ZEISS Microscopy

Course Catalog

ZEISS Training and Education
Expand Your Possibilities

Practical microscopy training has a long tradition at ZEISS. The first courses were held in Jena as early as 1907, initiated by two notable ZEISS scientists, Henry Siedentopf and August Koehler. The courses have since been continuously advanced and updated. Our own continuous education as well as cooperation projects with scientists in high-ranking laboratories ensure that we are always up to date.

Our courses impart the theoretical background as well as practical skills in many applications from biology, medicine and materials science. Lectures are immediately followed by practical hands-on trainings in small groups. And you will get comprehensive course material, which you can refer to when practicing your newly acquired skills and knowledge at your place.

Our trainers are graduated scientists and bring together knowledge in various scientific fields with several years of experience in microscopy and its practical application. This combination of technical and applications know-how is just the right mixture to get your theoretical and practical questions answered.

At our applications centers you have access to various combinations of microscopes of the latest generation – from the simple course microscope to digital imaging systems. Our courses offer maximum efficiency during theoretical and practical learning with the most modern systems. There is no better access to l earn the diversity of microscopical applications.

We also offer customized courses at your facility to meet your special requirements. If you need professional support for your courses, we would like to help with our expertise.

ZEISS Microscopy Training Team

For further information, our current schedule and the registration form visit www.zeiss.com/microscopy/courses

From Beginner to Expert

Our courses provide both, basic as well as advanced knowledge to handle specific microscopic applications which are tailored to our products.

Our **Introduction Courses** give you a short and theoretical overview on the specific application field. You need no previous knowledge.

To acquire fundamentals in theory and practice, we recommend our **Basic Courses**. There is no previous experience required.

In our **Advanced Courses**, you deepen your theoretical and practical knowledge to conduct specific microscopic applications. Basic microscopical knowledge is recommended.

Become an expert - Deep theoretical and practical knowledge will be provided in our **Expert Courses**. These courses build on existing theoretical and practical microscopy knowledge.

Our **Customized Trainings** are adapted to your needs and prerequisites.

General Booking Information

Current course schedule and online registration

Find our current course dates on our ZEISS homepage. As well, you have the possibility to book your training there. And that's how it works:

1. Go to www.zeiss.com/microscopy/courses.
2. Select your course from the current course schedule.
3. Next to the course description you will find the registration tab with an online form.
4. Please fill in the form. Select a hotel, if you need one. Take a look at our terms and conditions.
5. After submitting the form, you will receive an Email, which confirms that your dates have been transmitted.
6. Detailed information on the course and your hotel booking will be sent at latest 4 weeks before the course starts.

You do not find an appropriate date or course?

If there is no appropriate date or course available, or if you need any additional information, or if you have any question regarding our courses, please do not hesitate to contact us via **courses.microscopy.de@zeiss.com**.

Hotels near the ZEISS locations

We would appreciate to provide any assistance with the hotel booking. At our ZEISS locations in Jena und Oberkochen we recommend the following hotels:

Jena

- Ibis Hotel Jena, www.ibishotel.com
- Best Western Hotel Jena, www.bestwestern.de
- Steigenberger Esplanade Hotel Jena, www.steigenberger.com

Oberkochen

- Ramada Limes-Thermen, www.h-hotels.com
- Scholz Privathotel, www.hotel-scholz.de

Course Directory

Interactive content: Please click on the course you would like to go.

Electron Microscopy Courses

Laser Scanning Microscopy Courses

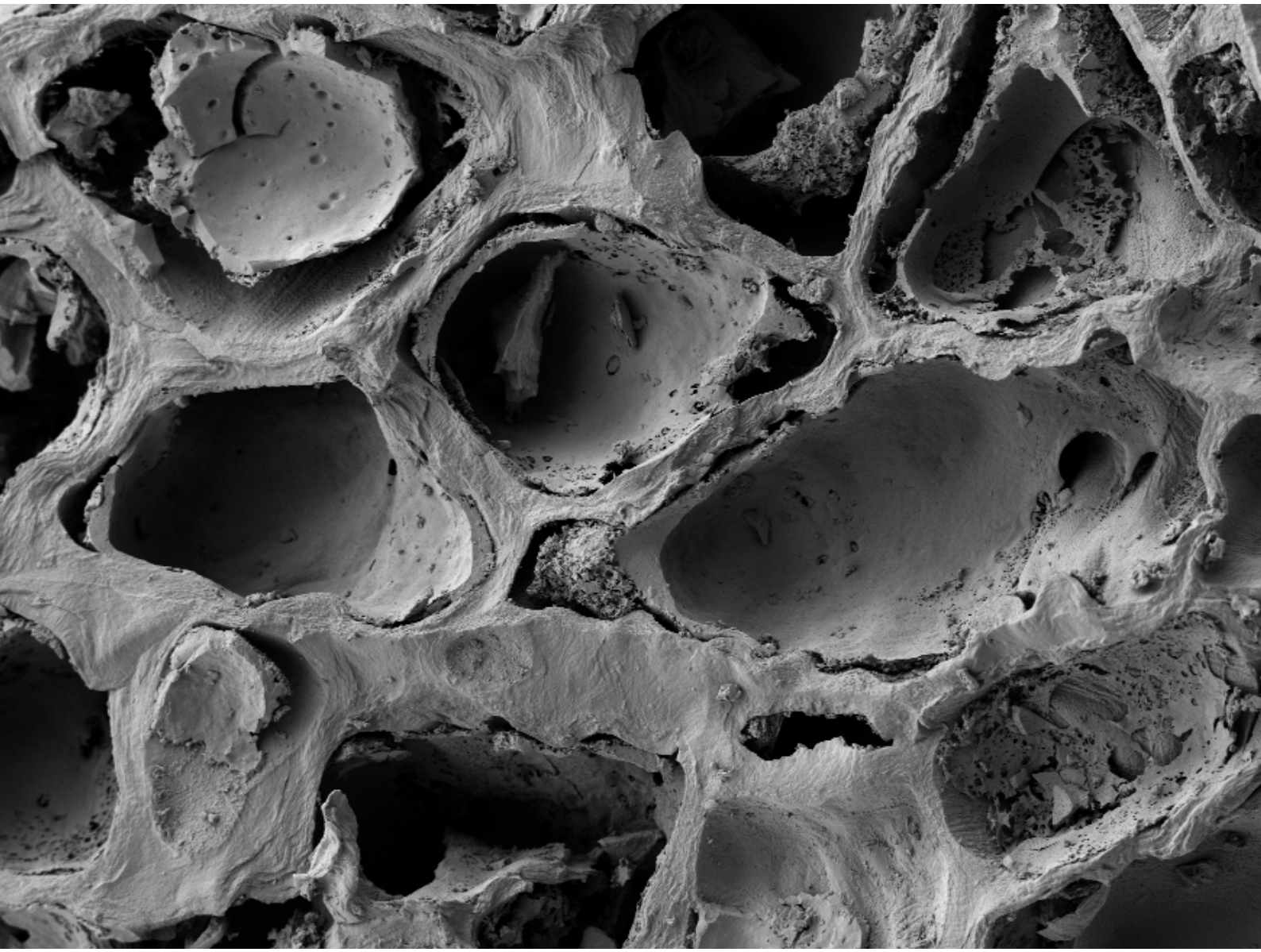
Course Directory

Interactive content: Please click on the course you would like to go.

Light Microscopy Courses

Software Courses

Electron Microscopy Courses



Coffee Grounds, 750x Crossbeam, Todd Simpson, Western University, Canada, tsimpson@uwo.ca.

Introduction to Scanning Electron Microscopy (SEM)

General	Electron microscopic methods are an integral part in science, medicine, and industry and have a very wide range of applications. Scanning electron microscopy (SEM) by far exceeds the resolution limit of conventional light microscopes. Increasingly powerfuldevices and a growing understanding of the obtained images and spectra allow two- or even three-dimensional analysis down to nano dimensions. A modern scanning electron microscope allows both the determination of structures and the identification of the local chemical composition of a sample. This course provides theoretical knowledge and includes a short practical demonstration of a SEM.
Topics	• Difference between light and electron microscopy • Scanning electron microscopy (SEM) • Analytical methods using different detectors (e.g. EDX) • Sample preparation methods • Further microscopic methods: FIB-SEM technology and helium-ion microscopy
Prerequisites	• No previous knowledge necessary.

Language	English & German
Location	labs@location
Duration	1 day(s)
Participants	max. 12
SAP No.	000000-2173-733 Please refer to our attached price list. The participation of students is free of charge with a valid student certificate.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Basic Course
Scanning Electron Microscopy (SEM)

General	Are you new to scanning electron microscopy? Interested in how to get the maximium out of your instrument? This course provides the basic knowledge on the functions, technology and operation of a scanning electron microscope (SEM). Learn how successfully operate a SEM and to handle basic sample preparation techniques.
Topics	• Components and functions of a SEM • Preparation of conductive and nonconductive samples. Difference between material and biological samples • Detectors - Selection and operation • Image acquisition settings and adjustment of the electron beam • Causes of image artefacts
Prerequisites	• No previous knowledge necessary.

Language	English & German
Location	ZEISS Microscopy Customer Center Oberkochen | Your location upon request
Duration	3 day(s)
Participants	max. 4
SAP No.	000000-2172-130 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Advanced Course
Nanopatterning using Atlas 5 NPVE

General	Learn how to solve complex problems in FIB / SEM nanoprototyping using the Atlas 5 Advanced NanoPatterning & Visualization Engine (NPVE Advanced) module.
Topics	• Patterning beam control, -shapes and -parameters • Visualization during patterning • Building complex patterning shapes and depth profiles • Patterning parameter optimization • Patterning project analysis
Prerequisites	• Basic SEM and FIB experience.

Language	English & German
Location	ZEISS Microscopy Customer Center Oberkochen
Duration	2 day(s
Participants	max. 5
SAP No.	000000-2192-525 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Advanced Course
Nanotomography using Atlas 5 3D Tomography

General	FIB-SEM tomography is a well-established method to collect 3D SEM datasets by iterative milling and imaging of a specimen subvolume. In this course you will learn how to acquire 3D SEM data with a ZEISS Crossbeam system using the software package Atlas 5 3D Tomography that allows the acquisition of sub-10 nm voxel size datasets.
Topics	• Setting up the Crossbeam for FIB-SEM tomography • Setting up an Atlas 3D Tomography run • Deposition of protection layers • Preparing a polished cross-section • Setting up the SEM imaging system • Drift correction, auto-focus and auto-stigmation • Data processing and visualisation in Atlas 5 and using the software ORS Visual SI
Prerequisites	• Basic SEM and FIB experience.

Language	English & German
Location	ZEISS Microscopy Customer Center Oberkochen
Duration	2 day(s
Participants	max. 4
SAP No.	000000-2192-526 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

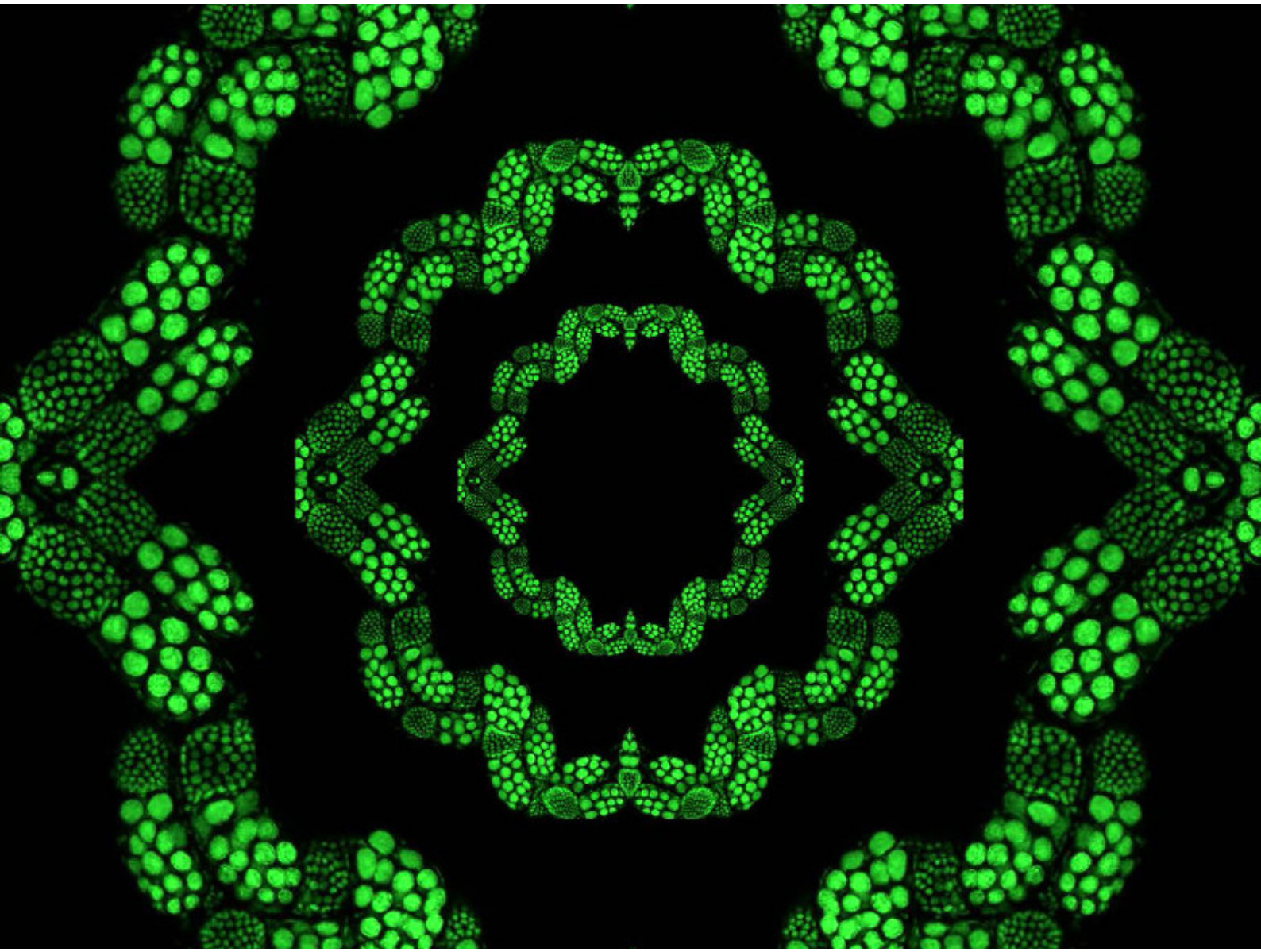
Customized Trainings
Scanning Electron Microscopy

General	If you have a special training request of microscopy topics not covered in this catalog, please feel free to contact us.
Topics	• Tailored to your needs
Prerequisites	• No previous knowledge necessary.

Language	English & German
Location	ZEISS Microscopy Customer Center Oberkochen | Your location upon request
Duration	1-5 day(s)
Participants	n.a.
SAP No.	000000-2172-132 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Laser Scanning Microscopy Courses



A picture created from a confocal (LSM 710) image of developing eggs from the ovary of the parasitic wasp Microplitis demolitor.
Biomedical Microscopy Core, University of Georgia, Athens, GA

Basic Course
LSM 800

General	Laser Scanning Microscopy is a standard method in biomedical research. Excellent knowledge of its theory and application is a prerequisite for experimental success. This course provides detailed knowledge about point scanning confocal microscopes in respect to its assembly, features and application in biomedical sciences. Learn about the Airyscann technology and how it is used in typical confocal experiments.
Topics	• Theory of laser scanning confocal microscopy • Beam paths and configurations of the LSM 800 • Variable Secondary Dichroic Beamsplitter (VSD) and how to use it • Emission filters and Cross-talk avoidance • Image acquisition and optimization • Multiple fluorophore imaging and channel-based linear unmixing • Lambda Stack acquisition and linear unmixing • Basic image analysis and colocalization • 3D image acquisition and reconstruction • System maintenance and care (SMT, ConfigTool, etc) • Selecting objective lenses for laser scanning microscopy • Airyscan (confocal, virtual pinhole and superresolution imaging)
Prerequisites	• No previous knowledge necessary.

Language	English & German | We provide all course materials in English.
Location	Training and Support Center Jena | Your location upon request
Duration	2 day(s)
Participants	max. 3
SAP No.	000000-2172-134 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Basic Course
LSM 880

General	Laser Scanning Microscopy is a standard method in biomedical research. Excellent knowledge of its theory and application is a prerequisite for experimental success. In this course you will master the skills required for professional operation of our laser scanning microscopes including high-quality imaging of three dimensional samples, of multi fluorophore labeled samples and basic quantitative image analysis.
Topics	• Principle and beam paths of confocal laser scanning microscopy • Image acquisition and optimization • Multiple fluorophore imaging and channel-based linear unmixing • 3D image acquisition and reconstruction • Basic image analysis and colocalization • System care and maintenance (SMT Tool, ConfigTool, etc) • Selecting objective lenses for laser scanning microscopy
Prerequisites	• No previous knowledge necessary.

Language	English & German | We provide all course materials in English.
Location	Training and Support Center Jena | Your location upon request
Duration	2 day(s)
Participants	max. 6
SAP No.	000000-2140-100 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Advanced Course LSM 880

General	Besides their classical function as superior 2D and 3D imaging systems, advanced confocal laser scanning microscopes can be applied to study subcellular dynamics and to separate multiple fluorescent labels in a live cell environment. Confocal microscopy of living cells requires speed optimized imaging, minimized light induced lesions, and highest achievable resolution. If fluorescent labels with overlapping emission spectra are combined, simultaneous spectral acquisition followed by linear umixing can be used to separate them from each other. By using the Airyscan, you have the possibility to gain not only higher resolution but also higher sensitivity. Master these innovative experimental approaches during this course and apply them successfully in your own research.
Topics	• Strategies for multiple fluorophore imaging • Lambda stack acquisition, linear unmixing, and online fingerprinting • Live cell imaging strategies • Airyscan (in all modes: confocal, virtual pinhole, sensitivity, and superresolution imaging) • Optimal Airyscan set-up (e.g. sample levelling or MBS adjustment) • Operation of Airyscan Fast mode
Prerequisites	• Fundamentals are recommended, e.g. our „Basic Course LSM 880“.

Language	English & German | We provide all course materials in English.
Location	Training and Support Center Jena | Your location upon request
Duration	3 day(s)
Participants	max. 6
SAP No.	000000-2140-097 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Basic Course
LSM 700

General	Laser Scanning Microscopy is a standard method in biomedical research. Excellent knowledge of its theory and application is a prerequisite for experimental success. This course provides detailed knowledge about point scanning confocal microscopes in respect to its assembly, features and application in biomedical sciences.
Topics	• Theory of laser scanning confocal microscopy • Beam paths and configurations of the LSM 700 • Variable Secondary Dichroic Beamsplitter (VSD) and how to use it • Emission filters and Cross-talk avoidance • Image acquisition and optimization • Multiple fluorophore imaging and channel-based linear unmixing • Lambda Stack acquisition and linear unmixing • Basic image analysis and colocalization • 3D image acquisition and reconstruction • System maintenance and care (SMT, ConfigTool, etc) • Selecting objective lenses for laser scanning microscopy
Prerequisites	• No previous knowledge necessary.

Language	English & German | We provide all course materials in English.
Location	Only at your location
Duration	3 day(s)
Participants	n.a.
SAP No.	000000-2102-955 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Basic Course
LSM 710/780

General	Laser Scanning Microscopy is a standard method in biomedical research. Excellent knowledge of its theory and application is a prerequisite for experimental success. In this course you will master the skills required for professional operation of our laser scanning microscopes including high-quality imaging of three dimensional samples, of multi fluorophore labeled samples and basic quantitative image analysis.
Topics	• Principle and beam paths of confocal laser scanning microscopy • Image acquisition and optimization • Multiple fluorophore imaging and channel-based linear unmixing • 3D image acquisition and reconstruction • Basic image analysis and colocalization • System care and maintenance (SMT Tool, ConfigTool, etc) • Selecting objective lenses for laser scanning microscopy
Prerequisites	• No previous knowledge necessary.

Language	English & German | We provide all course materials in English.
Location	Only at your location
Duration	2 day(s)
Participants	n.a.
SAP No.	000000-2102-953 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Advanced Course LSM 710/780

General	Besides their classical function as superior 2D and 3D imaging systems, advanced laser scanning microscopes can be applied to study subcellular dynamics and to separate multiple fluorescent labels in a live cell environment. Confocal microscopy of living cells requires to optimize imaging for speed and minimal light induced lesions. If fluorescent labels with overlapping emission spectra are combined, simultaneous spectral acquisition followed by linear umixing can be used to separate them from each other. Different photo manipulation techniques provide information about dynamic properties of the labeled components. Learn to master these innovative experimental approaches during this course to apply them successfully in your own research.
Topics	• Strategies for multiple fluorophore imaging • Lambda stack acquisition, linear unmixing, and online fingerprinting • Live cell imaging strategies • Photomanipulation of dyes (photoconversion and photoactivation) • FRAP (Fluorescence Recovery After Photobleaching) • FRET (Forster Resonance Energy Transfer) • Tiles and positions, ROI High Dynamic Range Imaging, 3D VisArt
Prerequisites	• Fundamentals are recommended, e.g. our „Basic Course LSM 710/780“.

Language	English & German | We provide all course materials in English.
Location	Only at your location
Duration	3 day(s)
Participants	n.a.
SAP No.	000000-2102-951 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Advanced Course
FRET, FRAP, and Stitching

General	Advanced scientific research can require specialized microscopy applications for either measuring if molecules are spatially very close (within nm), or for analyzing the mobility of molecules. Learn the techniques of FRET and FRAP. Imaging of large specimen areas with higher resolution can demand automated acquisition strategies such as tile scanning. Learn how to stitch your tile scanned areas as well as correct for shading to give the optimal image of your specimen.
Topics	• Theory and practice of FRAP (Fluorescence Recovery After Photobleaching) using living cells • Theory and practice of other Photomanipulation strategies • Theory and practice of FRET (Forster Resonance Energy Transfer), a technology to prove molecular interaction on the basis • of (confocal) light microscopy • The world beyond Tile-scanning: Stitching and Shading correction
Prerequisites	• Fundamentals are recommended, e.g. our „Basic Course LSM 880“.

Language	English
Location	Training and Support Center Jena | Your location upon request
Duration	2 day(s)
Participants	max. 6
SAP No.	000000-2172-338 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Advanced Course Experiment Designer

General	Experiments can be as complex as the questions they should address. Intelligent imaging strategies for imaging different sample locations along with optimal settings can help. With the Experiment Designer, you can easily create complex workflows (with e.g. different configurations, z-stacks, time intervals) to image each location at its best.
Topics	• Defining experimental blocks including all settings (e.g. configuration, scanning modes, positions, different z-stacks) • The concept of repeating and looping blocks • Inserting pauses • Combining blocks into complex experiments • Saving complex experiments
Prerequisites	• Fundamentals are recommended, e.g. our „Basic Course LSM 880“.

Language	English
Location	Training and Support Center Jena | Your location upon request
Duration	1 day(s)
Participants	max. 6
SAP No.	000000-2172-340 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Expert Course
Multiphoton Laser Scanning Microscopy

General	Multiphoton microscopy enables due to the far red excitation deep tissue imaging and is thereby gentle on your sample. Master the theory and practical aspects of non-linear optical microscopy (with and without Airyscan detection), including the applications of an NLO instrument.
Topics	• Theory of Multiphoton laser scanning microscopy • Beam paths and configurations of NLO systems • Objective lenses for Multiphoton • Non-Descanned Detection and NDD filter sets • Excitation fingerprinting • Second harmonic generation • System maintenance and care • NLO imaging with Airyscan
Prerequisites	• Profound knowledge are recommended, e.g. our „Advanced Course LSM 880“.

Language	English & German | We provide all course materials in English.
Location	Training and Support Center Jena | Your location upon request
Duration	2 day(s)
Participants	max. 3
SAP No.	000000-2102-956 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Expert Course
Superresolution Microscopy

General	Superresolution microscopy is a novel technique that enables insights into structures beyond the classical resolution limit. In essence there are two major superresolution techniques available. One is based on a structured illumination approach (SIM), the other depends on activatable or photo-switchable fluorophores. This course will provide the skills to acquire SR-SIM, PALM, and dSTORM data from specimens and will enable you to perform the appropriate processing.
Topics	• Localization microscopy – basics and applications • Comparison: PALM vs. dSTORM • PALM: multichannel imaging • PALM: grouping and working with fiducials • PALM: activation strategies • PALM: 3D PALM • SR-SIM • SR-SIM: basics, acquisition, and filtering • SR-SIM: channel alignment • SR-SIM: sample preparation • PSF • Processing
Prerequisites	• Profound knowledge are recommended, e.g. our „Advanced Course LSM 880“.

Language	English & German | We provide all course materials in English.
Location	Training and Support Center Jena | Your location upon request
Duration	4 day(s)
Participants	max. 3
SAP No.	000000-2102-960 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Expert Course
Fluorescence Correlation Spectroscopy (FCS)

General	Fluorescence Correlation Spectroscopy (FCS) is a highly sensitive method that detects movement and binding of fluorescence-labeled particles on the single molecule level. Furthermore concentrations of movable fluorescent particles can be estimated. Thus biochemical reactions can be monitored in real time solutions as well as within living cells. This course will familiarize you with the theoretical background of FCS and train you on how to perform and evaluate measurements in solutions and living cells.
Topics	• Theory of FCS • Correlation function • Model functions for diffusion processes • Data acquisition for FCS • Data analysis for FCS • Objective lenses for FCS and FCCS • Numbers and brightness
Prerequisites	• Profound knowledge are recommended, e.g. our „Advanced Course LSM 880“.

Language	English & German | We provide all course materials in English.
Location	Training and Support Center Jena | Your location upon request
Duration	2 day(s)
Participants	max. 4
SAP No.	000000-2102-930 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Expert Course
Raster Image Correlation Spectroscopy (RICS)

General	We will provide the skills to acquire images from living cells for RICS and enable you to analyze RICS images based on simple fitting models.
Topics	• Theory of RICS • The correlation image • Image acquisition for RICS • Fitting models for diffusion processes • Data analysis for RICS • Diffusion and correlation maps
Prerequisites	• Profound knowledge are recommended, e.g. our „Advanced Course LSM 880“.

Language	English & German | We provide all course materials in English.
Location	Training and Support Center Jena | Your location upon request
Duration	1 day(s)
Participants	max. 4
SAP No.	000000-2102-958 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Basic Course Lightsheet Z.1

General	Light sheet microscopy by ZEISS is a completely novel technique in biomedical research, dedicated for live cell imaging. Excellent knowledge of its theory and application is a prerequisite for experimental success. After this course you will understand the theory on light sheet microscopy, how to prepare a sample for light sheet imaging, acquisition of a light sheet sample, and how to process the acquired images.
Topics	• The beam path • Sample preparation and chamber building • Single Side Illumination and Dual Side Illumination • Pivot scanning • Multiview Quick Setup and Manual Setup • Incubation • Dual Side Fusion and subsetting • Multiview Processing: landmark, intensity, and interactive registration with Fusion • Online processing • Deconvolution • Customer interfaces and system care
Prerequisites	• No previous knowledge necessary.

Language	English
Location	Training and Support Center Jena | Your location upon request
Duration	5 day(s)
Participants	max. 3
SAP No.	000000-2102-948 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

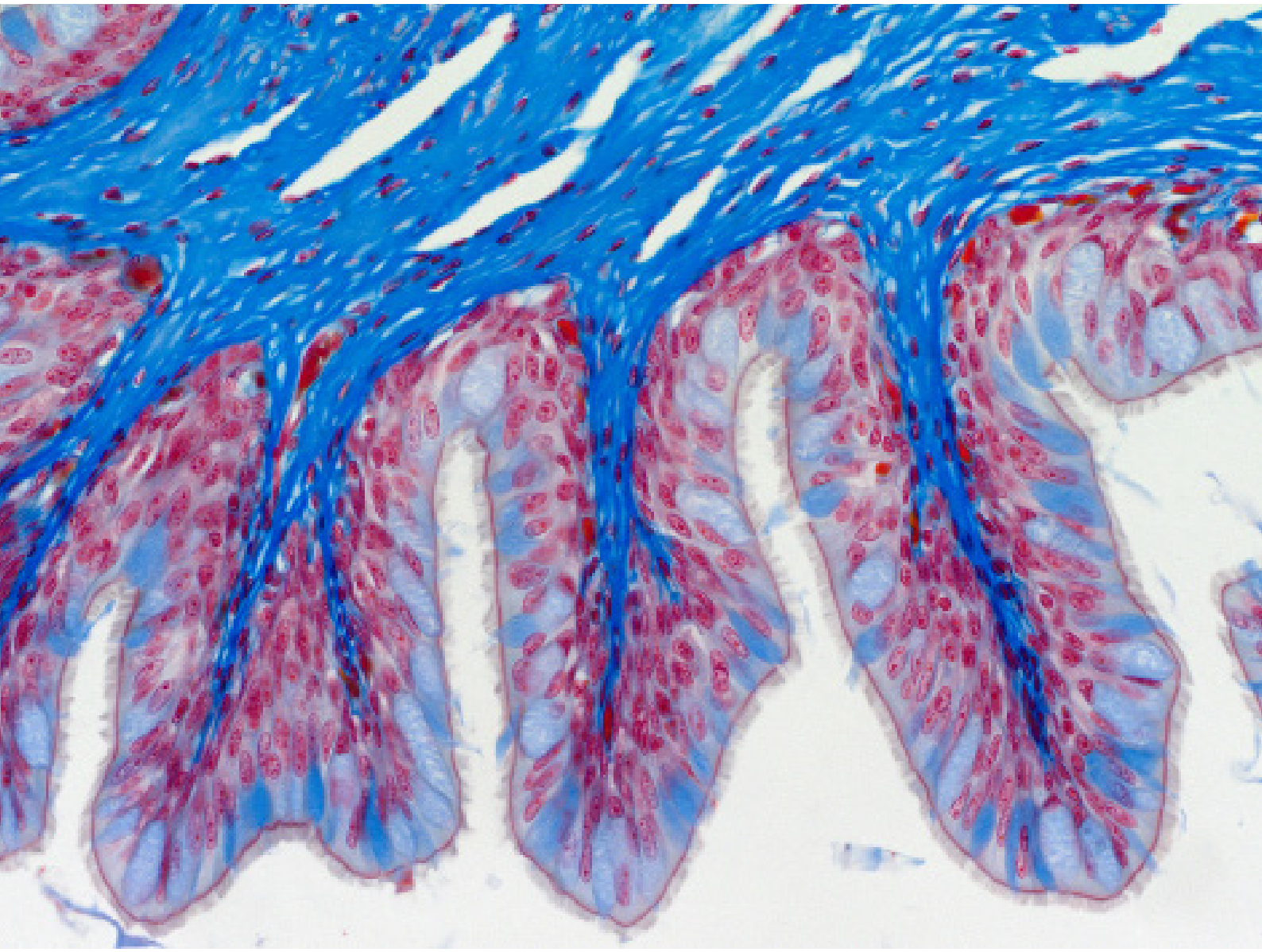
Customized Trainings
Laser Scanning Microscopy

General	If you have a special training request of microscopy topics not covered in this catalog, please feel free to contact us.
Topics	• Tailored to your needs
Prerequisites	• No previous knowledge necessary.

Language	English & German
Location	Training and Support Center Jena | Your location upon request
Duration	1-5 day(s)
Participants	n.a.
SAP No.	000000-2102-946 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Light Microscopy Courses



Duodenum Frog. Azan-Staining. Plan-APOCHROMAT 63/ 1.40 Oil, Michael Zölffel, ZEISS Microscopy

Basic Course
Microscopy from the Very Beginning

General	The light microscope is one of the essential tools in many fields of modern medicine, biological research and materials sciences. Yet even the best microscope is unable to generate the best images, nor live up to its true capabilities, unless it is set correctly. You will learn about the most important microscopy methods, such as Köhler illumination, bright and dark field, as well as phase contrast. This will enable you to expertly decide which method fits to your application. A perfect blend of solid theory and extensive hands-on exercises, this training is a highly recommended start for all light microscopy users.
Topics	• The microscope: Components, light path, functioning and operation, care and maintenance • Köhler illumination and light sources • Contrasting methods: bright and dark field, phase contrast • Types of objectives • Key light microscopy applications in practice
Prerequisites	• No previous knowledge necessary.

Language	English & German
Location	Training and Support Center Jena | Your location upon request
Duration	2 day(s)
Participants	max. 10
SAP No.	000000-2102-940 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Advanced Course Fluorescence Microscopy

General	Fluorescence microscopy, invented by ZEISS, has numerous, rapidly developing applications. Are you new to fluorescence microscopy? Interested in getting the maximum from your instrument? Eager to see how much more information can be gained from your samples? This training is made just for you! Learn how to find the optimum settings of your fluorescence microscope. Achieve perfect results while being most gentle to your samples. Understand how to select the right filter set for your application. Hands-on exercises also show you how to replace the fluorescence lamp and to adjust the illumination.
Topics	• Fundamentals of fluorescence microscopy • Components of the fluorescence microscope • Light sources, fluorescence filters and objectives • Interpretation of spectral curves of fluorescent dyes and filter sets • Innovative methods for the adjustment of fluorescence microscopes • Care and maintenance of fluorescence microscopes
Prerequisites	• Fundamentals are recommended, e.g. our „Basic Course Microscopy from the Very Beginning“.

Language	German
Location	Training and Support Center Jena | Your location upon request
Duration	2 day(s)
Participants	max. 8
SAP No.	000000-2102-943 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Advanced Course
Digital Imaging und Processing

General	Today, acquisition and processing of microscopical images is fully digital. Image processing is now one of the most important tools in modern microscopy. Work with the latest versions of AxioVision as well Axiocam digital microscopy cameras. Learn how to take perfect digital images and how to process, save and manage them.
Topics	• Fundamentals of digital cameras • Basic operations concepts of AxioVision • Image acquisition and processing • Interactive calibration, scale bar and annotations • Interactive measurements • Storing and managing images
Prerequisites	• Fundamentals are recommended, e.g. our „Basic Course Microscopy from the Very Beginning“.

Language	English & German
Location	Training and Support Center Jena | Your location upon request
Duration	2 day(s)
Participants	max. 10
SAP No.	000000-2102-934 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Advanced Course
Automated Image Analysis

General	Are you facing complex and demanding image analysis tasks? Solve them elegantly by automation using the AxioVision modules Imaging Plus, AutoMeasure Plus, Commander, or with ZEN 2 (blue edition) / ZEN 2 core modules Advanced Processing & Analysis and OAD-macro editor.
Topics	• General introduction to image analysis • Image processing functions • Image segmentation functions • The specific functions of AxioVision / ZEN • Scripting using the AxioVision module Commander, and the macro editor in ZEN 2 (blue edition) / ZEN 2 core
Prerequisites	• Fundamentals in digital imaging are recommended.

Language	English & German
Location	Training and Support Center Jena | Your location upon request
Duration	5 day(s)
Participants	max. 6
SAP No.	000000-2117-502 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Advanced Course
Contrasting Methods in Materials Sciences

General	With the development of new innovative materials, material microscopy enjoys a renaissance. The materials microscope is the tool of choice for metallographers, mineralogists and quality inspectors. Optical contrasting methods reveal the important properties of your sample. Learn how to use bright and dark field, polarization and interference contrasts as well as innovative methods, such as C-DIC. Become an expert in selecting the best method for your application!
Topics	• Optimum contrasting methods for your application • Bright field - the routine methods • Dark field – for smallest structures or pigments • Polarization contrast - Birefringence made visible • Epi-DIC (Epi-Nomarski-Interference contrast) – detect smallest heigth differences • C-DIC – an innovative method for failure analysis • Simple dimensional measurements – a key application
Prerequisites	• Fundamentals are recommended, e.g. our „Basic Course Microscopy from the Very Beginning“.

Language	German
Location	Training and Support Center Jena | Your location upon request
Duration	2 day(s)
Participants	max. 8
SAP No.	000000-2102-938 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Basic Webinar
Automatic Image Analysis

General	Learn about the features for automatic image analysis available in ZEN and AxioVision.
Topics	• Presentation of applications, workflows, and software tools • Automatic measurements in ZEN and AxioVision • Resolution and segmentation • Scripts with the Commander in AxioVision
Prerequisites	• No previous knowledge necessary.

Language	English & German
Location	Webinar
Duration	3 hour(s)
Participants	max. 8
SAP No.	000000-2102-929 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Basic Webinar
Grains Analysis

General	Deepen the knowledge about grains analysis using AxioVision Grains software with your samples.
Topics	• Presentation of applications, hardware, accessories, and workflows • Resolution and segmentation • Norms and standards • AxioVision Grains software demo • Reporting and archives • Real measurements on customer's samples
Prerequisites	• No previous knowledge necessary.

Language	English & German
Location	Webinar
Duration	4 hour(s)
Participants	max. 8
SAP No.	000000-2102-933 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Basic Webinar
Graphite Analysis

General	Deepen the knowledge about graphite analysis using AxioVision Graphite software with your samples.
Topics	• Presentation of applications, hardware, accessories, resolution, segmentation, ISO and workflow • AxioVision Graphite software demo • Reporting and archives • Real measurements on customer's samples
Prerequisites	• No previous knowledge necessary.

Language	English & German
Location	Webinar
Duration	4 hour(s)
Participants	max. 8
SAP No.	000000-2102-932 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Basic Webinar
Non-Metallic Inclusions (NMI) in Steel

General	Deepen the knowledge about non-metallic-inclusions (NMI) using AxioVision NMI software with your samples.
Topics	• Presentation of applications, hardware, accessories, resolution, segmentation, ISO and workflow • AxioVision NMI software demo • Reporting and archives • Real measurements on customer's samples
Prerequisites	• No previous knowledge necessary.

Language	English & German
Location	Webinar
Duration	6 hour(s)
Participants	max. 8
SAP No.	000000-2102-942 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Basic Webinar
Particle Analyzer

General	Deepen the knowledge about Particle Analyer using AxioVision Particle Analyzer software with your samples.
Topics	• Presentation of applications, hardware, accessories, resolution, segmentation, ISO and workflow • AxioVision Particle Analyzer software demo • Scripts with Commander • Reporting and archives • Real measurements on customer's samples
Prerequisites	• No previous knowledge necessary.

Language	English & German
Location	Webinar
Duration	6 hour(s)
Participants	max. 8
SAP No.	000000-2102-945 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Basic Course
Axio Scan.Z1

General	The main aim is to understand the basic concept of Axio Scan.Z1 and learn how to operate the system for brightfield and fluorescence scanning including maintenance and tips and tricks. The knowledge transfer is realized mainly by hands-on.
Topics	• Introduction to the hardware, handling of trays and slides, different fluorescence systems, focus-strategies • ZEN 2 (blue) Slidescan: overview (graphical user interface), introduction to wizard concept, how-to work with profiles, strategies to create profiles for various applications (brightfield and fluorescence)
Prerequisites	• No previous knowledge necessary.

Language	English & German | We provide all course materials in English.
Location	Training and Support Center Jena | Your location upon request
Duration	2 day(s)
Participants	max. 4
SAP No.	000000-2172-136 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Customized Trainings Light Microscopy

General	If you have a special training request of microscopy topics not covered in this catalog, please feel free to contact us.
Topics	• Tailored to your needs.
Prerequisites	• No previous knowledge necessary.

Language	English & German
Location	Training and Support Center Jena | Your location upon request
Duration	1-5 day(s)
Participants	n.a.
SAP No.	000000-2102-936 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Software Courses

LSM 880, ZEN, Experiment Designer, ZEISS Microscopy

Basic Course
ZEN 2 (blue edition)

General	ZEISS ZEN 2 (blue edition) makes daily routine tasks easier and more efficient and ensures repeatable results. You will learn about the theoretical foundations of ZEN 2 and get insights into the practical application. Working in small groups what has been learned can be immediately put into practice.
Topics	• Complex image acquisition and processing • Acquisition • Multi channel • Panorama • Z-stacks • Time series • Tiles & Positions • Processing • Analysis
Prerequisites	• Please bring your own samples.

Language	German
Location	Training and Support Center Jena I venue may vary
Duration	1 day(s)
Participants	max. 6
SAP No.	000000-2173-736 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Basic Course
ZEN 2 core

General	ZEISS ZEN 2 core offers both, maximum flexibility and minimum complexitity, making daily routine tasks easier and more efficient and ensuring repeatable results. You will learn about the theoretical foundations of ZEN 2 core and get insights into the practical application. Working in small groups what has been learned can be immediately put into practice.
Topics	• Configuration • Free mode • Acquisition • Calibration • Documents • Measurements • Processing • Reports • Job templates • Results
Prerequisites	• Please bring your own samples.

Language	German
Location	Training and Support Center Jena I venue may vary
Duration	1 day(s)
Participants	max. 6
SAP No.	000000-2192-524 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Basic Course AxioVision

General	The Basic Course AxioVision is particularly suited for novice users. You will learn about the theoretical foundations of AxioVisions and get insights into the practical application. Working in small groups what has been learned can be immediately put into practice.
Topics	• Basic operation of AxioVision • User interface • Live image • Camera settings • Handling of acquired images • Measurements and annotations • Customization of the user interface
Prerequisites	• Please bring your own samples.

Language	German
Location	Training and Support Center Jena I venue may vary
Duration	1 day(s)
Participants	max. 6
SAP No.	000000-2173-734 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Advanced Course AxioVision

General	The Advanced Course AxioVision is has been designed for experienced users. You will deepen the theoretical foundations of AxioVisions and get insights into advanced practical applications. Working in small groups what has been learned can be immediately put into practice.
Topics	• Complex image acquisition and processing • Panorama • MosaiX • Autofocus • Multidimensional image acquisition • Extended depth of focus • Handling of complex images • Interactive measurements
Prerequisites	• Please bring your own samples.

Language	German
Location	Training and Support Center Jena I venue may vary
Duration	1 day(s)
Participants	max. 6
SAP No.	000000-2173-735 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Expert Course
OAD Macro-Programming for ZEN

General	Build your own automated routines in ZEN to design your own optimum workflows!
Topics	• Introduction to the IronPython programming environment of ZEN • Basics and utilities for Python programming • Overview of the ZEN object model • Explanations of the ZEN objects with hands-on exercises • Practical applications (generation of ZEN macros)
Prerequisites	• Profound knowledge in an object-oriented programming language and ZEN software are recommended. • Valid licence of ZEN (MacroEnvironment, analysis, advanced processing)

Language	English & German
Location	Training and Support Center Jena I venue may vary
Duration	2 day(s)
Participants	max. 6
SAP No.	000000-2123-871 Please refer to our attached price list.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

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www.zeiss.com/microscopy

Last update: May 2018

Price List I

Course	ZEISS Location		Your Location	
	Course Fee per person	**SAP No.**	**Course Fee** per course	**SAP No.**
Electron Microscopy Courses				
Introduction to Scanning Electron Microscopy (SEM)	365,00 €*	000000-2173-733		
	* The participation of students is free of charge with a valid student certificate.			
Basic Course Scanning Electron Microscopy (SEM)	2,163.00 €	000000-2172-130	4,116.00 €	000000-2172-131
Advanced Course Nanopatterning using Atlas 5 NPVE	1,806.00 €	000000-2192-525		
Advanced Course Nanotomography using Atlas 5 3D Tomography	1,806.00 €	000000-2192-526		
Customized Trainings Scanning Electron Microscopy	1,085.00 € (costs per day	000000-2172-132	2,240.00 € (costs per day)	000000-2172-133
Laser Scanning Microscopy Courses				
Basic Course LSM 800	1,442.00 €	000000-2172-134	2,744.00 €	000000-2172-135
Basic Course LSM 880	1,442.00 €	000000-2140-100	2,744.00 €	000000-2140-101
Advanced Course LSM 880	2,709.00 €	000000-2140-097	5,418.00 €	000000-2140-099
Basic Course LSM 700			4,116.00 €	000000-2102-955
Basic Course LSM 710/780			2,744.00 €	000000-2102-953
Advanced Course LSM 710/780			5,418.00 €	000000-2102-951
Advanced Course FRET, FRAP, and Stitching	1,806.00 €	000000-2172-338	3,612.00 €	000000-2172-339
Advanced Course Experiment Designer	903.00 €	000000-2172-340	1,806.00 €	000000-2172-341
Expert Course Multiphoton Laser Scanning Microscopy	1,806.00 €	000000-2102-956	3,612.00 €	000000-2102-957
Expert Course Superresolution Microscopy	3,612.00 €	000000-2102-960	7,224.00 €	000000-2102-961

Price List II

Course	ZEISS Location		Your Location	
	Course Fee per person	**SAP No.**	**Course Fee** per course	**SAP No.**
Expert Course Fluorescence Correlation Spectroscopy (FCS)	2,170.00 €	000000-2102-930	4,480.00 €	000000-2102-931
Expert Course Raster Image Correlation Spectroscopy (RICS)	1,085.00 €	000000-2102-958	2,240.00 €	000000-2102-959
Basic Course Lightsheet Z.1	4,515.00 €	000000-2102-948	9,030.00 €	000000-2102-949
Customized Trainings Laser Scanning Microscopy	1,085.00 € (costs per day	000000-2102-946	2,240.00 € (costs per day)	000000-2102-947
Light Microscopy Courses				
Basic Course Microscopy from the Very Beginning	1,442.00 €	000000-2102-940	2,744.00 €	000000-2102-941
Advanced Course Flurorescence Microscopy	1,806.00 €	000000-2102-943	3,612.00 €	000000-2102-944
Advanced Course Digital Imaging and Processing	1,442.00 €	000000-2102-934	2,744.00 €	000000-2102-935
Advanced Course Automated Image Analysis	3,605.00 €	000000-2117-502	6,860.00 €	000000-2117-505
Advanced Course Contrasting Methods in Materials Sciences	1,806.00 €	000000-2102-938	3,612.00 €	000000-2102-939
Basic Webinar Automatic Image Analysis	309.00 €	000000-2102-929		
Basic Webinar Grains Analysis	412.00 €	000000-2102-933		
Basic Webinar Graphite Analysis	412.00 €	000000-2102-932		
Basic Webinar Non-Metallic Inclusions (NMI) in Steel	618.00 €	000000-2102-942		
Basic Webinar Particle Analyzer	618.00 €	000000-2102-945		
Basic Course Axio Scan.Z1	1,442.00 €	000000-2172-136	2,744.00 €	000000-2172-137
Customized Trainings Light Microscopy	1,085.00 € (costs per day	000000-2102-936	2,240.00 € (costs per day)	000000-2102-937

Price List III

Course	ZEISS Location		Your Location	
	Course Fee per person	**SAP No.**	**Course Fee** per course	**SAP No.**
Software Courses				
Basic Course ZEN 2 (blue edition)	721.00 €	000000-2173-736		
Basic Course ZEN 2 core	721.00 €	000000-2192-524		
Basic Course AxioVision	721.00 €	000000-2173-734		
Advanced Course AxioVision	903.00 €	000000-2173-735		
Expert Course OAD Macro-Programming for ZEN	1,806.00 €	000000-2123-871	3,612.00 €	000000-2123-872

All prices are valid for business customers and subject to VAT statutory rate. If you are a private consumer we would be pleased to provide you with an individual quotation.
Prices for courses held on customer site are valid for Europe. Prices for all other countries on request.

Please visit **www.zeiss.com/microscopy/courses** for further information, current dates and registration.
For courses on request please contact courses.microscopy.de@zeiss.com.

Valid from April 1 to September 30, 2018. All information are subject to change.