

€ TRAINING

Process Plant Start up and Troubleshooting





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Introduction:

This training program prepares participants to oversee the successful start-up, commissioning, and troubleshooting of process plants. Emphasizing systematic approaches, best practices, and critical problem-solving skills, this program equips them to manage complexities effectively, ensuring operational reliability and performance excellence.

Program Objectives:

By the end of this program, participants will be able to:

- Understand the fundamental phases and principles of process plant start-up and commissioning.
- Implement systematic approaches and best practices for pre-commissioning, commissioning, and troubleshooting activities.
- Apply safety protocols, risk management strategies, and operational readiness assessments during start-up phases.
- Develop advanced troubleshooting skills to identify and resolve process plant issues efficiently.
- Optimize plant reliability, minimize downtime, and enhance operational performance.
- Foster effective teamwork, leadership, and communication skills essential for successful plant operations.

Program Outlines:

Unit 1:

Fundamentals of Process Plant Start-up:

- Introduction to Process Plant Start-up: Objectives and Phases.
- Planning and Preparation: Safety Precautions, Risk Assessment, and Operational Readiness Reviews ORR.
- Regulatory Compliance and Permitting.
- Roles and Responsibilities of Start-up Teams.
- Documentation Requirements for Start-up Procedures.

Unit 2:

Pre-commissioning and Mechanical Completion:

- Overview of Pre-commissioning Tasks and Checklists.
- Mechanical Completion and Integrity Checks.
- Piping and Instrumentation Checks P&ID Verification.
- Equipment and System Inspections.
- Readiness Criteria for Mechanical Completion.

Unit 3:

Commissioning Procedures:

- Commissioning Plans and Procedures.
- System Functional Testing and Validation.
- Instrument Calibration and Performance Checks.
- Start-up of Process Equipment and Systems.
- Verification of Operating Limits and Conditions.

Unit 4:

Troubleshooting Fundamentals:

- Importance of Troubleshooting in Process Plant Operations.
- Root Cause Analysis RCA Techniques.
- Data Collection and Analysis for Troubleshooting.
- Problem-Solving Strategies in Process Troubleshooting.
- Documentation and Reporting in Troubleshooting Activities.

Unit 5:

Safety Protocols and Risk Management:

- Safety Protocols in Process Plant Operations.
- Risk Assessment and Mitigation Strategies.
- Emergency Response Planning and Preparedness.

- Compliance with Health, Safety, and Environmental HSE Regulations.
- Continuous Improvement in Safety Practices.

Unit 6:

Operational Readiness and Handover:

- Operational Handover and Transition.
- Training and Competency Development.
- Documentation, Record Keeping, and Reporting.
- Post-Commissioning Monitoring and Support.
- Evaluation of Operational Readiness Criteria.

Unit 7:

Advanced Troubleshooting Techniques:

- Advanced Root Cause Analysis RCA Methods.
- Predictive Maintenance Techniques for Troubleshooting.
- Utilization of Data Analytics and Monitoring Tools.
- Case Studies and Practical Applications in Troubleshooting.
- Continuous Improvement in Troubleshooting Processes.

Unit 8:

Performance Optimization Strategies:

- Optimization of Plant Reliability and Efficiency.
- Minimization of Downtime and Production Losses.
- Integration of Maintenance and Operational Strategies.
- Application of Lean and Six Sigma Principles in Operations.
- Continuous Improvement in Process Performance.

Unit 9:



Leadership and Team Management:

- Leadership Skills in Process Plant Operations.
- Team Development and Collaboration.
- Effective Communication in Cross-functional Teams.
- Conflict Resolution and Decision-making in Operations.
- Building a Culture of Excellence and Accountability.

Unit 10:

Continuous Improvement and Innovation:

- Continuous Improvement Methodologies PDCA Cycle.
- Innovation in Process Plant Technologies.
- Integration of Feedback for Process Enhancement.
- Future Trends in Process Plant Operations.
- Steps for Implementation of Sustainable Practices in Process Operations.