

MAINTENANCE TRAINING DIRECTORY

**HANDS ON TRAINING
SPECIALISTS**

Specializing In:

- Industrial Maintenance Training
- Safety Training
- Custom Training Development

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Do you want to know...

What Customers Say?

“The training delivered by AIT was right on the mark. I noticed from our people immediately after completing the training. My hat is off to AIT for improving the skills of our maintenance mechanics and technicians.”

-L. Ken Grooms, Maint. Superintendent, Wescom, Inc.

“Good material full of information, Learned various applications that pneumatics can be used for”

-Kevin Hicks, HVAC Supervisor, Department of Justice Bureau of Prisons

“Best fluid power class I have ever attended”

-Mike Brewer, Honda

“I liked the hands-on aspects, learning by doing... Thanks for an excellent course.”

-Ron Henry, Physical Scientist, Team Leader, U.S. Army Research Labrotory

“Thank you so much for your time and help, I have truly enjoyed taking your class and hoping for more soon. God Bless.”

-Rick Inman, Millwright, CSN ,LLC

“Hands on learning, plus the open discussion.”

-David L. Marrs, Maintenance, Cook Inc.

“We could see the material we covered actually work”

-Randall Odonnel, Honda

Here are some of our customers:

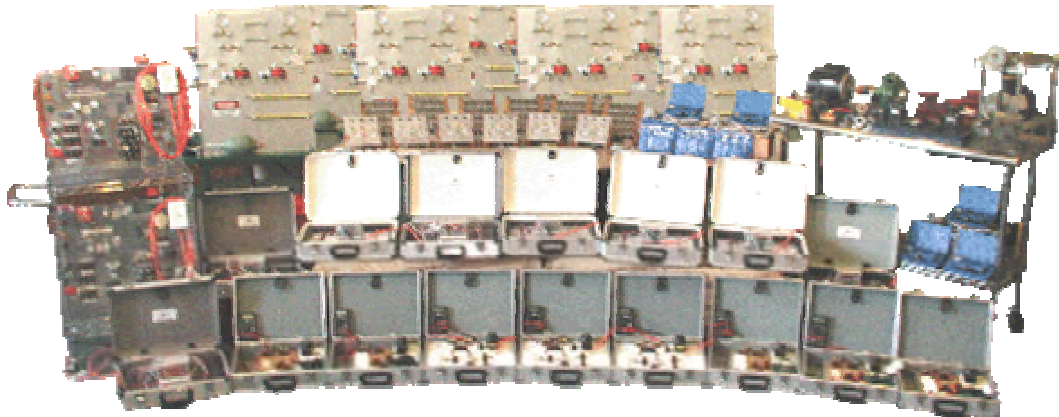
**Army Research Laboratory
Columbia House
GPC
Pfizer
Allegheny Energy**

**Lubrizol
Honda
Eli Lilly & Co.
CSN
... and many more!**

Do you want to know...

Why AIT is Right For You?

1. Real **hands-on** training - Our training courses immediately reinforce the material delivered from the instructor by having the students demonstrate this knowledge on our training equipment. The group size on the trainers is never more than two students.
2. **Practical skill** enhancement - Students leave our training having gained skill and experience that can immediately be applied upon returning to work.
3. Instructors with **industrial experience**- AIT instructors and associates have a wealth of experience. They have experience in industries such as the electric power generation, pharmaceutical, aviation, and emergency response and rescue. Our Instructors are kept sharp by continuing to work in the field. AIT does more than provide courses, we provide solutions. Our Instructors are often involved in customer construction projects or consulting with customers to satisfy their needs.
4. **Flexibility** - AIT is committed to helping our customers solve their problems. Our customers come from diverse backgrounds. No two customers have the same specific needs and that is why we customize courses to fit your exact needs. We can come to your plant, on any shift, any day of the week.
5. Accessible source of **support** - Should you have a technical problem, we are a phone call away.



HANDS-ON Training Specialists

We can come to you!

Can't figure out a feasible way to send your employees to us to receive valuable training? Can't afford the expenses and downtime of off-site training? We can help. We will come to your facility to provide training to your staff - anywhere in the country.

But- don't forget- you can always come to us in Farmersburg, IN (just south of Terre Haute) to receive training in our classroom.

Do you want to know...

Our Purpose?

It is the mission of Alzman Industrial Training & Consulting Inc. (AIT) to help industry be more productive. We want to do that in many ways while continuing to always put the customer first. We know that this may be a traditional part of mission statements that you have seen, but it seems that this premise has taken a backseat to the self serving practices that are so prevalent in business today. The difference between us and everyone else is that we really do put you first. Quality is in everything we do. Do you want to know why? We do that to serve you.

We promise...

... to provide pertinent training to your employees that may be immediately applied to their jobs after returning to work. We will provide this training in a timely manner which allows your employee to learn a maximum level of skill and return to work in a minimum amount of time.



PUMPS

Learn how pumps work and what causes pump problems



Pump maintenance is a skill required by virtually anyone involved in maintenance work. This is because pumps are the second most common machines found in industry. This course has been structured to deliver the knowledge needed to repair, maintain, and install pumps, and benefits every skill level. The course offers hands-on exercises to familiarize the student with the different types of pumps, their significant uses, along with their internal working parts.

Do you want to know...?

- Troubleshooting and maintenance practices of pumps
- Precision measurements
- General description of pumps
- Pump types
- Flow
- Head
- Pressure
- Cavitation
- Backlash
- Efficiency
- Precision coupling alignment
- Non-precision coupling alignment

Mechanical Systems

Obtain a better understanding of mechanical drives

This course will enhance your understanding of mechanical systems, and make you a better troubleshooter. Our instructors will break down the mechanical components into simple, practical concepts. Upon completion of this course, you will gain the basic skills to perform Millwright work. Mechanics find that this information is applied immediately after returning to work.

Do you want to know...?

The removal, installation, and troubleshooting of the following components:

- Bearings
- Lubricants
- Gears
- Fasteners
- Sprockets
- Chains
- Couplings
- Belts
- Precision measurement tools

The course will also cover the safety issues concerning working with these types of components.

Vibration Analysis Technology

Learn how to diagnose machine problems with vibration analysis

Theory of Vibration, vibration test equipment, applications of vibration monitoring and analysis. At the completion of this course, students will understand and use all of these things plus predictive maintenance program, development specific client vibration data collection equipment, and specific client vibration monitoring software.

Machine Balancing

This course causes students to realize the importance of machine balance, static unbalance, dynamic unbalance, correct for unbalance, how a rigid rotor differs from a flexible rotor, what preliminary checks should be made before balancing, have performed four-run balance, have performed a basic single plane balance job using the graphical method, have performed two-plane balance job using the graphical method.

Basic Pipefitting

Pipefitting for the novice



This course is designed to give a broad foundation for the most important piping concepts and principles. This is valuable since pipefitting is a skill that is required for most Maintenance Mechanics. Those who have completed this course find that they possess solid knowledge and background of basic pipefitting, and they can readily perform pipefitting tasks.

Do you want to know...?

- Requirements of steam and water
- Threading steel pipe
- Pressure relief valves
- Plastic pipe connections
- Pressure regulators
- Soldering copper pipe
- Pipe supports
- Making simple offsets
- Symbols & abbreviations
- Basic Mathematics
- Pythagorean Theorem
- Trigonometry to find angles, weight of fluids, capacities of pipes, and capacity of tanks
- Safety considerations

Welding and Metallurgy Fundamentals

Obtain a broad range of welding practices and procedures



This course provides the foundation needed by the Maintenance Mechanic to make sound welds in the work environment. The properties and applications of ferrous and non-ferrous metals and alloys are covered in this course.

Do you want to know...?

- Safety practices and hazards in welding and oxyacetylene cutting
 - Properties of various metals
 - Non-destructive and Destructive methods of weld examinations
 - Criteria for the selection of various filler wires and electrodes
 - Techniques for making various welds in all positions
 - Formation of proper “habits” for making acceptable welds
 - Explanation of welding symbols
 - Proper joint design
 - Setting up machines for DCRP, AC, or DCSP current type
 - Examination of cutting equipment
-

Machining Practices

Learn how to set up and run various machine tools

The practices of measurement and layout, as well as bench inspection techniques are taught in this course. Participants complete projects requiring the safe and proper use of the lathe, turning metal to specified diameters with critical tolerances. Additionally, the lathe projects require drilling, center drilling, threading, and tool set-up. The class also teaches how to set-up and use the vertical mill and surface grinder.

Do you want to know...?

- Applications of machining speeds and feeds
- Interpret detail drawings of projects
- Demonstrate the correct use of basic tooling setups and special accessories for the lathe, vertical mill, and surface grinder
- Perform routine preventative maintenance procedures
- Application of tolerance limits to meet project specifications
- Cutting UNC and UNF external thread forms, using charts for set-up information
- Producing parts on the vertical mill and surface grinder that are square and parallel to a high degree of accuracy
- And much more!

Basic Industrial Hydraulics

This course is a introduction to hydraulic principles and concepts

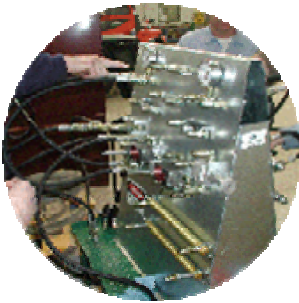
Fluid power, Pascal's Law, pressure, flow, and force...What are these? This course begins by defining these concepts. Next, the components of a hydraulic system are examined - pumps, actuators, reservoirs, fluid conductors, and valves. Finally, by building hydraulic circuits in seminar, the student will be able to fully understand the concepts mentioned above.

Do you want to know...?

- Physics of hydraulic mechanics
 - Function of hydraulic components - including pumps, valves, cylinders, reservoirs, and accumulators
 - Hydraulic symbols and diagrams
 - Hydraulic plumbing and fittings
 - Building hydraulic circuits
 - Troubleshooting and maintenance of hydraulic circuits
 - Safety procedures and practices related to hydraulic equipment
-

Advanced Hydraulics

A continuation of Industrial Hydraulics that provides advanced skills about hydraulic automation



Send your “professional” - responsible for fluid power system performance to this intensive hands-on course. The participant will be exposed to more complex elements of hydraulic design and analysis. This course is not only beneficial to seasoned Mechanic professionals, but to those who have specializations in other disciplines of technology as well.

Do you want to know...?

- Reading hydraulic schematics
- Troubleshooting of hydraulic circuits
- Pneumatic interfacing of hydraulic circuits
- Filter selection and placement considerations
- Building and analyzing hydraulic circuits
- Air-over-oil intensifiers
- Accumulator Circuits
- Flow Divider Circuits
- Automatic reciprocation
- Circuit calculations and design considerations

Basic Industrial Pneumatics

Build, troubleshoot and understand pneumatic components and systems



This course begins by breaking down the components of the pneumatic system - compressors, heat exchangers, valves, and actuators. Then the students build circuits. The student will come out of this course with many ideas that can be successfully applied to their jobs. This course compliments our Basic Hydraulics course, and stresses the concepts of fluid flow, pressure, and force .

Do you want to know...?

- Comparison of pneumatic and hydraulic systems
- Identify the advantages of pneumatics
- Function of pneumatic components - including compressors, valves, cylinders, and regulators, heat exchangers
- Pneumatic symbols and schematic diagrams
- Pneumatic plumbing considerations
- Building pneumatic circuits
- Troubleshooting and maintenance practices of pneumatic systems
- Safety procedures and practices related to pneumatic equipment

Advanced Pneumatics

Continuing the ideas developed in Basic Industrial Pneumatics

This is a continuation of our Basic Industrial Pneumatics course. Troubleshooting is a major component, eliminating the “trial and error” methods through a logical approach. With hands-on applications, the participants will construct systems using compressed air and vacuum. Completion of this course will expand your knowledge of pneumatic components and the functions they perform.

Do you want to know...?

- Reading pneumatic schematics
- Troubleshooting of pneumatic circuits
- Pneumatic interfacing of hydraulic circuits
- Filter selection
- Building and analyzing pneumatic circuits
- Safety circuits
- Pulse circuits
- Vacuum generators
- Pneumatic sensors
- Automatic reciprocation
- Design considerations

Basic Industrial Electricity

Designed to teach everyone about the use of electricity in the workplace

In order to understand electricity you must first grasp the fundamentals. Topics covered are a must for anyone who works with electricity. This course provides the practical introduction/review of electrical laws and principles. Discussions on electricity fundamentals, Ohm's Law, construction of circuits, Kirchoff's Laws, introductory magnetism, proper use of multimeters for troubleshooting, inductance, capacitance, transformers, and the interpretation of electrical diagrams are included.

Do you want to know...?

- Properties of atoms as they relate to electronics
- Identifying the value of resistors and capacitors
- Calculation of voltage, current, and resistance in series, parallel, and series/parallel circuits using ohm's law
- Characteristics of simple AC wave forms
- Basic operation of transformers
- Setup and execution of simple lab exercises
- Use of multimeters

Industrial Electrical Controls

Integrate relays and motor starters in control circuits



This seminar was designed for those who are familiar with the concepts covered in our Basic Electricity course. This is an intensive hands-on course that covers material that is essential to Mechanic or Technician job performance. A variety of electrical control devices and correct wiring procedures will be covered. We will study multiple stack-momentary contacts, motor starters, contactors, overloads, switches and relays - and many other pieces of equipment.

Do you want to know...?

- Operation of electromagnetic relays
- Identification of industrial symbols.
- Circuits using line ladder diagrams
- Timing relays
- Operation of motor starters and auxiliary contact operation
- Operation of overloads, circuit breakers, and fuses
- Building working circuits using diagrams.
- Operation of various switches
- Operation of contactors
- Proper safety procedures and practices

Programmable Logic Controls

Learn how to program and troubleshoot PLCs



Because PLC's have become the most widely used form of controlling industrial manufacturing processes, we have designed a course that focuses on how to utilize the PLC in order to control the process. This course is a mixture of invaluable instruction, practical exercises, and real hands-on programming and troubleshooting.

Do you want to know...?

- Inputs/outputs • Addressing • Timers • Counters • Comparison statements
- Understanding Ladder Logic • Use of programming software • Boolean logic
- Troubleshooting of PLC controlled circuits

RS Logic 500 is the software used in our hands-on exercises. *The PLC's used are Allen Bradley Micrologix*

Electrohydraulics

Gain valuable knowledge about the electrical control of hydraulics

Electrohydraulics will introduce you to the electrical control of hydraulic circuits. This is accomplished by using Programmable Logic Controllers, and Relay circuits to control proportional valves, and solenoid operated directional control valves. Learn the common input and feedback methods of electrohydraulic control. As with most of our courses, this is a hands-on course, so make sure you come ready to get your hands dirty!

Do you want to know...?

- Solenoid function • The differences of servo and proportional valves • Electrohydraulic symbols and diagrams • Filtration requirements of electrohydraulic valves • Build various electrohydraulic circuits • Troubleshooting and maintenance of electrohydraulic circuits • Safety procedures and practices related to electrohydraulic equipment • Dither, Null, Stiction, Ramping

Industrial Print Reading

Gain the ability to communicate effectively with your draftsman

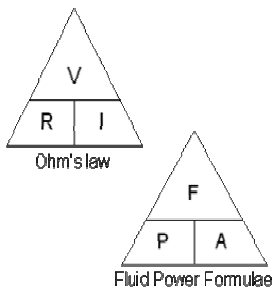
Thoroughly understanding the information on technical drawings is as vital for the Mechanic or Technician as good verbal communication. That is why all skill levels, from the Apprentice to the Journeyman, benefit from this course. Industrial Print Reading covers machine shop symbols, welding blueprints, and mechanical drawings used in the multi-craft environment. The goal of this course is to examine the terminology and methodology of blueprint communication.

Do you want to know...?

- Conversion of English to Metric measuring units
- Develop working knowledge of blueprints by concentrating on signs, symbols and abbreviations
- Analyze prints and sketches
- Identify the function of various lines
- Arranging two and three view drawings using the third angle of projection
- Methods of dimensioning for objects, circles, arcs, and angles
- Specifications of external and internal threads
- Applications of tolerances and allowances

Math for Technicians

Restore your confidence in your math skills!



Math may be something that makes your Maintenance Technicians feel uncomfortable. Many Maintenance Technicians are reluctant at times to apply math to their jobs. We have designed this course with this in mind because math is a skill that is needed for all people involved with maintenance work. By removing “cobwebs” for your Technician, he will be able to apply math to his job, making him more efficient and independent.

Do you want to know...?

- Operations with fractions
- Operations with decimals
- Applications using Ohm's Law, Pascal's Law, and Boyle's Law
- Temperature conversions
- Introduction to geometric figures
- Area and volume
- Angles
- Protractors
- Triangles
- Pythagorean Theorem
- Circles
- Introduction to Trigonometry
- Force
- Torque
- Vectors

Air Conditioning and Refrigeration

The ins and outs of A/C and refrigeration equipment

Technicians who must install, maintain, or service furnaces, air conditioning units, and refrigeration equipment find this course especially useful. We will examine the components of a system, and explain the function of individual components. Participants then group the pieces together to assemble a complete system.

Do you want to know...?

- Pilot assembly and thermocouples
 - Symbols and diagrams for HVAC systems
 - Troubleshooting a refrigeration system
 - Thermostats and controls
 - Refrigerant types
 - Gas valves
 - Fan and air controls
 - Gas charging
 - Igniters
 - Hermetic compressors
 - Defrost controls
 - Safety
-

Basic Rigging

Ensure the safety of your team

This seminar is appropriate for everyone who moves heavy objects using lifting and hoisting devices on the job. In this course, we make sure that you know proper technique for rigging and hoisting. We will cover such topics as nylon versus steel slings, common hitches, rigging safety, and more.

Do you want to know...?

- Rigging safety
- Alternative lifting devices
- Knot tying
- Load Balancing
- Proper load weights
- Safe crane usage
- Hitches
- Sling materials
- Different ropes
- Proper Hand Signals
- Shackles and clevises

Self-Study Courses

Learn skills at your own pace

Safety: AIT continues to develop self-study programs that comply with the latest OSHA standards. Our self-study kits offer the employee and the employer a more flexible training schedule. AIT issues compliance certificates and maintains training records.

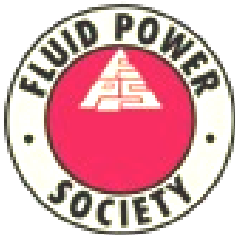
Industrial Maintenance Technology: Our industrial maintenance self-study kits provide students with practical and useful information that can be immediately applied to their job. These kits reinforce theory by providing hands-on training material.

Self study kits include:

- Student Manual/Workbook and test
- Training software which includes: (Interactive labs and exercises, pictures and animations, Easy to follow text)
- Hands-on training equipment if applicable

Fluid Power Society Certification

Nationally recognized certification in partnership with AIT



Many fluid power professionals have gained their knowledge on the job and often have not received the recognition they deserved. If much of your training was on the job, then Fluid Power Certification® may be just what you need to stay competitive in the rapidly growing industry. The Fluid Power Certification® enhances your professionalism through education, training, and peer review. It may provide you with the material needed for career advancements.

Tests Offered

- Pneumatic Mechanic • Mobile Hydraulic Mechanic • Pneumatic Specialist
- Industrial Hydraulic Mechanic • Hydraulic Specialist • Industrial Hydraulic Technician
- Pneumatic Technician • Mobile Hydraulic Technician

The certification consists of optional review sessions, accompanied by a three hour written test. For mechanic and technician certification, one three-hour hands-on test is also required.

Certified Industrial Maintenance Mechanic

Hands-On Program that covers material essential to job performance



A Certified Industrial Maintenance Mechanic is a person who has gone the extra step to stay competitive in the field. For employers, it means that your employee is committed to applying himself/ herself to a level of excellence on the job. Being an AIT Certified Industrial Mechanic carries a sense of pride for the mechanic, and it can be useful for the employer to assess the progress of the employee.

BENEFITS INCLUDE

- Establishes the qualifications of an employee seeking a promotion or a new position.
- Expresses the commitment and effort of an individual.
- Provides a baseline for the minimum skills and knowledge for a Maintenance Mechanic.
- Reflects a positive image for your organization.

Possible Areas of Study

AIT recommends that you complete a minimum of 5 days of Industrial maintenance training. You may choose as many courses as you would like to fulfill your certification program from the following list:

- Basic Electricity
- Pneumatics
- Mechanical Systems
- Electrical Controls
- Hydraulics
- Pump Maintenance
- PLC's
- Welding
- Safety
- Print Reading
- Pipefitting

Course content of this program can be customized to fit your needs.

Certification Test

A written certification exam will be administered upon the completion of the course. The test will contain approximately 50 questions and problems that have been developed from the material and activities that the student has completed. The purpose of the test is to certify that the person who successfully completes it is competent to perform the duties as an Industrial Maintenance Mechanic. To successfully pass the test, a student must have a score of 70% or above.

2005 Training Calendar

The courses listed below are offered at our training facility in Farmersburg IN. All of our courses can be presented at your site. *Please Call for additional information.*

FEBRUARY

- 15 Forklift Train-The-Trainer
- 16 Electrical Safety
- 17 & 18 Print Reading
- 21& 22 OSHA 10 hour General Industry Outreach Training
- 21-24 OSHA 30 hour General Industry Outreach Training
- 28 Basic Electricity

MARCH

- 1 & 2 Electrical Controls
- 3 & 4 Programmable Logic Controllers
- 7 Basic Industrial Hydraulics
- 8 Advanced Hydraulics
- 9 Basic Industrial Pneumatics
- 10 Advanced Pneumatics
- 11 Electro-Hydraulics
- 22-24 Vibration Analysis
- 29-31 Safety Supervisor Development

APRIL

- 4-8 Safety Week
- 11 & 12 Pipefitting
- 13 Mechanical Systems
- 14 & 15 Pumps

MAY

- 4 & 5 Math for Technicians
- 10-12 Vibration Analysis

JUNE

- 6-10 Welding
- 13-17 Machining
- 21 Forklift Train-The-Trainer
- 22 Electrical Safety
- 23 & 24 Print Reading
- 27 & 28 OSHA 10 hr General Industry
- 27-30 OSHA 30 hr General Industry

JULY

- 11 Basic Electricity
- 12 & 13 Electrical Controls
- 14 & 15 Programmable Logic Controllers
- 18 Basic Industrial Hydraulics
- 19 Advanced Hydraulics
- 20 Basic Industrial Pneumatics
- 21 Advanced Pneumatics
- 22 Electro-Hydraulics
- 26-28 Vibration Analysis

AUGUST

- 8 & 9 Pipefitting
- 10 Mechanical Systems
- 11 & 12 Pumps

SEPTEMBER

- 7 & 8 Math for Technicians
- 13-15 Safety Supervisor Development
- 20-22 HAZWOPER 40 hr Worker

OCTOBER

- 3 Basic Electricity
- 4 & 5 Electrical Controls
- 6 & 7 Programmable Logic Controllers
- 10 Basic Industrial Hydraulics
- 11 Advanced Hydraulics
- 12 Basic Industrial Pneumatics
- 13 Advanced Pneumatics
- 14 Electro-Hydraulics
- 24 & 25 OSHA 10 hr General Industry
- 24-28 OSHA 30 hour General Industry

NOVEMBER

- 7-11 Safety Week



Do you want to know? Register today!

You may register for our courses in any of the following ways.		
Mail the completed form to AIT Training & Technology PO Box 436 Farmersburg, IN 47850	Fax this form (812) 696-0881	Call in to (800) 696-5507 or (812) 696-0880

Name of Course(s) _____ Date(s) _____

Company Information

Company Name _____ Drop Code _____

Company Address _____

City _____ State _____ Zip _____

Participant Information

Name _____ Title _____

Phone (____) _____ Fax (____) _____ e-mail _____

Name _____ Title _____

Phone (____) _____ Fax (____) _____ e-mail _____

Name _____ Title _____

Phone (____) _____ Fax (____) _____ e-mail _____

Name _____ Title _____

Phone (____) _____ Fax (____) _____ e-mail _____

Course Fees

Fluid Power Society Certification Exam Preparation:
This is not in association with the FPS..... \$249/day
 AIT Maintenance Courses at our facility..... \$349/day
 Safety Courses..... Please Call

Prices subject to change without notice

Training Cost Calculator

# of participants	# of days	Cost
Indiana Sales Tax		6 %
Total		

Payment Information

Send invoice to company: PO# _____ Check enclosed for: \$ _____

Financial contact person: _____