Fundamentals of Chemical Manufacturing

Course general description:

The chemical industry is vital for global economic growth, technological innovation, and addressing environmental challenges. This course provides a comprehensive understanding of the industry, covering chemical categories, process technologies, equipment, quality control, operations, maintenance, and environmental considerations. The course equips participants with the knowledge and skills to optimize chemical processes, and ensure safety and quality.

Audience:

This course is designed for:

1. Chemical & Process engineers
2. Operation & Production Engineers
3. Technical and Managerial Staff those seeking to enhance their knowledge in Chemicals Processing Fundamentals.

Course objectives:

By end of the course participants will gain:

1. Comprehensive understanding of various chemical product categories and their applications.
2. The principles and techniques behind key chemical processes.
3. Proficiency in the operation of chemical process equipment

Course duration:

5 days

Course location:

Cairo-Dubai-Istanbul

Course contents:

Day-1

- Pretest
- Overview of the global chemical industry
- Classification of chemicals: bulk chemicals, specialty chemicals, fine chemicals.
- Key product categories
- Importance of chemicals safety and environmental regulations.

Day-2

- Basic principles of chemical reactions and processes
- Key factors influencing chemical production processes.
- Case study: Ammonia production (Haber process).

Day-3

- Advanced process technologies
- process intensification, modular processing units
- Case study: Ethylene production and polymerization.

Day-4

- Chemical process equipment
- Equipment performance metrics and efficiency
- Quality control &analytical techniques
- Removal of impurities and contaminants.

Day-5

- Modern process technology: nanotechnology, bioprocessing
- Environmental impact of Chemical manufacturing

- Waste management and pollution control technologies
- Health, safety, and environmental (HSE) practices.
- Posttest

Methodology:

- 50% lectures & concepts
- 10% Videos
- 15% Case studies
- 15% Exercises
- 10% Discussions

Course code: (TPRS043)