



optical 3D measurement and inspection

alicon

# Training

## Becoming an Expert

Become an expert in measuring form and roughness. Save time and money by performing successful measurements. Gain application know-how and enhance your measurement capacity. All trainings are held by certified experts in surface metrology.

Alicona offers several training modules to become an expert on:

- » **3D dataset generation**
- » **real3D measurements**
- » **roughness measurements**
- » **form measurements**
- » **automation scripting**

INFINITE**FOCUS**<sup>®</sup>

## General information

### Training locations

#### Alicona headquarters, Graz

- » Maximum number of participants: 12, max. 3 persons per instrument
- » Blocked training week according to supplement, blocks can be booked individually
- » Dates and prices can be found in the supplement
- » A training day includes 7 training hours

#### On-site training

- » The training can be booked individually. An experienced application engineer will perform the training at your suburb
- » Suggested group size 1-3 persons per instrument
- » Price can be found in the supplement, dates on request
- » A training day includes 7 training hours

#### Online-training

- » Online-training via internet on demand
- » Live measurements and application work of demo or/and customer specimen
- » Supervised measurement and application work
- » Desktop sharing with approved WebEx technology

### Alicona money-back guarantee

If you are not satisfied with the training we will refund your training fees.

### Early booking discount

When booking up to 6 weeks before the training you will receive a 5 % discount of the list price.

### Participation fee

Participation fee includes the costs of the training, training material and refreshments during the breaks. Accommodation and travel expenses are not included in the charges. All fees are exclusive VAT.

### Cancellation conditions

In case of cancellation within 3 weeks before the training a cancellation fee of 50 % is charged. Cancellation within 1 week before the training is charged with 100 %. This does not apply if a replacement participant will attend.

### Please note that ...

... the advanced trainings can only be booked if the according basic training has been attended.



### Contact

Please contact [customercare@alicona.com](mailto:customercare@alicona.com) or your local distributor for any questions and booking options!

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## » Introduction into Optical Metrology - Basic

*Learn more about the terminology in optical metrology and understand how Focus-Variation works.*

*“RESOLUTION, REPEATABILITY, ACCURACY –  
what is meant with these terms?”*

### **Optical versus Tactile**

Learn about the difference between optical and tactile measurements. Knowing the difference is informative, but knowing how to interpret the results in relation to tactile measurements is what often matters.

### **Focus-Variation – the technology**

Get detailed information about working principle and the benefits of Focus-Variation.

### **Terms in optical metrology**

Additionally to the terms resolution, repeatability, and accuracy, the training also covers the topics sampling distance, filtering, and SmartFlash technology.

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Theoretical presentation  
Duration: 3h 30min



#### **Learn more about...**

- » common terms in optical metrology
- » the Focus-Variation technology

## » Introduction into Optical Metrology - Advanced

*After this training you are capable to calibrate and trace back your measurements to approved standards. Be informed about current standards and terms such as GR&R or vertical dynamic.*

### **Traceability & Calibration**

No one will buy a surface metrology device that is not traceable.

But how do I get traceable measurement results? If you wish both, to calibrate your system and to perform traceable measurements, this training is exactly yours!

### **Common terms in metrology**

Furthermore the term “vertical dynamic” will be pointed out in detail. What is GR&R and how do I determine the ability of the measurement equipment? All these questions are answered.

### **Current standards**

Moreover we will update you on the current standards Alicona measurements conform to.

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Theoretical presentation  
Duration: 3h 30min



### **Learn more about...**

- » Traceability of your measurements and system calibration
- » Current standards

## » InfiniteFocus Measurements - Basic

*After this training unit you will know how to adjust the settings according to your application.*

### **Adjustment of measurement settings**

A good basic knowledge enables the user to tackle also tricky tasks. Knowing common InfiniteFocus software elements simplifies adjusting measurement parameters and finding the correct measurement settings.

### **Single measurement versus ImageField**

This training is divided into two blocks. A theoretical block to explain, amongst others, the difference between single measurements and ImageField. Additionally an overview of all standard measurement modules is given.

### **Stable sample positioning**

The other part of this training is performed with InfiniteFocus. Essentials such as how to insert samples or how to adjust illumination are presented.

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Theoretical and praxis training  
Duration: 3h 30min



#### **Learn more about...**

- » adjusting measurement settings
- » stable sample positioning

## » InfiniteFocus Measurements - Advanced

*Become an expert in measuring tricky surfaces (e.g. mirroring surfaces). Save resources by knowing more about time saving options. Learn how to determine the accuracy of your measurement.*

### **Tricky measurements**

The measurement of steep flanks or mirroring surfaces – easily achieved with InfiniteFocus. We will demonstrate how to select the appropriate measurement settings to measure samples with steep flanks. The measurement of shiny materials such as copper is performed as well. Also, the measurement of transparent components, which can be achieved by replica measurements, is presented.

### **Time saving options**

Time saving options as for example the auto focus are presented in a live demo.

### **Accuracy determination**

Determine the accuracy and dive into expert measurement settings and high resolution measurement. See how to determine the accuracy of your measurement.

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Theoretical and praxis training  
Duration: 3h 30min



### **Learn more about...**

- » tackling difficult measurements tasks
- » time saving measurement options

## » Roughness Measurements - Basic

*Learn how to filter form and roughness. Gain know-how about line and area based roughness measurements. Be informed about the latest roughness standards and see how roughness measurements by InfiniteFocus become traceable.*

### **Roughness, form, and waviness**

Separating roughness from form and waviness requires expertise knowledge. See how this filtering process is achieved on various samples.

### **Area or line based measurements**

In order to achieve meaningful roughness measurements the use of the right module is crucial. Depending on the measurement task either area based or line based roughness measurements give a more significant result.

### **Current roughness standards**

Moreover, the most current roughness standards are covered in this training.

### **Traceability of roughness measurements**

Last but not least we introduce the roughness standard especially developed for optical measurement systems. By using this roughness standard InfiniteFocus measurements become traceable.

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Theoretical and praxis training  
Duration: 3h 30min



#### **Learn more about...**

- » differentiation of roughness, form, and waviness
- » the traceability of roughness measurements

## » Roughness Measurements - Advanced

*Find out how roughness on e.g. small buckled surfaces is measured. Gain expert know-how on very special roughness parameters. Grasp which parameter visualization shows the most significant result. Moreover, learn how to determine the measurement accuracy.*

### **Measure roughness on small buckled surfaces**

Do you need to measure the roughness of small buckled surfaces? See how easily it can be achieved with the bearing ratio curve. For some measurement tasks the fractal dimension graphics is even more significant. Learn how to read these visualizations.

### **Application specific parameters**

Depending on the chosen measurement module, InfiniteFocus delivers various surface parameters, usually displayed in tabs. Get a feeling which parameter delivers the most significant information.

### **Define measurement uncertainty**

Additionally to all these different parameters see how determining the measurement uncertainty for the current measurement works.

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Theoretical and praxis training  
Duration: 3h 30min



### **Learn more about...**

- » measuring roughness on buckled surfaces
- » application specific parameters

## » InfiniteFocus Real3D Measurements

*See how 360° measurements work best.*

### **360° measurements**

Real3D - measure around 360°. Get trained how to grip the specimen and how to select the correct settings for your application.

### **Optional measurement modules**

Learn more about the Real3D measurement modules for complete form measurement. Including the 3D-form, the contour, and the difference measurement module.

### **General terms**

Get to know essential terms in metrology. Including terms such as form and orientation.

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Theoretical and praxis training  
Duration: 3h 30min



### **Learn more about...**

- » 360° measurements
- » 3D-form, contour and difference measurement modules

## » Form Measurements - Basic

*See how to professionally measure form. Learn how to filter out roughness from your dataset. Furthermore we will show you how you can verify InfiniteFocus form measurements. After this training you will know when to use “robust” and when to use the “all points” method.*

### **Separate form from roughness**

Make sure to measure form only, without roughness.

Imagine measuring a sphere. Since roughness is not a form deviation the roughness needs to be filtered out beforehand. Then the actual form deviation measurement can be performed.

### **Verify form measurements**

A range of different form standards is presented. These standards help verifying form measurements.

### **“Robust” versus “all points”**

Experience the difference between “robust” and “all points” measurements and be trained on which mode needs to be used for what applications.

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Theoretical and praxis training  
Duration: 3h 30min



### **Learn more about...**

- » separating form from roughness
- » verifying your form measurements

## » Form Measurements - Advanced

*Gain expert know-how on complex form measurement tasks including Real3D measurements. Learn how to determine the measurement uncertainty of form measurements. Get introduced into the expert settings for Real3D measurements.*

### **Measuring complex forms and geometries**

Elaborated measurements of complex forms and geometries. No matter whether it's a basic form or a form deviation – see how it can be measured!

### **Determine measurement uncertainty**

In this training we show how to determine the measurement uncertainty of a form measurement.

### **Complex Real3D measurements**

Moreover, this training includes live measurements on complex Real3D measurements as well as a demonstration of all available functionalities of the difference module.

### **Expert settings for Real3D measurements**

Very specific form measurement parameters such as distance threshold or outlier percentage and their effects on the measurement are presented.

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Theoretical and praxis training  
Duration: 3h 30min



### **Learn more about...**

- » measuring complex forms
- » expert settings for Real3D measurements

## » Automation - Basic

*Learn how to automate measurements with InfiniteFocus via scripting. See how scripting, installing, and executing scripts work. Get an overview of the most important scripting classes and their methods.*

### **Automate your measurements**

Automate InfiniteFocus measurements using the automation scripting. You will get an introduction into the general scripting language of Alicona. See how to script, install, and execute scripts in the InfiniteFocus software.

### **Scripting functionalities**

You will get an overview of the most important classes and their methods. Together with the trainer you will develop an example script. Moreover, we will inform you how to use “Script Logs” and how to deal with exceptions.

### **Required qualifications**

Basic programming know-how is helpful for this training.

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Theoretical and praxis training  
Duration: 3h 30min



### **Learn more about...**

- » automating your InfiniteFocus measurements
- » scripting functionalities

## » Automation - Advanced

*Learn to develop scripts that allow user interaction at execution. Get a deeper insight into rather complex classes and their methods.*

### GUI-element options

Automating my measurements is nice – but can I also automate my measurements without hard coded measurement parameters?

Learn more about advanced GUI-elements as for example TableDialog or SurfaceAndProfileDialog.

### Deep insight into complex classes

Difficult measurement tasks require more specific know how in the scripting language. This training gives you a deeper insight into the classes SurfaceLabelRegionIsr, FormFitting3D, FormRemoval and the FrequencyFilter class.

### Required qualifications

Programming know-how is essential for participating in this training.

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Theoretical and praxis training  
Duration: 3h 30min



#### Learn more about...

- » advanced GUI-element options
- » complex classes and functionalities