PhotonHub Demo Centre

Course

Nano goes macro: Large-area micro- and nanostructuring

Course Provider

JOANNEUM RESEARCH, Austria

Course Overview

Photonics plays a key role in the development and production of micro- and nanopatterns on large-area flexible substrates targeting electronic, optoelectronic, photovoltaic and sensoric applications, film processing and packaging as well as pharmaceuticals and biosciences.

The one-day hands-on training course provides industry, especially those developing new products or addressing an application need, with a detailed overview of methods for the development and production of micro- and nanostructured surfaces and the benefits for various applications.

The course will introduce 3 demonstrators:

1) Lab-on-a-Foil, 2) holographic security features, 3) Biomimetic structures

Course attendees will learn how these nano- and microstructures are designed, fabricated and tested. They will also learn how early-stage prototypes can be scaled to volume manufacturing.

Target Audience

It is desirable but not essential that course attendees have a basic understanding of Photonics. The course is ideally suited to those planning to develop new products, where Photonics can bring innovative solutions. A pilot line production and later manufacturing should be of interest to the attendees.

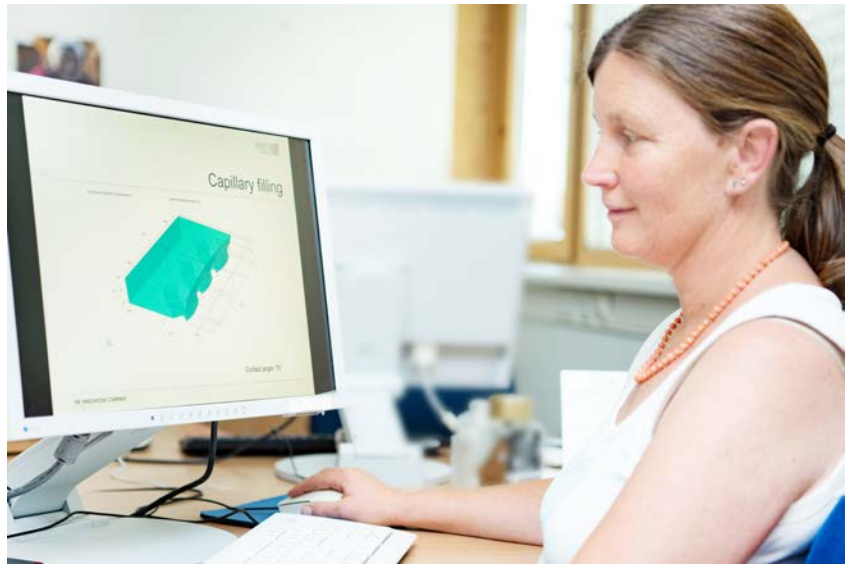
Expected Outcomes

1) Understand the benefits of micro- and nanostructures on large areas and be able to translate this knowledge into innovative ideas and products
2) Understand the product design process and manufacturing ecosystem (hands-on activity): simulation based design, origination by laser lithography, Step & Repeat, Roll-to-Roll UV-Nanoimpring Lithography

Course Schedule

Time	Demo Activity
09:00 – 10:00	**JOANNEUM RESEARCH Orientation, Course Introduction & Tutorial**
10:15 – 11:15	Lab tour
11:30 – 13:00	General input & Theoretical background
14:00 – 14:45	Demo 1: Lab-on-a-Foil (hands-on)
15:00 – 15:45	Demo 3: Holographic security features (hands-on)
16:00 – 16:45	Demo 3: Biomimetic structures (hands-on)
17:00 – 17:30	**Follow-Up Questions & Close**

Course Trainers

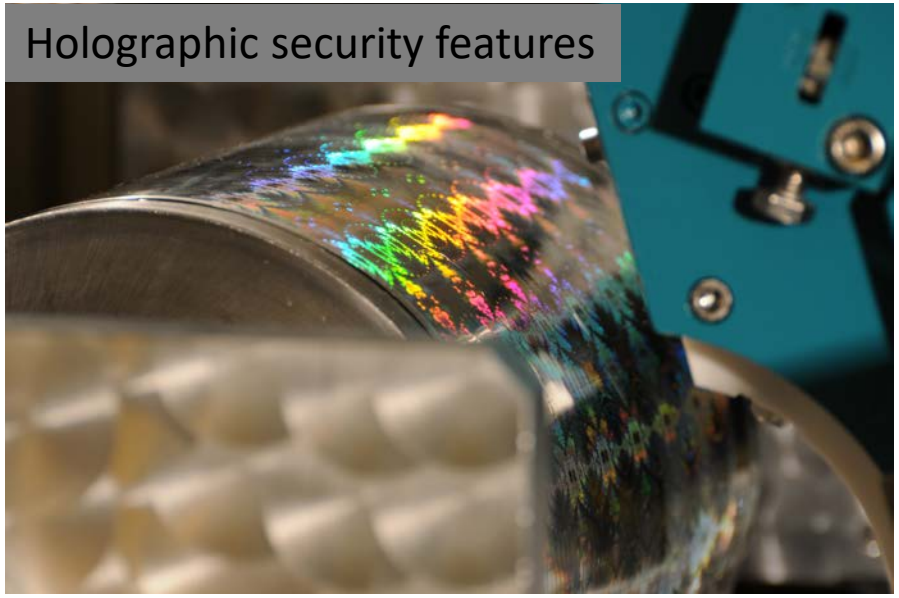


Course Director: Ulrich Trog
Course Manager: Michael Wurzinger

Demo 1: Dr. Martin Smolka
Demo 2: Dr. Maria Belegratis
Demo 3: Dr. Barbara Stadlober

Course Demonstrators


Lab-on-a-Foil


Holographic security features


Biomimetic structures

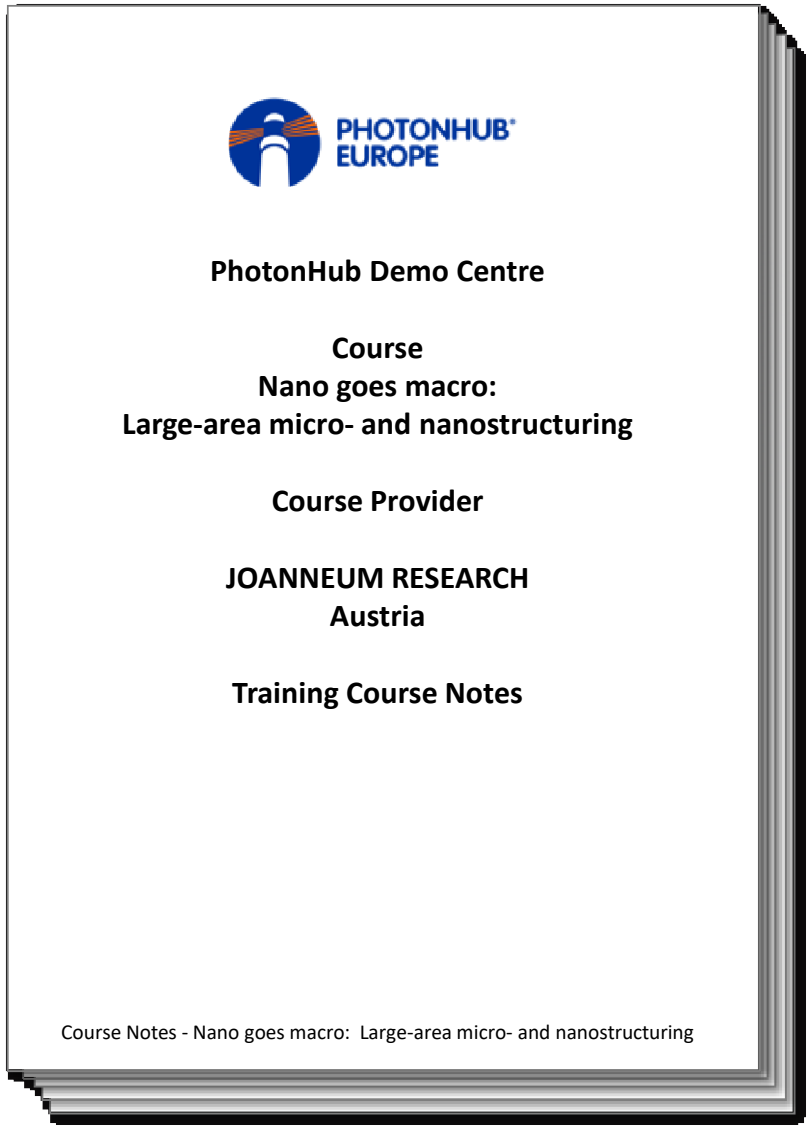
Course Location, Schedule & Cost

- Course Schedule (January, July, December – exact dates to be confirmed)
- Number of people (Groups up to 10 people per course)
- Course Cost (250 Euros per person, includes catering and project consumables)

Further Information

- ulrich.trog@joanneum.at
- www.joanneum.at/materials
- www.photonhub.eu/euphotonicsacademy

Course Material (technical hand-outs)



Keywords

Microfluidics, Lab-on-a-Chip, Diffractive Optical Elements, Micro Optics, Photonics, Laser Lithography, Micro- and Nanostructured Surfaces, Biomimetics, Roll-to-Roll, Nanoimprint Lithography, Simulation-based Design

Manufacturing, Pilot Line, Ecosystem, Equipment

Relevant Technology & Application Domain

Technology: Polymer-based components and large area organic photonics

Application: Relevant to all application domains