Registration Form
Rheology of Complex Fluids

Please complete the form below to express your interest in this course. We will keep you informed on when and where our next available course is being run.

Title:

Surname:

First name(s):

Company or Institute:

Address for correspondence:

Telephone number:

Fax number:

Email:

Venue and Fees

The course is usually held in the Novotel which is conveniently situated 2 minutes walking distance from the train station, and a short drive from Leeds-Bradford Airport.

The course fees and venue will be confirmed when we get back in touch with you with further details.

ParticlesCIC

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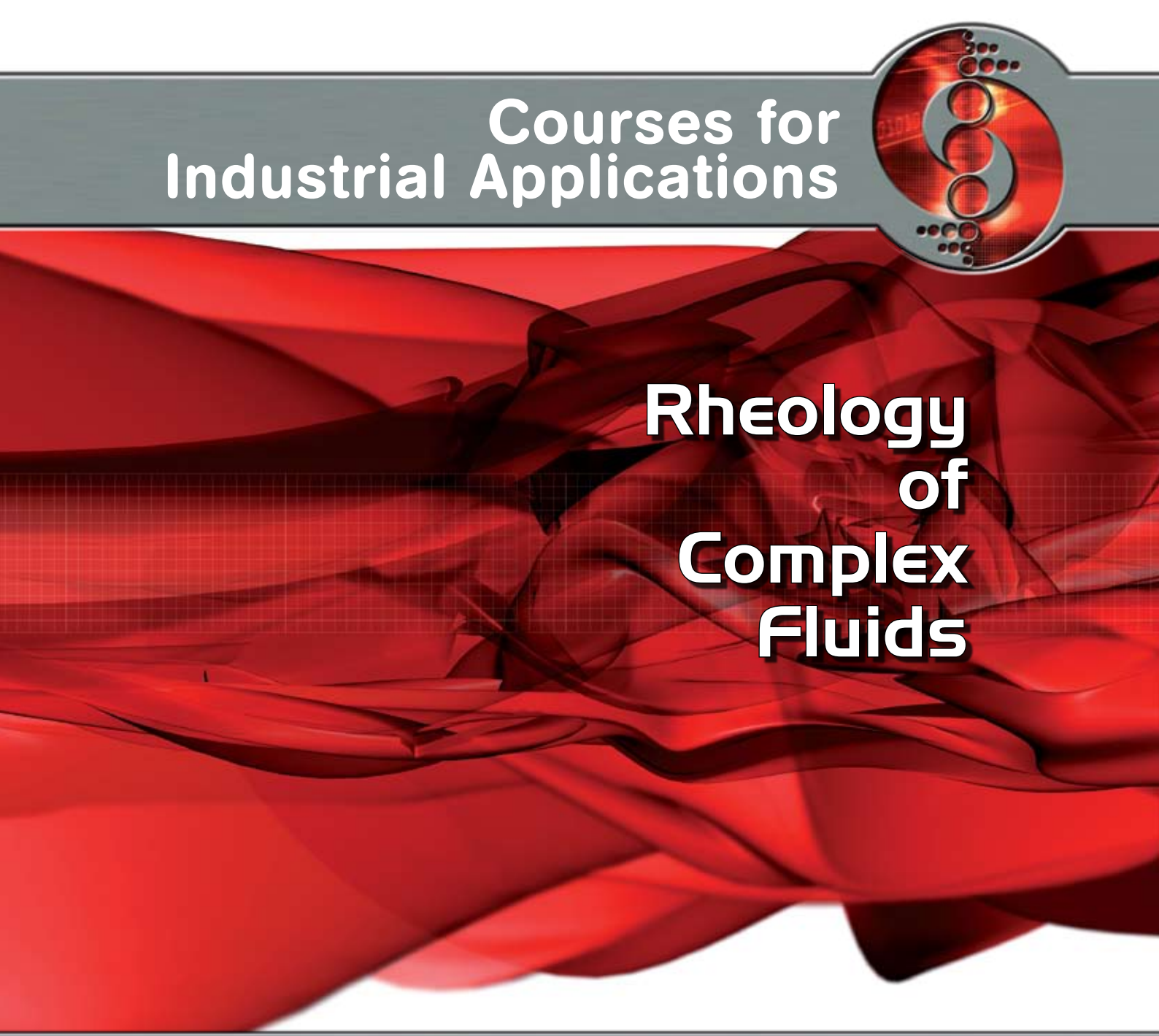
Courses for Industrial Applications



Rheology of Complex Fluids

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About the course

Addressing industrial need for rheological measurement and understanding, this course is relevant to staff who not only use rheometers but more importantly have to understand and interpret data for quality assurance, improvement of processes and development of new product formulations.

It is of particular interest for formulators and QA analysts in pharmaceutical, pigments, detergents, cosmetics, plastics, catalysts, food and general chemicals industries.

Learning objectives

On completion of the course you will have an understanding of:

- rheological concepts and terminology,
- how the more important rheological properties are measured,
- the origins of rheological properties at the particulate and molecular level, and
- how and why rheological properties are important in various applications.

Course Description

The aim of the course is to provide an overview of modern rheology with an emphasis on the material properties of important classes of complex fluids such as colloidal dispersions, emulsions and polymer solutions and melts.

What is the point of learning how to measure things you have never heard of and don't understand?

To address this question, the emphasis will be on basics and principles: on why materials behave as they do and less on the measurement of rheological properties, although aspects will be discussed.

We have taken this approach for two reasons:

- many more staff use rheological information and data than perform measurements
- training in the details of measurement techniques is, or can be, provided by many of the larger instrument manufacturers

Extensive notes will be provided to participants and worked examples; case studies and theory will be introduced wherever relevant. As well as offering the opportunity to discuss specific problems during the course the final afternoon is offered as an optional rheology clinic or a visit to the characterisation facilities of the ParticlesCIC at the University of Leeds.

Course Director

Richard Buscall has been involved in rheology and its applications for over thirty years. He has published many well-cited papers on the rheology of suspensions and polymer solutions and has extensive experience of the use of rheological concepts and measurements in product and process development across a broad range of industrial sectors. His work has been recognised by awards from the Society of Rheology, the British Society of Rheology, the Royal Society of Chemistry and the Royal Australian Chemical Institute. He is a past president of the British Society of Rheology.

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Day One

Introduction to rheology
- What is rheology?
- Stresses, deformations and flows
- Rheological laws & rheological behaviours

Shear rheometry
- The measurement of rheology in shearing deformations and flows.
- The strengths & limitations of different types of torsional rheometer

Viscoelastic materials
- Characterisation of viscoelastic materials
- Time temperature superposition
- Use of such data in new product development

Rheology of polymer melts and concentrated solutions
- Molecular origins of polymer rheology
- Non-linear deformation & flow
- Polymer melts & concentrated solutions
- Flexible polymers, rubbers & gels

Extensional (tensile) rheology
- What is extensional rheology?
- How is it measured?
- Some representative behaviour

Day Two

Dispersion rheology - an overview
- Introduction to the connection between rheology & microstructure: between rheology & particle interactions
- Overview of the flow properties of dispersions
- Some things to bear in mind when performing measurements on dispersions

Yield stresses of particulate gels
- Types of yielding
- The yield stresses & applications
- Measuring the yield stress in shear

Compressional rheology
- Introduction to compressional rheology
- Applications

Optional rheology clinic or visit to the laboratories of the ParticlesCIC at the University of Leeds

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