Nanomaterials

MONDAY 8 APRIL TO FRIDAY 12 APRIL 2019

UNIVERSITY OF SURREY

WHO SHOULD ATTEND?

The course is directed at engineers and scientists who require a thorough grounding in the benefits of nanomaterials and related technology. These are applicable to a wide range of industrial scenarios. As the field of nanomaterials is developing very rapidly, the course provides an ideal opportunity to review the scope and applicability of the currently available and emerging nano-structured materials. While the course is open to all, a scientific or engineering education to degree level, or a higher education qualification in physics or chemistry is desirable.

THE COURSE

This course will present a review of the state of the art of materials structured at the nanoscale. Nanoscale structure in metals, polymers and ceramics can have a marked influence on structure-property relationships with the possibility of providing behaviour not seen in coarser scale structures. In addition certain new classes of materials may also be produced at this size level, for example, carbon nanotubes, graphene and a variety of colloidal structures. The processing and applications of nanomaterials will also be examined along with the requirements and techniques for characterising a range of nanomaterials in isolation and as part of complex systems.

The aim of this course is to introduce the various classes of nanomaterials: ranging from isolated nanostructures, through to nanostructures integrated in bulk materials. The course covers applications ranging from existing commercial nanomaterials found in every day products through to the future generation of nano-enabled products.

OUTLINE OF THE COURSE

- Nanomaterials: past, present and future
- Materials characterisation at the nanoscale
- Top down and bottom up manufacture of nanomaterials
- Carbon Nanotubes, graphene and other species
- Nanometallics
- Nanoceramics
- Waterborne Polymer Nanoparticles & Composite Particles
- Applications & Properties of Nanocomposite Films & Nanoparticles
- Dispersion of Nanoparticlulates in Polymers
- Mechanical Properties of Nanoreinforced Polymers
- Nanolayers at Polymer/Metal Interfaces
- Nano-assisted manufacturing
- Nanostructured Coatings for Wear Resistant applications
- Applications of nanomaterials
- Nano-sensors

KEY POINTS

For course calendar and online registration:
surrey.ac.uk/department-mechanical-engineering-sciences/short-courses

If you have a question please call:
+44 (0)1483 686122

Courses run for one week from Monday morning to Friday afternoon.

Delegates may request a list of local accommodation

MSC IN ADVANCED MATERIALS

This short course is offered as a module in our part-time or full-time Modular MSc Programme in Advanced Materials. Further details of our programme can be found on our web pages:
surrey.ac.uk/postgraduate/advanced-materials-msc-2018

COURSE DIRECTOR

The Course Director is Professor Robert Dorey
surrey.ac.uk/people/robert-dorey

He will be joined by colleagues from across the University of Surrey's nanomaterials activity.

These short courses have been approved for "Professional Development" by IOM3

(Institute of Materials, Minerals and Mining).

IOM3
The Institute of Materials, Minerals and Mining
ACCREDITED PROGRAMME

CENTRE FOR ENGINEERING MATERIALS

The course is delivered from the Centre for Engineering Materials, home to the biggest concentration of materials researchers at Surrey with interests spanning all materials groups form the nanoscale through to macroscopic engineering structures. Across the University there are over 50 academics, residing in six engineering/ physical science departments, for whom materials is a primary research interest:
surrey.ac.uk/centre-engineering-materials

The research, which is recognised as being internationally excellent, spans topics as diverse as the production of graphene through to the mechanical testing of metre long sections of Victorian water mains. Much of the work is underpinned by the University's world-leading capability in characterisation, which comprises both facilities and expertise. Further, Surrey has a history of working in partnership with industry and a proven track record in delivering academically acclaimed and industrially relevant postgraduate courses.

The University is also home to the thriving, much-admired Engineering and Physical Sciences Research Council (EPSRC) Centre for Doctoral Training in Micro and NanoMaterials and Technologies which was established in 2009, and subsequently refunded in 2014, with awards amounting to over £9 million from the EPSRC and sponsorship of engineering doctorate students from over forty companies, to date:
surrey.ac.uk/minmat

5225-0918

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IOM3
The Institute of Materials, Minerals and Mining
ACCREDITED PROGRAMME

Nanomaterials is also part of the
Advanced Materials MSc programme which is accredited by IOM3