Process Plant Start-Up, Commissioning & Troubleshooting

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Kigali (Rwanda)



Process Plant Start-Up, Commissioning & Troubleshooting

Ref: 20227_137487_DL31 **Location:** Kigali (Rwanda) **Fees:** 4900 GBP

Why This Course

Successful start-up and commissioning are critical milestones in any process plant's lifecycle. Mistakes made during these phases can lead to costly downtime, safety incidents, or performance inefficiencies. To achieve smooth, safe, and optimized operations, engineers and operations teams must combine technical expertise with systematic procedures and effective troubleshooting practices.

The Process Plant Start-Up, Commissioning & Troubleshooting course is a comprehensive 1-week program designed to equip participants with the knowledge, tools, and techniques to plan, execute, and manage start-up and commissioning activities efficiently. Participants will also learn advanced troubleshooting methodologies to sustain plant performance and reliability long after operations begin.

What You'll Learn and Practice

By joining this program, you will:

- Understand the full lifecycle of process plant start-up, commissioning, and optimization.
- Develop effective troubleshooting and problem-solving techniques.
- Learn best practices for ensuring safety, reliability, and operational readiness.
- Gain insights into performance monitoring and continuous improvement strategies.
- Master the use of modern tools, data, and automation technologies for plant control and diagnostics.

The Program Flow

Day 1: Introduction to Process Plant Operations

- Overview of process plant systems, components, and configurations.
- Pre-commissioning activities, inspections, and readiness checklists.
- Safety and risk management considerations during start-up.
- Introduction to commissioning documentation and workflow management.
- Workshop: Reviewing a pre-commissioning plan for a real-world case study.



Day 2: Start-Up Procedures and Best Practices

- Step-by-step methodology for successful plant start-up.
- Monitoring and managing critical operating parameters.
- Handling common start-up challenges and failure modes.
- Case studies of successful and failed start-ups - lessons learned.
- Group exercise: Developing a customized start-up plan for a sample facility.

Day 3: Commissioning Techniques and Strategies

- Mechanical completion verification and integrity checking.
- Instrumentation and control system commissioning protocols.
- Process system testing, flushing, and calibration procedures.
- Performance testing, acceptance criteria, and documentation requirements.
- Simulation: Conducting a mock commissioning review meeting.

Day 4: Troubleshooting Methodologies

- Structured approach to diagnosing and solving plant issues.
- Root Cause Analysis RCA and Failure Mode and Effects Analysis FMEA.
- Applying advanced diagnostic and monitoring tools vibration, thermal, process data.
- Developing robust troubleshooting checklists and procedures.
- Workshop: Resolving real-world process upsets through RCA and data analysis.

Day 5: Optimization and Continuous Improvement

- Identifying and tracking key performance indicators KPIs for plant efficiency.
- Strategies for minimizing downtime and maximizing operational reliability.
- Implementing preventive and predictive maintenance programs.
- Leveraging automation and digital tools for continuous optimization.
- Capstone project: Building a plant optimization and reliability improvement plan.

Individual Impact

- Gain the confidence and competence to lead start-up and commissioning projects.
- Strengthen troubleshooting and analytical skills for complex process challenges.
- Enhance understanding of process optimization and performance management.
- Develop a comprehensive skillset applicable to operations, maintenance, and engineering roles.

Organizational Impact

- Achieve safer and more efficient plant start-up and commissioning outcomes.
- Minimize operational disruptions and costly downtime.
- Enhance productivity and asset reliability through proactive problem-solving.
- Build a culture of continuous improvement and operational excellence.



Training Methodology

This course combines technical depth with practical experience, enabling participants to immediately apply the concepts they have learned in their workplace. Learning methods include:

- Real-world industrial case studies and best-practice reviews.
- Group exercises, simulations, and role-based commissioning projects.
- Interactive troubleshooting sessions with data-driven analysis.
- Guided discussions on emerging trends in automation and digital operations.

Beyond the Course

Upon completion, participants will be equipped to plan, execute, and sustain efficient plant operations — from pre-commissioning through to optimization. Graduates will return with a proven framework, enhanced leadership capability, and a practical toolkit for achieving long-term plant reliability and performance excellence.

