

List of Universities in UK and Europe with training programmes

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| <p>1. UK Universities providing training programmes</p> |
| <p>1.1 University College London</p> <p><i>Degree title</i> – MSc in Nanotechnology</p> <p><i>Brief Course Description</i> – The Nanotechnology programme consists of taught courses (60%) and a research project with dissertation (40%). The lectures are delivered in weekly three-hour blocks to facilitate part-time attendance. The course imparts knowledge about physical sciences, characterisation and processing techniques, applications in molecular electronics, healthcare and modelling techniques. The course also has content related to society impact and nanotechnology enterprises.</p> |
| <p>1.2 Queen Mary, University of London</p> <p><i>Degree title</i> – MSci in Nanoscience and Nanotechnology</p> <p><i>Brief Course Description</i> – This 4 year program in the rapidly emerging interdisciplinary field of nanoscience and nanotechnology provides instruction at the interface between physics, materials science, chemistry and biology. This degree programme is designed to provide the essential scientific foundation in physics, chemistry, nanoscale materials and processes and molecular biology combined with modules devoted to nanotechnology and its commercial exploitation.</p> |
| <p>1.3 Oxford University</p> <p><i>Degree title</i> - Postgraduate certificate in Nanotechnology</p> <p><i>Brief Course Description</i> – The programme is a part time modular programme with all tuition delivered entirely online. It is aimed at full time employees working in physical science sector. The Programme is designed to enhance your contribution in the workplace through a rigorous curriculum of training linked to work-based examples and provides an in depth knowledge of the science that underlies Nanotechnology. Three modules are taught as stand alone subjects including the introduction, fundamentals of the science and fundamentals of characterisation.</p> |
| <p>1.4 Cambridge University</p> <p><i>Degree title</i> – MPhil in Micro- and Nanotechnology Enterprise</p> <p><i>Brief Course Description</i> – This programme brings together outstanding individuals from all over the world who intend to pursue a career at the interface of technology and business. This programme has been developed in association with the Judge Business School at the University of Cambridge. The programme is part of a suite funded by the Professional Practice Programme of the Cambridge-MIT Institute (CMI). The content is vast in scope and covers MEMS, fundamentals of nanoscience, fabrication, characterisation and modelling. The content also</p> |

focuses on enterprise building and financing of nanotechnology.

1.5 Newcastle University

Degree title – MRes in Medical and Molecular Biosciences

Brief Course Description – The MRes covers advanced subject knowledge and training in professional and key skills and research techniques in the biomedical and biomolecular sciences, through a series of taught modules (90 credits) and a 20-week laboratory project (90 credits). The following strands are available for students who wish at the outset of their studies to designate a particular area of specialization: Cancer Research, Gerontology, Immunobiology, Nanomedicine, and Neuroscience. For each strand the relevant modules are studied and you undertake your research project work in a laboratory actively pursuing work in your specialist field.

1.6 University of Birmingham

Degree title – MRes Nanochemistry and Materials Chemistry

Brief Description - This is a year-long EPSRC-sponsored programme in which one-third of your time is spent on coursework in chemistry, related sciences and the development of professional and research skills, with the remaining two-thirds devoted to a research project. It is suitable for those with degrees in physical sciences, as well as those with prior experience in chemistry or materials science. Research encompasses the topical areas of laser photochemistry and spectroscopy, superconductivity and materials chemistry, molecular electronics, nanoscience, surface chemistry, theoretical chemistry, structural chemistry, supramolecular chemistry, and medicinal and biological chemistry.

1.7 Royal Holloway, University of London

Degree title – MSc in Nanophysics & Low Temperature Physics

Brief Description – The tailored course aims to train students for a research career at University/Industry, or a broader career in the industrial sector such as semiconductors or instrumentation. The programme is focussed on nano-scale physics with modules covering quantum mechanics and low temperature physics.

1.8 University of Teeside

Degree title – MSc in Nanotechnology and Micro systems

Brief Description – The course can lead to the award of a postgraduate certificate at Stage 1 (60 credits - 3 modules), postgraduate diploma at Stage 2 (120 credits - 6 modules), or on completion of a research project, the MSc degree. The course is taught on a block-release basis at the University. Areas of study include microfabrication, nanomaterials, microsystems, miniaturised diagnostics systems and biosystems. All the modules on the course are tailored to suit those from a science background and those from an engineering background.

1.9 Imperial College

Degree title – MSc. In Nanomaterials

Brief Description – The MSc degree is based around a year long interdisciplinary project of original research supported by taught courses in all major areas of nanomaterials science. The programme is available only as a full-time one-year course and successful completion leads to the MS degree. The programme covers nanomaterials, their modelling, supramolecular chemistry, bio-nanomaterials, and carbon nanotubes. In addition a series of advanced courses students are introduced to wider concepts in nanomaterials research including: epitaxy, lithography, quantum computing, nanoelectronics, self assembly, biological nanostructures, nanoscale renewable energy, lab-on-a-chip, self-cleaning surfaces, DNA computing, and fuel cell technology.

1.10 Loughborough University

Degree title – MSc in Nanoscience

Brief Description – The Department offers a research based portfolio of MSc degrees in physics and related sciences. These one-year programmes offer an opportunity to work within one of our research groups to obtain a Master's Degree by research studies. Each qualification contains a mix of directed research work, development of research skills and taught material. Content covers include quantum mechanics, magnetism and superconductivity.

1.11 University of Nottingham

Degree title – MSc in Nanoscience

Brief Description – The course is centred upon the new Nottingham Nanotechnology and Nanoscience Centre (NNNC), and is taught across four Schools in the University, Chemistry, Physics and Astronomy, Pharmacy and Mechanical, Materials & Manufacturing Engineering. The course includes an opportunity to undertake a research project in a world-leading nanoscience research group gives training in science communication and provides students with a background to enable them to make a significant contribution.

2. European Universities providing training programmes

2.1 Technical University of Denmark

Degree title – MSc in Nanotechnology

Brief Description – The course contains several modules ranging from introduction to nanotechnology, Nanosystems Engineering, Nano- and micro-fabrication, Transport in Nanostructures Quantum Mechanics, Nano-systems project Nanolithography. Courses last 13 weeks and can be taken as a part of undergraduate or PhD degree.

2.2 University of Dijon

Degree title - Master in Material's Sciences, specialism Nanotechnologies and Nanoscience

Brief Description - The two year master is centred on micro and nanophysics, nanocomponents and their characterisation. The main courses taught are Nanophysics and Nanooptics, Nanotechnologies tools, Physical chemistry of coatings and interfaces, Biophysics and modelling, Nanostructures' Manufacturing Technologies - Micro and nanosensors. This programme prepares students for production and development engineering careers in industries (nanomaterials and nanosystems for optic, chemistry, biology and pharmaceutical). Different options are offered in semester 3 and 4 according to the projects.

2.3 Munich University of Applied Sciences

Degree title - Master of Engineering in Micro- and Nanotechnology

Brief Description – The year and a half long master programme encompasses planning, manufacturing and application of functional structures. Based on commercially well-established microtechnology the fundamentals and innovative applications of nanotechnology will be introduced. Graduates in micro- and nanotechnology will have engineering as well as natural scientific expertise. Main topics are new materials with super hard properties, molecular adhesives, effective catalysts and membranes or highly selective pharmaceuticals. Further issues are the miniaturisation of integrated circuits for ultrahigh memories and super fast computers.

2.4 University of Groningen

Degree title - Master in Nanoscience (M.Sc.)

Brief Description - The two-year programme provides interdisciplinary and professional training in nanoscience, with an emphasis on nanostructured materials. The first year is mainly spent following courses. Roughly half of those consist of compulsory modules, dealing with basic topics, such as: a general introduction into nanoscience and nanotechnology; optical, electrical and magnetic properties of nanostructured and macromolecular materials; among others. The other courses may be chosen from a list of advanced and often highly specialized topics and also comprise the preparation of a colloquium and an essay on topics of the students own choice within the field of nanoscience. The second year is reserved for an experimental or theoretical research project under supervision of one of the senior scientists of the Materials Science Centre.

2.5 Chalmers University of Technology

Degree title – Nanoscale Science and Technology Master Programme

Brief Description - The 1.5 year Nanoscale Science and Technology Master's Programme consists of a backbone of compulsory courses (23cu) and an elective part (17cu). Through their choice of elective courses and masters thesis work (20cu) the students build their unique scientific profile related to micro/nanotechnology. Examples of scientific profiles are Nanoscale Device Physics, Nano/Microelectronics, Biological Physics & Nanobiotechnology, and Quantum Physics & Engineering. In addition to the extensive theoretical part related to the physics and fabrication of nano- and micro fabrication all students within the programme gets hands-on experience of clean room processing work. Coupling between research and education The Nanoscale Science and Technology Programme strongly benefits from the research activities within micro- and nanotechnology at the department of MC2. Through the coupling between research and education the students also have access to the state-of-the-art from the experts in the field.

2.6 Technische Universität Hamburg

Degree title – Joint European Masters in Materials Sciences

Brief Description – This International Masters Program, presented by the European Consortium of Innovative Universities (ECIU), is organized in cooperation with the universities of Aveiro (Portugal) and Aalborg (Denmark). It aims to specialise students in the science and engineering of ceramics, metals, polymers, and composites for technical applications like electronics or biomaterials. Integrating course units are delivered by academic staff from the 3 partner Universities and other leading guest researchers. Special emphasis is put on nanotechnologies, which play a major role in these course units (up to 20%). In addition, nanotechnology subjects

may be chosen for term and master thesis, seminars and internships. Close contacts with the Industry will be provided through off-campus work assignments in industry (internships).

2.7 International University Bremen

Degree title - M.Sc. in Nanomolecular Science

Brief Description - In the interdisciplinary M.Sc. program, courses and labs are taught by faculty from physics, chemistry, life sciences and engineering: for example, on preparation and characterization of nanostructures, functional nanomaterials, surface techniques, theory and computer modeling, applications of nanosystems. The M.Sc. curriculum closes with a Master thesis.

2.8 University of Jyvaskyla

Degree title – Masters programme in Nanoscience

Brief Description – The course content covers nanoscience, bioscience, chemistry and quantum physics. In this course a research report will be done under guidance from a chosen subject of nanoscience. All the reports will be presented in a one-day seminar. Suitable major subjects are cell biology, electronics, molecular biology, organic chemistry, physical chemistry and physics and minor subject's biochemistry, chemistry, electronics and physics. Courses are available in Finnish and English.

2.9 Université Paris Sud

Degree title – Masters of Science

Brief Description – Master with a specialism Micro and Nanotechnologies is a 2 years programme.

2.10 Université Montpellier

Degree title – Masters of Science

Brief Description - Master in Physics, specialising in physics of nanostructures. The two year program focuses in the first year on the core physics syllabus, and the second year is for specialism. The programme offers the possibility of entering directly in the second year.

2.11 Université Lille

Degree Title - Master of Science in Microelectronics, microtechnologies and telecommunications

Brief Description – The programme offers a specialism in micro and nanotechnology in the second year of the programme. First year of the programme follows a core syllabus on the electronics syllabus.

2.12 Ulm University

Degree Title – M.Sc. in Advanced Materials

Brief Description - International Master Program on Advanced Materials, started in September 2002, was created in this spirit. It is a state-of-the-art graduate curriculum in the area of Advanced Materials in nanomaterials and biomaterials, designed primarily for the international student, and

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| <p>taught entirely in English.</p> |
| <p>2.13 Friedrich-Alexander-University</p> <p><i>Degree Title</i> – Masters of Science</p> <p><i>Brief Description</i> – The Masters of science degree in Molecular Science is a program focused on chemistry.</p> |
| <p>2.14 Aristotle University of Thessaloniki</p> <p><i>Degree Title</i> – Masters of Science</p> <p><i>Brief Description</i> – The two year program over four semester's covers, different aspects of nanoscience and nanotechnology. It is based at the thin films laboratory (nanometrology and nanosystems) in the department of physics.</p> |
| <p>2.15 Federal Institute of Technology, Zurich</p> <p><i>Degree Title</i> – Masters of Science in micro and nanosystems</p> <p><i>Brief Description</i> – The 18 month programs run between the departments of electrical and mechanical engineering. There are two terms of teaching and six months of research. The focus is on fundamental theoretical knowledge and application-specific aspects about materials and their properties, quantum mechanics, novel properties of devices, system integration, and modeling and simulation. Elective courses in product development and innovation management provide the complementary knowledge graduates need in order to create marketable and innovative products. The social context in which micro and nanosystems engineering is applied and its broad interdependencies are addressed in courses in humanities, social science and political science.</p> |
| <p>2.16 University of Brittany, Nantes, Rennes and Lorient</p> <p><i>Degree title</i> – Masters in Nanoscience, Nanomaterials and Nanotechnologies</p> <p><i>Brief Description</i> - The master programme aims to prepare physicists, chemists or engineers to the handling of the concepts on nanophysics, nanosciences instrumentation, and to the professional development of nanomaterials. The course consists of theoretical modules covering Nanophysics, nanoelectronics, nanocharacterisation, nanomaterials and nano-biology. The practical modules cover nanotechnology, thin film deposition and knowledge about the professional environment. In addition several electives are also available at the three different Universities.</p> |
| <p>2.17 University of Copenhagen</p> <p><i>Degree title</i> – Masters of Science</p> <p><i>Brief Description</i> – The programme is run over two years. The first half of the programme is taught through modules and the second half is a thesis which is completed over 1 year. Education and Research is mainly divided into three areas Electronics, Bionano and molecular studies.</p> |