Title: Steam Cracking & Olefin Technology

Potential PDH: 16 **Code:** BTT055

Description:

Crude cracking is the major route to olefins production and is vital to the profitability of petrochemical operations. Recent swings in markets have renewed interest in both gas cracking and liquids cracking. This program has been developed to provide an in-depth, and practical review of steam cracking and olefins technology. Feed flexibility, smooth operation, capacity and product quality are critically important goals that can be difficult to achieve. Many complex process, equipment, and reliability issues have to be balanced to optimize run-length, capacity, and quality. With the many variables involved, constant adjustments are required.

The program's content is both comprehensive and wide-ranging. Sessions begin with a discussion of olefins processes, including process objectives, feed characterization, products, process flow sequences, cold-ends equipment, hot-ends equipment and auxiliary systems. Special emphasis is placed on areas of high current interest in the industry. Attendees will gain an understanding of how process requirements, equipment operation, and economic objectives interact. Once the fundamentals are established, the session moves into the topics of operation, control, troubleshooting and revamps. The program speaker is Mr. Andrew Sloley, Principal Consultant for Advisian (WorleyParsons Group) in Houston, Texas.

Outline:

INTRODUCTION AND PROCESS OBJECTIVES
- Feeds and Yields
- Importance of Troubleshooting
- General Process Sequences
- Hot-ends
- Cold-ends

TROUBLESHOOTING CONCEPTS AND TECHNIQUES
- Typical Problems
- Integration of Process and Equipment
- Troubleshooting Techniques
- Troubleshooting Tools

CRACKING FURNACES
- Furnace Types
- Operation
- Decoking
- Metallurgy
- Reliability
- Transfer Line Exchangers

QUENCH TOWERS AND PRIMARY FRACTIONATORS
- Energy Recovery
- Steam Generation
- Equipment and Reliability

CHARGE GAS COMPRESSION

- Compressors
- Fouling
- Drivers

HOT-ENDS SEQUENCES

COLD-ENDS SEQUENCES

- General Sequences
- Drying
- Charge Gas Compression
- Ethylene Production
- Propylene Production

COLD-ENDS EQUIPMENT

- Cold-Boxes
- Heat-Exchangers
- Turboexpanders
- Trace Contaminants

ACETYLENE

- Front-End Conversion
- Back-End Conversion

REFRIGERATION SYTEMS

- Ethylene Refrigeration
- Propylene Refrigeration
- Mixed Refrigeration
- Heat Recovery and Energy Efficiency
- Refrigeration Compressors

HYDROGEN

- Cryogenic Production
- Methanation
- PSA

HEAVY PRODUCTS

- Butadiene
- Pyrolysis Gasoline
- Pyrolysis Tar

CURRENT TOPICS

- Flexibility for Gas and Liquid Cracking
- Energy Recovery and Climate Change
- Safety

Instructor:

Andrew W. Sloley is an independent consultant with over 40 years of experience in the hydrocarbon processing industry. His specialty in this area has been on product separation, distillation, and heat integration including process design, equipment design, troubleshooting, control analysis, training, and operations optimization. This has covered the range from crude and heavy oils to cryogenic systems for light-ends recovery and gas treating. His other responsibilities have included technology analysis and economic evaluation. Andrew has authored or co-authored over 400 publications in these areas. He is currently a contributing editor on equipment and plant design for Chemical Processing magazine. He has a B.S. degree in Chemical Engineering from the University of Tulsa and is a licensed professional engineer in Texas. His experience in over 100 crude units has covered the entire range of crude

blending, process configuration, optimization, equipment design, control, and troubleshooting issues for all types of crude units. Specific experience in steam cracking covers all parts of the plant from furnaces and hot-ends through the cold-ends section including refrigeration systems.