

HYDRAULIC SYSTEMS (DESIGN, OPERATION AND MAINTENANCE) TECHNIQUES



OUR ACCREDITATION & PARTNERS



HYDRAULIC SYSTEMS (DESIGN, OPERATION AND MAINTENANCE) TECHNIQUES



OVERALL DESCRIPTION:

This course is engineered to move your team beyond reactive repairs to a proactive, strategic approach. We will empower you with the practical, hands-on expertise needed to not only design for optimal performance but also to diagnose issues before they escalate and implement advanced maintenance strategies that significantly extend the lifecycle of your assets. This is about transforming your approach to hydraulics from a challenge into a key driver of operational excellence.

Course Objectives:

Upon completion of this course, participants will have the knowledge and skills to:

- **Analyze and Apply** fundamental hydraulic principles to troubleshoot complex system failures efficiently.
- **Design and Evaluate hydraulic circuits** and components, making informed decisions that optimize system performance and reliability.
- **Implement best practices** for installation, commissioning, and system startup to prevent common operational issues.
- **Perform proactive and predictive** maintenance using modern diagnostic tools to minimize downtime and reduce operational costs.
- **Formulate comprehensive safety protocols and procedures** to ensure a secure working environment around high-pressure hydraulic equipment.
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Course Outline:

- **Hydraulic Fundamentals:** Fluid properties, pressure, flow, and the principles of Pascal's Law.
- **Key Components & Functions:** Detailed breakdown of pumps (gear, vane, piston), actuators (cylinders and motors), valves (directional, pressure, flow control), and filtration systems.



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Course Outline:

- **System Design & Schematics:** Interpreting and creating hydraulic schematics, component selection, and circuit design for various applications.
- **System Operation:** Best practices for system start-up, pressure settings, and performance monitoring.
- **Troubleshooting & Diagnostics:** A systematic, hands-on approach to identifying and resolving common issues like leakage, overheating, and pressure irregularities using advanced diagnostic equipment.
- **Maintenance Strategies:** Developing effective preventive and predictive maintenance plans, including fluid analysis, filter management, and component replacement schedules.
- **Safety in Hydraulics:** Understanding and implementing essential safety protocols, lockout/tagout procedures, and hazard mitigation techniques.

WHO SHOULD ATTEND?

This course is specifically tailored for professionals whose roles require a deep, practical knowledge of hydraulic systems to ensure operational efficiency and safety. This includes:

- Maintenance Technicians and Engineers
- Design and Project Engineers
- Mechanical and Industrial Engineers
- Supervisors and Team Leaders responsible for hydraulic equipment
- Reliability and Plant Managers
- Anyone involved in the design, operation, or maintenance of industrial hydraulic machinery.

Course Methodology:

We utilize a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. This training course will be conducted as a highly interactive workshop session. A variety of training methodologies will be used Before and during the course whenever applicable. Some of these methods are gamification, online pre-post test, role plays, self-assessment instruments, group exercises & case studies.

