

Fluid Catalytic Cracking Course

A Eurotek training course



ERS Fluid Catalytic Cracking

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.

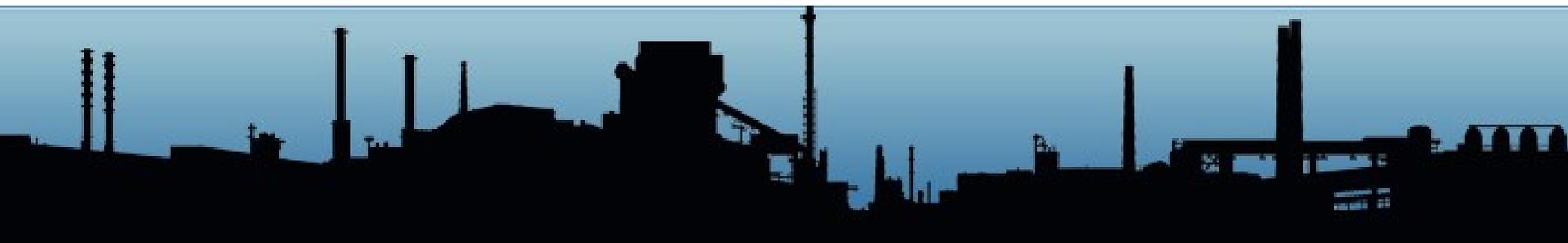
Learning objectives:

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.

Potential future configuration of FCC technology to fit within a Chemicals operation will also be 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.



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 and a Diploma in Industrial Studies Loughborough University.



Course Program

Module 1

Introduction to FCC

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

Chemistry and Catalysis

- FCC Reactions
- Nature of Cracking Catalyst
- Catalyst Evolution
- Zeolites
- Composition and Selectivity

Module 2

Coke, Conversion and Heat Balance

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

Process Variables and Yields

- Operating Variables
- Feedstock Effects
- Interactions
- Yields and Selectivity

Module 3

Catalyst Circulation

- Fluidisation Fundamentals
- Flow Regimes in an FCCU
- Pressure Balance FCC

Hardware Technology

- Feed Injection
- Reactors
- Reactor Strippers
- Regenerator
- Cyclones

Module 4

Residue Operation

- Effect on Yields
- Effect on Catalyst
- Effect on Operation
- Residue Technology Process

Monitoring and Optimisation

- Why, what and how to monitor
- Importance of Constraints
- Optimisation

Module 5

Maximising Chemicals Feedstock

- Operational Drivers
- Catalytic Drivers
- Equipment Bottlenecks

Troubleshooting

- Case Studies /Q&A Constraints





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