Plant Operation, Troubleshooting, And Maintenance

Course Description:

Industrial processes today operate on very large scales with the advent of modern industrial plants. Such plants sometimes operate hundreds of equipment, not to mention thousands of instruments for the measurement and control of such equipment. Efficient operation of industrial plants means higher reliability, improved safety, increased revenue, and ultimately, a satisfied consumer-base. The different plant modes like startup, continuous operation, and shutdown, present different challenges, all of which will be explored. Understandably, with such a high volume of equipment and instruments, failures are inevitable. Properly troubleshooting individual equipment failures and total plant shutdowns with a correct approach and methodology is critical for improving plant availability and reliability. A well devised maintenance strategy and periodic turnaround plan are also instrumental to that end. Furthermore, priority should be given to systematized operations and increased safety through core operations values and safety principles, and tools such as SOPs and COPs (critical operating parameters), all of which lead to more successful plants.

Who Should Attend?

- Plant operators
- Fresh technical graduates and engineers
- Maintenance personnel and technicians

Course Objectives:

- Describe in detail how to read P & I diagrams and the wealth of information they contain
- Explore the main challenges of plant startup, continuous operation & optimization, and shutdown
- Equip participants with the ability to operate plants efficiently and quantify plant operations through performance indicators and technical calculations
- Develop participants' capacity for troubleshooting methodologically using available process trends and events recording
- Present real case scenarios and examples for materializing the troubleshooting process and focusing on the importance of root causes
- Investigate plant maintenance strategies and priorities
- Empower participants to plan turnarounds, execute, and evaluate them.
- Emphasize the importance and relevance of core operations values and safety principles on operations processes
- Explain the creation and implementation of SOPs

Course Outline:

Day 1

- Plant equipment and instrumentation
- Block diagrams and process flow diagrams
- P & ID: The plant's essential guide
- Plant startup conditions
- Tuning and optimization methods

Day 2

- Reliability and availability calculations
- Daily production reporting
- Mass and energy balances
- Discrepancy evaluation and rectification
- Fixed plant modes and combinations

Day 3

- Troubleshooting sudden, complete plant trips
- Troubleshooting equipment shutdown/failure
- Single and multi-variable problem-solving
- RCFA basics and problem definition issues
- Real case scenarios and examples

Day 4

- Plant shutdown conditions
- Plant maintenance strategies
- Spare parts management and critical spares
- Turnaround planning and resources
- Turnaround execution and review

Day 5

- Core operations values
- Safety operation principles
- Significance of the human factor
- Critical operating parameters (COPs)
- SOPs creation and implementation