
- ***CALYPSO ADVANCED*** *(delivered by Charlotte QEC)*
- ***CURVE*** *(delivered by Charlotte QEC)*
- ***FREEFORM*** *(delivered by Charlotte QEC)*
- ***GD&T with CALYPSO*** *(delivered by Charlotte QEC)*
- ***PiWEB Reporting / Reporting Plus*** *(delivered by Charlotte QEC)*
- ***O-INSPECT OPTICS*** *(delivered by Internal Training and Development team)*

- ***AUKOM****: General Metrology Certification program (delivered by Charlotte QEC)*

Live Online Training

Training Materials

- ***Official ZEISS Training Materials (Training Manuals, Sensor and Measuring Strategy Cookbooks)***
- ***Customized notes to match instructor's presentations***
- ***Newly developed "lab" activities to reinforce each training session's lesson***
- ***Training Kit (sent prior to training, to be returned to ZEISS)***

Live Online Training

Training Kit (CALYPSO Basic and Advanced)

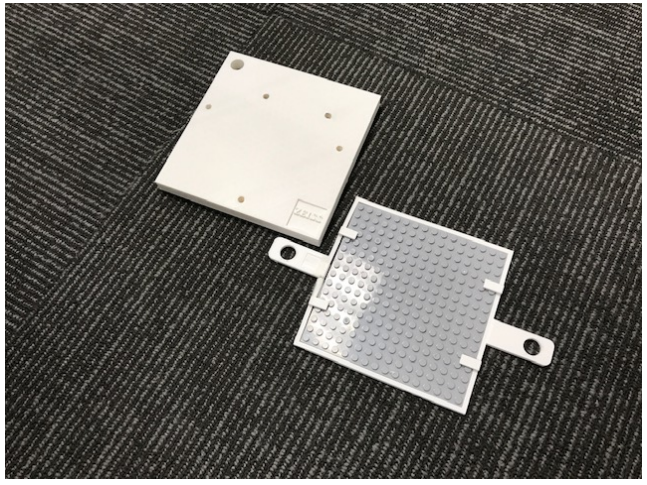
Live Online Training

Training Kit (CALYPSO Basic and Advanced)

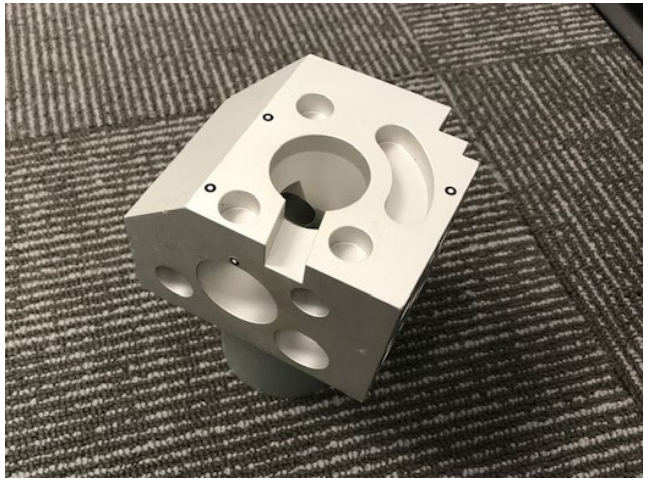
Live Online Training

Training Kit (CALYPSO Basic and Advanced)

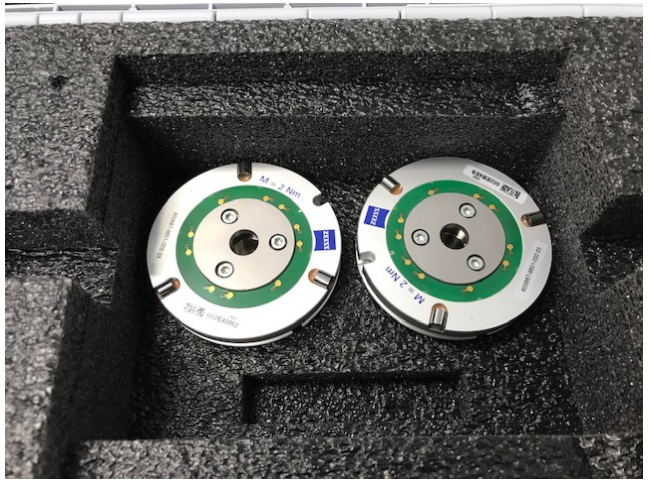
Fixturing



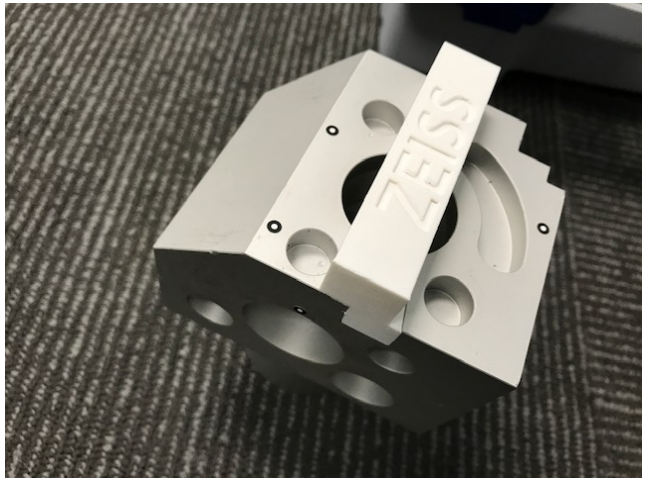
Training Part



Adapter Plates



Navigation Obstruction



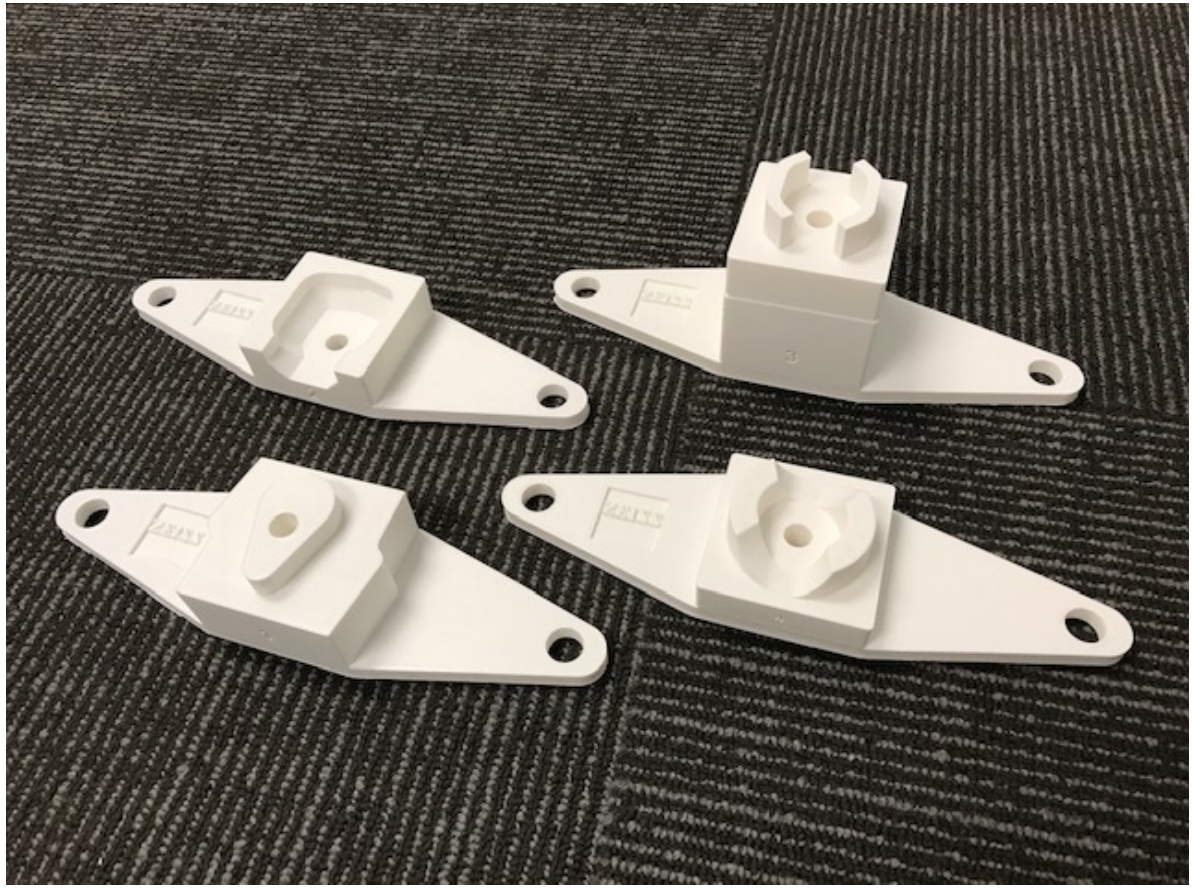
Styli

More Training Accessories

Live Online Training

Specialized Training Parts – Curve and Freeform

Four different parts for each class to simulate different Curve and Freeform applications



Live Online Training

Official ZEISS Training Manuals and Cookbooks

CALYPSO Basic Manual

CALYPSO Measuring Strategies Cookbook

CALYPSO Sensor Cookbook

Live Online Training

Specialized Training Notes

Each Live Online Training Class student receives specialized training notes that match the Instructor's lessons as presented.

These notes include more clear step-by-step procedures, helpful in the online training environment.

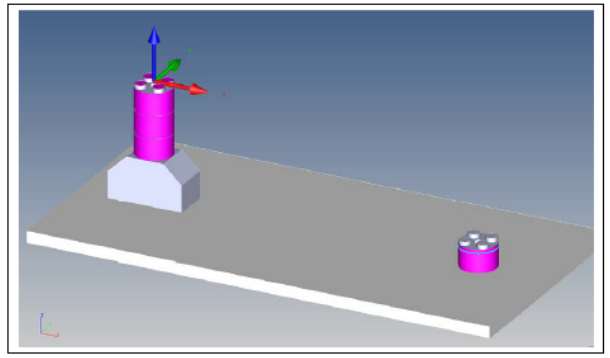
Live Online Training

New Lab Activities with Clearly Defined Deliverables

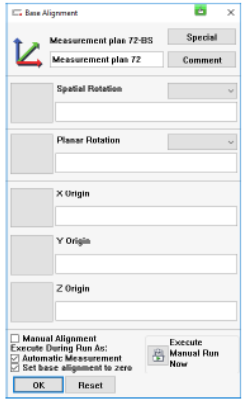
CALYPSO Basic:

ALIGNMENT 2:

Setup: Create the build as shown below: a "Base Assembly" with three stacked "Round Pieces" to the left of the base plate and one "Round Piece" to the right of the base plate.



FILL OUT THE BASE ALIGNMENT BELOW:
(Names and Directions)



Features required:

- Cylinder on three stacked Round Pieces (Named "Left Cylinder")
- Plane on Top of Cylinder (Named "Top")
- Circle around Right Round Piece (Named "Right Circle")

Base alignment: Create the base alignment as shown above.
The Cylinder MUST be Spatial Datum.

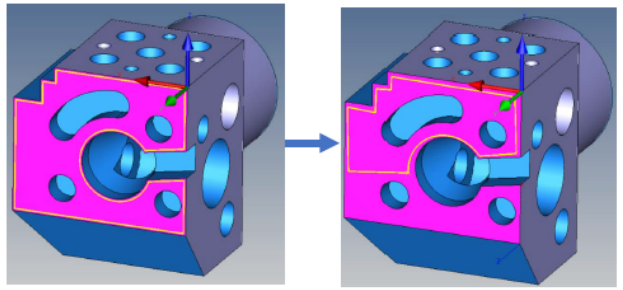
QUESTION:

Could you use a Cylinder on the Right Round Piece for Planar?

5. **Open each feature used and note the strategy. Some of these strategies, by default, are NOT going to work! Be sure to note the following things:**

- Down tip contacting fixture plate or other fixturing while scanning.
- Polylines being too close to walls for the given probe size.

Example Polyline Modification to be made:



Knowledge Check:

Remember the rule for Cylinders vs Circles:

If the Depth of the shaft is LESS THAN the Diameter of the shaft, a Circle should be measured, otherwise, a Cylinder would be more appropriate in most circumstances.

What feature should be used to obtain the 60mm diameter?

Live Online Training

New Lab Activities with Clearly Defined Deliverables

CALYPSO Advanced:

Day 5 – Afternoon Lab Exercise

Autorun

Objective: Create an autorun desk that includes an individual measurement plan and a basic pallet.

Overview: Autorun is a simplified user interface for executing measurement plans. If one or more operators will run commonly used measurement plans, the Autorun environment makes this task straightforward, while protecting the programming choices within the measurement plan.

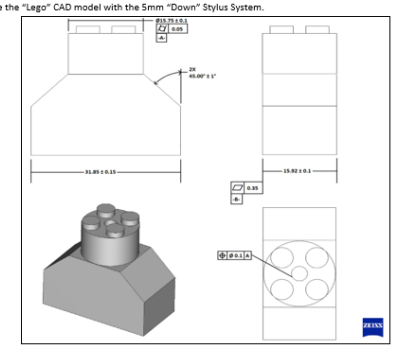
Autorun can be used to execute qualification programs and individual measurement plans, as well as measure workpieces that are arranged in a pallet. In this exercise, we will create a new Autorun desk that includes one of each. Legos will be used as a simple, easily-palletized workpieces:

Student Notes:

Exercise:

1. **Write a measurement plan to measure the Lego workpiece.**

   Use the "Lego" CAD model with the 5mm "Down" Stylus System.



Day 2 – Morning Lab Exercise

Start and Iterative Alignments

Exercise: Iterative Alignment

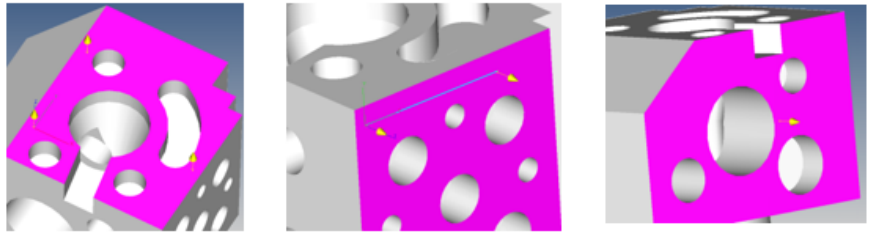
1. **Create a new program and establish base alignment as shown. This exercise is NO CAD. Keep the part in the same location as the exercise above.**

It is important that the three base alignment features are probed EXACTLY as shown:

Spatial: 3 Point Plane on Top
- Point 1: Under the banana feature, to the right of the half circle
- Point 2: To the left of the top left bore, directly in the middle of the bore and angled plane.
- Point 3: To the left and above the bottom left bore, directly in the middle of the bore and angled plane.

Planar: 2d line on the Left Face
- Point 1: To the closer end of the face, towards the front of the part. About 5mm down from the top plane
- Point 2: Above the top, back most bore, and towards the center of the face. About 5mm down from the top plane.

Y-Origin: Single point on the front
- Point 1: To the right of the large bore on the front face, directly in the middle.



Live Online Training

New Lab Activities with Clearly Defined Deliverables

Curve:

Exercise:

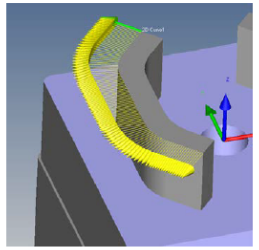
1. **Mount Curve Training Block 3 to the CMM.**
2. **Start a new CALYPSO program.**
3. **Ensure you have a 3mm or 5mm stylus, with a minimum working length of 25mm qualified and ready to use for this lab.**
4. **Ensure that the recommended Scanning Strategy Defaults are loaded.**
5. **Load the "Curve Part 3.sab" CAD Model.**

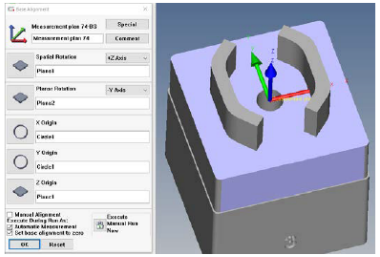
Student Notes:

ALL PROGRAMMING WILL BE FROM THE CAD MODEL! DO NOT TAKE ANY MANUAL PROBINGS UNTIL RUNTIME!

6. **Align the Part on the Top Plane of the Cube, Center Hole, and Front Plane as shown.**
7. **Create Clearance Planes.**
8. **Create one Curve as shown below by using the CAD "wireframe" at the top of the part.**

DO NOT SECTION THE MODEL.





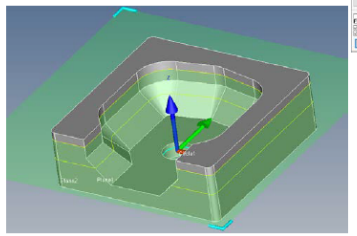
Exercise:

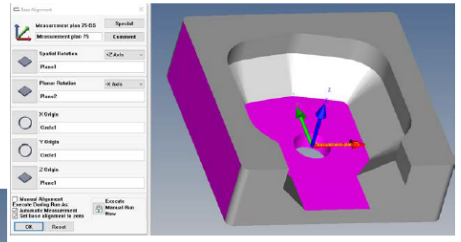
1. **Mount Curve Training Block 2 to the CMM.**
2. **Start a new CALYPSO program.**
3. **Ensure you have a 3mm or 5mm stylus, with a minimum working length of 25mm qualified and ready to use for this lab.**
4. **Ensure that the recommended Scanning Strategy Defaults are loaded.**
5. **Load the "Curve Part 2.sab" CAD Model.**

Student Notes:

ALL PROGRAMMING WILL BE FROM THE CAD MODEL! DO NOT TAKE ANY MANUAL PROBINGS UNTIL RUNTIME!

6. **Align the Part on the Inside Plane, Center Hole, and Left Plane as shown.**
7. **Create Clearance Planes.**
8. **Section the CAD Model at +5mm**
9. **Section the CAD Model at +12mm**



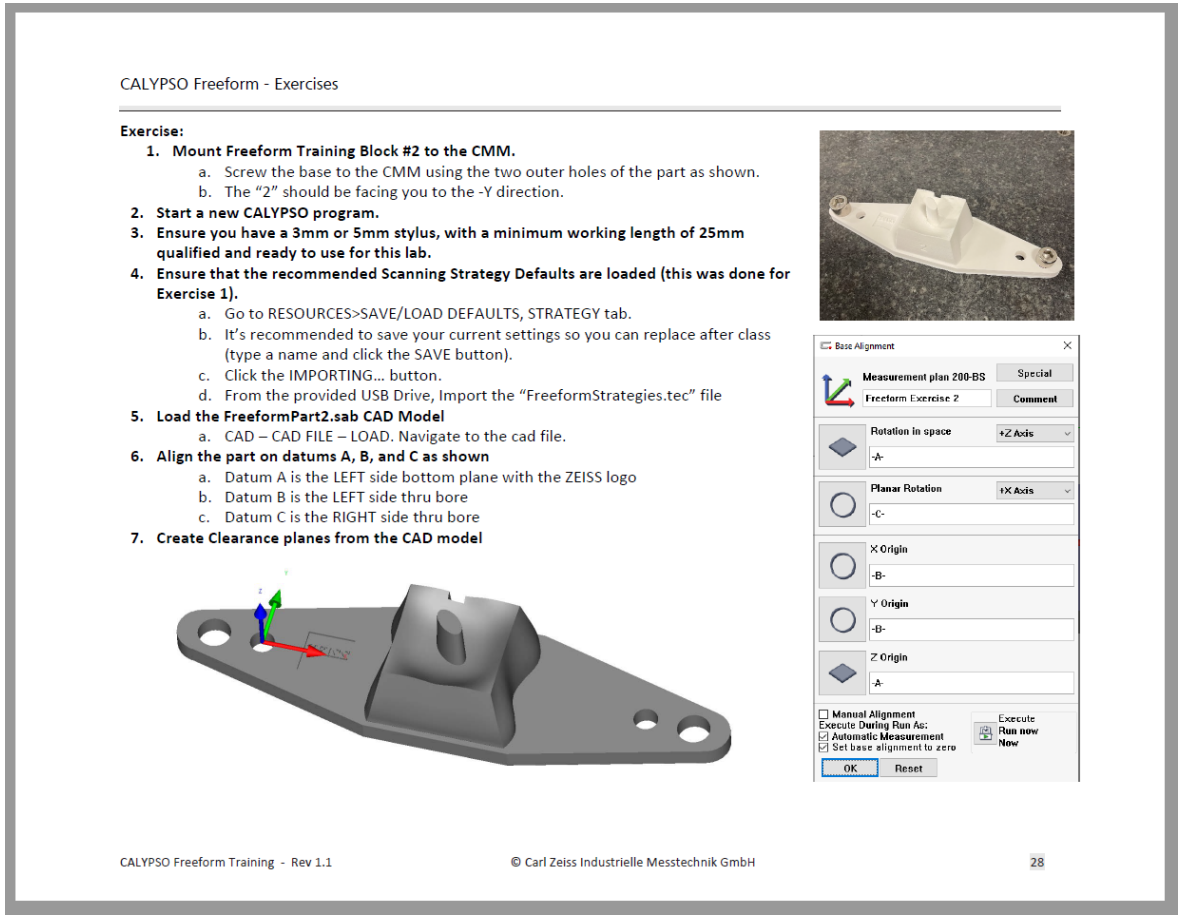


REFER TO THE NOTES for "CAD Spline Creation: Sectioning CAD" for more information!

Live Online Training

New Lab Activities with Clearly Defined Deliverables

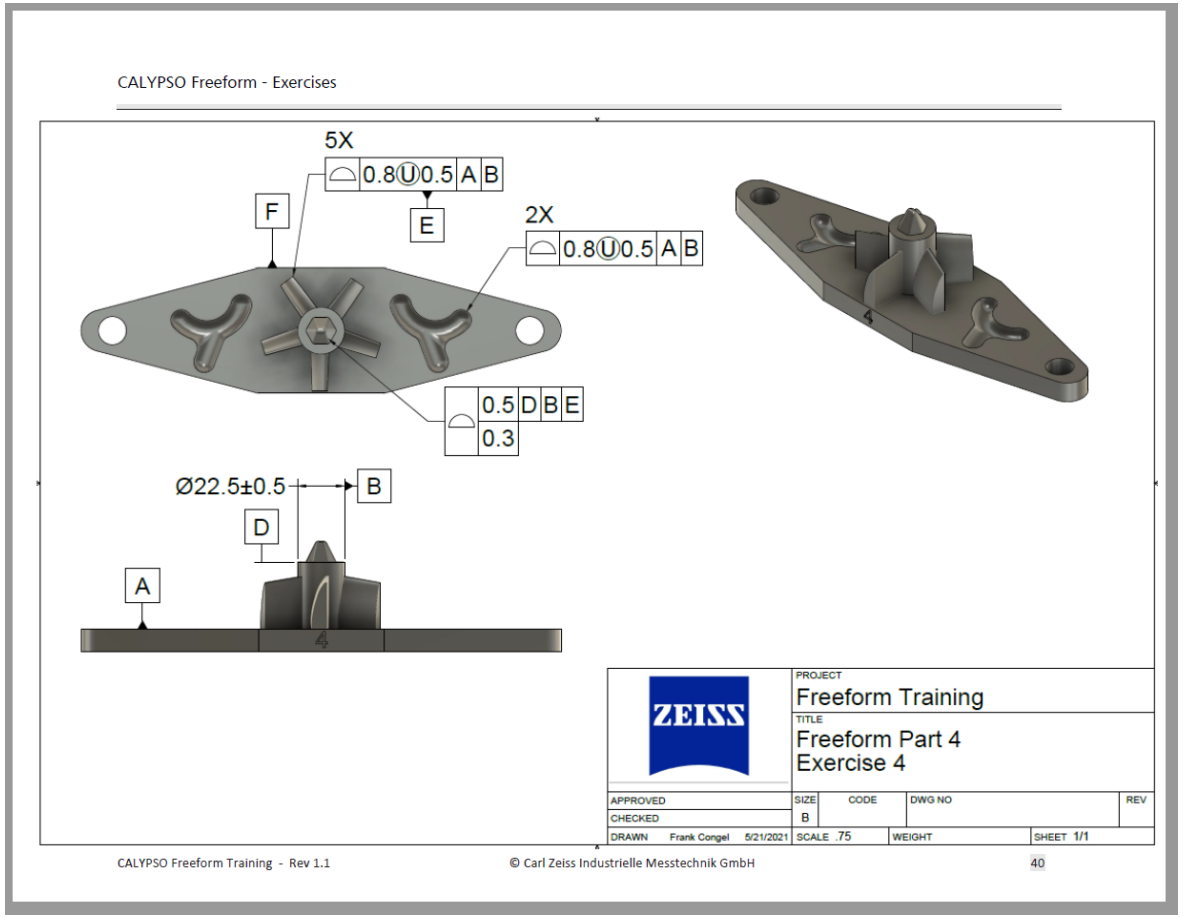
Freeform:



CALYPSO Freeform - Exercises

Exercise:

1. **Mount Freeform Training Block #2 to the CMM.**
   a. Screw the base to the CMM using the two outer holes of the part as shown.
   b. The "2" should be facing you to the -Y direction.
2. **Start a new CALYPSO program.**
3. **Ensure you have a 3mm or 5mm stylus, with a minimum working length of 25mm qualified and ready to use for this lab.**
4. **Ensure that the recommended Scanning Strategy Defaults are loaded (this was done for Exercise 1).**
   a. Go to RESOURCES>SAVE/LOAD DEFAULTS, STRATEGY tab.
   b. It's recommended to save your current settings so you can replace after class (type a name and click the SAVE button).
   c. Click the IMPORTING... button.
   d. From the provided USB Drive, Import the "FreeformStrategies.tec" file
5. **Load the FreeformPart2.sab CAD Model**
   a. CAD – CAD FILE – LOAD. Navigate to the cad file.
6. **Align the part on datums A, B, and C as shown**
   a. Datum A is the LEFT side bottom plane with the ZEISS logo
   b. Datum B is the LEFT side thru bore
   c. Datum C is the RIGHT side thru bore
7. **Create Clearance planes from the CAD model**

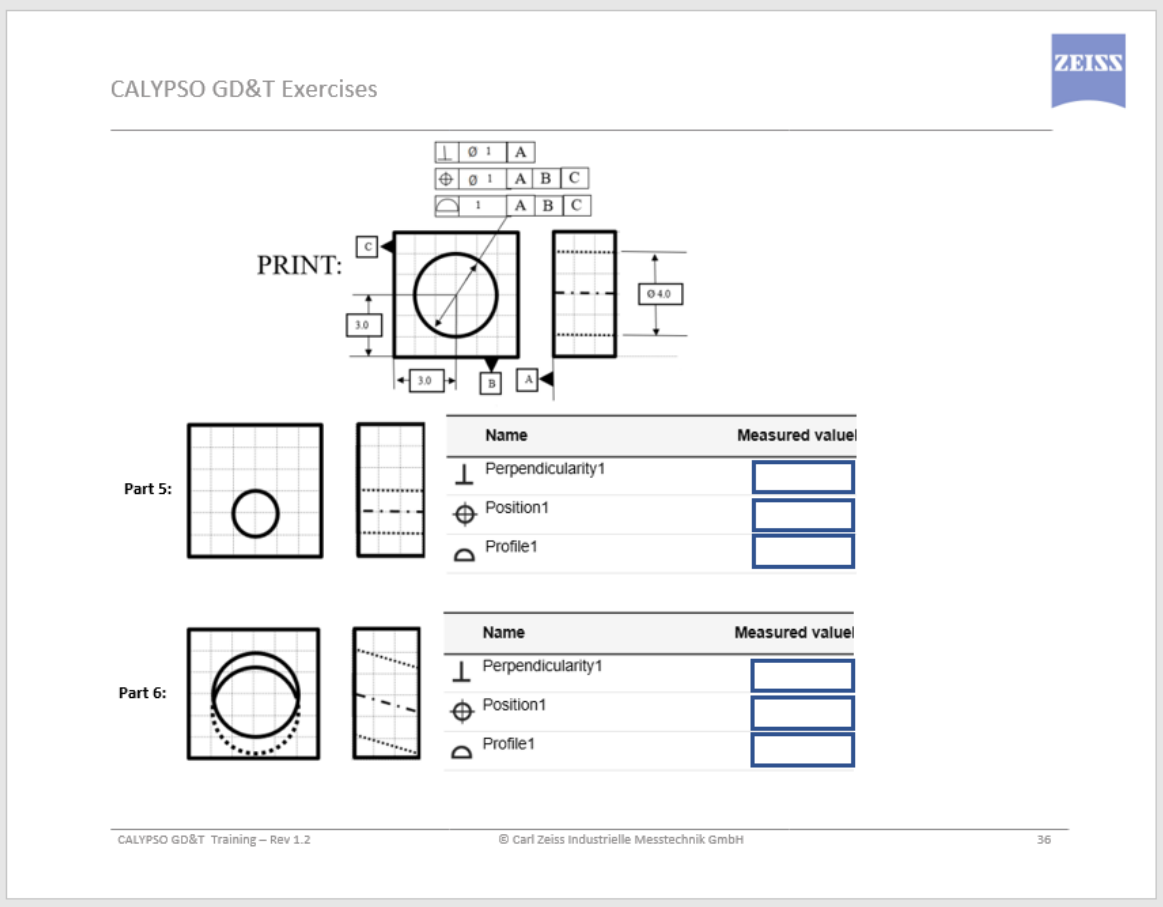


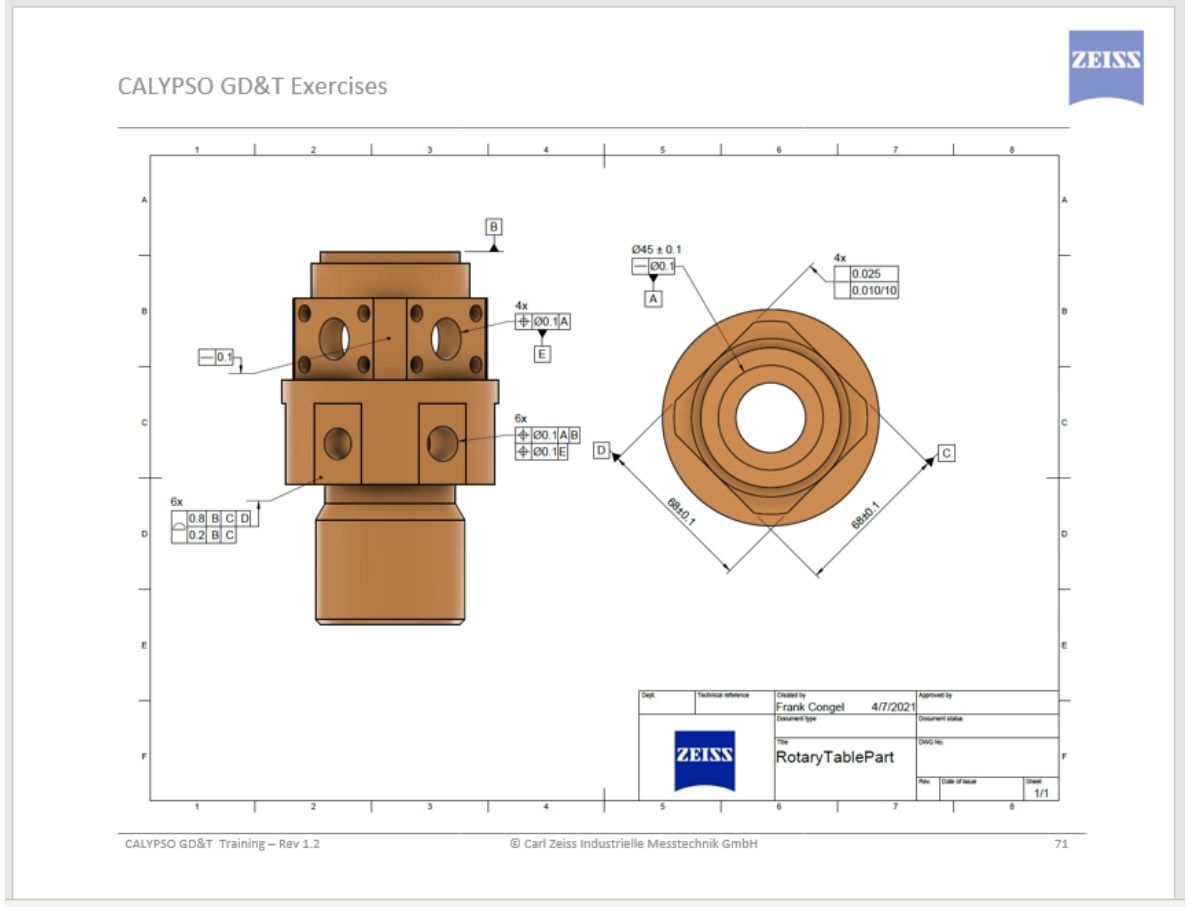
CALYPSO Freeform - Exercises

Live Online Training

New Lab Activities with Clearly Defined Deliverables

GD&T:

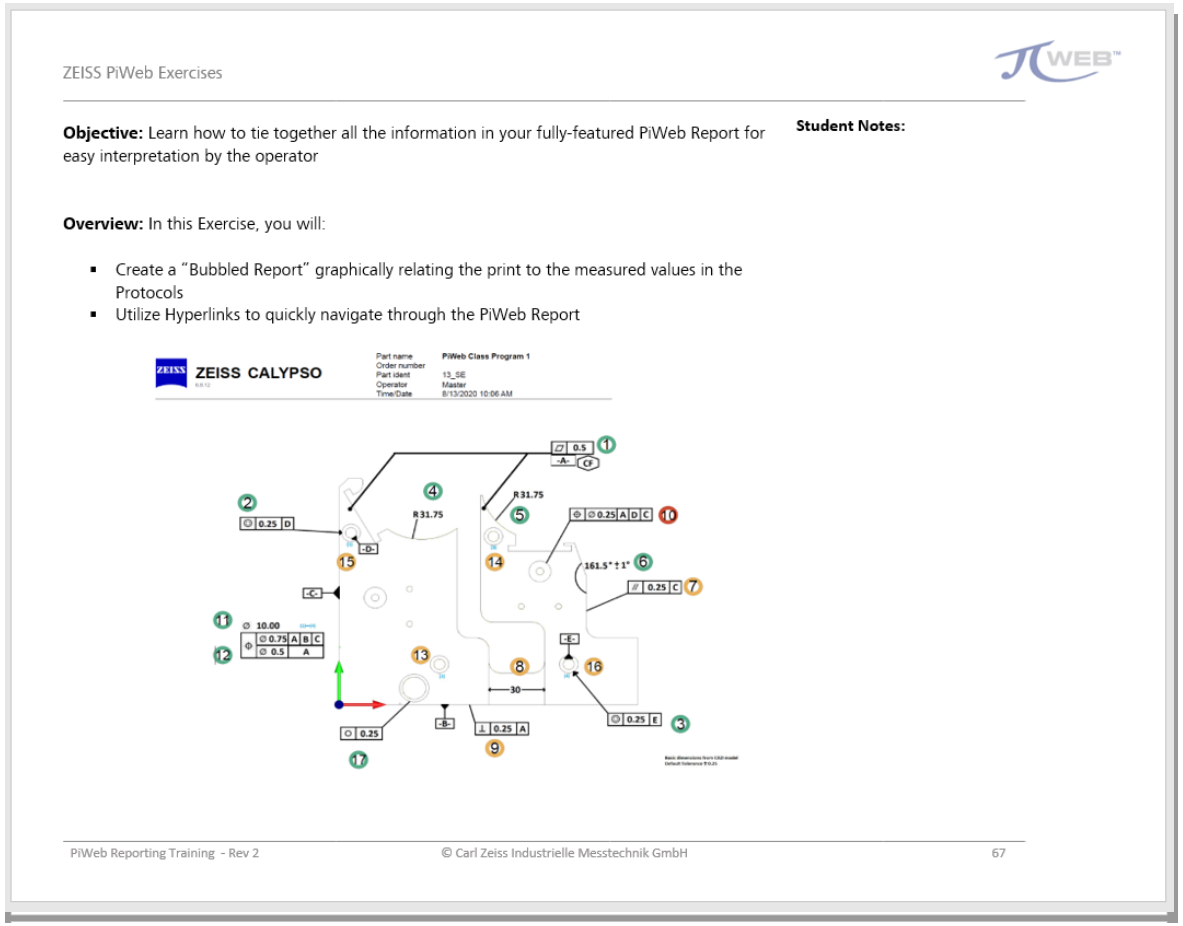




Live Online Training

New Lab Activities with Clearly Defined Deliverables

PiWeb Reporting/Reporting Plus:



ZEISS PiWeb Exercises

Objective: Learn how to tie together all the information in your fully-featured PiWeb Report for easy interpretation by the operator

Student Notes:

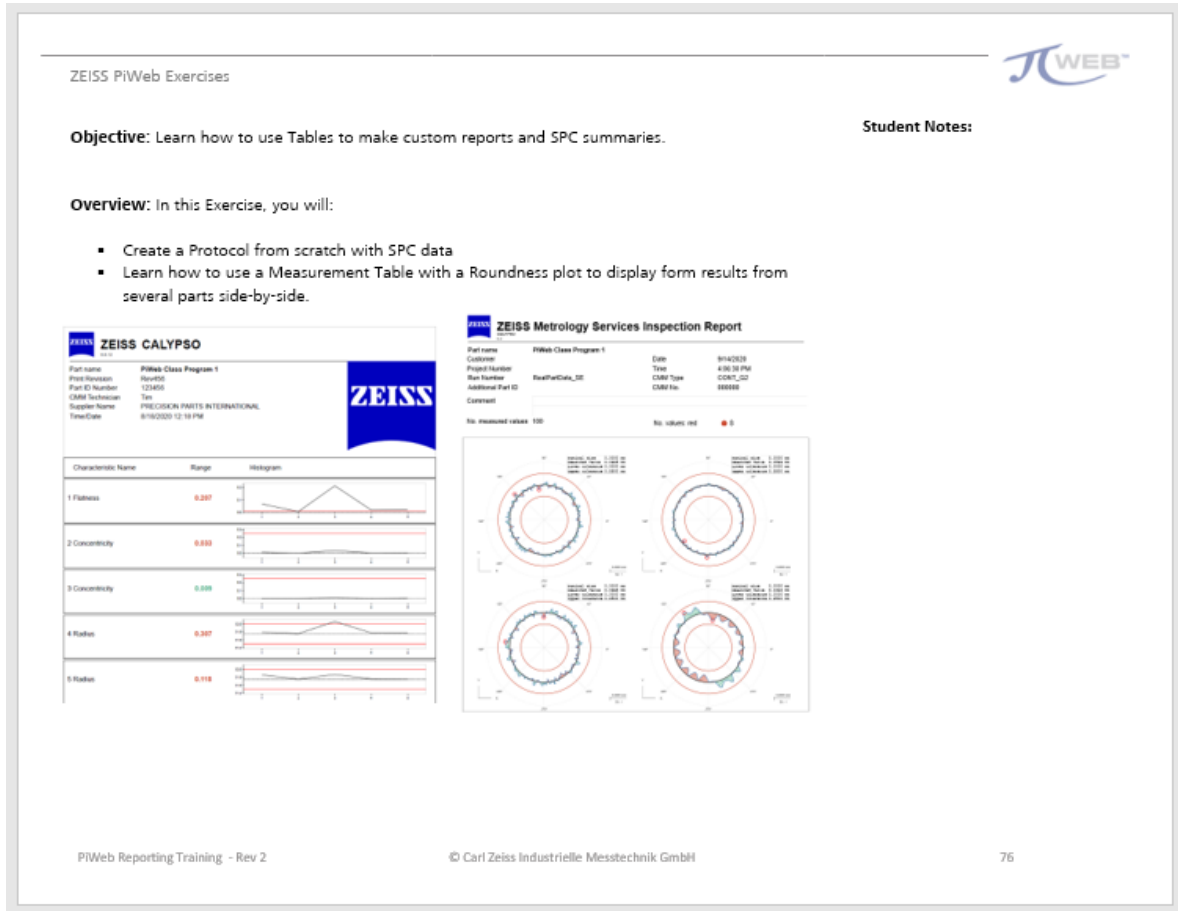
Overview: In this Exercise, you will:

- Create a "Bubbled Report" graphically relating the print to the measured values in the Protocols
- Utilize Hyperlinks to quickly navigate through the PiWeb Report

ZEISS CALYPSO

Part name	PiWeb Class Program 1
Order number	
Part ident	13_SE
Operator	Master
Time/Date	8/13/2020 10:06 AM

PiWeb Reporting Training - Rev 2 © Carl Zeiss Industrielle Messtechnik GmbH 67



ZEISS PiWeb Exercises

Objective: Learn how to use Tables to make custom reports and SPC summaries.

Student Notes:

Overview: In this Exercise, you will:

- Create a Protocol from scratch with SPC data
- Learn how to use a Measurement Table with a Roundness plot to display form results from several parts side-by-side.

PiWeb Reporting Training - Rev 2 © Carl Zeiss Industrielle Messtechnik GmbH 76

Live Online Training

Training Schedule

	Teaching Session Class Hours (EST)	Time Needed to Complete Labs	Machine Requirement
CALYPSO Basic	M-F : 9:30 - 11:00 am M-Th : 2:00 - 3:30 pm	3 hours / Day	Students must complete Assignments on their **Online CMM** – physical measurements required.
CALYPSO Advanced	M-F : 9:30 - 11:00 am M-Th : 2:00 - 3:30 pm	3 hours / Day	Students must complete Assignments on their **Online CMM** – physical measurements required
Curve	M-F : 11:00 am - Noon M-Th : 2:30 - 3:30 pm	3 hours / Day	Students must complete Assignments on their **Online CMM** – physical measurements required
Freeform	M-F : 1:00 – 2:30 pm	2 hours / Day	Students must complete Assignments on their **Online CMM** – physical measurements required
GD&T	M-F : 1:00 – 2:00 pm M-Th : 3:00 - 4:00 pm	2 hours / Day	Assignments can be completed on an **OFFLINE** seat of CALYPSO **or** at the **Online CMM**.
PiWeb Reporting	M-F : 1:00 – 2:00 pm M-Th : 3:00 - 4:00 pm	2 hours / Day	Assignments can be completed on an **OFFLINE** seat of CALYPSO **or** at the **Online CMM**.
O-Inspect Optics	M-W : 10:30 am – Noon M-W : 3:00 – 4:40 pm	3 hours / Day	Students must complete Assignments on their **Online CMM** – physical measurements required

Live Online Training

Successful, Proven Classes

Overwhelmingly positive reviews:

- Great instructor, very knowledgeable and was willing to help with any issue I came across. Cannot say enough good things about this training I preferred it over an in-class session because I could follow along with the instructor's every move

- Outstanding class. Would not have known this was the pilot class had it not been mentioned. Zeiss never fails to exceed my expectations.

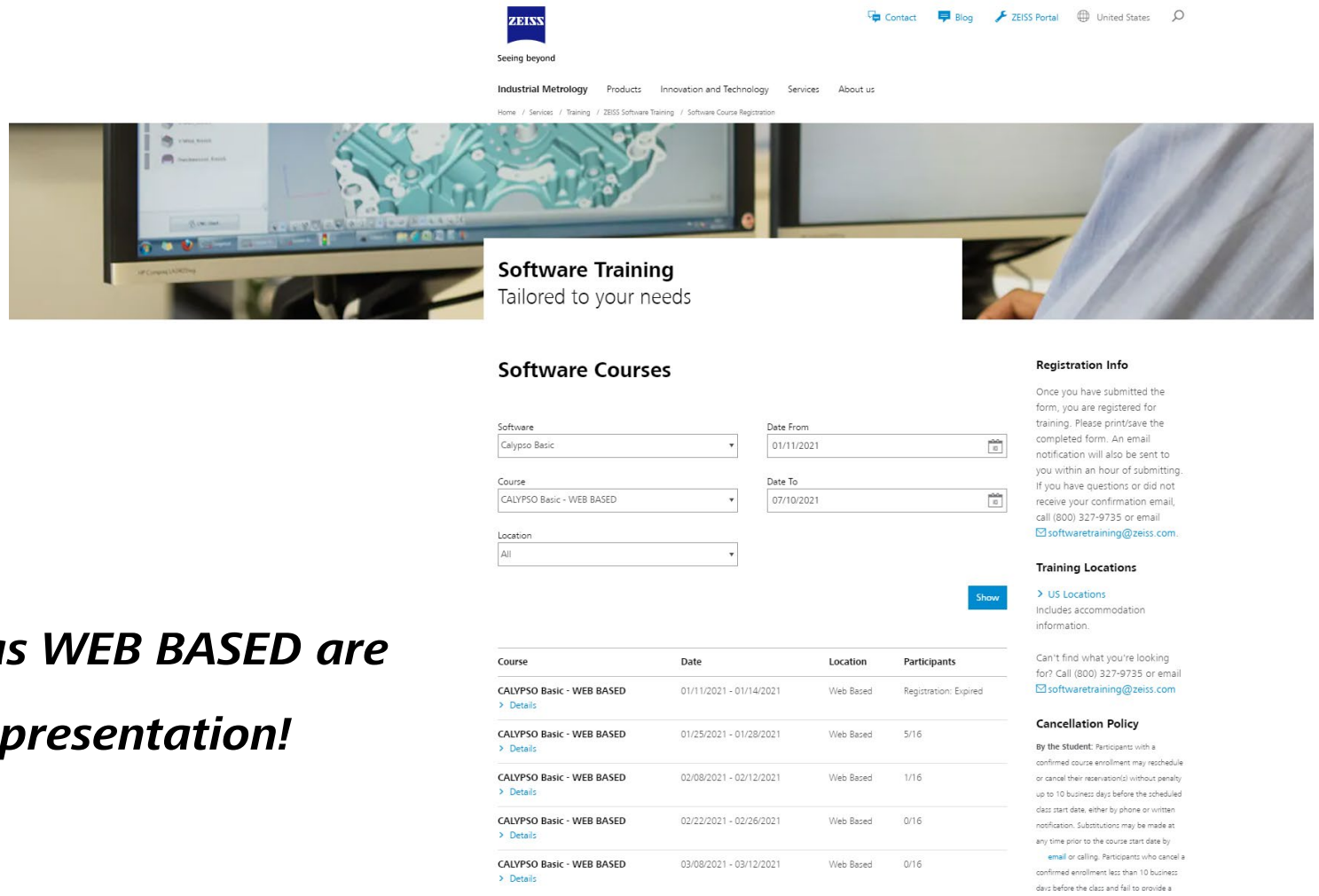
- We finished last week, the training went very well even though it was online. I have to say it has been the best training in terms of structure and trainer's preparedness. I have attended trainings at Hexagon, Nikon, and LK in the past, but ZEISS really stands out.

Live Online Training

Classes Available NOW

Visit:

https://www.zeiss.com/metrology/services/training/software-training/software-course-registration.html?donotcache



All classes labeled as WEB BASED are as described in this presentation!

Live Online Training

Questions?

Please contact Ryan Stauffer at ryan.stauffer@zeiss.com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