

INTRODUCTION TO

# *Composite Materials*



MONDAY 12 NOVEMBER - FRIDAY 16 NOVEMBER 2018

## WHO SHOULD ATTEND?

Those wanting an in-depth introduction to composite materials. The rapid increase in the use of composites means that many people are getting involved with composite materials and finding they need a sound introduction to the subject. It will be suitable for graduates in science or engineering who are entering the field and for technicians engaged in composites technology but who want to understand the science. The course is also suitable for sales and managerial personnel who have a scientific background and are seeking an appreciation of the principles of composite materials.

## THE COURSE

This is a five day intensive course covering the essential concepts and practices of Composite Materials. The course will benefit those with no previous formal introduction to the science of composites: no prior knowledge or experience is assumed. All topics will be introduced from first principles and the emphasis will be on developing an understanding of concepts rather than a detailed review of current practice. The course will include lectures, exercise classes and laboratory sessions.

## KEY POINTS

For course calendar and online registration:  
[surrey.ac.uk/department-mechanical-engineering-sciences/short-courses](http://surrey.ac.uk/department-mechanical-engineering-sciences/short-courses)

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

## OUTLINE OF THE COURSE

- Introduction
- Basic mechanics of reinforcement
- Laminate theory
- Fracture processes and toughness of composites
- Reinforcements and matrices
- Interfaces in composite materials
- Manufacturing processes
- Modelling of the processing of fibre composites
- Failure criteria
- Introduction to design
- Notches and joints - the effect of stress concentrations
- Fatigue
- Woven composites: structure and behaviour
- Impact and environmental effects
- Exercise classes
- Laboratory programme

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](http://surrey.ac.uk/postgraduate/advanced-materials-msc-2018)

## COURSE DIRECTOR

The Course Director is Professor Stephen Ogin.

[surrey.ac.uk/people/stephen-ogin](http://surrey.ac.uk/people/stephen-ogin)

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

These short courses have been approved for "Professional Development" by IOM3 (Institute of Materials, Minerals and Mining).



## 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 from 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](http://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](http://surrey.ac.uk/minmat)



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UNIVERSITY OF SURREY  
Guildford, Surrey GU2 7XH, UK

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[surrey.ac.uk/department-mechanical-engineering-sciences](http://surrey.ac.uk/department-mechanical-engineering-sciences)  
[advancedmaterialsmc@surrey.ac.uk](mailto:advancedmaterialsmc@surrey.ac.uk)  
+44 (0)1483 686 122



The Institute of Materials,  
Minerals and Mining

**ACCREDITED PROGRAMME**

Introduction to Composite Materials is also part of the  
Advanced Materials MSc programme which is accredited by IOM3

We've made all reasonable efforts to ensure that the information in this publication was correct at the time of going to print in September 2018, but we can't accept any liability for any inaccuracies in the information published, and the information might change from time to time without notice. For the latest and most up-to-date information, please visit our website at [surrey.ac.uk](http://surrey.ac.uk)