

# GREAT PLAINS

---

## Technology Center

Thank you for your interest in the services offered by the Corporate Training and Adult Career Development departments at Great Plains Technology Center. This brochure lists many short-term and fulltime programs that we have provided to customers in our school district and across the United States.

This is not a complete listing of the services available. We specialize in the development and execution of customized training to fit our customer's needs based on analysis of the business-need. The classes listed below are just a place to start and represent training-solutions we have implemented for other customers.

The Brochure is divided into several sections: general information, soft skills, full-time industrial maintenance, short-term maintenance, and Rockwell Automation

Please contact us at 580-250-5509 or [mpolynice@greatplains.edu](mailto:mpolynice@greatplains.edu) for an initial consultation or to answer any questions.

### **Thank you**

Kevin Henson, Jennifer Tuttle, and Shawn Johnson  
Business and Industry Services Coordinator

### **Mission**

Our mission is to train Oklahomans for success in Oklahoma business and industry.

### **Facilities**

We offer customized business and industry services on-demand in our 30,000 square foot training facility and seminar center, campus classrooms and laboratories, or at the work-site. On campus meeting and classroom facilities can accommodate groups as large as 300. Our skill-training facilities include computer laboratories, fluid power laboratories, welding and fabrication shops, manufacturing process control simulation labs, fire-fighter and first-responder training facilities, manufacturing systems simulation labs and a powered industrial truck training facility.

### **Safety and OSHA Compliance**

There are many techniques for keeping employees safe on the job. Safety training is one of the leading ways to avoid workplace injuries, illnesses, and death. Employees who work safely can save a company thousands (possibly millions) of dollars each year in areas such as lost time, reduced workers compensation premiums, lost productivity as well as many others. Your company can partner with Great Plains Technology Center's safety department to provide quality low cost safety training that will assist you in being in compliance with OSHA regulations. A sampling of courses includes:

- Forklift Operations
- Bloodborne Pathogens
- Fire Extinguisher Safety
- Driver Safety
- CPR and First Aid
- Confined Space Entry
- Excavation, Trenching, and Shoring
- Hazard Communication
- Lockout/Tagout
- Ergonomics
- Office Safety
- OSHA 10 or 30 hour certification
- And many others...

Training can be held at the Great Plains Technology Center or at your business location. Courses can be customized to fit your needs. Consultation services are also available.

## **Industrial Maintenance**

A staff of 6 fulltime instructors implements both customized and open enrollment programs for those industries in our area that have a need for highly skilled industrial maintenance technicians and certified PACE soldering technicians. We offer customized programs in these major areas.

- Electrical maintenance
- Mechanical maintenance
- Fluid power systems maintenance
- Welding
- Programmable Logic controllers and Distributive Control Systems (Allen-Bradley, Rockwell Software, Reliance-Automax, Honeywell)
- Shaft Alignment (manual and laser)
- Geometric Dimensioning and Tolerance

Courses are tailored to the needs of the customer and maybe scheduled as stand-alone topic focused professional development seminars and skill classes or comprehensive programs of study delivered over many weeks and months.

## **Performance Improvement**

A robust catalog of human performance improvement training that can be customized to meet the needs of your industry or individuals may choose topics from our published schedule of short-term evening classes.

- Certified Achieve-Global and Development Dimensions International (DDI) trainers.
- Change management and goal setting
- Transition to supervisory responsibility and communications skills improvement
- Effective performance appraisal and business writing seminars
- Behavioral based interviewing
- Human Resource Professional Topics (Recruitment, Hiring, Retention, Evaluation)

## **Adult Career Development**

Adult Career Development offers short-term scheduled training for individuals or small groups and contracted training for business and industry. These classes are offered in evening formats and weekend formats. Contracted training is available when and where the customer needs it. A special; area of focus for this department is fire-fighter training in partnership with the City of Lawton, Oklahoma State University and area volunteer fire departments. Topics available include:

- Computer technology and applications

- Business office skills
- Child Care Careers
- Health Careers
- Trade and Technical Careers
- Fire Safety
- Access, Excel
- CERT train the Trainer
- EMT
- ERT
- Haz. Material Awareness and Ops
- MS Office Suite
- And more...

### **Work Experience and Success Program**

YIELD INC. is a school sponsored workforce development program designed to offer adults, without recent work experience or success in the workplace, an opportunity to learn skills needed by all employees and gain a recent verifiable work history. Students participate in a 16-week program that combines classroom learning, counseling services, support services, and paid employment. Student employees provide products and services for Republic Paper Company and Goodyear Tire and Rubber Company.

### **Training Broker**

Training Broker services are also provided. If the technology center does not offer the requested training we will work, at no charge to the customer, to locate an alternative provider and provide coordination of schedules, facilities, and transcription of training provided.

### **Support Services**

Instructional systems design services and analysis of training programs.

### **Availability**

Services are available on both a customer-paid fee basis and through state training incentive programs for qualified business and industry customers. Customers paid programs are charged at hourly rates plus books and student materials. This structure offers significant savings over the traditional "per student" billing structure.

The Training for Industry and Existing Industry Programs provide financial support to meet corporate training goals. These programs are available for both new workers and incumbent workers. Grant funds may be available to support pre-employment assessment, pre-production training and skill upgrades training. Funded training is not limited to technical training. Quality assurance, leadership, team building, problem solving, and other performance improvement skills are also eligible. Safety related training is also available (requires a small employer co-pay).

### **Contact Information**

Will Johnson	580-250-5557	<a href="mailto:wjohnson@gptech.edu">wjohnson@gptech.edu</a>
Kevin Henson	580-250-5585	<a href="mailto:khenson@gptech.edu">khenson@gptech.edu</a>
Shawn Johnson	580-250-5552	<a href="mailto:sjohnson@greatplains.edu">sjohnson@greatplains.edu</a>
Jennifer Tuttle	580-351-6751	<a href="mailto:jtuttle@greatplains.edu">jtuttle@greatplains.edu</a>

## **INDEX**

SOFT SKILLS	Page 6
INDUSTRIAL MAINTENANCE PROGRAM	Page 7
ROCKWELL AUTOMATION	Page 23
WORKPLACE SAFETY	Page 40
QUALITY IMPROVEMENT	Page 53

# SOFT SKILLS

## Soft Skills Training

Our Soft Skills Training programs focus on behavioral competencies that improve interpersonal skills, or “people skills” that build relationships of trust, empathy and productive interactions such as anger management, conflict resolution, negotiation and communication skills, team building, personal productivity, strategic thinking and more creative problem solving strategies. Our training programs are customized to your business and delivered when and where you need them.

## Kick Start Topic List

Let our training and development staff help you design a customized training program or use this topic list to kick start your thinking. This list is a starting point for development of a customized plan for both management and staff.

- Anger Management
- Appreciative Inquiry
- Attention Management
- Basic Bookkeeping
- Body Language Basics
- Business Ethics
- Business Etiquette
- Change Management
- Civility in the Workplace
- Coaching and Mentoring
- Communication Strategies
- Conflict Resolution
- Critical Thinking
- Customer Service
- Delivering Constructive Criticism
- Emotional Intelligence
- Employee Motivation
- Employee Onboarding
- Employee Recruitment
- Executive and Personal Assistants
- Facilitation Skills
- Generation Gaps
- Internet Marketing Fundamentals
- Interpersonal Skills
- Job Search Skills
- Knowledge Management
- Leadership and Influence
- Manager Management
- Managing Workplace Anxiety
- Measuring Results From Training
- Media and Public Relations
- Meeting Management
- Office Politics for Managers
- Organizational Skills
- Presentation Skills
- Project Management
- Proposal Writing
- Public Speaking
- Risk Assessment and Management
- Sales Fundamentals
- Social Intelligence
- Social Media in the Workplace
- Stress Management
- Supervising Others
- Supply Chain Management
- Talent Management
- Teamwork and Team Building
- Telework and Telecommuting
- Time Management
- Work-Life Balance
- Workplace Diversity
- Workplace Harassment
- Workplace Violence

**Call 580-250-5509** to set up a time to meet with a Business and Industry Services Coordinator.

## **INDUSTRIAL MAINTENANCE PROGRAM**

## Industrial Maintenance Technician Course Descriptions

Each of the courses listed below have been recommended for college credit by Western Oklahoma State College.

These courses may be taught in their entirety for college credit or customized to fit industry needs for more specific training that this less broad, focused on a selected number of objectives or restricted by time available.

Contact the Industrial training Coordinator, Kevin Henson, 580-250-5585, [khenson@gptech.edu](mailto:khenson@gptech.edu) to discuss customization or review specific course specifications.

### **ELF 200 - Fundamentals of Industrial Electrical Technology** (80 hours)

Students will state accepted safety practices for a safe electrical work environment; and describe relationships between voltage, current, and resistance in a DC circuit.

### **EBS 300 - Industrial Electrical Motors and Distribution Systems** (104 hours)

Students will inspect, troubleshoot, replace, and/or repair DC motors, single-phase and three-phase AC motors, motor circuit protection circuits, transformers, circuit breakers, and switchgear.

### **EAS 400 - Basic Industrial Electrical Systems** (162 hours)

Students will use electrical tools, instruments, and safety practices; and diagnose, troubleshoot, and repair AC manual contractors, motor starters, magnetic solenoids, and control devices.

### **ESS 500 - Industrial Solid State Electrical Systems** (134 hours)

Students will troubleshoot and repair diode rectifier circuits, a DC power supply; describe conditions for a transistor as a switch; and troubleshoot and repair photoelectric and sensors.

### **EMC 600 - Industrial Electrical Maintenance and Control** (58 hours)

Students will diagnose motor mechanical problems; and troubleshoot and replace a DC motor, and AC motor, and defective motor control circuits.

### **VSC 700 - Industrial Variable Speed Controllers** (88.5 hours)

Students will service and troubleshoot SCR and transistor amplifier circuits; use an oscilloscope to troubleshoot electrical/electronic circuits; and service and troubleshoot DC and AC drives.

### **PLC 800 - Industrial Programmable Controllers** (120 hours)

Students will recognize a basic PLC system; describe the purpose and function of each component of a PLC system; and program and maintain a PLC system using proper techniques.



**DSC 900 - Industrial Distributive Control Systems** (120 hours)

Students will use the Automax software system to create, edit, import, and delete systems, sections, and racks using the system configurator module.

**FPF 1000 - Fundamentals of Industrial Fluid Power Technology** (160 hours)

Students will troubleshoot basic hydraulic systems; identify and discuss various hydraulic pumps; and identify and discuss operating principles of direct acting.

**FPA 1100 - Advanced Industrial Fluid Power Technology** (112 hours)

Students will recognize and identify components of various pumps and hydraulic circuits; troubleshoot hydraulic system problems; and identify valves and their functions.

**MEF 1200 - Fundamental of Industrial Mechanical Technology** (40 hours)

Students will identify hazards encountered in working with mechanical systems; and understand units of measurement and demonstrate accurate use of measuring equipment

**MEA 1300 - Advanced Industrial Mechanical Technology** (160 hours)

Students will resurface material using proper procedures; operate various types of machine shop machinery; and identify various types of pumps.

**WEL 1400 - Industrial Welding Technology** (120 hours)

Students will set-up, operate, maintain, use an oxyfuel gas station, shielded metal arc welding station, a gas metal tungsten arc welding station; and list and identify welding symbols.

**PNU 1500 - Industrial Pneumatics Technology** (40 hours)

Students will define the principles of air compression; and distinguish operation details of various components in a typical pneumatic system.

# SHORT TERM MAINTENANCE

## Shaft Alignment

**Course Purpose:** Align of components in industrial systems.

### Course Objectives:

After completion of this course the student will be able to align system component using either manual or laser method.

### Topical Outline:

#### Alignment Theory

- Define or explain the following terms: collar alignment, parallel alignment, misalignment, angular alignment, misalignment in the horizontal plane, misalignment in the vertical plane, combined misalignments.

#### Measuring and correcting alignment

- Define the following terms: fixed component and moveable component.
- Describe a proper orientation to equipment being aligned
- Describe what is measured when misalignment measurements are taken
- Describe how misalignment in the vertical plane is corrected.
- Describe how misalignment in the horizontal plane is corrected.

#### Preparing for Alignment

- Explain the basic operation of the two types of dial indicators
- Describe the preparations performed on equipment foundations
- Describe or explain the following terms: pipe strain, soft foot, and runout
- Describe a procedure for measuring and correcting a soft foot condition
- Describe a procedure for measuring a runout.
- Define the following terms: thermal growth, mechanical center, magnetic center
- Describe two procedures for measuring thermal growth
- Describe a procedure for setting face gap
- Describe a procedure for measuring and setting mechanical center
- Describe a procedure for determining magnetic center

#### Intro to Rim and Face Alignment

- Describe how to set up dial indicators for the rim and face
- Determine how to measure bar sag
- Identify the distances that should be measured before dial indicator readings are taken
- Describe how dial indicator readings are taken to measure misalignment in the vertical plane

#### Graphing and Correcting Vertical Plane Misalignment

- Explain how to complete and interpret a graph for vertical plane misalignment

- Explain how to use formulas to determine how to correct misalignment in the vertical plane
- Describe a general procedure for correcting misalignment in the vertical plane
- Explain how to measure and graph misalignment in the horizontal plane
- Explain how to use formulas to determine how to correct misalignment in the horizontal plane
- Describe a general procedure for correcting misalignment in the horizontal plane

#### Reverse Dial Alignment

- Explain parallel and angular misalignment
- Given dial indicators and brackets, describe or demonstrate how to set up equipment for a reverse dial alignment.
- Identify the major alignment preparations
- Identify the major sections of a data sheet
- Describe or demonstrate how to take the tape measurements needed for a reverse dial alignment

#### Measuring and Correcting Vertical Plane Misalignment

- Using a reverse dial alignment method, describe or demonstrate how to take dial indicator readings for the vertical plane
- Describe or demonstrate how to correct vertical plane misalignment
- Explain how thermal growth is factored into an alignment job

#### Measuring and Correcting Horizontal Plane Misalignment

- Using reverse dial alignment method describe or demonstrate how to take a dial indicator readings for the horizontal plane
- Describe or demonstrate how to correct horizontal plane misalignment

#### Aligning Vertically mounted Equipment

- Explain how the alignment orientation is typically established with vertically mounted equipment
- Describe how dial indicators and brackets are installed on vertically mounted equipment for a rim and face alignment
- Identify tape measurements required for an alignment of vertically mounted equipment
- Using a rim and face method, describe how to measure parallel and angular misalignment on vertically mounted equipment.
- Explain how to determine if parallel misalignment corrections are necessary
- Explain how angular misalignment is corrected
- Explain how parallel alignment is corrected

#### Other Methods

- Describe the primary function of computers in alignment
- Identify the major parts of a laser-optic alignment device
- Explain how laser-optic equipment is installed for an alignment job
- Explain how misalignment readings are taken with laser-optic equipment
- Explain how misalignment corrections are determined with laser-optic equipment

**Who Should Attend?** Persons who perform or supervise maintenance activities in a manufacturing facility.

**How Long is this Workshop?** 8 Hours

**What is the Cost of this Workshop?** \$400 (this is not a per person charge). Per person charge is \$5/person for materials.

## **Centrifugal Pump Maintenance**

**Course Purpose:** Maintain centrifugal pumps in industrial systems

### **Course Objectives:**

After completion of this course the student will be able to maintain pumps in an industrial system.

### **Topical Outline:**

#### Type and function

- Describe the difference between the operation of a centrifugal pump and the operation of a positive displacement pump.

#### Parts and function

- Identify the parts of a basic centrifugal pump
- Describe the function of each part.

#### Types of centrifugal pumps

- Classify centrifugal pumps
- Identify the major types of centrifugal pumps
- Name the specialized functions of several types of centrifugal pumps
- Identify proper procedure for trouble shooting centrifugal pumps

#### Types and Symptoms of Common Pump Problems

- Identify proper procedure for troubleshooting centrifugal pumps`
- Identify major symptoms of pump problems
- Specify possible causes of symptoms commonly found in centrifugal pumps.
- Define cavitation and examine the effects of cavitation in centrifugal pumps.

#### Preparation and casing removal

- List the four steps in preparing a pump for overhaul
- Name the precautions that apply to preparing the work area
- State the purpose of tagging procedures
- Describe the procedure for disconnecting a pump from its motor
- Describe the procedure for removing the upper half of a horizontally split casing

#### Disassembly, Cleaning and Inspection

- Explain the steps taken to disassemble the internal parts of a centrifugal pump
- List the components to be checked during a preliminary inspection
- Describe the procedures for cleaning the internal parts of a centrifugal pump
- List the six parts of a complete inspection and indicate what to look for in each part.

#### Casing Wearing ring, clearance, and shaft inspection

- Describe the procedures for measuring the clearance between the casing wearing rings and the impeller
- Explain how to determine if the casing wear rings are perfectly round
- State the purpose of inspecting the shaft
- Describe the dye penetrant test
- Describe the procedure for taking a shaft runout reading

#### Reassembly of a centrifugal pump

- List the steps that comprise the reassembly procedure
- Describe the general procedure for installing the impeller
- List the checks that should be made after the pump is reassembled

#### Pump Packing Replacement

- Explain a procedure for removing old packing from a pump
- Describe a way in which new packing rings can be measured and cut to fit the stuffing box.
- List the steps involved in installing new packing
- Explain the importance of and procedure for properly adjusting the gland follower

**Who Should Attend?** Persons who perform or supervise maintenance activities in a manufacturing facility.

**How Long is this Workshop?** 24 Hours

**What is the Cost of this Workshop?** \$1200 (this is not a per person charge). Per person charge is \$35/person for materials.

## **Mechanical Seals**

**Course Purpose:** Maintain mechanical seals industrial systems

### **Course Objectives:**

After completion of this course the student will be able to maintain mechanical seals in an industrial system.

### **Topical Outline:**

#### Introduction

- Identify the components of a mechanical seal
- Describe how a typical mechanical seal operates
- Identify commonly used types of mechanical seal

#### Pump Disassembly and Preliminary Checks

- Describe one way to disassemble a pump to remove a mechanical seal
- Describe checks and measurements commonly made during and after the pump disassembly to prepare for a mechanical seal installation.
- Explain how certain pump components are temporarily reassembled so that preliminary measurements can be taken
- Describe one way to install an inside pusher seal
- Describe checks and measurements commonly made during the installation of an inside pusher seal

#### Non-pusher seal installation

- Describe one way to install an elastomer bellows seal
- Describe one way to install a metal bellows seal

#### Outside Seal and Cartridge Seal Installation

- Describe the way to install an outside seal
- Describe one way to install a cartridge seal

#### Mechanical Seal failures

- Describe some common causes of mechanical seal failures
- Explain how to identify causes of seal failures by examining seal components.

**Who Should Attend?** Persons who perform or supervise maintenance activities in a manufacturing facility.

**How Long is this Workshop?** 8 Hours

**What is the Cost of this Workshop?** \$400 (this is not a per person charge). Per person charge is \$35/person for materials.



## **Print Reading**

**Course Purpose:** Read industrial system prints and drawings

### **Course Objectives:**

After completion of this course the student will be able to read and interpret prints and drawing for an industrial system.

### **Topical Outline:**

#### Print Reading and use

- State the general purpose of prints
- List three reasons for using symbols to convey information in prints

#### Piping system prints

- List the major components of a typical piping system
- Name the two common types of piping systems
- List five common types of pipe joints and draw a symbol to represent each type
- List five common types of pipefitting and draw a symbol to represent each type.
- List three types of valves commonly found in piping systems and drew a symbol to represent each type

#### Fluid Power System Prints

- Explain what a fluid power system is
- Name two basic types of fluid power system
- Define diffusion and compression
- Name the components of a typical fluid power system and draw a symbol to represent each component
- List the types of valves commonly found in fluid power systems and draw a symbol to represent each valve.
- Describe the operation of a typical fluid power system using a fluid power system print.

#### Machine Prints

- List the types of fasteners most commonly shown in machine prints
- Name and define the parts of a thread
- Illustrate regular and simplified thread symbols
- Explain the meanings of the parts of a fasteners specification number
- Draw the basic symbol for a welded joint and show how different types of welds are indicated.
- Explain the general purpose of detail prints, assembly prints, cutaway drawings, and exploded pictorials.

#### Reading a Print

- List the four steps in effective print reading
- Describe the types of information generally found in the title block of a print

- Explain how to determine the flow paths through a system as shown on the print
- Show how to trace the line of operation from a machine back to the beginning of a system.
- Demonstrate how to use a print to troubleshoot a particular problem in a system.

**Who Should Attend?** Persons who perform or supervise maintenance activities in a manufacturing facility.

**How Long is this Workshop?** 8 Hours

**What is the Cost of this Workshop?** \$400 (this is not a per person charge). Per person charge is \$25/person for materials.

## Machine Shop Refresher

**Course Purpose: Refresher training on safe use and techniques for industrial machine shop operations.**

### Course Objectives:

After completion of this course, the student will be able to safely use machine shop equipment to fabricate and repair metal parts and components.

### Topical Outline:

**Who Should Attend?** Persons who have been trained on the use of mill, lathe and drill press equipment but require refresher training. This course assumes a basis understanding of Machine Shop equipment.

- Topical Outline :

#### Mod 1

- Convert fractions to decimals
- Convert decimals to fractions
- Convert between metric and imperial measurement systems.

#### Mod 2

- Recall safety procedures
- Use measuring tools (micrometer, caliper, small hole gauge, telescoping gauge, thread gauge).

#### Mod 3

- Select a drill and tap given a tap and drill chart.
- Recall the operation and physical characteristics of milling tools.
- Recall the operational and physical characteristics of lathe tools.

#### Mod 4

- Set up a lathe (w/dial indicator)
- Set up a mill (w/ dial indicator)
- Set up a Arbor press
- Calculate surface feet per minute

#### Mod 5

- Operate a mill
- Operate a lathe
- Operate an Arbor Press
- Drill and tap steel on a lathe.
- Turn a steel shaft on a lathe
- Cut thread in a steel shaft on a lathe

- Use a three and four jaw chuck.
- Bore an ID in a sprocket hub.
- Cut a key-way with a mill.
- Surface a surface with a face mill.
- Drill and tap steel on a mill
- Broach a key way with an Arbor Press
- Use a turntable on a mill to layout a bolt pattern by degrees

**How Long is this Workshop?** 32 Hours

**What is the Cost of this Workshop?** \$1600 (this is not a per person charge). Per person charge is \$75/person for materials.

## **Welding refresher**

### **Course Purpose: Refresher training on safe use and techniques for welding in maintenance applications**

#### **Course Objectives:**

After completion of this course, the student will be able to make welded repairs to components using a variety of welding processes.

#### **Topical Outline:**

Orientation and safety instruction (Classroom)

SMAW (Classroom)

Electrode Selection

Manipulation techniques

Joint design

Edge prep

Power supply

SMAW (Shop)

Weld in flat, vertical, horizontal and overhead

Make joints (T, Butt, Lap, Corner) using mild steel

#### **Day 2**

SMAW (Shop)

Weld in flat, vertical, horizontal and overhead

Make joints (T, Butt, Lap, Corner) using mild steel

#### **Day 3**

GMAW (Classroom)

Manipulation techniques

Joint design

Edge prep

Power supply

GMAW (Shop)

Weld in flat, vertical, horizontal and overhead

Make joints (T, Butt, Lap, Corner) using mild steel and Aluminum

**Day 4**

## GTAW (Classroom)

Manipulation techniques

Joint design

Edge prep

Power supply

## GTAW (Shop)

Weld in flat, vertical, horizontal and overhead

Make joints (T, Butt, Lap, Corner) using thin mild steel and Aluminum

**Who Should Attend?** Persons who perform maintenance activities in a manufacturing facility and have received previous formal training in the use of welding equipment but require further technique practice.

**How Long is this Workshop?** 32 Hours

**What is the Cost of this Workshop?** \$1600(this is not a per person charge). Per person charge is \$400/person for materials.

# ROCKWELL AUTOMATION

## SLC500/RSLOGIX 500

### Course Purpose:

This course teaches students how to use the RSLogix 500 software to generate ladder logic for the SLC-500 family of processors. Fundamental programming concepts are presented, followed by "hand-on" lab assignments emphasizing application of the concepts.

### Course Objectives:

After completing this course, students should be able to:

- Describe the features and options available with RSLogix500
- Create a project (including selecting processor, I/O and Power Supply)
- Customize the programming environment
- Use the HELP system
- Add and modify ladder programming
- Create and print reports

### Topics:

- Features of RSLogix 500
  - RS Linx
  - Screen Layout and Organization
  - How to use the Help
  - Change colors, fonts, ladder display characteristics, quick key mapping
  - Create a new project
  - Selecting a processor, rack, I/O
  - Working with Program files
  - Working with Data files
  - Symbols, rung comments, address comments, instruction comments, page titles
  - Setting up RS Linx and going online
  - Searching, data table monitoring, Custom Display Screens
  - Creating Forces, enabling Forces
- Establish communications
- Copying, Restoring, and Saving Programs
- Modifying Ladder Programs, data table information

**Who Should Attend?** Persons who perform or supervise maintenance activities in a manufacturing facility.

**How Long is this Workshop?** 32 Hours

**What is the Cost of this Workshop?** \$1600 (this is not a per person charge). Per person charge is \$45/person for materials.



## **PLC 5/RSLOGIX 5**

### **Course Purpose:**

This course teaches students how to use the RSLogix 5 software to generate ladder logic for the PLC-5 family of processors. Fundamental programming concepts are presented, followed by "hand-on" lab assignments emphasizing application of the concepts.

### **Course Objectives:**

After completing this course, students should be able to:

- Describe the features and options available with RSLogix5
- Create a project (including selecting processor, I/O and Power Supply)
- Customize the programming environment
- Use the HELP system
- Add and modify ladder programming
- Create and print reports

### **Topics:**

- Features of RSLogix 5
  - RS Linx
  - Screen Layout and Organization
  - How to use the Help
  - Change colors, fonts, ladder display characteristics, quick key mapping
  - Create a new project
  - Selecting a processor, rack, I/O
  - Working with Program files
  - Working with Data files
  - Symbols, rung comments, address comments, instruction comments, page titles
  - Setting up RS Linx and going online
  - Searching, data table monitoring, Custom Display Screens
  - Creating Forces, enabling Forces
- Establish communications
- Copying, Restoring, and Saving Programs
- Modifying Ladder Programs, data table information

**Who Should Attend?** Persons who perform or supervise maintenance activities in a manufacturing facility.

**How Long is this Workshop?** 32 Hours

**What is the Cost of this Workshop?** \$1600 (this is not a per person charge). Per person charge is \$45/person for materials.

## **RSLOGIX 5/500**

### **Course Purpose:**

This course teaches students how to use the RSLogix 5 and 500 software to generate ladder logic for PLC 5 and SLC 500 family processors. Fundamental programming concepts are presented in detail, followed by interactive "hands-on" lab assignments emphasizing application of the concepts in an industrial setting. Configuration of RSLinx to allow processor communication and basic troubleshooting procedures also presented in the class.

### **Course Objectives:**

After completing this course, students should be able to:

- Describe the features and options available for RSLogix 5/500
- Create a Project (including selecting processor, I/O and Power Supply) for both families of processors
- Customize the programming environment to display information as the user requires
- Explain how to use the HELP system
- Add and modify ladder logic programming
- Use RSLogix family software to troubleshoot a project
- Identify the main components of programmable controller systems and describe their functions
- Describe the flow of information through a programmable controller system
- Navigate through the RSLogix 5 or RSLogix 500 software
- Transfer, monitor, and run projects on a PLC-5 or SLC 500 processor
- Interpret simple ladder logic

### **Topical Outline:**

- Features of RSLogix 5/500
- RS Linx
- Screen Layout and Organization
- How to use the Help.
- Change colors, fonts, ladder display characteristics, quick key mapping.
- Create a new project.
- Selecting a processor, rack, I/O

### **Topical Outline Continued:**

- Working with Program files.
- Working with Data files.
- Symbols, rung comments, address comments, instruction comments, page titles.
- Setting up RSLinx and going online.
- Searching, data table monitoring, custom display screens.
- Creating forces, enabling forces.
- Understanding Programmable Controller Systems
- Identifying Common Hardware Components of Processors
- Identifying Hardware Components of I/O Systems
- Identifying I/O Configurations
- Getting Started with Programming Systems
- Changing the Radix (Base) of a Number
- Setting Up Communications between a Programming System and a Processor
- Identifying PLC-5 System Addresses
- Identifying SLC 500 System Addresses
- Interpreting Ladder Logic
- Interpreting Timer On Delay (TON) Instructions

**Who Should Attend?** Persons who perform or supervise maintenance activities in a manufacturing facility.

**How Long is this Workshop?** 32 Hours

**What is the Cost of this Workshop?** \$1600 (this is not a per person charge). Per person charge is \$45/person for materials.

## **RSLOGIX 5000 NETWORKING**

### **Course Purpose:**

This multi-product course is intended to provide experienced plant personnel with the skills to more fully integrate a Logix5000 system into an overall plant architecture (planned or existing). Building on Logix5000 programming and basic communications experience, you will be introduced to a variety of specialized tasks that incorporate more advanced communications options, such as:

- Integrating a DeviceNet™ network
- Configuring ControlLogix™ using Ethernet® and ControlNet™.

### **Topical Outline:**

- Configuring an Ethernet Network
- Mapping DeviceNet Data in a 1756-DNB Scanner Module
- Configuring a Logix5000 Controller to Control a DeviceNet Device
- Configuring a Remote I/O Device and a Logix5000 Controller to Transfer Data
- Configuring a Controlnet network

**Who Should Attend?** Persons who perform or supervise maintenance activities in a manufacturing facility.

**How Long is this Workshop?** 32 Hours

**What is the Cost of this Workshop?** \$1600 (this is not a per person charge). Per person charge is \$45/person for materials.

## **G3 SLC 500 Advanced Maintenance & Troubleshooting**

### **Course Purpose:**

This course builds upon students' knowledge of basic maintenance and troubleshooting techniques and provides the necessary practice needed to interpret, isolate, and diagnose problems found in advanced SLC 500 and PLC-5 applications. In troubleshooting scenarios, students interpret and modify advanced ladder logic instructions by operating a variety of hardware simulation devices. Additionally, students practice diagnostic skills by tracing through ladder logic instructions and troubleshooting communications problems with DH+ and remote I/O networks.

### **Who Should Attend:**

Individuals who are responsible for maintaining and troubleshooting advanced SLC 500 and PLC 5 applications using RSLogix 500 software should attend this course.

### **Topical Outline:**

- Troubleshooting RSLogix 500 and 5 projects containing the following aspects:
- DH+ Communications
- Program Flow and Interrupt Routines
- Fault Routines
- Immediate I/O Update Instructions
- Sequencer Instructions
- Indirect and Indexed Addressing
- Message Instructions
- PID Instructions
- Troubleshooting RSLogix 500 projects containing the following aspects:
- Remote I/O addressing for PLC-5 and SLC-500
- Discrete Data Transfers on a Remote I/O Link
- Block Transfers on a Remote I/O Link
  
- Navigate and address through multiple processors

**Who Should Attend?** Persons who perform or supervise maintenance activities in a manufacturing facility.

**How Long is this Workshop?** 32 Hours

**What is the Cost of this Workshop?** \$1600 (this is not a per person charge). Per person charge is \$45/person for materials.



## **Automax Programming Fundamentals**

### **Course Purpose:**

To present the elementary details of the AutoMax programming languages. Hands-on exercises will furnish the opportunity to become familiar with the AutoMax Executive screens, both on-line and off-line.

### **Course Objectives:**

Upon completion of this course, you will experience and should be able to:

- Utilize Version 3 AutoMax Executive Program
- Distinguish the differences in AutoMax languages
- Identify the variable types and scope found in AutoMax
- Utilize the off-line and on-line user screens
- Monitor, edit, upload and download AutoMax programs
- Produce rudimentary programs utilizing PC, Control Block and Basic languages
- Distinguish differences in on-line and off-line menus

### **Topical Outline:**

- Hardware Review
- Tasking
- AutoMax Variables
- Configuration
- PC Tasks
- Control Block
- Reliance Basics
- Remote I/O
- Hardware Discussion
- AutoMax Executive
- Configuration
- PC Task
- Basic Language
- Control Block Language
- Basic troubleshooting of 4 card drive system

**Who Should Attend?** Persons who perform or supervise maintenance activities in a manufacturing facility.

**How Long is this Workshop?** 32 Hours

**What is the Cost of this Workshop?** \$1600 (this is not a per person charge). Per person charge is \$45/person for materials.

## **Controllogix System 5000 Fundamentals**

### **Course Purpose:**

This course is a skill-building opportunity for students who want to develop a solid fundamental knowledge of Logix5000 systems and terminology. Students will be introduced to Logix5000 system components and functionality and will have an opportunity to use RSLogix 5000 software to perform basic system networking and configuration tasks. Fundamental programming topics such as ladder logic configuration and setup will be presented to give students the information necessary for creating a program in the classroom that meets a set of functional specifications. This course also provides maintainers with a basic understanding of RSLogix 5000 ladder logic instructions and terminology. It includes skills needed to efficiently modify basic ladder logic instructions for a Logix5000 controller. Students will have an opportunity to use RSLogix 5000 software to perform basic software tasks to meet the requirements of a given functional specification. In addition to using ladder logic instructions, students will be introduced to ladder logic techniques, established standards, and common rules for modifying ladder logic.

### **Topical Outline:**

- Understanding Control Systems
- Identifying Logix5000 System Components
- Creating and Modifying an RSLogix 5000 Project
- Communicating with a Logix5000 Controller
- Configuring Local 1756-I/O Modules
- Identifying Numbering Systems and Converting Numeric Values
- Creating Tags and Monitoring Data in an RSLogix 5000 Project
- Understanding Logix5000 Programming Languages and Instructions
- Entering Basic Instructions into RSLogix 5000 Ladder Logic Routines
- Integrated Practice: Creating and Verifying an RSLogix 5000 Project
- Applying Ladder Logic Strategies and Techniques
- Documenting and Searching Ladder Logic
- Modifying Timer and Counter Instructions
- Integrated Practice: Modifying Basic Instructions



- Modifying Program Control Instructions
- Modifying Compare Instructions
- Modifying Compute and Math Instructions
- Integrated Practice: Modifying Ladder Logic Instructions
- Modifying Move Instructions

**Who Should Attend?** Persons who perform or supervise maintenance activities in a manufacturing facility.

**How Long is this Workshop?** 32 Hours

**What is the Cost of this Workshop?** \$1600 (this is not a per person charge). Per person charge is \$45/person for materials.

## **GML Commander**

### **Course Purpose:**

This course provides you with the skills required to successfully configure and program a 1394 GMC system using **GML** Commander software. You will learn how to use **GML** Commander software to configure the hardware, monitor the system, establish communication interfaces, and develop basic and advanced motion control diagrams for a specific application.

The instructor will introduce and demonstrate 1394 GMC system-specific **GML** Commander procedures in a typical integration sequence. After each demonstration, you will be given a hands-on, application-based exercise to apply what you have learned using a 1394 GMC workstation.

From the exercises, you will learn how closely the configuration and the programming of the system are related and can affect one another. By following the procedures in the job aid provided with the course materials, you can immediately apply what you have learned in this course to your work.

### **Course Objectives:**

Upon completion of this course, you will be able to produce a fully operational 1394 GMC system by performing these tasks:

- Configure the hardware components of a 1394 GMC system
- Use **GML** Commander software to create, test, and tune a motion diagram for a multi-axis system
- Execute motion commands for an application that is controlled by a 1394 GMC system
- Communicate to and from a 1394 GMC system using DH-485, remote I/O, AxisLink, and SLC or PLC processor communications networks

### **Topical Outline:**

- Connecting a Computer to the 1394 GMC System
- Configuring the System and Axis Modules
- Configuring the FLEX I/O Modules
- Homing, Jogging, and Moving the Axes
- Tuning the System
- Programming Motion
- Debugging a Diagram
- Monitoring the System Using the Tag Window

- Testing and Downloading a Diagram
- Manually Tuning the System
- Creating Electronic Camming and Gearing Routines Configuring the 1394 GMC system for DH-485, Remote I/O, and SLC or PLC Processor Communications

**Who Should Attend?** Persons who perform or supervise maintenance activities in a manufacturing facility.

**How Long is this Workshop?** 32 Hours

**What is the Cost of this Workshop?** \$1600 (this is not a per person charge). Per person charge is \$45/person for materials.

## Device Net

### Course Purpose:

Upon completion of this course, students will be able to configure a ControlLogix controller to communicate with plant floor devices over a DeviceNet network.

DeviceNet is a global, industry-standard, device-level network that is based on the extremely efficient Producer/Consumer communications model. It is designed to provide an interface from high-level devices, such as ControlLogix controllers, directly to "smart" input and output devices such as photoelectric sensors, without the need for separate I/O modules. In this high-impact course, students will be introduced to both the ControlLogix™ controller and the DeviceNet network. Students will learn to identify the hardware of both systems and practice configuring communications by mapping data in a scanner module, identifying device tags in a controller, and writing basic ladder logic to control devices. Students will then have the option to increase their skills by practicing advanced topics, such as creating an explicit message and communicating with a DeviceNet PanelView™ terminal.

### Who Should Attend:

Individuals who need to integrate ControlLogix controllers and DeviceNet networks in their plant should attend this course.

### Topical Outline:

- Identifying ControlLogix System Components
- Identifying DeviceNet Network Components
- Creating and Modifying an RSLogix 5000™ Project
- Communicating with a ControlLogix Controller
- Creating Tags and Monitoring Data in an RSLogix 5000 Project
- Entering Basic Instructions into RSLogix5000 Ladder Logic Routines
- Mapping DeviceNet Data in a 1756-DNB Scanner Module
- Configuring a Logix5000 Controller to Control a DeviceNet Device
- Configuring a DeviceNet Explicit Message (optional)
- Configuring a DeviceNet PanelView Terminal (optional)

**Who should attend?** Persons who perform or supervise maintenance activities in a manufacturing facility.

**How Long is this Workshop?** 32 Hours

**What is the Cost of this Workshop?** \$1600 (this is not a per person charge). Per person charge is \$45/person for materials.

## **GV3000/Ultra 3000**

### **Course Purpose:**

To obtain the skills required to start up, maintain and troubleshoot GV3000 vector controlled A-C drives and Ultra 3000.

### **Course Objectives:**

Upon completion of this course, you will experience and should be able to:

- Understand 3 phase, A-C, induction motor operation.
- Interpret the speed/torque curves in relationship to the horsepower equations
- Recognize and understand the functions of diodes, bi-polar junction transistors, and insulated gate bi-polar transistors (IGBT)
- Identify and understand the function of the converter and inverter sections
- Understand the concept of vector control regulation
- Grasp the concept of pulse width modulation (PWM)
- Utilize the parameters for a start-up
- Exercise basic communication, monitoring, editing and operation of the drive

### **Who Should Attend:**

Electricians, electronic technicians, and electrical engineers who are responsible for the installation, maintenance and repair of production machinery systems that are driven by GV3000/ Ultra 3000.

**How Long is this Workshop?** 32 Hours

**What is the Cost of this Workshop?** \$1600 (this is not a per person charge). Per person charge is \$45/person for materials.

## RSLOGIX 5000 Program Development

### **Course Purpose:**

Upon completion of this course the student will be able to program operations using RSLOGIX 5000 (1756)

### **Course Objectives:**

Upon completion of this course, you will experience and should be able to:

#### Communication and configuration skills

- Communicate with Logix50000 Controller
- Create e and organize a New Project
- Create a Periodic Task, Event task
- Enter, edit and verify ladder –logic
- Communicate with I/O Module 1756
- Configure a controller to produce data
- Configure Logix5000 controllers to share
- Create an event
- Retrieve and set controller status values
- Configure a message
- Document and search for project components
- Allocate connections

#### Function Block Programming

- Program timing modes in a function-block instruction
- Program and monitor a RMPS function-block
- Control programming flow using function-block instructions

### **Who Should Attend:**

Technicians responsible for the development, troubleshooting and programming of Logix5000 controllers that utilize function-block features of RSLogix5000.

### **How Long is this Workshop? 32 Hours**

**What is the Cost of this Workshop?** \$1600 (this is not a per person charge). Per person charge is \$100/person for materials.

# SAFETY TRAINING



### **Increase your bottom line, safety is profitable!**

Workplace injuries and illnesses are preventable—and so are the lost time costs, property damage, increased Workers' Compensation premiums, and endless paperwork. We want to be on your safety team. Great Plains Technology Center safety trainers can walk through your business with you for hazard analysis and prevention. We can customize and present topics at your safety meetings and be your safety training resource. You don't have to do it alone—let us assist giving your business the “Power to Succeed”.

**Topic:** 10-hour General Industry outreach training

**Time Frame and Cost:** 10 hours; \$150 per class

**Training Frequency:** Course completion cards do not expire.

**Course Description:** GPTC has trainers authorized to conduct the 10 and 30 hour General Industry Outreach training courses. This ten-hour program is intended to provide instruction on a variety of general industry safety and health standards for workers. The course emphasizes hazard identification, avoidance, control and prevention. Those who complete the course will be awarded a course completion card. Anyone having responsibility for safety and OSHA compliance in settings other than construction (a separate 10-hour course) is encouraged to attend.

This course covers:

- Introduction to OSHA; Inspections, Citations, and Penalties; Recordkeeping
- Walking and Working Surfaces
- Means of Egress and Fire Protection
- Electrical Safety
- Three or more of these topics based on client needs:
  - Flammable and Combustible Liquids
  - Personal Protective Equipment
  - Machine Guarding
  - Hazard Communication
  - Introduction to Industrial Hygiene / Bloodborne Pathogens, and/or Ergonomics
  - Safety and Health Programs

**Topic:** 30-hr General Industry Outreach Training

**Time Frame and Cost:** 30 hours; \$450 per class

**Training Frequency:** Course completion cards do not expire.

**Course Description:** This thirty-hour program is intended to provide instruction on a variety of general industry safety and health standards for workers. Those who complete the course will be awarded a course completion card. The course emphasizes hazard identification, avoidance, control and prevention. Anyone having responsibility for safety and OSHA compliance in settings other than construction (a separate course) is encouraged to attend.

This course covers:

- Introduction to OSHA; Inspections, Citations, and Penalties; Recordkeeping
- Walking and Working Surfaces
- Means of Egress and Fire Protection
- Flammable and Combustible Liquids

- Personal Protective Equipment
- Permit-Required Confined Spaces
- Lockout/Tagout
- Materials Handling
- Machine Guarding
- Welding, Cutting, and Brazing
- Electrical & Safety Related Work Practices
- Hazard Communication
- Introduction to Industrial Hygiene/Bloodborne Pathogens
- Ergonomics
- Safety and Health Programs

**Topic:** Accident Investigation

**Time Frame and Cost:** 2 to 4 hours; \$30-60 per class

**Training frequency:** Recommended prior to assignment of investigative responsibilities.

**Course Description:** This course will help clarify the need for effective accident investigation. This class will also give you the necessary steps, procedures and follow-up. Good investigation is a critical step to reducing the number of safety incidents in your facility. Course is beneficial for anyone that must potentially investigate an accident.

**Topic:** Africanized Honey Bees (AHB, or “Killer Bees”)

**Time Frame and Cost:** 2 - 3 hours; \$30-45 per class

**Training frequency:** Recommended one-time for all persons working outdoors (grounds workers, local government workers, utility workers, etc.), persons recreating outdoors, and persons working in emergency response and related services, including hospital emergency rooms.

**Course Description:** “Killer Bees” are actually a hybrid between the African and common (European) honey bee. Because the African honey bee has more dominant genes, hybrid bees are here to stay and will become more common. Severe injury and death have resulted from misunderstanding and not recognizing the hazards, improper prevention, and improper emergency response. This course covers these subjects and is presented in several different versions for outdoor workers and emergency responders.

**Topic:** Asbestos Awareness

**Time Frame and Cost:** 1-2 hours; \$15-30 per class

**Training Frequency:** OSHA states training shall be provided prior to or at the time of initial assignment and at least annually thereafter.

**Course Description:** This program is designed to meet the requirements of the Occupational Safety and Health Administration's (OSHA's) Asbestos standard, 29 CFR 1910.1001. Topics include: The health effects associated with asbestos exposure; smoking and asbestos exposure; locations and operations which could result in exposure; engineering controls and work practices; ways to protect against an exposure by the use of PPE; medical surveillance program; and the content of the standard. This course is intended for employees who fall under the definition of class III and IV of the General Industry Standard. Note: this course does not cover removal of asbestos.

**Topic:** Backhoe/Material Handling Equipment in Construction

**Time Frame and Cost:** 2 hours; \$30 per class

**Training Frequency:** OSHA states only qualified employees may operate a powered Industrial truck. Training should occur before operation of any material handling equipment.

**Course Description:** An average of twenty-four backhoe excavating fatalities occurs annually in the U.S. The primary causes include being struck by a moving backhoe or quick-disconnect bucket, swinging excavator arms, rollovers, and electrocutions. The course covers hazards associated with off-road vehicle use. Topics included are: vehicle stability, load limitations, overhead obstructions, and underground utilities. Course should be attended by equipment operators and supervisors.

**Topic:** Bloodborne Pathogens

**Time Frame and Cost:** 1.5 -2.5 hours; \$22.50-37.50 per class

**Training Frequency:** OSHA states that training should occur at the time of initial assignment to tasks where occupational exposure may take place and at least annually thereafter. Employers shall also provide additional training when changes such as modification of tasks or procedures or institution of new tasks or procedures affect the employee's occupational exposure.

**Course Description:** This training module is designed to provide a basic understanding of bloodborne pathogens, common modes of their transmission, methods of prevention, and other pertinent information. This program is designed to meet the requirements of the Occupational Safety and Health Administration's (OSHA's) Bloodborne Pathogen Standard, 29 CFR 1910.1030. This course should be attended by employees who are or may be exposed to human blood or other potentially infectious material.

**Topic:** Cold Weather Safety

**Time Frame and Cost:** 1 hour; \$15 per class

**Training Frequency:** This is not a required OSHA training topic.

**Course Description:** This training module addresses the hazards associated with working in cold environments. Students will learn ways to prevent cold weather injuries and what to do in the event one occurs. This information can not only prevent work related injuries but will also help your workers to stay safe during their cold weather recreational activities.

**Topic:** Confined Space Entry Awareness

**Time Frame and Cost:** 3 hours; \$45 per class

**Training frequency:** OSHA states training should occur upon assignment and prior to entering confined spaces.

**Course Description:** This class will train your employees on the definition of confined spaces and the hazards associated with confined space entry. Personal Protective Equipment necessary when working in confined spaces as well as safe entry procedures are discussed. Entry permits as well as roles and responsibilities of all participants are included.

**Topic:** Crane Safety

**Time Frame and Cost:** 2 to 3 hours; \$30-45 per class

**Training Frequency:** There are many regulations relating to cranes however, OSHA did not specify training frequency. Training should be recommended prior to operating or working around cranes.

**Course Description:** This training series is designed to provide employees with principles and procedures for safe, proper crane operation as it relates to overhead and gantry cranes. Topics will include: safe practices for pre-lift inspection, loading and use of slings, moving the load, braking, and OSHA approved hand signals. Training should be attended by those designated crane operators and those who work in areas where cranes are used.

**Topic:** Coaching the Experienced Driver

**Time Frame and Cost:** 3.5 hours; \$52.50 per class plus \$2 per person for workbooks.

**Training Frequency:** This is not a required OSHA training regulation.

**Course Description:** Twenty-two percent of all workplace fatalities were the result of roadway crashes. Roadway crashes are also the leading cause of death for workers in clerical, professional specialty jobs, and the second leading cause for executives, sales workers, and technicians. This collision-avoidance course, developed by the National Safety Council, is highly interactive and geared for the experienced driver. This course would benefit anyone who operates a motor vehicle as part of their job. Topics of interest include vehicle inspection, safety belts, cushion of safety, congestion, scanning ahead, road conditions, lane positioning, tailgaters, stopping tips and others.

**Topic:** Coaching the Maintenance Truck Driver

**Time Frame and Cost:** 4.5 hours; \$67.50 per class plus \$2 per person for workbooks.

**Training Frequency:** This is not a required OSHA training regulation.

**Course Description:** This National Safety Council defensive driving course features dump trucks and loaders as the core vehicles of discussion. Topics covered are backing and blind spots, hand signals, ground conditions, loader operator tips, dump truck operator tips, vehicle inspection, collision-avoidance techniques, and scenarios for discussion

**Topic:** Coaching the Utility Truck Driver

**Time Frame and Cost:** 4 hours; \$60 per class plus \$2 per person for workbooks.

**Training Frequency:** This is not a required OSHA training regulation.

**Course Description:** This National Safety Council course is designed for those who drive a utility truck. The differences between the utility truck and a personally owned vehicle such as weight, width, center of gravity, blind spots etc... are discussed as well as defensive driving and collision-avoidance techniques.

**Topic:** CPR

**Time Frame and Cost:** 3-6 hours; \$105-210 per class plus \$1.20 per person for certification cards.

**Training Frequency:** Two year certification

**Course Description:** Allow our American Heart Association Certified instructors to teach Heartsaver CPR to your staff. This course teaches lay rescuers how to recognize and treat life threatening emergencies, including cardiac arrest and choking for victims. Students also learn to recognize the warning signs of heart attack and stroke in adults and breathing difficulties in children. Automated External Defibrillator (AED) can be added to any CPR class if needed. The program is divided into three units for you to select from: All Ages is six hours, Adults is three hours, and Infants/Children is three hours in length. Maximum of ten students allowed per class.

**Topic:** CPR for Healthcare Provider

**Time Frame and Cost:** 8 hours; \$280 per class plus \$1.20 per person for certification cards.

**Training Frequency:** Two year certification

**Course Description:** American Heart Association certified instructors provide Basic Life Support (BLS) training for Healthcare Providers. This eight hour program is designed to teach the skills of CPR for victims of all ages (including ventilation with a barrier device, a bag-mask device, and oxygen); use of an AED and relief of foreign-body airway obstruction (FBAO). This course is intended for participants who provide health care to patients in a wide variety of settings, including in and out of hospitals for certified or non-certified, licensed or non-licensed healthcare providers. Maximum of ten students allowed per class.

**Topic:** Electrical Safety

**Time Frame and Cost:** Level 1 and 2 are two-hours each; \$30 per class

**Training frequency:** OSHA states upon initial job assignment and any job related changes affecting electrical safety.

**Course Description:** Electrical Safety training is required for employees who face a risk of hazardous electrical shock. The degree of training depends on the specific job risk and is typically conducted at three levels; (1) Basic knowledge, applicable to both the qualified (authorized) person and the unqualified (affected) person; (2) Extensive knowledge, applicable to the qualified person; and (3) Specialized knowledge, applicable to the qualified person working on power generation, transmission and distribution lines and equipment.

Electrical Safety Level One covers:

- What electricity is and how it works
- The effects of electricity on the human body
- The requirements of regulatory documents, including lock-out / tag-out and personal protective equipment (PPE).

Electrical Safety Level Two covers:

- Distinguishing exposed live parts from other parts.
- Determining nominal voltage.
- De-energizing and re-energizing equipment.
- Application of lock-out / tag-out.
- Classified locations.

- Working on energized equipment.
- Selecting PPE, insulation, shielding, and tools.
- Required clearance distances.

**Topic:** Ergonomics

**Time Frame and Cost:** 1-2 hours; \$15-30 per class

**Training Frequency:** This is not currently an OSHA required subject although training is recommended due to the high numbers of ergonomic related injuries.

**Course Description:** Ergonomic injuries, also called musculoskeletal disorders (MSDs), are injuries affecting the muscles, nerves, tendons, joints, cartilage, and spinal discs. These injuries are on the rise and can happen at home or at work. Your workers will learn about the most common ergonomic injuries and their causes. We will also show them what they can do to help prevent these types of injuries. Proper body mechanics, lifting, and carrying techniques are addressed.

**Topic:** Excavation, Trenching and Shoring

**Time Frame and Cost:** 8 to 12 hours; \$120-180 per class

**Training Frequency:** OSHA states training should occur before employees are allowed to work in or around trenches and excavations. A refresher is suggested on an as needed basis.

**Course Description:** This course instructs the student in the identification of hazards, soils and analysis, use of protective systems and regulatory requirements. This allows them to be designated by their employer as a “Competent Person.” Curriculum includes: pre-excavation procedures, trenching and shoring methods, trench safety (w e a t h e r, soil changes, vibration, spoil bank location, etc.), equipment ventilation, entry/exit procedure, monitoring and communications. This course is intended for construction and utility workers and supervisors working in or around trenches and other types of excavation.

**Topic:** Fall Protection (General Industry)

**Time Frame and Cost:** 1 to 2 hours; \$115-30 per class

**Training Frequency:** OSHA states that the employer shall provide a training program for each employee who might be exposed to fall hazards. Retraining should be provided when the employer feels that the employee does not have the understanding or skill as it relates to fall protection.

**Course Description:** This course covers types of fall arrest systems and how and when to use them to prevent injury or death from falls (General Industry Only). This course is designed for employees who work on elevated surfaces not protected by conventional guardrails. (Construction 6 feet, General industry requires all working surface 4 feet or higher be protected with a guard rails)

**Topic:** Fire Extinguisher Safety

**Time Frame and Cost:** 1.5 hours; 22.50 per class

**Training Frequency:** OSHA states if the employer has provided portable fire extinguishers for employee use in the workplace, the employer shall provide training to employees upon initial employment and at least annually thereafter.

**Course Description:** Training topics include, emergency action plans, elements needed for fire to exist, stages of fires, classes of fires, types of fire extinguishers, use of portable fire extinguisher using the PASS system, fire prevention, and what to do if there is a fire. Companies can arrange to have students put out a live fire using an extinguisher.

**Topic:** First Aid

**Time Frame and Cost:** 4 hours; \$140 per class plus \$1.20 per person for certification cards.

**Training Frequency:** Two year certification

**Course Description:** Our American Heart Association certified instructors can teach Heartsaver First Aid to your staff. This course is geared toward those assigned to respond to emergencies in the workplace or those who want to know First Aid and CPR. Companies may also need this training to comply with OSHA regulations. Learn to recognize and treat adult emergencies in the critical first minutes until Emergency Medical Services Personnel arrive. This course provides a complete health and safety training solution for First Aid, Adult CPR, and AED. All this is available in a seven hour session. If you need only First Aid, the program is four hours in length.

**Topic:** Forklift-Supported Work Platforms (also called “Basket” or “Cage”)

**Time Frame and Cost:** 2-4 hour; \$30-60 per class

**Training Frequency:** When platforms are used, training is required for forklift operators and platform occupants initially and as needed according to changes in the workplace.

**Course Description:** This training covers the hazards that must be controlled, the safety requirements, and requires trainees to demonstrate procedures using the employer’s forklift, platform, and safety harness. Forklift (Powered Industrial Truck) operation and fall protection training are prerequisites.

**Topic:** Hearing Conservation

**Time Frame and Cost:** 1 hour; \$15 per class

**Training Frequency:** OSHA requires training initially upon employment and annually thereafter if employees are exposed to an 8-hour time weighted average of 85 decibels or higher.

**Course Description:** This training session will insure that employees understand the potential for noise exposure and their liability and responsibility as it relates to the company's Hearing Conservation Program. Individuals who participate in this training will be given an overview of the regulation, purpose of audiometric testing, explanation of the test procedures, effects of noise on hearing, purpose of hearing protectors, the advantages/disadvantages and attenuation of various types, and instructions on selection, fitting, use, and care of hearing protection devices.

**Topic:** Hazard Communication

**Time Frame and Cost:** 2 hours; \$30 per class

**Training Frequency:** OSHA requires training upon initial assignment, and whenever a new physical or health hazard is introduced into the work area.

**Course Description:** This session trains workers to become familiar with safe chemical storage and handling. The location of company Material Safety Data Sheets (MSDS) and the type of information included are covered as well as routes of entry to the body, hygiene precautions, labeling systems, chemical hazards, containers and terminology.

**Topic:** Heat Hazard

**Time Frame and Cost:** 1-2 hours; \$15-30 per class

**Training Frequency:** This is not a required OSHA training topic although the dangers of heat stress can be deadly.

**Course Description:** This training module address the hazards associated with working in hot environments. Students will learn ways to prevent hot weather injuries and what to do in the event one occurs. This information can not only prevent work related injuries but will also help your workers to stay safe during their hot weather recreational activities.

**Topic:** Lead Awareness

**Time Frame and Cost:** 2-4 hours; \$30-60 per class

**Training Frequency:** OSHA requires training upon assignment and annually thereafter.

**Course Description:** This training module is designed to inform employee of the hazards and symptoms of lead exposure and prevention and control measures. This course can also be given to management for understanding of their organizations responsibilities under the OSHA standard 1910.1025

**Topic:** Lock-Out/Tag-Out

**Time Frame and Cost:** 1 to 2 hours; \$15-30 per class

**Training Frequency:** OSHA requires training before becoming an affected or authorized employee. Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures. Additional retraining shall also be conducted whenever there are deviations from or inadequacies demonstrated by employees.

**Course Description:** The employer shall provide training to ensure that the purpose and function of the energy control program is understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees.

**For Whom:** An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed. (affected employee). An authorized person is one who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance.

**Topic:** Machine Guarding

**Time Frame and Cost:** 2 hours; \$30 per class



**Training Frequency:** Although there is no specific OSHA training requirement, many employers determine that training is needed to improve or maintain safe machine guarding and the proper use of protective guards and devices.

**Course Description:** Moving machine parts having the potential for causing workplace injuries must be controlled through the use of machine guards. Employers and employees must understand where and why machine guarding is needed. This course should be attended by supervisors and employees working around or with moving machine parts.

This course covers:

- Causes of machine accidents.
- Basic machine guarding terms.
- Identifying moving machine part hazards and how to eliminate or control them for safe operation.
- Reinforcing individual responsibility for preventing machine-related accidents.

**Topic:** Multi-Piece and Single Piece Rim Wheels

**Time Frame and Cost:** 1 hour classroom and optionally one hour performance (hands-on). The hands-on training requires use of the employer's equipment, materials, and a previously trained employee to assist; \$15-30 per class

**Training Frequency:** OSHA requires training upon initial job assignment and any job related changes affecting multi-piece and single piece rim wheel safety.

**Course Description:** Incorrect servicing of multi-piece and single piece rim wheels used on large vehicles such as trucks, tractors, trailers, buses and off-road machines can result in injury or death. Employers are required to train all employees who service these wheels in the hazards involved in servicing those rim wheels and the safety procedures to be followed. This course covers employee training requirements, tire servicing equipment, wheel component acceptability and safe operating procedures. This course is designed for supervisors and employees involved in servicing multi-piece and single piece rim wheels.

**Topic:** Office Safety

**Time Frame and Cost:** 2 hours; \$30 per class

**Training Frequency:** This is not an OSHA required class.

**Course Description:** This course is beneficial to anyone that works in an office environment. Covered in this session are causes of slips, trips, and falls, housekeeping, material storage, ladder safety, office ergonomics, and tips for computer use.

**Topic:** Personal Protective Equipment (PPE)

**Time Frame and Cost:** 1-2 hours; \$15-30 per class

**Training Frequency:** OSHA requires training upon assignment of job requiring PPE

**Course Description:** This class will instruct your employee in: When PPE is necessary, what PPE is necessary, how to properly wear PPE, limitations, proper care and maintenance and useful life of PPE.

**Topic:** Powered Industrial Truck (Forklift)

**Time Frame and Cost:** 4-8 Hours; \$60-120 per class

**Training Frequency:** OSHA requires training upon assignment and re-evaluation every 3 years.

**Course Description:** This training module will cover the non-job specific training requirements mandated in the OSHA standard 1910.178, such as classes, types, and safe operation of Powered Industrial Trucks. The student will gain a greater understanding of the stability and capacity as well as get hands on training on a sit down counter balance forklift. Maximum of ten people per class allowed.

**Topic:** Power Press

**Time Frame and Cost:** 1-2 hours; \$15-30 per class

**Training Frequency:** OSHA requires training upon initial job assignment and any job related changes affecting power press safety.

**Course Description:** Power presses use sliding parts to shear, punch, form, or to assemble materials. Operators and maintenance personnel must be trained in the correct methods for using, inspecting, and maintaining power presses. This course covers power press hazards to be controlled, the impact of not controlling power press hazards and proper methods for controlling power press hazards.

**Topic:** OSHA Recordkeeping

**Time Frame and Cost:** 1 hour; \$15 per class

**Training Frequency:** There is no specific OSHA training requirement; however, employers are responsible to comply with OSHA recordkeeping pertinent to their place of employment.

**Course Description:** Employers are required to track and maintain records surrounding workplace injuries and illnesses. Anyone having responsibility for OSHA recordkeeping should attend. This course covers:

- Who is included in and exempted from injury and illness recordkeeping.
- Using the Recording Criteria Decision Tree to determine what to record.
- Forms used and how to complete them.
- Injury and illness recordkeeping definitions and unique circumstances.
- When to notify OSHA.
- Maintaining injury and illness records.

**Topic:** Respiratory Protection

**Time Frame and Cost:** 2 to 4 hours; \$30-60 per class

**Training Frequency:** OSHA requires training upon initial job assignment, annually, and for any job related changes affecting respirator safety.

**Course Description:** An estimated 5 million workers are required to wear respirators in 1.3 million workplaces throughout the United States. Respirators protect workers against insufficient oxygen environments, harmful dusts, fogs, smokes, mists, gases, vapors, and sprays. These hazards may cause cancer, lung impairment, other diseases, or death. This course should be attended by respirator users.

Respirator Initial and Annual training covers:

- When and why respirators are needed.
- The capabilities and limitations of respirators.
- How the protective effect of respirators are compromised.

- Medical signs and symptoms that may interfere with respirators.
- How to use respirators in emergencies and cases of respirator malfunctions.
- How to inspect, put on and remove, and use respirators.
- Maintenance and storage of respirators.
- The general requirements of 1910.134 and the employer's written program.

**Topic:** Respirator Administrator

**Time Frame and Cost:** 4 hours; \$60 per class

**Training Frequency:** The respirator program must be administered by a suitably trained program administrator

**Course Description:** Respirator Program Administration training should be attended by respirator program administrators. The training covers:

- Program administrator qualifications and duties
- Engineering and Administrative Controls
- Atmospheres
- Respirator types
- Respirator selection
- Medical evaluation
- Fit testing
- Change schedules
- Inspection, maintenance, and care
- Breathing air quality and use
- Training requirements
- Program evaluation
- Recordkeeping

**Topic:** Tractor Safety

**Time Frame and Cost:** 1-2 hours; \$15-30 per class

**Training Frequency:** OSHA regulations for Agriculture have operator instructions posted although no training requirements are in place.

**Course Description:** Tractors can pose some unique hazards such as rollover hazards and working with PTO's and attachments. This training module will inform your employees of the hazards associated with tractors and how to prevent injury or death while working on these machines that are often taken for granted in rural communities. Only qualified employees should operate Powered Industrial Trucks.

**Topic:** Welding Safety

**Time Frame and Cost:** 2 hours; \$30 per class

**Training Frequency:** OSHA requires training upon initial job assignment and any job related changes affecting welding, cutting, or brazing safety.

**Course Description:** Welding, cutting, and brazing are hazardous activities that pose a unique combination of both safety and health risks to more than 500,000 workers in a wide variety of industries. According to OSHA, the risk from fatal injuries alone is more than four deaths per thousand workers over a working lifetime. Anyone having

responsibility for welding, cutting, or brazing safety should attend. This course covers physical and toxic hazards involved in welding, cutting, and brazing and precautions needed to control those hazards.

**Topic:** Walking and Working Surfaces (Slips, Trips, and Falls)

**Time Frame and Cost:** 1 hour; \$15 per class

**Training Frequency:** Regulations must be followed, although no OSHA training requirements are in place.

**Course Description:** This course helps employees identify unsafe conditions, which could result in slips, trips, and falls. Walking and working surfaces are a leading cause of injuries accounting for 15% of all accidental deaths. Ladder safety tips are also covered in this session. Course can be attended by any employee.

**Topic:** Workplace Violence Prevention

**Time Frame and Cost:** 2 to 4 hours; \$30-60 per class

**Training Frequency:** Although there is no requirement for training, it is recommended that employers have policies and train to those policies.

**Course Description:** Violence accounted for 16% of all work-related occupational injuries in 2003. It is the third leading cause for workplace fatalities. This session is beneficial to anyone that has dealings with customers/clients, co-workers, and strangers. Learn about risk factors, warning signs, diffusing potentially violent employees and customers, engineering and work practice controls along with others.

Other safety courses available but not listed include:

Conflict Resolution

Stress Management

Positive Safety Culture  
and many others...

Anti-Harassment

Supervisory Safety

Laser/Radiation Safety

Bus Driver Safety

Portable Ladder Safety

Spray Paint Booth

# QUALITY IMPROVEMENT

## **LEARNING TO SEE THE WASTE**

Learning to see the waste is a basic element to understanding lean principles and modern theory of operations management.

The purpose of this presentation is to provide a quick look at lean for managers and suppliers who have yet to understand why the application of the lean concepts is so important in today's time-based competitive global economy.

Success or failure of your lean journey depends upon how well the factory team buys into the concepts, and the lean leadership provided them. This presentation lays the path from traditional batch 'n queue methods of the twentieth century to the lean flow of today.

This presentation is intended for all levels of management, supervision, operations planning and support, and the supply chain.

The entire presentation with two simulations can be completed in just less than **two hours**.

Class size: Minimum: Variable in coordination with instructor

For information please contact Kevin Henson at Great Plains Technology Center  
580-250-5585, [khenson@gptech.org](mailto:khenson@gptech.org)

## **LEAN PRINCIPLES**

This is a baseline course for the implementation of Lean Manufacturing. This course is designed through the use of integrated lecture, learning activities and simulation to train employees at all levels on the basic principles of Lean Manufacturing. The focus is on developing the skills needed to:

- See waste in a manufacturing process
- Identify the value stream for a product or service
- Use various tools to improve the flow of products and services to the customer
- Assume leadership roles in the development of a Lean culture.

The presentation with integrated simulation runs is typically is completed in **eight hours**.

Class size: Minimum: Variable in coordination with instructor

For information please contact Kevin Henson at Great Plains Technology Center  
580-250-5585, [khenson@gptech.org](mailto:khenson@gptech.org)

## **LEAN PRINCIPLES & TOOLS**

This is a baseline course for the implementation of Lean Manufacturing plus exposure to more advanced tools for implementation. This course is designed through the use of integrated lecture, learning activities and simulation to train employees at all levels on the basic principles of Lean Manufacturing.

Students are introduced to the skills needed to:

- See waste in a manufacturing process

- Identify the value stream for a product or service
- Use various tools to improve the flow of products and services to the customer
- Assume leadership roles in the development of a Lean culture

Students are also introduced to more advanced tools for the implementation of Lean Principles:

Standard Work

Work Balancing

Total Productive Maintenance

Mistake Proofing

Single Minute Exchange of Dies

The presentation with integrated simulation runs is typically completed in **ten hours**.

Class size: Minimum: Variable in coordination with instructor.

For information please contact Kevin Henson at Great Plains Technology Center  
580-250-5585, [khenson@gptech.org](mailto:khenson@gptech.org)

## VALUE STREAM MAPPING

This workshop uses the Lean Enterprise Institute method and instructional materials to sharpen your "eyes for waste" and "eyes for flow." Day one of the workshop uses a manufacturing case study to teach the how-to of value stream mapping. The second day is used to gain practical experience in the company facility. We will map the current state for a value stream and begin the process of developing a future state map and action plan. Workshop topics include:

- Value-stream improvement vs. process improvement
- Exercise: Drawing a current-state map
- What is a lean flow?
- Individual efficiency vs. system efficiency
- Build to supermarket or to shipping?
- Continuous flow processing
- Scheduling one point
- Designing a lean flow
- Exercise: Drawing a future-state map
- How to create a plan for implementing the future state

This workshop is typically completed in **sixteen hours**.

Class size: Minimum: 10 Maximum: Variable in coordination with instructor

For information please contact Kevin Henson at Great Plains Technology Center  
580-250-5585, [khenson@gptech.org](mailto:khenson@gptech.org)

## LEAN –SIX SIGMA SIMPLIFIED

This overview course is intended to introduce employees and management at all levels to the application of knowledge based management principles to reduce delay and eliminate defects in processes by developing target-thinking.

Participants are introduced to the language and tools of Lean and Six Sigma to:

- Focus improvement effort to avoid waste of time and resources
- Make significant improvement in speed, quality, and cost
- Stabilize and sustain improvement

This course uses simulation activities to reinforce concepts and provide practice with quality improvement tools:

- Simulation using Deming Red Bead Experiment to reinforce the importance of change to process to effect change in results.
- Simulation of Batch & Que (Push) processes versus Lean Flow (Pull) process
- Data collection exercise
- Root Cause Analysis exercise

Participants are introduced to simply but powerful tools for focusing, improving and sustaining improvements:

- Tree diagrams
- Line graphs
- Process Flow Charts
- Value Added Analysis Matrix
- Pareto Charts
- Ishikawa diagram
- Control Charts (stability)
- Histograms (capability)
- DPMO (capability)
- Balanced Scorecard

The presentation with integrated simulation runs is typically completed in **eight hours**.



Class size: Minimum: Variable in coordination with instructor

For information please contact Kevin Henson at Great Plains Technology Center 580-250-5585, [khenson@gptech.org](mailto:khenson@gptech.org)

## **LEAN-SIX SIGMA GREEN BELT**

This course is designed to develop a comprehensive set of skills that will allow you to function effectively as a Lean Six Sigma Green Belt. The Green Belt skill set includes techniques for both quantitative and non-quantitative analysis, as well as the team leadership skills necessary to get projects across the goal line.

After completing this course, you should be able to DO the following:

- Communicate using Lean-Six Sigma concepts.
- Think about your organization as a collection of processes, with inputs that determine the output.
- Relate Lean-Six Sigma concepts to the overall business mission and objectives.
- Use the concepts of Lean-Six Sigma to evaluate the capability of a process or organization.
- Understand and apply the five step D-M-A-I-C model as a framework to Organize process improvement activity.
- Employ a wide range of continuous process improvement techniques within the D-M-A-I-C model.
- Recognize the organizational factors that are necessary groundwork for a successful Six Sigma effort.
- Employ your Lean-Six Sigma skills to lead a successful process improvement project to deliver meaningful results to the organization.

Students will need a laptop computer and QI Macros software.

This presentation and integrated simulations is typically completed in **forty hours**.

Class size: Variable in coordination with instructor.

For information please contact Kevin Henson at Great Plains Technology Center 580-250-5585, [khenson@gptech.org](mailto:khenson@gptech.org)

## **INTRODUCTION TO SPC**

This course is designed to develop in operators and supervisors a better understanding of Statistical Process Control as a means to identify and control variation in a wide variety of manufacturing and non-manufacturing settings.

At the conclusion of training students will be able to:

- Explain basic statistical concepts
- Identify and select types of Control Chart
- Identify variables for Control Charts
- Interpret Control Chart Patterns
- Understand Process Capability
- Understand Process Control v Process Capability
- Interpret Capability Indices: Cp/Cpk/Pp/Ppk

The presentation with integrated simulation runs is typically completed in **4 hours**.

Class size: Variable in coordination with instructor

For information please contact Kevin Henson at Great Plains Technology Center  
580-250-5585, [khenson@gptech.org](mailto:khenson@gptech.org)

## 8D PROBLEM SOLVING

At the end of this workshop, the participants will be equipped with the skills and knowledge necessary to *lead a team-oriented problem solving effort*, using a time-proven structured problem solving strategy (the 8D method) that gets results by:

- Solving problems by finding real root causes
- Taking action that permanently removes the problem

To achieve the terminal objective, the participants will learn to:

- Describe the benefits of using the 8D model for solving problems
- Identify the steps of the 8D problem solving model
- Identify which problem solving tools are best used in conjunction with any particular step in the 8D process.
- Design a Check Sheet for recording data
- Use an IS/IS NOT analysis for problem definition
- Use the 5 Whys (Multiple Whys)
- Use Structured Brainstorming techniques
- Create a Cause and Effect (Fishbone) Diagram
- Describe the fundamentals of flow charting
- Use Failure Mode Effect Analysis tools

The presentation with integrated simulation runs is typically completed in **8 hours**.

Class size: Variable in coordination with instructor

For information please contact Kevin Henson at Great Plains Technology Center  
580-250-5585, [khenson@gptech.org](mailto:khenson@gptech.org)

## 5S HOW TO

This course goes beyond knowing the steps of 5S to know how to do each step. The focus is on the details of preparing for and executing all five steps of the 5S process. The students will get beyond cleaning to understand that standardization and sustainment are the keys to a successful 5S program. Participants are provided templates for implementation of the 5S program.

Upon completion of the session, participants will be able to understand and immediately apply the following 5S concepts in their own workplace:

- **5S - Sort** - The first pillar of 5S helps to clearly distinguish the items needed in a work area from those no longer needed. Red tagging is the activity that eliminates these unneeded items.
- **5S - Set In Order** - The second pillar of 5S helps to keep the needed items in the correct place to allow for easy and immediate retrieval.
- **5S - Shine** - The third pillar of 5S helps to keep work areas, all work surfaces and equipment clean and free from dirt, debris, oil, etc.
- **5S - Standardize** - The fourth pillar of 5S defines the standard activities, procedures, schedules and the persons responsible for helping keep the workplace in a clean and organized.
- **5S - Sustain** - The last pillar of 5S drives the organization to be disciplined in maintaining these new standards and procedures and in continuously improving the 5S state of the workplace.

The presentation with integrated simulation runs is typically completed in **8 hours**. It can be expanded to include the execution of a 5S project in coordination with the instructor.

Class size: Variable in coordination with instructor

For information please contact Kevin Henson at Great Plains Technology Center  
580-250-5585, [khenson@gptech.org](mailto:khenson@gptech.org)

## **SET-UP REDUCTION (SMED)**

This course is focused on development of an understanding of the importance and actions related to the reduction of set-up times. Students are introduced to a step-by-step approach to set-up reduction and provided templates for data collection and analysis.

Students will be able to:

- Understand the steps in the set-up reduction process

- Understand the importance lead time to customer satisfaction and reduction waste

- Conduct analysis of a process to reduce set-up time.

- Monitor performance for sustainability

The presentation with integrated simulation runs is typically completed in 4 hours. It can be expanded to include the execution of a Set-Up Reduction project in coordination with the instructor.

Class size: Variable in coordination with instructor

For information please contact Kevin Henson at Great Plains Technology Center  
580-250-5585, [khenson@gptech.org](mailto:khenson@gptech.org)