

## OSLO Fall 2010 Training Seminars

### Basic Optical Design Using OSLO

September 20-21, 2010  
(\$800)

This is an introductory seminar for new users or for current users who want to use OSLO more effectively. After a quick review of fundamental optical principles and evaluation techniques needed to make the most efficient use of OSLO, attendees will learn about the many features that OSLO has available for optical modeling, design and evaluation. This section covers basic program operation in detail, identifying little known features that can maximize efficiency and boost productivity. In the second day of this seminar, more advanced topics will be addressed including tolerancing, optimization, polarization analysis, non-sequential systems and multi-configuration systems. Attendees will learn how they can easily apply OSLO's default modeling and analysis features, as well as learn the details of fine-tuning the program defaults for specific technical applications. Attendees will use OSLO to set up and solve contemporary design problems and follow the demonstrations of how to use OSLO presented during lectures. Emphasis will be placed on new features and ways to improve productivity in optical design.

After completing the seminar, attendees will be ready to use OSLO on their own or attend our more advanced seminars.

### Macro and CCL Programming for Optical Design

September 22, 2010  
(\$400)

This seminar shows how to use CCL & Macro programming effectively in optical design to extend OSLO into new application areas such as communications, illumination systems, and micro-optics. This seminar is for those engineers that require special analyses and flexibility far beyond what can be implemented in traditional lens design software. At the conclusion of this seminar attendees will know how to add OSLO functionality by modifying existing (and adding new) OSLO analysis options, customizing OSLO menus and toolbars, automating repetitive tasks, computing and plotting complex calculations, creating data entry dialog windows, optimizing with user defined operands, implementing user-defined surfaces and ray tracing, as well as customizing callbacks or event handlers.

CCL is a modern byte-code language similar in structure to C and Java. The initial portion of the seminar will describe the syntax of CCL and outline how CCL is integrated into OSLO. Attendees will quickly learn how to create simple macro programs. Attendees will then rapidly advance to more complex programming tasks. This seminar is taught in a very "hands on" manner where even attendees with limited programming experience will be able to follow and re-create complex programming concepts by the end of the seminar.

A working knowledge of some programming or macro language is highly recommended. Time will be allotted for attendees to work on specialized macro projects with the benefit of an instructor's supervision.

### Advanced Optical System Design Using OSLO

September 23, 2010  
(\$400)

This course will address all phases of the optical design process. In addition to covering more advanced topics in OSLO such as specialized optimization and top-down system budget tolerancing, this course will allow attendees to practice: evaluating specifications; developing design criteria; using basic design principles to start designs from scratch (or modify existing starting points), optimizing and tolerancing specific designs for custom applications; as well as modeling as-built components and systems.

Throughout the course of the day, a number of optimization and analysis examples will be constructed, as well as a few sample macro programs helpful in optical design. Possible design topics will include setup and optimization of zoom lens systems, lenses for consumer optics, example consulting tasks and reflective telescope systems. Attendees are advised to bring information about existing design projects, as the course structure will allow individual help discussions with the instructor during group "hands-on" activities.

This seminar assumes the attendee has a working knowledge of basic 1<sup>st</sup> order optics as well as an elementary knowledge of the various capabilities of OSLO (lens entry, system evaluation, optimization, tolerancing, special systems). This seminar emphasizes useful approaches to real-world design tasks.

**All courses will be taught by Dr. Richard Youngworth, Ph. D, Director of Optical Engineering at Light Capture Inc.** Classes will be held in the upstairs tutorial room at our main offices at 25 Porter Rd. To register, please complete the Registration Form on the following page.

# OSLO Fall 2010 Course

# Registration Form

Tutorial classes begin each day at 8:30 a.m. and are held at the corporate offices of Lambda Research Corporation, 25 Porter Road, Littleton, MA 01460-1434. Directions will be provided upon request. Lodging is available at nearby hotels, such as:

Holiday Inn Boxborough                      978-263-8701  
Westford Regency Inn                         978-692-8200

Attendees are responsible for their own room arrangements and should make reservations directly with the hotel.

Tuition includes all materials, individual use of computer, continental breakfast and lunch. Tuition must be paid in full prior to attendance. Minimum enrollments apply.

**ATTENDANCE IS LIMITED. PRE-REGISTRATION WITH PAYMENT MUST BE MADE AT LEAST 2 WEEKS BEFORE THE START OF THE COURSE. THE FEE IS REFUNDABLE UP TO THAT POINT (A FEE IS CHARGED FOR LATER CANCELLATIONS) .**

To register, please email or fax this registration form with a copy of your Purchase Order, check, or credit card information, to the fax number listed below.

**Lambda Research Corp.                      Tel. 978-486-0766  
25 Porter Road                                Fax 978-486-0766  
Littleton, MA 01460-4400**

Please do not make travel arrangements until your course registration is confirmed by Lambda Research.

Custom classes are also available upon request, depending upon available schedule, at other Lambda locations or on site at your facility. Call 1-978-486-0766 or visit our web site for further information.

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Tel \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

- Basic Optical Design Using OSLO            \$800  
(September 20-21 2010)
- Macro and CCL Programming                \$400  
(September 22, 2010)
- Advanced Optical System Design            \$400  
(September 23, 2010)

Credit Card: \_\_\_ Am Ex    \_\_\_ Visa    \_\_\_ MasterCard

Credit Card No. \_\_\_\_\_

Name on Card \_\_\_\_\_

Expiration date \_\_\_\_\_

Signed \_\_\_\_\_

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**Richard Neil Youngworth, Ph.D.** is the Director of Optical Engineering at Light Capture, Inc., an engineering services and group 1 patent technology development company. He has well over a decade of experience spanning numerous facets of the optics field including optical metrology, design, manufacturing, and analysis. He is considered an international expert, due to his detailed research and publications, on manufacturability and tolerance analysis of optical components and systems.

He has spent a large portion of his industrial career working on optical systems in the difficult transition from ideal design to successful volume manufacturing. Dr. Youngworth has used OSLO to successfully complete his work throughout his career, including numerous .ccl and .dll implementations.