

## FLUID POWER SYSTEMS: HYDRAULICS AND PNEUMATICS

*"Master the Principles, Design, and Maintenance of Hydraulic and Pneumatic Systems for Optimal Performance"*

### Schedule

Venue (In-house)	Fees
At Your Organization Premises	Ask For The Quotation

► **Available delivery methods:** In-House Training

### Introduction

Hydraulic and pneumatic systems are vital components of industrial machinery, manufacturing plants, and process operations. Understanding how these systems work—and how to maintain them efficiently—is essential for ensuring safety, reliability, and productivity.

This course provides participants with comprehensive knowledge of fluid power principles, components, and system design. It covers both hydraulic and pneumatic technologies, explaining how energy is generated, transmitted, and controlled in these systems. Participants will also learn troubleshooting, maintenance, and safety practices to minimize downtime and optimize system performance.

### Objectives

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

- Understand the fundamental principles of hydraulics and pneumatics
- Identify system components and their functions
- Interpret hydraulic and pneumatic circuit diagrams
- Design and analyze fluid power systems for industrial applications
- Apply preventive and predictive maintenance techniques
- Diagnose and troubleshoot system faults effectively
- Ensure safety, reliability, and efficiency in operation
- Integrate fluid power systems with modern control technologies

## Why Attend

Fluid power systems play a critical role in automation, manufacturing, and heavy industries. This course equips participants with the technical expertise to design, operate, and maintain hydraulic and pneumatic systems confidently. Through practical examples and exercises, attendees will gain the hands-on skills required to improve productivity, reduce maintenance costs, and enhance operational safety.

## Target Audience

This course is suitable for:

- Maintenance and Reliability Engineers
- Mechanical and Industrial Engineers
- Technicians and Maintenance Staff
- Equipment and Plant Operators
- Project and Design Engineers
- Technical Supervisors and Maintenance Managers
- Anyone involved in the design, operation, or maintenance of hydraulic or pneumatic systems

## Individual Benefits

- Gain a solid understanding of fluid power concepts and applications
- Develop the ability to read and design hydraulic and pneumatic circuits
- Improve system troubleshooting and maintenance capabilities
- Enhance technical competence and confidence in system operation
- Strengthen your career in industrial and mechanical engineering fields

## Organizational Benefits

- Improve equipment performance and reliability
- Reduce unplanned downtime and maintenance costs
- Increase operational efficiency and energy savings
- Ensure safer operation of hydraulic and pneumatic systems
- Build in-house technical expertise for system maintenance and design

## Instructional Methodology

The course uses an interactive, practical-based approach through:

- Instructor-led technical sessions and discussions
- Real-life examples and component demonstrations
- Circuit design and analysis exercises
- Group problem-solving and case studies
- Troubleshooting workshops and practical applications

### Course Outline

- Module 1: Introduction to Fluid Power Systems and Basic Principles
- Module 2: Hydraulic and Pneumatic Components and Their Functions
- Module 3: Pumps, Compressors, Valves, Actuators, and Filters
- Module 4: Hydraulic and Pneumatic Circuit Design and Symbols
- Module 5: Pressure, Flow, and Directional Control Systems
- Module 6: Fluid Power Safety Standards and Best Practices
- Module 7: Troubleshooting Common Hydraulic and Pneumatic Issues
- Module 8: Preventive and Predictive Maintenance Techniques
- Module 9: Energy Efficiency and System Optimization
- Module 10: Case Studies and Practical Design Exercises

### Certification

Upon successful completion, participants will receive a Certificate in Fluid Power Systems: Hydraulics and Pneumatics, acknowledging their technical expertise in the design, operation, and maintenance of industrial fluid power systems.

### Why Choose MAWA Events

- **Global Expertise:** More than 17 years of experience in professional training and consulting.
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#### In-House / Customized Training

Interested in running this course for your team?

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