

CODE V Training

Munich, Germany | 18-22 October 2010

OPTICAL RESEARCH ASSOCIATES



Register today for the upcoming CODE V[®] training in Munich. To register or for more information, contact us about these events.

CODE V is ORA[®]'s comprehensive program for optical design, analysis, and fabrication support. It is used by engineers around the world to design a wide range of optical systems for a variety of products, including photographic equipment, video cameras, medical instruments, aerospace systems, and much more. CODE V's advanced features are combined with outstanding flexibility and ease of use, and ORA's excellent technical support makes you more productive.



Introduction to CODE V for Image Forming Systems (3 days, €1200)

Goals for this Course

This course covers the basics on modelling, analyzing, optimizing, and tolerancing image forming optical systems using CODE V, including hands-on workshops. It assumes familiarity with optics concepts and terminology. This course will be taught using CODE V version 10.2, which features CODE V's new user interface. Therefore, both new and part-time users can benefit from this course. *Note that some topics will be abbreviated in this three-day version of the introductory class.*

By the end of the course, you will be able to do the following:

- Model an optical system given its design parameters
- Evaluate the system to determine its quality
- Optimize the system to improve its quality
- Evaluate the manufacturability of the final design

Course Content (Monday through Wednesday)

- Background for running CODE V
- Performance evaluation
- Optimization of lens performance
- Reflective optical systems
- Non-spherical surfaces
- Afocal systems
- Zoom and multi-configuration systems
- Tolerancing an optical system
- Command mode and macros

Advanced Topics in CODE V (2 days, €800)

Goals for this Course

This short course for current CODE V users will give you a more detailed understanding of the usage and operation of the program's more familiar features, and exposure to some of more specialized features as well. You will learn how to address your design and analysis tasks more effectively and discover new applications for CODE V in your work.



Format for the Course

Seminar attendees will be CODE V users with varying interests and experience levels. Thus, a flexible, informal, and wide-ranging format will be used, which will include presentations on all topics, computer demonstrations, hands-on exercises, informal discussions, and workshops.

Course Outline (Thursday and Friday)

Note: *For the two-day version of this class, topics will be selected from among the following list.* Please let us know if you have a particular interest in any of the following topics.

- Diffraction analysis (including image simulation)
- Environmental analysis of optical systems
- Diffractive and binary optics
- Advanced optimization techniques
- Interferograms and the Alignment option
- Non-sequential surfaces
- Macro-PLUS™ programming
- Tolerancing tools and techniques
- Beam Propagation

CODE V Course Instructor

Craig Pansing (Optical Research Associates) is an optical engineer with several years of experience at ORA. He provides technical support for CODE V and *LightTools*.

IMPORTANT:

- Attendees are responsible for their own arrangements for accommodation.
- Tuition includes all teaching materials.
- Tuition must be paid in full prior to attendance. Minimum enrollments apply.

Contact Us

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LightTools Training

Munich, Germany | 18-22 October 2010

OPTICAL RESEARCH ASSOCIATES



Register today for the upcoming *LightTools*[®] training in Amsterdam. To register or for more information, contact us about these events.

LightTools is a unique optical engineering and design software product that features virtual prototyping, simulation, and optimization of precision illumination applications. The software has adapted solid modeling technology to accommodate the inherent accuracy required to simulate ray paths of light as they traverse through and within optical elements and mechanical structures. The software is straightforward to use, accurate, has the most advanced capabilities commercially available, and supports the tasks of design and engineering iterations in addition to analysis.

Introduction to Illumination Design Using *LightTools* (4 days, €1600)

Course Overview

This 4-day short course is a practical introduction to *LightTools* for engineers and scientists who wish to model and analyze the interaction of light with opto-mechanical systems. It assumes some familiarity with optical concepts and terminology. The course will be taught using *LightTools* 7.1. The course is based on interactive examples of various illumination systems rather than lectures. This hands-on approach maximizes time spent using *LightTools* while incorporating key illumination concepts in their practical context. Workshop problems provide opportunity for additional practice. The course will include how to:

- Create an opto-mechanical system model within *LightTools*, with native geometry or imported from a CAD program
- Use Surface Properties to define the interaction of light with various surface
- Use Boolean operations to construct complex structures
- Set up an illumination system, including multiple sources and multiple receivers
- Understand, interpret, and manipulate the intensity and illuminance analyses
- Create photorealistic renderings of models to visualize the system performance
- Improve system performance by using *LightTools* optimization with its various merit functions

(next page)

Advanced Topics in *LightTools*: COM Macro Programming (1 day, €400)

Course Overview

This one-day course provides a practical overview of *LightTools* COM Macro Programming. The course includes lectures, demonstrations, and hands-on computer workshop sessions. Familiarity with *LightTools* basic features is assumed.

The COM Macro Programming capability allows users to automate tasks within *LightTools*. The course will use Excel Visual Basic for Applications (VBA) to control *LightTools*. Basic programming experience is helpful, although proficiency in VBA is not necessary.

Course Outline (Friday)

Topics covered in the course will include:

COM Macro Programming

- Accessing *LightTools* via Excel's VBA COM interface
- *LightTools* JumpStart Macro Library
- Direct database access

LightTools Course Instructor

Jake Jacobsen, Ph.D. (Optical Research Associates), is the CODE V and *LightTools* Technical Marketing Manager and is involved with product planning as well as technical and sales support. Dr. Jacobsen has over 10 years' experience in imaging and illumination design.

IMPORTANT:

- Attendees are responsible for their own arrangements for accommodation.
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CODE V® und LightTools® Trainingswoche in München 2010

Ab **Montag, 18. Oktober 2010**, veranstaltet Optical Research Associates eine Trainingswoche für CODE V® und LightTools® in München. Die Schulungssprache ist Englisch.

Agenda

CODE V®

Montag bis Mittwoch, 18. – 20. Oktober 2010

Introduction CODE V®- Image Forming Systems

☐ 3 days € 1.200.-

Donnerstag und Freitag, 21. -22. Oktober 2010

Advanced Topics

☐ 2 days € 800.-

LightTools®

Montag bis Donnerstag, 18. – 21. Oktober 2010

Introduction LightTools® - Illumination Design

☐ 4 days € 1.600.-

Freitag, 22. Oktober 2010

Advanced Topics

LightTools® - COM Macro Programming

☐ 1 day € 400.-

CODE V® Course Instructor

Craig Pansing (Optical Research Associates) is an optical engineer with several years of experience at ORA. He provides technical support for CODE V® and LightTools®

LightTools® Course Instructor

Jake Jacobsen, PH.D. (Optical Research Associates) is the CODE V® and LightTools® Technical Marketing Manager and is involved with product planning as well as technical and sales support. Dr. Jacobsen has over 10 years experience in imaging and illumination design.

Veranstaltungsort

München - Stadtmitte

Anmeldeschluss:

Montag, 04. Oktober 2010 (Teilnehmeranzahl begrenzt)

Impressum:
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Vorstand: Prof. Dr. Harald Ries
Aufsichtsrat: Vorsitzender: Dr. Christian Hoess
Handelsregister: Amtsgericht München
HRB 142778; Ust-IDNr.: DE223990028



Faxantwort: please send to +49 (0)89 82 00 50 41

Teilnehmer Titel, Vorname, Name

Rechnungsadresse Firma / Abteilung

Straße, Hausnummer

Land, PLZ, Ort

Telefon und E-Mail Adresse

Schulungsgebühren zuzüglich Mwst. 19 % (VAT 19 % not included)

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Computer für Training / Computer for Workshops

I will provide my own computer

Please provide a computer for booked training days (one day fee € 25,- zzgl, 19 % Mwst.)

Hiermit melde ich mich verbindlich für das ausgewählte Softwaretraining 2010 in München an.

Datum, Unterschrift

Nach Eingang Ihrer Anmeldung erhalten Sie von uns eine Bestätigung per E-Mail mit der Bekanntgabe des Kursortes.

Per Fax an OEC AG

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