

**Course Content****Title:** Hydrotreating & Hydrocracking Process Technology**Potential PDH:** 20**Code:** BTT050**Description:**

Becht has developed this program to provide an in-depth, yet practical review of both hydrotreating and hydrocracking technologies for the refining of petroleum. The speaker will cover topics ranging from the chemistry of hydrotreating and hydrocracking to a discussion of the design of commercial processes and reactors. The program will also address FCC feed pretreatment, diesel and jet fuel production, naphtha hydrotreating, and hydrogen production and purification. The program instructor will be Jeff Johns. He has a wealth of knowledge and experience covering all areas of hydrotreating and hydrocracking.

Seminar participants will have an opportunity to obtain a broad working knowledge of petroleum hydrotreating and hydrocracking from a distinguished industry expert. In addition, participants will be able to stay abreast of the developments in hydroprocessing technology, to interact with others working in this area of refining, and to have their questions answered in the open forum sessions.

**Outline:**

## INTRODUCTION

- Review of Refining Trends and Where Hydroprocessing Technology Fits in a Refinery
- Overview of Hydroprocessing Processes, Configurations, and Economics
- Safety and Environmental Concerns

## CHEMISTRY AND CATALYSTS

- Chemistry and Reactions
- Hydroprocessing Catalysts
- Process Variables and Feed Effects
- Coke Formation and Catalyst Deactivation

## HYDROTREATING PROCESSES

- Naphtha Hydrotreating
- Middle Distillate Hydrotreating
- VGO (FCC Feed) Hydrotreating
- Resid Hydrotreating
- Renewable Feed Processing

## HYDROCRACKING PROCESSES

- Fuels Hydrocracking
- Mild Hydrocracking
- Hydroprocessing Lube Oil Production
- Catalytic Dewaxing
- Resid Hydrocracking

## HYDROPROCESSING EQUIPMENT DESIGN AND OPERATION

- High-Pressure Equipment

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**Course Content**

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- Reactor Design and Operation
- Corrosion and Metallurgy

**HYDROGEN PRODUCTION**

- Steam Reforming for Hydrogen Production
- Hydrogen Purification Options

**Instructor:**

Jeff Johns has over 35 years' experience in the petroleum refining industry. He was honored as a Chevron Hydroprocessing Fellow (Chevron's highest technical recognition) for contributions to Chevron and to the industry. Jeff has expert knowledge of hydrocracker and hydrotreater design/operation, optimization, and troubleshooting, and has substantial experience in other key refinery processes. Jeff managed hydrocracking and hydrotreating technology in Chevron's refineries worldwide where he developed and implemented best practices and projects to improve safety, reliability, and profitability. One of his special interests as a technology mentor was developing and delivering training. For 20 years, Jeff led an ad hoc Industry Committee of hydroprocessing experts dedicated to sharing safety and reliability information among North American Refiners. He was a member of the AFPM Q&A Panel in 2004 and directed multiple technology seminars as a member of the AFPM Q&A screening committee. Jeff served on the Board of Directors for Advanced Refining Technologies (ART). Jeff holds a B.S. degree in Chemical Engineering from the University of Utah. He holds six patents in hydroprocessing technology.