

PhotonHub Demo Centre

Surface Functionalization by laser patterning

Course Provider

AIMEN Technology Centre,
Spain

Course Overview

Surface properties play an important role in the interaction between a component and its surrounding environment: wear resistance, wettability, corrosion resistance, optical properties or aesthetic aspect are some typical examples.

This one-day hands-on training course provides industry, especially those addressing an application need, with an overview of the possibilities brought by lasers in the field of surface functionalization, and technical aspects that should be considered to select their equipment and setup their process.

The course will focus on three hands-on activities; 1) surface functionalization with direct laser patterning technologies; 2) advanced surface engineering and laser nanopatterning; 3) surface characterization techniques.

Course attendees will learn how to select the patterning strategies depending on the targeted surface topography and functional behavior.

Target Audience

It is desirable but not essential that course attendees have a basic understanding of laser processing of materials. The course is ideally suited to those planning to provide new functional surface properties to their products, establish in-house or outsource manufacturing by means of laser technologies.

Expected Outcomes

- 1) Understanding of key principles of laser surface patterning
- 2) Select the different processes, parametric windows and irradiation strategies to obtain functional surfaces (hands-on activity)
- 3) Demonstrate the differences obtained in the surface affectation and finishing depending on the selected laser source and patterning strategy (hands-on activity)
- 4) Topographic and functional characterization of laser patterned surfaces (hands-on activity)

Course Schedule

Time	Demo Activity
09:00 – 10:30	Course Introduction & basic principles of laser surface patterning (lecture)
11:00 – 12:30	Demo 1: Surface functionalization with direct laser patterning technologies (hands-on)
14:00 – 15:30	Demo 2: Advanced surface engineering and laser nanopatterning (hands-on)
15:30 – 17:00	Demo 3: Surface characterization (hands-on)
17:00 – 17:30	Follow-Up Questions & Close

Course Trainers



Course Director: Pablo Romero

Course Manager: Nerea Otero

Demo 1: Félix Ares

Demo 2: Sara Vidal

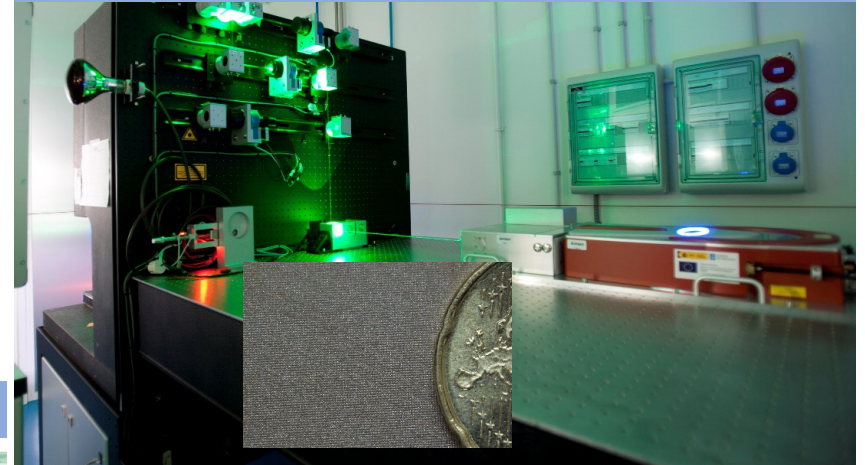
Demo 3: Tamara Delgado

Course Demonstrators

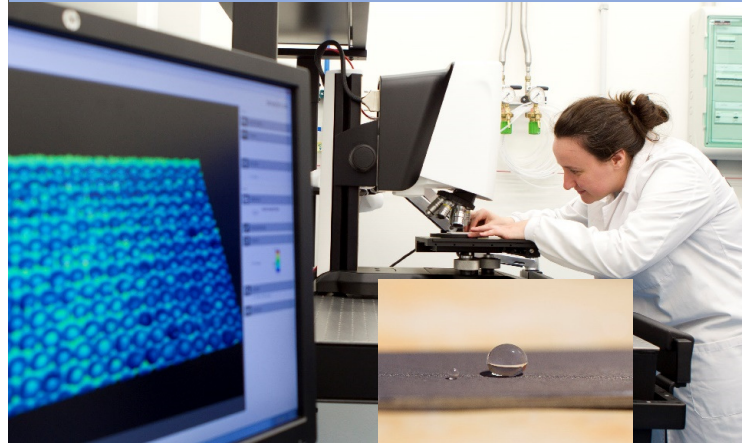
Demo 1: Surface functionalization with direct laser patterning technologies



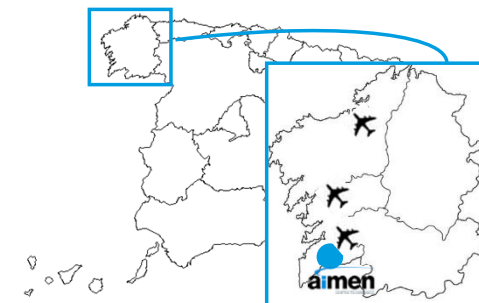
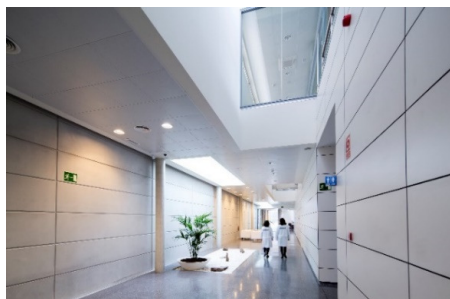
Demo 2: Advanced surface engineering and laser nanopatterning



Demo 3: Surface characterization



Course Location, Schedule & Cost



- Course Schedule (March, June, November – exact dates to be confirmed)
- Number of people (Groups of 6 people per course)
- Course Cost (250€)

Further Information

- promero@aimen.es
- www.aimen.es
- www.photonhub.eu/euphotonicsacademy

Keywords

Functional surfaces, laser surface patterning, nanosecond laser, femtosecond laser, surface characterization, laser, surface wettability, confocal microscopy, surface topography, Metals, polymer, composites,

Relevant Technology & Application Domain

Technology: Laser Based Manufacturing