

# Fluid Catalytic Cracking Course

A Eurotek training course

**Free 6 months License for FCCTek Process Model for each Attendee.**



## ERS Fluid Catalytic Cracking

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### An introduction:

The ERS FCC Training Course is an ideal course for those process engineers who wish to gain a detailed understanding of all the core features of the Fluid Catalytic Cracking Process. Covering issues from Chemistry and Catalysis through Process Operation and onto Design, it is a comprehensive course providing the engineer with a thorough grounding in the technology. Technologists from backgrounds as diverse as technical support, operations, planning, and process control, have all found the course helpful.

### Learning objectives:

Upon completion, graduates will be knowledgeable in the fundamentals of Fluid Catalytic Cracking and understand the individual unit operations in terms of design, operation and troubleshooting.

After completing this course you will:

- Have a thorough understanding of the core features of the Fluid Catalytic Cracking Process from feed properties through to product yields and qualities.
- Understand heat balance between the Reactor and Regenerator,

- Understand the pressure balance of the Fluid solids section.
- Be able to run an FCC computer simulation to accurately model a unit and optimise any given starting operation.
- Be able to solve operating problems via Trouble shooting and Root Cause Analysis.



### Who should attend?

Professionals working in the operation, design and troubleshooting of all refining activities especially those with a focus on the Fluid Catalytic Cracking Unit.

The course will be highly valuable to all engineers involved in the operation and design of FCC facilities. Additionally, the course will be useful to any technical personnel wishing to gain a perspective of how the FCCU fits into the operation of a complete refining plant.

Those who are experienced in other fields and seek a review of the fundamentals of FCC will also find this course most beneficial.

Job Titles/Functions Appropriate for the Course Include:

- Process, Project, and Plant Engineers
- Commercial Development and Planning Engineers
- Computer/System Analysts and Refinery Modelling Engineers
- Operations Economic Evaluators
- Catalyst Manufacturers and Refinery Chemists
- Product, Equipment, Chemicals, Supplies or Services Sales Personnel

### Description:

The petroleum industry uses FCC as the primary basis for conversion. This course covers the core elements of FCC technology. A solid foundation is laid by covering the detail of Heat and Carbon Balance. Key variables that affect product yields and selectivity are described and their impact on the optimisation of the unit operation is discussed.

Techniques used for control of the FCC fluid solids unit are also presented. Finally, a framework is presented for troubleshooting operating problems and, throughout this discussion; participants are encouraged to describe their specific challenges.

The scope of the course includes the core of most FCC problems and attempts to cover solutions useful to design and operating engineers. Recent concerns associated with diesel maximisation and processing heavy feeds are covered.

This course will provide an overview of the diverse nature of the FCC processes, depending on the feedstocks used, products made and the environmental issues. It will address process integration issues, which are vital for economic viability.



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## Course Presenter

George Blair is a Director of Eurotek Refining Services Ltd and a Senior Refinery Process Consultant with experience in key refining process operations, design, sales, training and coaching. He has worked for various divisions of BP, UOP and Exxon/Mobil over a 30-year career. Within BP he was Technology Co-ordinator in Europe and Senior FCC Consultant overseeing FCC Technology. .

His BP achievements include Increased Capital Investment efficiency through front end project work (20-50% reduction in CAPEX relative to contractor/licenser proposals), development of BP Amoco's proprietary FCC yield prediction model, and integration with other refinery optimisation tools, coaching of young engineers to maximise both individual potential and corporate value, two Chairman's awards for Technical Excellence in 8 years, building of a refinery focused technology support network providing high quality FCC technology support to BP refineries worldwide.

Within Exxon/Mobil he was a consultant Engineer for European refineries in the area of FCC and Section Head of the Refinery Technical Service Group (Fawley Refinery). George has a B. Sc Hons. in Chemical Engineering and Management Studies from Loughborough University, a Diploma in Industrial Studies Loughborough University and is a Fellow of the Institution of Chemical Engineers and a Chartered Engineer.



## Course programme

### Day 1

#### **Introduction to FCC**

Development of Catalytic Cracking  
FCCU role in a Refinery  
FCCU Reactions  
FCCU Designs

#### **Catalysis**

Nature of Cracking Catalyst  
Catalyst Evolution  
Zeolites  
Composition and Selectivity

#### **Coke, Conversion and Heat Balance**

FCCU Conversion  
FCCU Coke Yield  
Heat and Carbon Balance  
Full and Partial Combustion

#### **Process Control**

Basic process control requirements  
Influences on process control strategies  
Background to multi variable control

### Day 2

#### **Process Variables and Yields**

Operating Variables  
Feedstock Effects  
Interactions  
Yields and Selectivities

#### **Maximum Diesel Production**

Chemistry and Catalysis  
Feed Quality Effects  
Operating Variable Effects  
Optimum Strategy

#### **Catalyst Circulation**

Fluidisation Fundamentals  
Flow Regimes in an FCCU  
Pressure Balance  
Common Problems

#### **Process Monitoring and Optimisation**

Why, what and how to Monitor  
Importance of Constraints  
Optimisation

### Day 3

#### **Product Qualities**

Blending FCC Products into fuels  
Impact of FCC process changes on Product Qualities.

#### **FCC Hardware Technology**

Feed Injection  
Reactors  
Reactor Strippers  
Regenerator  
Cyclones

#### **Residue Operation**

Effect on Yields  
Effect on Catalyst  
Effect on Operation  
Residue Technology

#### **Troubleshooting Case Studies/Q&A**



**Registration form:****Fluid Catalytic Cracking Course:**

Sir Christopher Wren's House Hotel, Windsor, UK

Please make a reservation at ERS Course for the following delegate:

Title \_\_\_\_\_ Given Name \_\_\_\_\_ Family Name \_\_\_\_\_  
Position \_\_\_\_\_ Company \_\_\_\_\_  
Address \_\_\_\_\_  
Tel: \_\_\_\_\_ Fax : \_\_\_\_\_ Email: \_\_\_\_\_

For Bookings Received before 7<sup>th</sup> February :Course fee £1850.00+ 20% VAT

For Bookings Received after this date: Late Booking Supplement of £250.00 + 20% VAT will be applied

Eurotek Refining Services Ltd has obtained a special Conference rate at the Sir Christopher Wren's House Hotel. Bookings at this hotel must be made via Eurotek Refining Services.

- Single room per night (incl. breakfast) £116.67+ 20% VAT
- Double room per night (incl. breakfast) £133.33+ 20% VAT

Arrival Date \_\_\_\_\_ Departure Date \_\_\_\_\_ Number of nights required \_\_\_\_\_

PLEASE NOTE: Payment to be made at time of reservation. If an invoice is required to make payment by bank transfer or cheque please email your request or Purchase order to [reservations@eurotek-refining.co.uk](mailto:reservations@eurotek-refining.co.uk) and an invoice will be emailed by return.

Make cheque payable to Eurotek Refining Services Ltd.

Transfers to: Account Eurotek Refining Services Ltd IBAN No. GB91LOYD30987301811462

Cancellations, Substitutions & Programme Changes If you are unable to attend the course, you may make a substitution at any time. All substitutions and name changes must be received in writing by mail, e-mail, or Fax. For cancellations received by mail, e-mail or Fax 21 days before course start, 75% of the fees will be refunded. For cancellations received after this date course papers will be sent, but no refund. An official cancellation number must be obtained from Eurotek Refining Services Ltd to qualify for a refund. Course content may be subject to change at Eurotek Refining Services Ltd.'s discretion

**Course timetable:****7<sup>th</sup> March**

08.00 Onwards Course Registration  
09:00-17:00 Course Programme

**8<sup>th</sup> March**

09:00-17:00 Course Programme  
20:00 Course Dinner (free)

**9<sup>th</sup> March**

09:00-16:00 Course Programme

**Five ways to book**

1. Complete and return this form to: Eurotek Refining Services Ltd 389 Woodham Lane, Addlestone Surrey KT15 3PP UK

2. Telephone with details on: +44 1932 702914 or +44 1737 830077

3. Complete and return this form to:  
[Reservations@eurotek-refining.co.uk](mailto:Reservations@eurotek-refining.co.uk)

4. Visit our website at [www.eurotek-refining.co.uk](http://www.eurotek-refining.co.uk) and click on Registration Form.

5. Complete and Fax this form to: +44 1737 830239



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Training Courses

