

# Becht Training for Fixed Equipment Engineers



## Early Career Foundations

Typically first 1-2 years



- **Soft Skills**
  - Technical Communications
  - Technical Writing Basics
- **Introduction to Refining**
  - Introduction to Petroleum Refining Processing
  - Process Technology Fundamentals\*
- **Fixed Equipment**
  - Pressure Equipment Engineering Fundamentals
  - Heat Transfer Equipment
  - Welding Technology to Avoid Damage Mechanisms
  - Welding and Metallurgy for Industry Professionals
  - Inspection and Mechanical Integrity Essentials
- **Codes & Standards**
  - API 571 – Damage Mechanism in the Refining Industry
  - ASME B31.3 – Process Piping
- **Safety & Risk**
  - Management of Change (MOC)

All courses shown in this pathway are delivered by Becht's experts, providing engineers with structured, career-long development. These stages are suggested progressions. Learners may enter at the point that best matches their role and background.

Access our Public Schedule & all Private Trainings:

<https://becht.com/training/>

## Process Technology Insight Path



- **Separation**
  - Crude Desalting
  - Crude Oil Distillation
  - Refinery Distillation: Operation and Troubleshooting
- **Conversion**
  - Catalytic Reforming/Catalyst Regeneration
  - Delayed Coking Process Technology
  - FCC Process Technology
  - FCCU Optimization and Troubleshooting
  - Flexicoker/Flexsorb Process Technology
  - Hydrotreating & Hydrocracking Process Technology
  - HF and Sulfuric Alkylation
  - Steam Cracking & Olefin Technology
  - Visbreaking
- **Treating**
  - Amine Treating and Sour Water Stripping Technology
  - Sulfur Recovery, Tail Gas Treatment & Incineration
- **Utilities & Support Systems**
  - Industrial Water Treatment – Intake to Outfall
  - Ammonia Plants Best Practice Operation and Process Control
- **Equipment**
  - Refinery Troubleshooting
  - Fired Heaters / Combustion Technology

## Core Fixed Equipment Skills

Typically 1-5 years of experience



- **Equipment Design & Failure Prevention**
  - Heat Exchanger Design
- **Codes & Standards**
  - ASME Sec. VIII Div 1 – Pressure Vessel Design
  - ASME Sec. VIII - Div 2 Part 5, Design-By-Analysis
  - API 579-1/ASME FFS-1 – Fitness-for-Service Applications

## Advanced & Specialized Skills



- **System-Specific Experience**
  - Refractory Systems
  - Piping Vibration Analysis & Engineering Solutions
  - Civil Structural Considerations for Mechanical Engineers
- **Codes & Standards**
  - ASME PCC-2 – Repair of Pressure Equipment & Piping (via Case Studies)
  - API 650 & API 653 – Storage Tank Design & Maintenance
  - API B31.4 Liquid Pipelines & API B31.8 Gas Pipelines (Midstream)

## Leadership, Project & Operational Excellence Skills



- **Project & Risk Management Skills**
  - Construction Management for the Project Professional
  - Project Controls for Capital Projects
  - Project Management for Capital Projects
  - Project Management for Brownfield Projects
  - Risk Management for Capital Projects
- **Leadership Skills**
  - Frontline Leadership Fundamentals
- **Refinery Performance & Economics**
  - Refinery Economics & Margin Improvements
  - Refinery & Petrochemical Hydrocarbon Loss Management
  - Asphalt/Bitumen Refining Value Chain Essentials
- **Safety & Risk**
  - Process Safety
- **Technical Design**
  - Process Design Fundamentals

## Asset Integrity for Specialty Plants



- **SynGas Plants, Preventing Fixed Equipment Failures**
  - Steam Methane Reformers & Hydrogen Plants
  - Ammonia & Methanol Plants
  - Metallurgy Principles, Damage Mechanisms
  - Welding Tech & SynGas Equipment Repair
- **Ammonia/Hydrogen**
  - Ammonia/ Hydrogen Plants - Failure Prevention
- **Fertilizer Units**
  - Urea Plants - Failure Prevention
  - Nitric Acid / Ammonium Nitrate Plants - Failure Prevention

\* Offered as Private Training only to expand on the Introduction to Petroleum Refining course.