

Community

SMETHODS: Free courses on optical design

SMETHODS history and objectives

In September 2011, a program for free education in optical design in Europe started. It is funded by the European Commission. The full title of the project is: ‘SMEs Training and Hands-on Practice in Optical Design and Simulation’. The intention of the project is to give employees of European small and medium enterprises a hands-on training from leading experts in the field of optical design. Typically, a training is held at one of the consortium’s member sites and lasts for 4 or 5 days. A full and up-to-date schedule is given at the project’s website www.smethods.eu. Already more than one hundred people have taken part in the recent activities of the project. A continuation is planned for 2014 and is currently under discussion.

Consortium members

- TUD – Delft University for Technology, The Netherlands (Project Coordinator);
- FSU – Friedrich-Schiller-Universität, Jena, Germany;
- IOGS – Institut d’optique Graduate School, Orsay, France;
- ITMO – Saint Petersburg State University of Information Technologies, Mechanics and Optics, Russian Federation;
- VUB – Vrije Universiteit, Brussels, Belgium;
- UEF – Itä-Suomen Yliopisto/University of Eastern Finland, Joensuu, Finland;
- UPM – Universidad Politecnica de Madrid, Spain.

Course Schedule 2013

Optical design for imaging optics (7–11 October 2013, Paris)

Purpose: Hands-on training in design and optimization of optical imaging systems supported by a theoretical introduction. At the end of the session, trainees will be able to specify an optical imaging system, propose the general

layout, and understand the methods used to characterize its performance. On simple systems, they will be able to select a starting point, run the optimization and estimate tolerances. On more complex cases, including for their own needs, they can interact efficiently with highly skilled experts.

Target Group: SME employees, employees of other companies who need capabilities in optical design for imaging systems.

Prerequisites: Final year Bachelor degree in Physics or a related field. Technically skilled personnel with a professional experience in a photonics and/or physical instrumentation context are also welcome to apply.

Training Domain Coordinator: Prof. J.-L. Meyzonnette (IOGS). Associate Coordinators: Prof. I. Livshits (ITMO), Dr. F. Bociort (TUD).

Key Lecturers: Coordinators and other leading specialists invited by the training domain coordinator

5-Day course description: <http://www.smethods.eu/#!domain-1>

Registration until 23.08.2013: <http://register.smethods.eu/imaging>

Design and optimization of non-imaging optics (24–27 June 2013, Madrid)

Purpose: Hands-on training in design and optimization of optical non-imaging systems supported by a theoretical introduction. At the end of the session, trainees will be able to specify light sources and optical components for illumination systems, energy concentration systems, light coupling and other non-imaging optics. They will have a good understanding of the applicable physical limitations and a personal experience in the use of at least one of the relevant software tools.

Target Group: SME employees, employees of other enterprises who need capabilities in optical design for non imaging systems.

Prerequisites: Basic knowledge of geometrical optics and final year level in a Bachelor degree in Physics or related disciplines. Technically skilled personnel with a professional experience in a photonics and/or physical instrumentation context are also welcome to apply.

Training Domain Coordinator: Dr P. Benitez (UPM) Associate Coordinators: Dr Y. Meuret (VUB), Prof. I. Livshits (ITMO).

Key Lecturers: Coordinators and other leading specialists invited by the training domain coordinator.

5-Day Course Description: <http://www.smethods.eu/#!domain-2>

Registration closed

Wave optics: modeling for micro optics and Laser Systems (10–13 June 2013, Jena)

Purpose: Hands-on training of modeling and design of laser systems and micro-optics with special emphasis on the inclusion of wave optical phenomena. At the end of the sessions, the trainees will be able to perform the modeling of coherent and partially coherent light propagation through lens and micro-optical systems and to analyze and design such systems for example for focusing, light coupling, laser beam shaping and homogenization, interferometry, and polarization optics.

Target Group: SME employees, employees of other companies who need capabilities in optical design of laser and micro-optical systems.

Prerequisites: Masters in Photonics, Electrical Engineering or Physics, or several years' professional experience as a technician or engineer in a photonics context.

Training Domain Coordinator: Prof. F. Wyrowski (FSU). Associate Coordinator: Dr. Y. Meuret (VUB), Prof. P. Chavel (IOGS) and Prof. J. Turunen (UEF).

Key Lecturers: Coordinators and other leading specialists invited by the training domain coordinator.

4-Day Course Description: <http://www.smethods.eu/#!domain-3>

Registration (Deadline Extended): <http://register.smethods.eu/wave>

Optical design for diffractive optics (7–11 October 2013, Jena)

Purpose: Hands-on training in design and optimization of diffractive optics elements of different scales for imaging and non-imaging systems. At the end of the session, trainees will understand the applicability and limitations of different computational diffraction models. Furthermore, trainees will learn to formulate optimization problems in diffractive optics, will learn methods to obtain an initial design and methods for optimizing these.

Target Group: SME employees, employees of other companies who need capabilities in optical design for diffractive optical systems.

Prerequisites: Masters in Photonics, Electrical Engineering or Physics, or several years professional experience as a technician or engineer in a photonics context.

Coordinators: Prof. J. Turunen (UEF). Associate coordinator: Prof. H.P. Urbach (TUD), Prof. P. Chavel (IOGS) and Prof. F. Wyrowski (FSU).

Key Lecturers: Coordinators and other leading specialists invited by the training domain coordinator.

5-Day Course Description: <http://www.smethods.eu/#!domain-3>

Registration until 23.08.2013: <http://register.smethods.eu/diffractive>