



SCIENTIFIC UPDATE

We've got chemistry



CHEMICAL ENGINEERING:

What scientists and other
engineers need to know

19-21 NOVEMBER 2019

"Course topic
was very interesting
and definitely made me
reconsider how to think or
consider things from now
on. Also will help me to
understand my colleagues
and their views better."

2018 Delegate

**Madrid,
Spain**

NH Principe de
Vergara Hotel

A 3 day course
presented by

Britest

CHEMICAL ENGINEERING:

What scientists and other engineers need to know

Multiple attendees discounts
UP TO 15% available

19-21 November 2019 Madrid, Spain, NH Principe de Vergara Hotel

INTRODUCTION

R&D scientists are often at a disadvantage when working in process research and development because of their lack of knowledge about the basic principles of chemical engineering, and the impact of decisions regarding process yield and selectivity on up- and downstream operations. Other branches of engineering face a similar disadvantage when considering the whole process.

This course has been developed, and is presented, by chemical engineers and chemists who specialise in facilitating knowledge transfer and understanding between different scientific and engineering disciplines working at the R&D-manufacturing interface. As a result, it does not dwell on the derivation of mathematical formulae or equations used in chemical engineering design, but instead focuses on what other disciplines need to know about the information and data that chemical engineers require for design, scale-up and process troubleshooting.

Chemical engineering without mathematics is impossible, but this course presents only relevant mathematics at a level that should not trouble anyone with a numerate scientific degree. Other disciplines do not need to know how to design plants or equipment and this course does not attempt to teach this. The course focuses on understanding chemical engineering principles to promote clear communication between disciplines, facilitating information and knowledge transfer.

COURSE OUTLINE

Introduction to Chemical Engineering

- > What do some chemical engineers do?
- > Dimensionless groups
- > Process representations and their uses
- > Conservation of mass and material balances
- > Conservation of energy and energy balances

Flow of Fluids

- > Basics of fluid behaviour
- > Fluid properties
- > Flow measurement
- > Reynolds number
- > Pressure drop in pipes
- > Types of pump and pump selection
- > Applications of mixing
- > Types of agitators
- > Mixing regimes and their effects on process
- > Solid-liquid and gas-liquid mixing

Heat Transfer

- > Fundamentals of conduction and convection, heat transfer coefficients
- > Types of heat transfer equipment
- > Heat transfer in batch vessels
- > Evaporation
- > Joule-Thomson effect
- > Humidity and drying, dryer design

Mass Transfer and Separation Processes

- > Introduction to mass transfer
- > Phase equilibria
- > Mass transfer coefficients
- > Introduction to column contactors
- > Gas absorption
- > Distillation
- > Solvent extraction processes and equipment

Reaction Engineering

- > Reaction engineering principles
- > Simple approaches to reactor design and selection

Introduction to Process Safety

- > Principles of intrinsic and inherent safety
- > Electrostatics
- > Dust explosions
- > Pressure relief
- > Instrumented protection

VENUE

NH Hotel Principe de Vergara

Principe de Vergara 92,
28006 Madrid, Spain

+34 91 563 2695

www.nh-hotels.com/hotel/nh-madrid-principe-de-vergara

This modern hotel, set in Barrio de Salamanca, is 4 minutes' walk from Avenida de América metro station and 2.7 km from the Museo Arqueológico Nacional.

Accommodation has been reserved at the special rate of €160 per room per night (including breakfast). Please use the hotel booking form, which will be sent to you when you register.





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Start 9.00am - Tuesday 19 November
Finish 4.30pm - Thursday 21 November

Course Fee: €1,799

Which includes comprehensive course manual, refreshments throughout the day, and lunch.

Course fee: €1,799

COURSE TUTORS



Charles M Gordon
MRSC

Robert Peeling
CEng FIChemE, MIET

Mark Talford
CEng MIChemE

Britest

You can find the full tutor biographies on our website.

COURSE OBJECTIVES

Chemists, biologists and engineers regularly interact and collaborate in process R&D projects. For effective team working they should each understand the needs and objectives of the other disciplines.

This course gives scientists and other engineering disciplines an introduction to the main aspects of chemical engineering science that will help them realise the importance of the subject. It introduces and describes core principles of chemical engineering and how process technologists can provide data and information to support the chemical engineers in their work. The course will help other process technologists

appreciate the role of chemical engineers and assist in understanding their requirements.

The course will equip process technologists with a sufficient understanding of chemical engineering to foster better communication with chemical and process engineers. It will enable delegates to be aware of the impact of chemical engineering principles on successful scale-up and process problem solving. The principle aim is that delegates will be able to discuss chemical engineering issues affecting their processes and relate them to their own areas of expertise.

IN-HOUSE COURSE

For 8+ people contact us to discuss holding this event In-House - sciup@scientificupdate.com

REGISTRATION

You can either use our fast online booking system or mail or fax the attached registration form to:
Scientific Update
Maycroft Place, Stone Cross, Mayfield,
East Sussex, TN20 6EW, UK
Fax Number +44 1435 872734

How to Pay

When you register online, you can have the option to pay via credit card (Mastercard or Visa). A receipted invoice will be automatically generated once paid and sent via email. Should your company wish to pay by cheque or bank transfer bank details will be supplied with an invoice.

Bank Transfer or Cheque

Should your company wish to pay by cheque or bank transfer, on booking you can choose between paying in either €, \$ or £. All bank details will be supplied with an invoice.

Group Discounts

Group discounts are available on two or more attendees - see registration form. This offer only applies if bookings are made simultaneously and from the same billing address.

Confirmation of your registration

These will be sent via email.

Late Applications

For late applications, please register online or fax the completed registration form, including credit card payment information.

Cancellations/Refunds

Should you be unable to attend and cancel in writing no later than 1 month before the start of the course, Scientific Update will refund your registration less £300 (or equivalent in €/£) processing fee. Unfortunately refunds are not possible after that date. Substitutions can be made at any time.



No. of attendees @ €1,799

Special Offer!

Register 2 delegates and receive 5% on 2nd booking
 Register 3 delegates and receive 10% on 3rd booking
 Register 4 or more delegates and receive a 15% discount

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 Job Title
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Third attendee **SAVE 10%**

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Invoice Address (if different to delegate address)

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 Please invoice my company
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In Currency:
 Euros GBP* or Dollars*

We accept the following credit cards:
 Amex* Mastercard Visa

To pay by credit card a secure link will be provided once you receive your booking confirmation email, this will then take you to a secure payment gateway.
 *payments via Amex can only be made in US dollars

*** Currency Payments**
 If you select to pay in GBP, or Dollars the amount charged will be based on the exchange rate at the time of preparing the invoice.

Discounts
 Complete the details for either two or three delegates and your discount will automatically be applied. This offer only applies where all delegates are booked simultaneously and at the same billing address.

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Data Protection
 Scientific Update Ltd is registered under the Data Protection Act 1998. We will store your information securely and only share your contact details with other attendees at this event. If you are happy for your details to be passed to any third parties please tick here:

For full terms of business and payment details please see our website

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