GP Allied®

INSPIRED. RELIABLE. GLOBAL

Course Offerings

www.gpallied.com

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GP*Allied* is the most diverse reliability and operations consulting and services company in the world. Combined, our unrivaled technical expertise, solutions portfolio and global reach help you achieve rapid bottom-line improvement and sustained cultural change.

GP*Allied* diversity and expertise result from joining together firms with experts in Maintenance and Reliability, Operational Excellence, and Workforce Development. This winning team allows us to offer you expertise in the fields of Lean, Reliability Engineering, Six Sigma, Condition Monitoring, Change Management, Maintenance Planning and Scheduling, Workforce Development and Maintenance Craft Skills training. However, only GPAllied can offer you solutions that fully integrate these specialties.

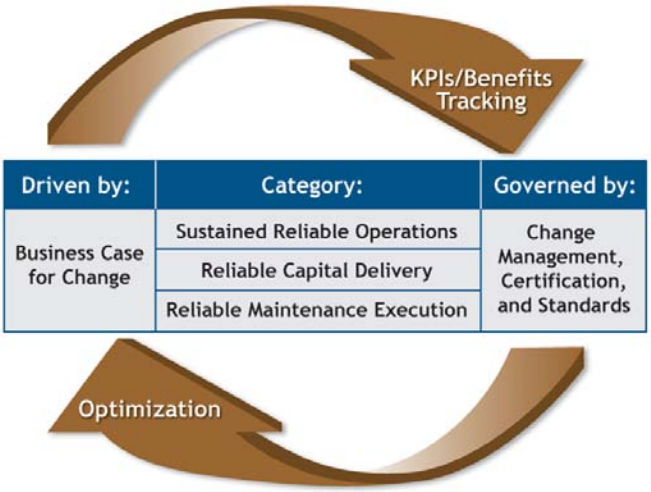
To ensure that GP*Allied* provides you with latest thinking and proven best practices, we have attracted recognized experts to our team, benchmarked best-in-class operations and connected with thought leaders throughout the industry. Furthermore, we ensure that our project team members have technical expertise, as well as expertise as trainers and mentors through a rigorous qualification process and the establishment of work execution standards.

GP*Allied* has modeled their deliverables based on the following core beliefs:

- The reason our clients are in business is to make money
- The first step to ensuring profitability is to have reliable “systems”
- The term “system” speaks to the combination of the people who operate the equipment, the processes they follow to operate the equipment and the equipment itself
- The definition of reliable is: the ability to perform a given task, at a stated rate, for a given period of time, under a given set of circumstances
- The organization must be motivated and prepared for any change to be sustainable
- Having successfully attained reliability, sustaining the improvements is paramount to on-going success
- Optimization is achieved through the use of a culture of continuous improvement
- Clients require a rapid return on investments

To that end, GP*Allied* offers you a complete suite of solutions in the following categories:

- Sustained Reliable Operations
- Reliable Capital Delivery
- Reliable Maintenance Execution



GP*Allied* prides itself on two (2) things: our passion for helping the client and the flexibility of delivery methods.

Our passion is driven by ***the satisfaction of seeing our company help our customers build, utilize and realize the power of the Return on Asset Reliability (ROAR™).***

Our flexibility in delivery methods comes in any one of four (4) different ways. Each way specifically customized to meet the unique needs of the client. Those four (4) ways are:

Training

GP*Allied* offers all of our deliverables as classes for the client who prefers to implement using their own people.

Coaching

For the client who wants more than a training solution, but still prefers to implement using their own personnel, GP*Allied* offers a combination training/coaching package. The training class is augmented by a regimen of coaching and mentoring by our experienced consultants.

Services

Some clients prefer to contract out certain functions. GP*Allied* can deliver our services to the client in one of two forms:

- Project Based – GPAllied personnel are on-site for the duration of the project
- Full Time Equivalent (FTE) – GPAllied personnel are on-site, full time as contracted employees

Consulting

Whether you are starting a major change initiative or looking for the best way to improve performance, GP*Allied*'s consultants guide you as you set your direction, design and deploy your approach, and realize results.

The GP*Allied* vision is to be the premier global provider of sustainable transformation driving improved customer operational and reliability excellence. To that end, we believe the best way to make our vision a reality is to optimize customer business performance through customized solutions utilizing our experienced people, innovative processes, and proven technologies.

Thus achieving operational and reliability excellence sustained through the use of cultural change management with the relentless pursuit to deliver the highest return on investment.

GP*Allied's* expert team provides unparalleled solutions. You can count on us to provide the following:

- A strong foundation to ensure that your organization's systems reliably meet customer needs with lower cost
- A roadmap to build upon that foundation to streamline your processes and help you achieve a culture of sustained continuous improvement
- Effective training to develop your people
- Consultants and trainers with technical expertise, interpersonal skills, and drive to work effectively with your team
- Solutions customized to fit your needs, drawing from a diverse range of methods and services
- A rapid return on your investment

Training Classes

At GP*Allied*, we understand that you are not interested in "training for training's sake". You need hard-hitting, impactful training that addresses the specific need of your employees, delivers value for your training dollars, and produces bottom-line results.

That's what we deliver.

In today's increasingly competitive business environment, your training investment only makes sense if it yields a tangible improvement in KPI's like:

- Production efficiency
- Asset downtime
- Employee retention
- Safety
- Labor costs
- Quality control

With over 200 courses that can be easily customized to your equipment and processes, we are the one-stop shop for all of your technical and change management training needs. We offer these classes on-site at your facilities, for your employees; or periodically around the world on an open-enrollment basis.

When you select us for your training, you receive:

- Training from practitioners and implementers who are also skilled trainers.
- Courses designed with your learning objectives in mind using professional instructional system design combined with our subject-matter expertise.

You can obtain most of the courses in a format that works best for you:

- **Off the Shelf**— you can select our standard training if a generic course suits your needs.
- **Customized** — you can ask us to make minor modifications to better fit your organization's existing terminology and culture (which we can do quickly and cost-effectively), or you can ask us to develop a truly custom curriculum.

- **Public Courses** — you may decide to attend one of our expanding list of publicly offered courses, including those offered through Macomb Community College Workforce Development Institute in Warren, MI.
- **e-Learning** — for certain courses; you can select e-Learning, or a blended solution of e-Learning, instructor-led training, and coaching.

Structural Welding

DESCRIPTION

This course provides information on oxyfuel cutting and SMAW structural welding. There are extensive hands-on exercises for burning and welding. Upon completion of this course the participants will be able to make cuts using oxyfuel equipment and weld T-joints using SMAW equipment

RECOMMENDED AUDIENCE

This course is recommended for mechanical maintenance technicians.

YOU WILL LEARN:

- Describe fusion welding, resistance welding, filler rods, and electrodes.
- Compare the oxyfuel and arc welding processes and compare the SMAW, GMAW, and GTAW processes.
- Describe and sketch the following kinds of joints-butt, lap, tee, corner, and edge.
- Describe the following kinds of welds-groove, fillet, plug, slot, spot, and seam.
- Name and locate the parts of a weld.
- Discuss basic considerations in joint design and fitup.
- Explain the importance of good housekeeping in an area where welding is taking place.
- List at least three precautions to take to avoid fires and explosions when welding.
- Describe two methods of protecting yourself against the fumes and gases associated with welding.
- Describe the personal protective equipment required when welding.
- Explain the precautions to take when using and handling cylinders and regulators.
- Briefly describe the oxyfuel welding process and the components of an oxyfuel welding outfit, including the lighting device.
- Discuss safety precautions and personal protective gear required for working with oxyfuel equipment.
- List the steps involved in preparing to weld.
- Compare the neutral, carburizing, and oxidizing flames.
- List the steps in safely shutting down an oxyfuel welding system.
- List similarities and dissimilarities between oxyfuel welding and arc welding.
- Describe the electric welding circuit, including choice of ac or dc, dc polarity, and power sources.
- Discuss welding machine ratings in terms of amperage and duty cycle and describe features and uses of transformer, generator, rectifier, and inverter welding machines.
- Discuss welding cable considerations and describe the electrodes and electrode holders used for SMAW, GMAW, and GTAW processes.
- Discuss the personal safety gear and precautions necessary for arc welding and explain how arc welding accessories are used.

- Explain what considerations affect the selection of a welding process.
- Describe the four welding positions.
- Explain why overhead welds are difficult to make and tell how to make them.
- Describe the preparation required for oxyfuel welding, SMAW, GMAW, and GTAW processes.
- Describe the procedures involved in oxyfuel welding, SMAW, GMAW, and GTAW processes
- Describe the effects of electrode selection, current, arc length, and travel speed on arc welding procedures.
- Describe common causes of arc blow, a hard-to-start arc, and spatter, and explain why proper fitup is important.
- Define the terms overlap, undercut, blowhole, and inclusion and explain the causes of each.
- Explain how expansion and contraction can be controlled when welding.
- Name and describe the various tests used to identify metals.
- Identify the kind of chamfer to be cut on a joint to be welded, and which part is to be chamfered.
- State the required dimensions of a weld.
- Identify the contour required on a finished weld.
- State how a weld contour is to be finished.
- Differentiate between welds that are to be made at the site of final assembly and welds that are to be made before the parts are shipped to the site.
- Explain the similarities and differences between oxyfuel cutting and oxyfuel welding.
- Describe the equipment and safety precautions necessary for torch cutting and list standard steps in the torch cutting operation.
- Describe special equipment or methods used in cutting bevels, piercing holes, cutting circles, and cutting away rivets.
- Explain why gouging, scarfing, and washing are used.
- Explain methods used on metals that are otherwise difficult to cut.
- Explain how the shielded metal arc welding process works.
- Tell what provides the shield in shielded metal arc welding.
- Define arc length and explain its importance.
- List factors to consider when selecting an electrode.
- Describe the personal protective equipment necessary for welding.
- Explain the factors involved in selecting SMAW electrodes.
- Explain how to identify different welding electrodes.
- Give examples of several kinds of electrode coverings and tell when each is used.
- Describe correct procedures for handling, storing, and conserving electrodes.
- Cut metal using oxyfuel equipment.
- Make t-joint welds using SMAW equipment

CLASS DURATION

200 hours (5 weeks)