EnVision
e-Learning & Universal Simulation

Fluidized Catalytic Cracker Unit

A self-paced MultiMedia based Tutorial/CBT and real-time dynamic simulation of a Fluidized Catalytic Cracker Unit.

Tutorial/CBT:

This interactive tutorial provides an Overview, Fundamental Principles, and Control and Operating Principles for a Fluidized Catalytic Cracker Unit using Voice, Video, Animation and Graphics.

Overview
- Introduction
- Importance of FCC Unit
- Process Overview

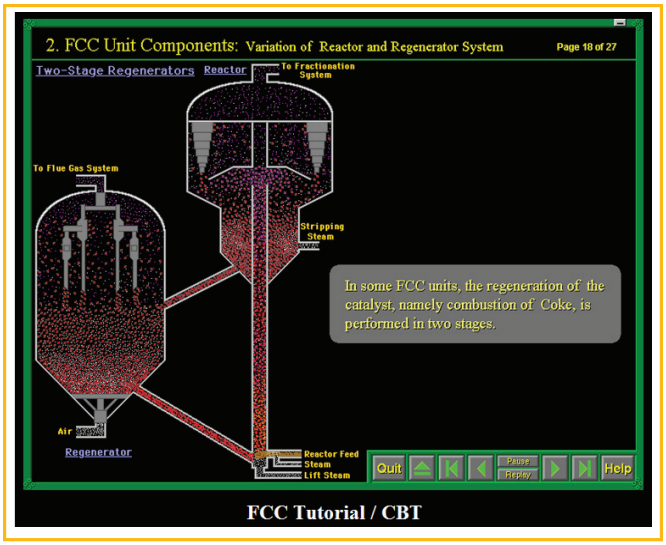
FCC Process Components
- Feed Preheat System
- Reactor System
- Regenerator System
- Flue Gas System
- Fractionation System
- Catalyst Transfer Lines
- Variation of Reactor and Regenerator

Key Principles of FCC Process
- Reaction
- Coke Formation
- Combustion of Coke
- Catalyst Circulation
- Energy Balance

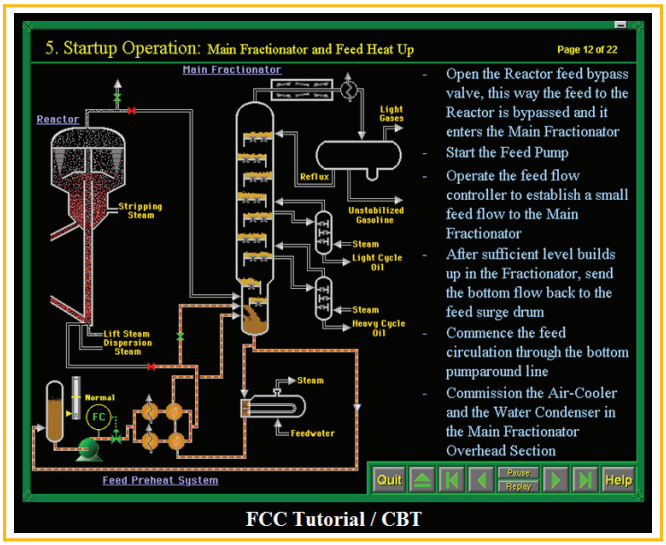
Key Performance and Operating Variables
- Reactor Temperature
- Catalyst/Oil Ratio
- Reactor Pressure
- Regenerator Temperature
- Delta Coke
- Complete and Partial Combustion
- Afterburning and CO Promotor
- Air Flow and Distribution
- Lift/Dispersion Steam
- Stripping Steam
- Feed Properties
- Catalyst Activity and Selectivity

Operating Principles
- Normal Operations
- Startup

Troubleshooting
- Flow Reversal
- Severe Afterburning
- High Regenerator Temperature
- High Light Gases Yield
- Low Gasoline Yield
- Low Catalyst Activity/ Selectivity
- Insufficient Combustion Air



FCC Tutorial / CBT



FCC Tutorial / CBT

- Tutorial has a built-in Quiz and comes with a Learning Management System (LMS) called TutAdmin. The LMS allows an instructor to register trainees and monitor their performance and Quiz scores
- Tutorial is a vailable as a Standalone or Web based application
- Available in English, Chinese, Danish, Dutch, French, German, Spanish and Swedish

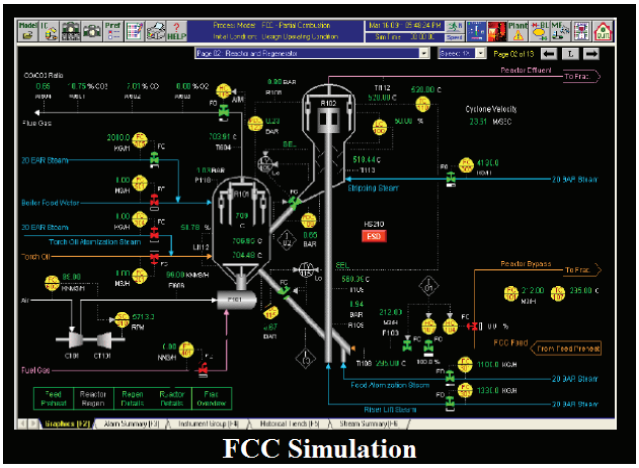
GSE Solutions
www.gses.com/EnVision

EnVision

Fluidized Catalytic Cracker Unit

Simulation

GSE's EnVision simulation is a real-time dynamic process simulation program used for Operator Training . It is ba sed upon a rigorous and Hig h-Fidelity mathematical process model to provide a realistic dynamic response of a process unit.


FCC Simulation

The Simulator allows a Trainee to Practice :

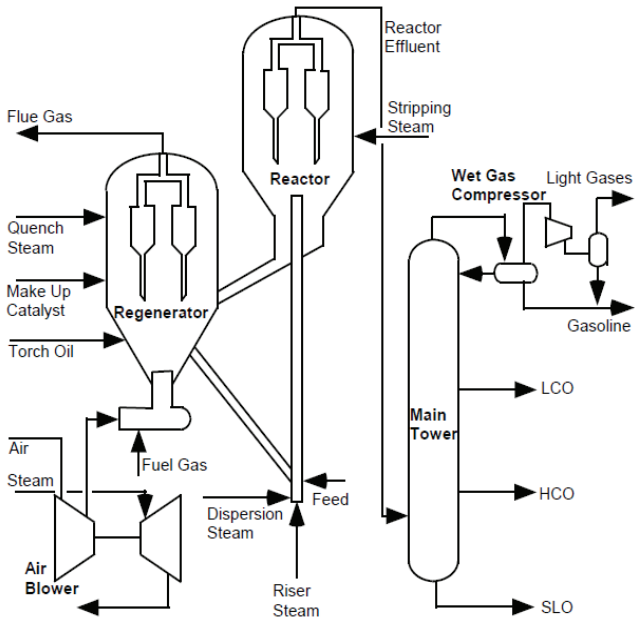
- Sta rtup and Shutdown Operations
- Normal Operations
- Emergency Shutdown Operation
- Control Exercises
- Trouble shoot and practice recovery from Equipment, Instrume nt, and Control Valve Malfunctions

Major Equipment:

- Reactor
- Regenerator
- Main Fractionator
- Overhead Condensers
- Overhead Drum
- Wet Gas Compresso r
- Steam Generator
- Sta rtup Heater
- Main Air Blower
- LCO St ripper
- HCO St ripper
- CLO Stripper
- FCC Charge Exchangers
- Product Coolers

Key Operating Variables:

- Reactor Feed: 212.0 M 3/H (3 2.0 B PH)
- Gasoline : 129.0 M 3/H (1 9.4 B PH)
- LCO Product: 34.5 M 3/H (5 .2 B PH)
- HCO Product: 14.7 M 3/Hr (2 .2 B PH)
- SLO Product: 25.2 M 3/H (3 .8 B PH)
- Reactor Temperature: 520.0 C (968.0 F)
- Conversion: 63.5 W T %
- Catalyst /Oil ratio: 6.0 W T/WT
- Delta Coke: 0.99 W T %



- Simulation comes with a Learning Management System (LMS) called SimAdmin that allows an instructor to register trainees and monitor their performance
- Simulation is available as Standalone (Single or Dual Monitor) and Instructor-Trainee versions

EnVision ™ is a trademark of GSE Systems, Inc. All other trademarks are the property of their respective owners. The information in this literature is subject to change without notice and is not to be construed as a warranty.

DS.ENV.16.VB 07/24

GSE SOLUTIONS
Future of Power Operations

info@gses.com | www.gses.com