Centre for Doctoral Training in Applied Photonics
industrially inspired: imaging | sensing | analysis

Partnership Model

PhD research project
• project based in university
• IP owned by university
• company pays £5k/yr
• university pays £7.5k/yr
• student stipend £16,277/yr
• academic budget of £3.5k/yr

EngD research project
• project based in company
• IP owned by company
• company pays £12.5k/yr
• university pays £3k/yr
• student stipend £20,777/yr
• academic budget of £3.5k/yr

Training Programme

Key Course [Credits-Year-Semester-Location]
Credits for accredited training shown in brackets.
* Distance learning format available.

Core (60)

- Optical Imaging Concepts [15-Y-1-S1-STA]
- Photonic Sensors from Devices to Systems [15-Y-1-S2-HHU]
- Concepts in Signal and Image Analysis [15-Y-1-S1-STR]
- Photonic Lab [15-Y-1-S1-STA]
- Systems Engineering Lab and Group Project [20-Y-1-S2-SLR]

Electives (min. 40)

- Lasers [20-Y-1-S1-STA]*
- Micro- and Nano-technology [20-Y-1-S2-GLA]
- Biophysics [5-Y-1-S2-HHU]
- Zemax [5-Y-1-S2-HHU]
- Nanophotonics [15-Y-1-S1-STA]
- Advanced Data Analysis [15-Y-1-S1-STA]
- Advanced Digital Signal Processing [15-Y-1-S2-STR]
- Case study review paper [5-Y-1-S2-SWEB]*
- Fibre Optics [5-Y-1-S2-HHU]
- Optics and Metrology [5-Y-1-S2-SWEB]*
- Other modules available on a case-by-case basis*
- Accounting [20-Y-2-S1-HHU]
- Project Management [20-Y-2-S2-HHU]
- Marketing [20-Y-3-S2-HHU]

Year 1

- Year 1 Academic Communication 1: Writing a Literature Review
- Equality and Diversity Awareness
- Responsible Research and Innovation
- Computing Tools (Labview, Matlab, Comsol)

Year 2

- Year 2 Academic Communication 2: Effective Conference Presentations
- Introduction to Six Sigma
- Rapid Prototyping
- Risk Management
- Intellectual Property

Year 3

- Year 3 Academic Communication 3: Writing a Journal Paper
- Systematic Problem Solving
- Outreach Workshop and Event
- Systems Engineering for Instrumentation

Year 4

- Year 4 Academic Communication 4: Thesis Preparation and Writing
- Proposal Writing and Entrepreneurship

Partners & Research

Advanced detectors and X-ray photonics
Infrared detection
Fibre sensors in challenging environments
Quantum technologies
Image analysis and rendering
Quantum cascade lasers and gas sensing
Tunable lasers for spectroscopy and microscopy
Laser devices for life sciences imaging
Stand-off chemical detection systems
Fibre sensors for the power network
Lidar and mid-IR sensors and devices
Mid-infrared gas-sensing devices
OCT and sensing in harsh environments
Laser remote sensing and imaging
Image-guided surgery using optical Cerenkov radiation

Metrology, sensing and imaging for machining
PET/CT imaging and analysis
Optical/quantum metrology and microring sensors
Devices for quantum sensing
Retinal imaging and analysis
Imaged-based metrology for manufacturing
Single-photon imaging cameras
LFI technology
Industrial precision metrology
Automotive lidar and autonomous vehicles
Super-resolution microscopy
Astronomical sensing and instrumentation
Optical sensors, cameras and scene analysis
Photonic instrumentation

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