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New European Academy to boost the skills and know-how of industry in exploiting opportunities in the €615B global photonics sector

A programme to train thousands of industry workers in the adoption and development of innovative photonics-based solutions to some of society's biggest challenges, from environmental sustainability to healthy living and smart infrastructure, has been established by a consortium of over 50 of Europe's top photonics competence centres.

The European Photonics Academy will offer training courses beyond the lecture room with a strong focus on hands-on training. Course attendees will gain real-world experience using state-of-the-art design, manufacturing, test equipment and facilities. The academy's training centres will offer unique courses across a wide range of photonics technology platforms and application domains. The academy will initially run for four years with the clear intention of becoming a sustainable long-term support to European industry.

Interest in photonics is booming, with the global photonics market estimated to be worth €615B in 2020 and recent research showing that the European photonics market is growing at more than double the rate of global GDP. However, gaining access to the cutting-edge technical know-how and the hands-on skills required to utilise photonics technologies remains difficult for many companies, especially small- and medium-sized enterprises (SMEs). The academy, launched by PhotonHub Europe, the full-service one-stop-shop Photonics Innovation Hub funded by the European Commission, will make it easy for SMEs in particular to fully exploit this critical enabling technology for their own innovation activities.

“For the first time the European Photonics Academy means that SMEs have a one-stop-shop to pick and choose from a large menu of training options, making it easy to get the exact training course suited to their needs. Companies can be assured that their employees are getting top quality training from best-in-class facilities since quality assurance is overseen by PhotonHub,” said Prof Peter O’Brien of the UCC Tyndall Institute in Ireland, who leads training support services at the academy. “We expect to support 6,000 European companies with training over the next four years, each sending several employees on one or more of our courses, with several hundred companies immediately taking up photonics technologies in their applications and product manufacturing as early adopters. As a result, we believe the academy will be a massive catalyst for the take-up of photonics by European companies.”

Photonics involves the generation, manipulation and detection of light and is a key enabling digital technology that underpins many existing and emerging applications. Over the next decade photonics will make a significant impact to our everyday lives – transforming industries, tackling critical issues such as climate change, and improving societies across Europe. Some current applications include:

- Agriculture (scanning technology and infrared imaging to monitor food production and quality, and sensor systems for planting and irrigation)
- Green Energy Sources (LED lighting and Photovoltaic devices used for solar electric panels)
- Information Communications Technology (optics for data storage, transmission across fibre-optic networks and displays)
- Life Sciences (testing and analysis devices such as non-invasive glucose monitors and point-of-care and wearable diagnostics)
- Medical Technology (lasers for surgery, photodynamic therapy, smart surgical instruments).

Europe is a global leader in the development of photonics technologies, with much of this innovation generated through research funded by the European Commission. The new academy will allow European workforces access to state-of-the-art photonics technologies and advanced methods of photonics manufacturing through structured training and education. To-date, 40 training centres across Europe have been selected for funding, with 10 more to be announced later this year. Critically all regions of Europe will have access to training, including those with little or no expertise in photonics, with centres as far apart as Ireland, Spain, Finland and Greece.

Three types of training courses are available:

- **Online Training**, geared towards new entrants to the photonics sector providing a half-day introduction to photonics and an overview of the key enabling power of photonics technologies for wide-ranging applications.
- **Demo Centres**, offering one-day training courses on-site with a focus on particular photonics technology applications.
- **Experience Centres**, offering in-depth three-day or five-day training courses with a strong focus on lab-based activities and hands-on working using state-of-the-art equipment and application demonstrator tools.

People wishing to attend any of the Online Training, or either of the Demo or Experience Centre training courses, can browse the training catalogue via the PhotonHub website (<https://www.photonhub.eu/our-services/>) and register for the particular course of interest to them.

Further details about PhotonHub's extensive Online Training, and Demo and Experience Centre training courses, can be found in the link here: <https://www.photonhub.eu/our-services/#Training>

Our activities within the PhotonHub Academy:

- 07/09/2021: Introduction to photonics and platforms for prototyping and manufacturing photonics
 - Training provider: imec - Ghent University
 - Training type: online workshop
- 27-29/10/2021: European Silicon Photonics Experience Center
 - Training provider: ePIXfab - Ghent University
 - Training type: Experience Centre
- 01/12/2021: Overview of photonics and an introduction to silicon photonics
 - Training provider: ePIXfab - Ghent University
 - Training type: online workshop
- 02/12/2021: Silicon Photonics for Sensing Applications
 - Training provider: imec - Ghent University
 - Training type: Demo centre