

Becht Training for Corrosion, Materials & Integrity (CMI) 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*
- **Equipment Integrity Basics**
 - Inspection and Mechanical Integrity Essentials
 - Pressure Equipment Engineering Fundamentals
 - Refinery and Petrochemical Industry Materials Selection and Corrosion Control
- **Codes & Standards**
 - Overview of Vessels and Piping Codes
 - API-571 – Damage Mechanism in Refining Industry
- **Welding**
 - Welding & Metallurgy – Public Offering
 - Welding Technology to Avoid Damage Mechanisms
- **Safety & Risk**
 - Management of Change (MOC)

All courses shown in this pathway are delivered by Becht's experts, providing CMI 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/>

Core CMI Skills

Typically 1-5 years of experience



- **Codes & Standards**
 - ASME Sec. VIII - Div 1 Pressure Vessel Design
 - API 579 -1/ASME FFS-1 FFS Applications
 - ASME B31.3 Process Piping - Design, Construction, and Mechanical Integrity
 - API 650 & API 653 - Storage Tank Design & Maintenance
 - Implementation of ASME PCC-2: Repair of Pressure Equipment & Piping Through Case Studies
- **Design & Maintenance**
 - Introduction to Maintenance of Aboveground Atmospheric Storage Tanks
 - Design and Maintenance of Aboveground Atmospheric Storage Tanks
- **Analysis & Problem-Solving**
 - Root Cause Analysis Training Workshop
 - Buried Metallic Pipe Analysis and Integrity Evaluation

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

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 Focus
 - 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.