



**GENERAL SERVICES ADMINISTRATION**

**Federal Acquisition Service**

*Authorized Federal Supply Schedule Price List*

On-line access to contract ordering information, terms and conditions, up-to-date pricing, and the option to create an electronic delivery order is available through **GSA Advantage!**<sup>™</sup>, a menu-driven database system. The INTERNET address for **GSA Advantage!**<sup>™</sup> is: <http://www.GSAAdvantage.gov>.

**Schedule for Professional Services Schedule - PSS**

Industrial Group: 00CORP

**Contract Number: GS-10F-0022S**

**Contract Period: October 14, 2015 – October 13, 2020**

For more information on ordering from Federal Supply Schedules click on the FSS Schedules button at

<http://www.gsa.gov/schedules-ordering>

**Contractor:** MANAGEMENT SCIENCE AND INNOVATION, INC.  
2516 Fox Mill Road, Suite 100  
Herndon, VA 20171

**Business Size:** Small Business

**Telephone:** (703) 437-5236 x111

**FAX Number:** (703) 995-0667

**Web Site:** [www.msipros.com](http://www.msipros.com)

**E-mail:** [gmsieber@msipros.com](mailto:gmsieber@msipros.com)

**Contract Administration:** Greg Sieber

**CUSTOMER INFORMATION:**

**1a. Table of Awarded Special Item Number(s) with appropriate cross-reference to page numbers:**

SIN	Recovery	SIN Description
874-1	874-1RC	Integrated Consulting Services
874-4	874-4-RC	Training Services: Instructor Led Training, Web Based Training and Education Courses, Course Development and Test Administration, Learning Management, Internships
874-7	874-7RC	Integrated Business Program Support Services

**1b. Identification of the lowest priced model number and lowest unit price for that model for each special item number awarded in the contract. This price is the Government price based on a unit of one, exclusive of any quantity/dollar volume, prompt payment, or any other concession affecting price. Those contracts that have unit prices based on the geographic location of the**

customer, should show the range of the lowest price, and cite the areas to which the prices apply. See Pricing Page 5.

- 1c. If the Contractor is proposing hourly rates a description of all corresponding commercial job titles, experience, functional responsibility and education for those types of employees or subcontractors who will perform services shall be provided. If hourly rates are not applicable, indicate “Not applicable” for this item. See Labor Category Descriptions Page 8.
2. **Maximum Order:** \$1,000,000.00
3. **Minimum Order:** \$100.00
4. **Geographic Coverage (delivery Area):** Domestic and Overseas
5. **Point(s) of production (city, county, and state or foreign country):** Same as company address
6. **Discount from list prices or statement of net price:** Government net prices (discounts already deducted). See Attachment.
7. **Quantity discounts:** None Offered
8. **Prompt payment terms:** Net 30 days
- 9a. **Notification that Government purchase cards are accepted up to the micro-purchase threshold:**  
Yes
- 9b. **Notification whether Government purchase cards are accepted or not accepted above the micro-purchase threshold:** will not accept over \$3,000
10. **Foreign items (list items by country of origin):** None
- 11a. **Time of Delivery (Contractor insert number of days):** Specified on the Task Order
- 11b. **Expedited Delivery.** The Contractor will insert the sentence “Items available for expedited delivery are noted in this price list.” under this heading. The Contractor may use a symbol of its choosing to highlight items in its price list that have expedited delivery: Contact Contractor
- 11c. **Overnight and 2-day delivery.** The Contractor will indicate whether overnight and 2-day delivery are available. Also, the Contractor will indicate that the schedule customer may contact the Contractor for rates for overnight and 2-day delivery: Contact Contractor
- 11d. **Urgent Requirements.** The Contractor will note in its price list the “Urgent Requirements” clause of its contract and advise agencies that they can also contact the Contractor’s representative to effect a faster delivery: Contact Contractor
12. **F.O.B Points(s):** Destination
- 13a. **Ordering Address(es):** Same as Contractor

- 13b. Ordering procedures:** For supplies and services, the ordering procedures, information on Blanket Purchase Agreements (BPA's), and a sample BPA can be found at the GSA/FSS Schedule homepage ([fss.gsa.gov/schedules](http://fss.gsa.gov/schedules)).
- 14. Payment address(es):** Same as Contractor
- 15. Warranty provision:** Contractor's standard commercial warranty.
- 16. Export Packing Charges (if applicable):** N/A
- 17. Terms and conditions of Government purchase card acceptance (any thresholds above the micro-purchase level):** Contact Contractor
- 18. Terms and conditions of rental, maintenance, and repair (if applicable):** N/A
- 19. Terms and conditions of installation (if applicable):** N/A
- 20. Terms and conditions of repair parts indicating date of parts price lists and any discounts from list prices (if applicable):** N/A
- 20a. Terms and conditions for any other services (if applicable):** N/A
- 21. List of service and distribution points (if applicable):** N/A
- 22. List of participating dealers (if applicable):** N/A
- 23. Preventive maintenance (if applicable):** N/A
- 24a. Environmental attributes, e.g., recycled content, energy efficiency, and/or reduced pollutants:**  
N/A
- 24b. If applicable, indicate that Section 508 compliance information is available on Electronic and Information Technology (EIT) supplies and services and show where full details can be found (e.g. contractor's website or other location.) The EIT standards can be found at: [www.Section508.gov/](http://www.Section508.gov/).**
- 25. Data Universal Numbering System (DUNS) number:** 12-719-3683
- 26. Notification regarding registration in System for Award Management (SAM) database:**  
Completed.



## GSA Schedule: PROFESSIONAL SERVICES SCHEDULE (PSS)

**Contract #:**  
GS-10F-0022S  
**Contract period:**  
10/14/2015 – 10/13/2020  
**DUNS #:**  
12-719-3683

Contract Administrator: Gregory M Sieber  
Phone number: (703)437-5236, x111  
Fax number: (703)995-0667  
E-mail: gmsieber@msipros.com  
Website URL: http://www.msipros.com

*MSI provides a suite of services, solutions, training, and products driving operational excellence for our clients. With comprehensive solutions for process improvement, organizational analysis, strategic planning, cost management, life-cycle management, training, program development and deployment, implementation, mentoring, process automation, effective office, and project management, MSI has the ability to drive world class quality into any operation.*

This catalog describes the labor categories and services we offer under GSA MOBIS as referenced above.

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[Pricing](#)

[Descriptions](#)

[Discounts](#)

### SERVICE CATEGORIES

#### SIN 874-1: INTEGRATED CONSULTING SERVICES

Contractor shall provide expert advice, assistance, guidance or counseling in support of agencies' mission oriented business functions. This may include studies, analyses and reports documenting any proposed developmental, consultative or implementation efforts. Examples of consultation include but are not limited to: strategic, business and action planning; high performance work; process and productivity improvement; systems alignment; leadership systems; organizational assessments; cycle time; performance measures and indicators; program audits, evaluations, and customized training.

#### SIN 874-4: TRAINING SERVICES

Contractors shall provide off-the-shelf, or customized off-the-shelf training packages under this SIN to meet specific agency needs related to business services, such as, but not limited to: customer service, team building, ISO 9000, process improvement, performance measurement; statistical process control; performance problem-solving; business process reengineering; quality management; change management; strategic planning; and benchmarking. Offerors shall provide a schedule of available training courses offered. Offerors shall indicate the minimum number of participants per course. Courses shall include all costs for the minimum number of participants. Rates MUST include all materials (i.e. notebooks, training manuals, index tabs, etc.). Include the course description. Wherever the offeror knows of Other Direct Costs that will regularly be incurred, they should offer them under SIN 874-5, Support Products and Services.

#### SIN 874-7: INTEGRATED BUSINESS PROGRAM SUPPORT SERVICES

Contractors shall provide management or integration of programs and projects to include, but not limited to: program management, program oversight, project management and program integration of a limited duration. A variety of functions may be utilized to support program integration or project management tasks.



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### SIN 874-1, 7 PRICE SCHEDULE

SKILL CATEGORY	Price Offered to the Government									
	Labor Rates (Loaded) SINS 874-1 & 874-7									
	Prices include IFF									
<i>Detailed descriptions of each labor category are provided in the following section</i>	10/14/2015 – 10/13/2016		10/14/2016 – 10/13/2017		10/14/2017 – 10/13/2018		10/14/2018 – 10/13/2019		10/14/2019 – 10/13/2020	
	On Site	Off Site	On Site	Off Site	On Site	Off Site	On Site	Off Site	On Site	Off Site
<b>Executive Consultant</b>	\$199.80	\$201.79	\$203.79	\$205.82	\$207.87	\$209.94	\$212.03	\$214.14	\$216.27	\$218.42
<b>Senior Quality and IT Consultant</b>	\$163.94	\$165.58	\$167.22	\$168.89	\$170.57	\$172.27	\$173.98	\$175.71	\$177.46	\$179.23
<b>Midlevel Quality and IT Consultant</b>	\$119.17	\$120.36	\$121.55	\$122.77	\$123.98	\$125.22	\$126.46	\$127.73	\$128.99	\$130.28
<b>Senior Quality Consultant</b>	\$164.54	\$166.18	\$167.83	\$169.50	\$171.18	\$172.89	\$174.61	\$176.35	\$178.10	\$179.88
<b>Midlevel Quality Consultant</b>	\$119.17	\$120.36	\$121.55	\$122.77	\$123.98	\$125.22	\$126.46	\$127.73	\$128.99	\$130.28
<b>Senior Six Sigma Black Belt</b>	\$163.94	\$165.58	\$167.22	\$168.89	\$170.57	\$172.27	\$173.98	\$175.71	\$177.46	\$179.23
<b>Midlevel Six Sigma Black Belt</b>	\$119.17	\$120.36	\$121.55	\$122.77	\$123.98	\$125.22	\$126.46	\$127.73	\$128.99	\$130.28
<b>Junior Six Sigma Black Belt</b>	\$104.31	\$105.35	\$106.39	\$107.45	\$108.52	\$109.60	\$110.69	\$111.79	\$112.90	\$114.03
<b>Six Sigma Master Black Belt</b>	\$185.10	\$186.96	\$188.80	\$190.69	\$192.58	\$194.51	\$196.43	\$198.40	\$200.36	\$202.37
<b>Senior Baldrige Consultant</b>	\$185.69	\$187.55	\$189.40	\$191.30	\$193.19	\$195.12	\$197.06	\$199.03	\$201.00	\$203.01
<b>Baldrige Consultant</b>	\$163.94	\$165.58	\$167.22	\$168.89	\$170.57	\$172.27	\$173.98	\$175.71	\$177.46	\$179.23
<b>Senior Process Engineer</b>	\$163.94	\$165.58	\$167.22	\$168.89	\$170.57	\$172.27	\$173.98	\$175.71	\$177.46	\$179.23
<b>Midlevel Process Engineer</b>	\$119.17	\$120.36	\$121.55	\$122.77	\$123.98	\$125.22	\$126.46	\$127.73	\$128.99	\$130.28
<b>Senior Lean Operations Consultant</b>	\$163.94	\$165.58	\$167.22	\$168.89	\$170.57	\$172.27	\$173.98	\$175.71	\$177.46	\$179.23
<b>Midlevel Lean Operations Consultant</b>	\$118.99	\$120.19	\$121.37	\$122.59	\$123.80	\$125.04	\$126.28	\$127.54	\$128.80	\$130.09
<b>Senior Supply Chain Consultant</b>	\$163.94	\$165.58	\$167.22	\$168.89	\$170.57	\$172.27	\$173.98	\$175.71	\$177.46	\$179.23
<b>Midlevel Supply Chain Consultant</b>	\$118.99	\$120.19	\$121.37	\$122.59	\$123.80	\$125.04	\$126.28	\$127.54	\$128.80	\$130.09



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### SIN 874-1, 7 PRICE SCHEDULE

SKILL CATEGORY	Price Offered to the Government									
	Labor Rates (Loaded) SINS 874-1 & 874-7									
	Prices include IFF									
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	On Site	Off Site	On Site	Off Site	On Site	Off Site	On Site	Off Site	On Site	Off Site
Senior Strategy Consultant	\$197.44	\$199.41	\$201.39	\$203.40	\$205.42	\$207.47	\$209.53	\$211.62	\$213.72	\$215.85
Senior Subject Matter Expert	\$183.33	\$185.17	\$187.00	\$188.87	\$190.74	\$192.65	\$194.56	\$196.50	\$198.45	\$200.43
Midlevel Subject Matter Expert	\$133.98	\$135.31	\$136.66	\$138.02	\$139.39	\$140.78	\$142.18	\$143.60	\$145.02	\$146.47
Project Manager	\$148.08	\$149.55	\$151.05	\$152.54	\$154.07	\$155.59	\$157.15	\$158.71	\$160.29	\$161.88
Program Manager	\$153.37	\$154.90	\$156.43	\$158.00	\$159.56	\$161.16	\$162.75	\$164.38	\$166.01	\$167.67
Solution Manager	\$133.68	\$135.02	\$136.35	\$137.72	\$139.08	\$140.47	\$141.86	\$143.28	\$144.70	\$146.15
Senior Analyst	\$114.59	\$115.73	\$116.88	\$118.04	\$119.22	\$120.40	\$121.60	\$122.81	\$124.03	\$125.27
Midlevel Analyst	\$106.76	\$107.84	\$108.90	\$110.00	\$111.08	\$112.20	\$113.30	\$114.45	\$115.56	\$116.73
Junior Analyst	\$104.60	\$105.63	\$106.69	\$107.74	\$108.83	\$109.90	\$111.00	\$112.10	\$113.22	\$114.34
Tech Writer	\$104.00	\$105.05	\$106.08	\$107.15	\$108.20	\$109.29	\$110.36	\$111.48	\$112.57	\$113.71
Senior Business Process Management (BPM) Consultant	\$163.94	\$165.58	\$167.22	\$168.89	\$170.57	\$172.27	\$173.98	\$175.71	\$177.46	\$179.23
Midlevel Business Process Management (BPM) Consultant	\$118.99	\$120.19	\$121.37	\$122.59	\$123.80	\$125.04	\$126.28	\$127.54	\$128.80	\$130.09
Junior Business Process Management (BPM) Consultant	\$104.60	\$105.63	\$106.69	\$107.74	\$108.83	\$109.90	\$111.00	\$112.10	\$113.22	\$114.34
Senior Statistician	\$163.94	\$165.58	\$167.22	\$168.89	\$170.57	\$172.27	\$173.98	\$175.71	\$177.46	\$179.23
Midlevel Statistician	\$118.99	\$120.19	\$121.37	\$122.59	\$123.80	\$125.04	\$126.28	\$127.54	\$128.80	\$130.09
Junior Statistician	\$104.60	\$105.63	\$106.69	\$107.74	\$108.83	\$109.90	\$111.00	\$112.10	\$113.22	\$114.34
Senior BizFlow Consultant	\$163.94	\$165.58	\$167.22	\$168.89	\$170.57	\$172.27	\$173.98	\$175.71	\$177.46	\$179.23
Midlevel BizFlow Consultant	\$118.99	\$120.19	\$121.37	\$122.59	\$123.80	\$125.04	\$126.28	\$127.54	\$128.80	\$130.09



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**Fax number:** (703)995-0667  
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### SIN 874-1, 7 PRICE SCHEDULE

SKILL CATEGORY	Price Offered to the Government									
	Labor Rates (Loaded) SINS 874-1 & 874-7									
<i>Detailed descriptions of each labor category are provided in the following section</i>	Prices include IFF									
	10/14/2015 – 10/13/2016		10/14/2016 – 10/13/2017		10/14/2017 – 10/13/2018		10/14/2018 – 10/13/2019		10/14/2019 – 10/13/2020	
	On Site	Off Site	On Site	Off Site	On Site	Off Site	On Site	Off Site	On Site	Off Site
<b>Junior BizFlow Consultant</b>	\$104.60	\$105.63	\$106.69	\$107.74	\$108.83	\$109.90	\$111.00	\$112.10	\$113.22	\$114.34
<b>Senior Savvion Consultant</b>	\$163.94	\$165.58	\$167.22	\$168.89	\$170.57	\$172.27	\$173.98	\$175.71	\$177.46	\$179.23
<b>Midlevel Savvion Consultant</b>	\$118.99	\$120.19	\$121.37	\$122.59	\$123.80	\$125.04	\$126.28	\$127.54	\$128.80	\$130.09
<b>Junior Savvion Consultant</b>	\$104.60	\$105.63	\$106.69	\$107.74	\$108.83	\$109.90	\$111.00	\$112.10	\$113.22	\$114.34
<b>Senior Testing Consultant</b>	\$163.94	\$165.58	\$167.22	\$168.89	\$170.57	\$172.27	\$173.98	\$175.71	\$177.46	\$179.23
<b>Midlevel Testing Consultant</b>	\$118.99	\$120.19	\$121.37	\$122.59	\$123.80	\$125.04	\$126.28	\$127.54	\$128.80	\$130.09
<b>Junior Testing Consultant</b>	\$104.60	\$105.63	\$106.69	\$107.74	\$108.83	\$109.90	\$111.00	\$112.10	\$113.22	\$114.34
<b>Contract Writer</b>	\$163.94	\$165.58	\$167.22	\$168.89	\$170.57	\$172.27	\$173.98	\$175.71	\$177.46	\$179.23
<b>Senior ITIL Service Management Consultant</b>	\$163.94	\$165.58	\$167.22	\$168.89	\$170.57	\$172.27	\$173.98	\$175.71	\$177.46	\$179.23
<b>Savvion Architect</b>	\$189.21	\$191.11	\$192.99	\$194.93	\$196.85	\$198.83	\$200.79	\$202.80	\$204.81	\$206.86

"The Service Contract Act (SCA) is applicable to this contract and as it applies to the entire 00CORP Professional Services Schedule and all services provided. While no specific labor categories have been identified as being subject to SCA due to exemptions for professional employees (FAR 22.1101, 22.1102 and 29CRF 5413.300), this contract still maintains the provisions and protections for SCA eligible labor categories. If and/or when the Contractor adds SCA labor categories / employees to the contract through the modification process, the Contractor must inform the Contracting Officer and establish a SCA matrix identifying the GSA labor category titles, the occupational code, SCA labor category titles and applicable wage determination (WD) number. Failure to do so may result in cancellation of the contract."



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### SIN 874-4 PRICE SCHEDULE

SKILL CATEGORY	Price Offered to the Government
	Courses (Loaded) SIN 874-4
<i>Detailed descriptions of each labor category are provided in the following section</i>	Prices include IFF
One Day Specialized Continuous Process Improvement (CPI) Training Modules	\$5,266.40
Strategic Planning Workshop and Executive Strategy	\$14,801.74
Event Facilitation	\$10,532.80
Executive Lean Six Sigma (LSS) Champion	\$10,532.80
Lean Continuous Process Improvement (CPI) for Service and Transactional Processes Overview	\$11,288.79
Lean Six Sigma (LSS) Yellow Belt	\$21,314.50
Lean Six Sigma (LSS) Green Belt	\$43,914.03
Lean Six Sigma (LSS) Black Belt	\$80,510.54
Hoshin Kanri Strategic Leadership Workshop	\$4,933.91
Hoshin Kanri Quick Start Training Package	\$78,448.21
Hoshin Kanri Strategic Planning and Goal Deployment	\$7,894.26
Introduction to Process Automation and Process Oriented Design	\$10,020.18
Advanced Process Automation and Process Oriented Design	\$20,040.37
Discovery Workshop	\$24,554.68
Process Portfolio Management Executive Seminar	\$3,539.50
Process Portfolio Management Training	\$7,078.99
Customer Relationship Management Introduction	\$9,867.82
Safety and Technology: Low Voltage Safety w/Arc Flash	\$7,970.87
Safety and Technology: High Voltage Safety w/ Arc Flash	\$7,970.90
Safety and Technology: Steam Distribution O&M	\$11,199.76
Safety and Technology: Plumbing and Pipefitting for Plants and Buildings	\$11,199.76
Safety and Technology: HVAC Controls and Distribution	\$11,199.76
Safety and Technology: Chiller O&M	\$11,199.76
Safety and Technology: Inventory Control	\$11,384.29
Safety and Technology: Maintenance Planning & Scheduling	\$11,384.29
Safety and Technology: Pump Repair & Maintenance	\$11,199.76
Boiler Operations & Maintenance	\$11,199.76



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### Volume Discount offered to GSA

<ul style="list-style-type: none"> <li>• For contract awards in which a Federal client using the MOBIS contract issues an approved contract to Management Science and Innovation, Inc. DBA 6 Sigma Technology Group the following volume discounts are offered.</li> <li>• For any contractor - MOBIS labor category on the contract in which Management Science and Innovation, Inc. DBA 6 Sigma Technology Group is awarded provision of more than 500 consecutive hours of service a discount of 2% is offered.</li> <li>• For any contractor - MOBIS labor category on the contract in which Management Science and Innovation, Inc. DBA 6 Sigma Technology Group is awarded provision of more than 1000 consecutive hours of service a discount of 4% is offered.</li> </ul>	<p>Maximum Order: \$1,000,000</p> <p>Minimum Order: \$100.00</p> <p>Prompt payment terms: Net 30 days</p>
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### LABOR AND SERVICE DESCRIPTIONS

<p><b>Executive Consultant</b></p>	<p>Strategic planning, organizational assessment, six sigma, lean operations, and process improvement – The executive consultant provides vision and leadership to consulting teams in various quality, assessment, improvement, and technology projects to ensure complex organizational, process, and technology elements are integrated into a highly effective and efficient solution.</p> <p>The Executive consultant possesses a Master's degree in business, operations management as well as a minimum of fifteen years business and information systems experience with significant experience at an executive level. The Executive Consultant plays a role in client interaction and team leadership.</p>
<p><b>Senior Quality and IT Consultant</b></p>	<p>Transactional six sigma, lean six sigma, process engineering, information system development and design, quality assessments, organizational assessments, performance assessments. The Senior Quality and IT Consultant is a uniquely talented and experienced individual with knowledge of lean, Quality, and supply chain management in addition to depth of knowledge with information systems design and development. This combination of skills provides the ability to engineer true “systems” accounting for the people, processes, and technologies which are automated via appropriate software applications. This approach ensures that end-to-end processes take precedence over software applications.</p> <p>The Senior consultant possesses a Master's degree in business, operations management as well as a minimum of ten years business and information systems experience. The Senior Quality and IT Consultant plays a primary role in client interaction, project management, metrics definition, project charter, and team leadership. The unique combination of skills possesses by the consultant are used to assure an end-to-end process system. This consultant is capable of evaluating, designing, and deploying effective and efficient systems leveraging the principles of lean six sigma into a system of people, processes, and technologies that promote effective and proactive management of the organization.</p>
<p><b>Midlevel Quality and IT Consultant</b></p>	<p>Transactional six sigma, lean six sigma, process engineering, information system development and design, quality assessments, organizational assessments, performance assessments. The Midlevel Quality and IT Consultant is a uniquely talented and experienced individual with knowledge of lean, Quality, and supply chain management in addition to depth of knowledge with information systems design and development. This combination of skills provides the ability to engineer true “systems” accounting for the people, processes, and technologies which are automated via appropriate software applications. This approach ensures that end-to-end processes take precedence over software applications.</p> <p>The Midlevel consultant possesses a Bachelor's degree in business, operations management as well as a minimum of five years business and information systems experience. The Midlevel Quality and IT Consultant plays a critical role in within the consulting team with hands on work from analysis through design and implementation and is fundamentally accountable for ensuring that detail level tasks are conducted in the “systems” approached defined. The unique combination of skills possesses by the consultant are used to assure an end-to-end process system. This consultant is capable of evaluating, designing, and deploying effective and efficient systems leveraging the principles of lean six sigma into a system of people, processes, and technologies that promote effective and proactive management of the organization.</p>



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<p><b>Senior Quality Consultant</b></p>	<p>Quality consulting, Six Sigma, transactional six sigma, benchmarking, business process management – The Senior Quality Consultant is a professional in multiple quality and operations excellence methods such as those listed above. The Senior Quality Consultant leads consulting teams, manages projects, and works closely with the customer at a managerial and tactical level. Assists with identifying candidates for outsourcing and privatization while refocusing on core mission objectives. The Senior Quality Consultant will often play a major role in starting projects and will then act in an oversight and communications position as a project progresses.</p> <p>The Senior Quality Consultant possesses a Master's degree in business, operations management as well as a minimum of ten years business and information systems experience.</p> <p>Activities performed by the Senior Quality Consultant include: cost analysis, cost estimating, cost management, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, evaluation, IV&amp;V, Kanban, lean systems, lean six sigma, lean systems, metrics design, organizational assessment, organizational evaluation, performance analysis, performance assessment, process engineering, process improvement, process portfolio management, quality assurance, quality control, six sigma consulting, spc, sqc, statistical analysis, statistical quality control, survey services, CMMi, TQM.</p>
<p><b>Midlevel Quality Consultant</b></p>	<p>Quality consulting, Six Sigma, transactional six sigma, benchmarking, business process management – The Midlevel Quality Consultant is a professional in multiple quality and operations excellence methods such as those listed above. The Midlevel Quality Consultant conducts hands on analysis, design, and implementation working closely with the customer at a tactical level. The Midlevel Quality Consultant will play a major role in carrying out projects and will then act in a support position as systems enter the management phase.</p> <p>The Midlevel Quality Consultant possesses a Bachelor's degree in business, operations management as well as a minimum of five years business and information systems experience.</p> <p>Activities performed by the Midlevel Quality Consultant include: cost analysis, cost estimating, cost management, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, evaluation, IV&amp;V, Kanban, lean systems, lean six sigma, lean systems, metrics design, organizational assessment, organizational evaluation, performance analysis, performance assessment, process engineering, process improvement, process portfolio management, quality assurance, quality control, six sigma consulting, spc, sqc, statistical analysis, statistical quality control, survey services, CMMi, TQM.</p>



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<p><b>Senior Six Sigma Black Belt</b></p>	<p>6 sigma, Six Sigma, six sigma consulting – Senior Six Sigma Black Belts are highly trained Six Sigma experts with more than five years experience in the entire Six Sigma methodology in numerous environments. Senior Black Belts will possess knowledge and experience in related operations excellence methods such as Baldrige and CMMi. Further, our Black Belts specialize in transactional Six Sigma, the application of Six Sigma to non-manufacturing processes. Senior Black Belts are the leaders and mentors to the consulting team with regard to performing detailed tasks.</p> <p>The Senior Six Sigma Black Belt possesses a Bachelor's degree in business, operations management as well as a minimum of five years business and information systems experience. The Senior Six Sigma Black Belt will also possess a Six Sigma Black Belt Certification from a recognized training organization as well as five years experience implementing Six Sigma or other Quality solutions</p> <p>Some of the activities performed by the Senior Six Sigma Black Belt include: control charts, cost analysis, cost estimating, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, design for six sigma, DFSS, DMAIC, evaluation, lean six sigma, metrics design, organizational assessment, organizational evaluation, performance analysis, performance evaluation, performance management, process automation, process engineering, process improvement, process management, process portfolio management, quality consulting, quality control, quality function deployment, quality improvement, simulation, spc, sqc, statistical analysis, statistical process control, statistical quality control, transactional six sigma.</p>
<p><b>Midlevel Six Sigma Black Belt</b></p>	<p>6 sigma, Six Sigma, six sigma consulting – Midlevel Six Sigma Black Belts are highly trained Six Sigma experts with more than three years experience in the entire Six Sigma methodology in various environments. Midlevel Black Belts will possess knowledge and experience in related operations excellence methods such as Baldrige and CMMi. Further, our Black Belts specialize in transactional Six Sigma, the application of Six Sigma to non-manufacturing processes. Midlevel Black Belts are the hands-on workers of the consulting team with regard to performing detailed tasks.</p> <p>The Midlevel Six Sigma Black Belt possesses a Bachelor's degree in business, operations management as well as a minimum of two years business and information systems experience. The Midlevel Six Sigma Black Belt will also possess a Six Sigma Black Belt Certification from a recognized training organization as well as two years implementing Six Sigma solutions.</p> <p>Some of the activities performed by the Midlevel Six Sigma Black Belt include: control charts, cost analysis, cost estimating, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, design for six sigma, DFSS, DMAIC, evaluation, lean six sigma, metrics design, organizational assessment, organizational evaluation, performance analysis, performance evaluation, performance management, process automation, process engineering, process improvement, process management, process portfolio management, quality consulting, quality control, quality function deployment, quality improvement, simulation, spc, sqc, statistical analysis, statistical process control, statistical quality control, transactional six sigma.</p>



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<p><b>Junior Six Sigma Black Belt</b></p>	<p>6 sigma, Six Sigma, six sigma consulting – Junior Six Sigma Black Belts are certified Six Sigma experts with at least two projects experience in the entire Six Sigma methodology. Further, our Black Belts specialize in transactional Six Sigma, the application of Six Sigma to non-manufacturing processes. Junior Black Belts perform detailed tasks from definition through control under the guidance of more senior Six Sigma experts.</p> <p>The Junior Six Sigma Black Belt possesses a Bachelor's degree in business, operations management as well as a minimum of two years business and information systems experience. The Junior Six Sigma Black Belt will also possess a Six Sigma Black Belt Certification from a recognized training organization.</p> <p>Some of the activities performed by the Junior Six Sigma Black Belt include: control charts, cost analysis, cost estimating, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, design for six sigma, DFSS, DMAIC, evaluation, lean six sigma, metrics design, organizational assessment, organizational evaluation, performance analysis, performance evaluation, performance management, process automation, process engineering, process improvement, process management, process portfolio management, quality consulting, quality control, quality function deployment, quality improvement, simulation, spc, sqc, statistical analysis, statistical process control, statistical quality control, transactional six sigma.</p>
<p><b>Six Sigma Master Black Belt</b></p>	<p>6 sigma, Six Sigma, six sigma consulting – Six Sigma Master Black Belts (MBB) are highly trained Six Sigma experts with more than five years experience in the entire Six Sigma methodology in numerous environments. The MBB will also be an expert in traditional quality methods as taught by experts such as Deming and Juran. The MBB acts as a mentor to Black Belts, sets project priority, signs off on new projects, establishes training programs for existing Black Belts, is accountable for continual improvement of Six Sigma team operations, and trains new Black Belts. As with our Black Belts, our Master Black Belts specialize in transactional Six Sigma, the application of Six Sigma to non-manufacturing processes. Master Black Belts are the leaders and mentors to multiple consulting teams.</p> <p>The Six Sigma Master Black Belt possesses a Master's degree in business, operations management as well as a minimum of five years business and information systems experience. The Six Sigma Master Black Belt will also possess a Six Sigma Black Belt Certification from a recognized training organization as well as ten years experience implementing Six Sigma or other Quality solutions.</p> <p>Some of the activities performed by the Master Six Sigma Black Belt include: control charts, cost analysis, cost estimating, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, design for six sigma, DFSS, DMAIC, evaluation, lean six sigma, metrics design, organizational assessment, organizational evaluation, performance analysis, performance evaluation, performance management, process automation, process engineering, process improvement, process management, process portfolio management, quality consulting, quality control, quality function deployment, quality improvement, simulation, spc, sqc, statistical analysis, statistical process control, statistical quality control, transactional six sigma.</p>



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<p><b>Senior Baldrige Consultant</b></p>	<p>Organizational evaluation and assessments, quality improvement, process management – the Senior Baldrige Consultant is an expert in Malcolm Baldrige National Quality Award criteria with at least five years experience in assessing and recommending solutions that leverage Baldrige criteria. The Senior Baldrige Consultant will have experience with related operations excellence methods such as TQM and Six Sigma. Further, the Senior Baldrige Consultant will be capable of designing and presenting practical solutions for improving processes within the Baldrige Model.</p> <p>The Senior Baldrige Consultant possesses a Master's degree in business, operations management as well as a minimum of five years business and information systems experience. The Senior Baldrige Consultant will also possess a Baldrige Assessor Certification from a recognized training organization as well as ten years experience implementing Baldrige or other Quality solutions.</p> <p>Activities performed by the Senior Baldrige Consultant include: Baldrige assessment, Baldrige consulting, benchmarking, business process management, cost analysis, customer satisfaction analysis, data analysis, defect analysis, evaluation, IV&amp;V, metrics design, organizational assessment, organizational evaluation, performance analysis, performance evaluation, performance management, planning, quality consulting, strategic planning, total quality management (TQM) consulting.</p>
<p><b>Baldrige Consultant</b></p>	<p>Organizational evaluation and assessments, quality improvement, process management – the Baldrige Consultant is an expert in Malcolm Baldrige National Quality Award criteria with at least three years experience in assessing and recommending solutions that leverage Baldrige criteria. The Baldrige Consultant will have experience with related operations excellence methods such as TQM and Six Sigma. Further, the Baldrige Consultant will be capable of designing and presenting practical solutions for improving processes within the Baldrige Model.</p> <p>The Baldrige Consultant possesses a Bachelor's degree in business, operations management as well as a minimum of five years business and information systems experience. The Baldrige Consultant will also possess a Baldrige Assessor Certification from a recognized training organization as well as five years experience implementing Baldrige or other Quality solutions.</p> <p>Activities performed by the Midlevel Baldrige Consultant include: Baldrige assessment, Baldrige consulting, benchmarking, business process management, cost analysis, customer satisfaction analysis, data analysis, defect analysis, evaluation, IV&amp;V, metrics design, organizational assessment, organizational evaluation, performance analysis, performance evaluation, performance management, planning, quality consulting, strategic planning, total quality management (TQM) consulting.</p>



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<p><b>Senior Process Engineer</b></p>	<p>Process engineering, process management, business process re-engineering– Senior Process Engineers are highly trained process experts with more than five years experience in process engineering methodologies in numerous environments. Senior Process Engineers will possess knowledge and experience in related operations excellence methods such as Six Sigma, Baldrige, and CMMi. Senior process engineers will also be versed in use and implementation of various process engineering technologies such as statistical analysis tools, surveying, simulation, and business process management (BPM) platforms. Assists with identifying candidates for outsourcing and privatization while refocusing on core mission objectives. Senior Process Engineers provide a lead role at the task level assuring that analysis, design, and improvement tasks are conducting using the best methods and in a timely fashion.</p> <p>The Senior Process Engineer possesses a Master's degree in business, operations management as well as a minimum of five years business and information systems experience. The Senior Process Engineer will also possess Certification in Six Sigma, Baldrige, or equivalent from a recognized training organization as well as ten years experience implementing Quality solutions.</p> <p>Some of the activities performed by the Midlevel Process Engineer include: Six Sigma, six sigma consulting, control charts, cost analysis, cost estimating, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, design for six sigma, DFSS, DMAIC, evaluation, lean six sigma, metrics design, organizational assessment, organizational evaluation, performance analysis, performance evaluation, performance management, process automation, process engineering, process improvement, process management, process portfolio management, quality consulting, quality control, quality function deployment, quality improvement, simulation, spc, sqc, statistical analysis, statistical process control, statistical quality control, transactional six sigma.</p>
<p><b>Midlevel Process Engineer</b></p>	<p>Process engineering, process management, business process re-engineering– Mid-Level Process Engineers are highly trained process experts with more than three years experience in process engineering methodologies in numerous environments. Mid-Level Process Engineers will possess knowledge and experience in related operations excellence methods such as Six Sigma, Baldrige, and CMMi. Mid-Level process engineers will also be versed in use and implementation of various process engineering technologies such as statistical analysis tools, surveying, simulation, and business process management (BPM) platforms. Mid-Level Process Engineers play a primary role at the task level assuring that analysis, design, and improvement tasks are conducting using the best methods and in a timely fashion.</p> <p>The Midlevel Process Engineer possesses a Bachelor's degree in business, operations management as well as a minimum of two years business and information systems experience. The Midlevel Process Engineer will also possess Certification in Six Sigma, Baldrige, or equivalent from a recognized training organization as well as 2 years experience implementing Quality solutions.</p> <p>Some of the activities performed by the Mid-Level Process Engineer include: Six Sigma, six sigma consulting, control charts, cost analysis, cost estimating, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, design for six sigma, DFSS, DMAIC, evaluation, lean six sigma, metrics design, organizational assessment, organizational evaluation, performance analysis, performance evaluation, performance management, process automation, process engineering,</p>



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<p><b>Senior Lean Operations Consultant</b></p>	<p>Lean operations, lean systems, lean six sigma – the Senior Lean Operations consultant is an expert in operations management and operations research methods commonly known as Lean techniques. The senior Lean Operations Consultant will provide hands on analysis, guidance, and development of Lean systems in a lead engineer capacity. Assists with identifying candidates for outsourcing and privatization while refocusing on core mission objectives. Further, the Senior Lean Operations Consultant will play a major role in determination of appropriate Lean techniques to be used and their detailed formulation.</p> <p>The Senior Lean Operations Consultant possesses a Master's degree in business, operations management, as well as a minimum of ten years business and information systems experience. The Senior Lean Operations Consultant will also possess Certification in Six Sigma, Baldrige, or equivalent from a recognized training organization as well as ten years experience implementing Quality solutions.</p> <p>Activities that may be performed by the Senior Lean Operations Consultant include: value stream mapping, queuing theory, logistics planning, supply chain management, demand forecasting, materials resource planning (MRP), control charts, cost analysis, cost management, data analysis, data transformation, Kanban, lean systems, lean, lean six sigma, lean operations, lean systems, metrics design, metrics, operations research, simulation, spc, sqc, statistical analysis, statistical process control, statistical quality control, supply chain integration.</p>
<p><b>Midlevel Lean Operations Consultant</b></p>	<p>Lean operations, lean systems, lean six sigma – the Midlevel Lean Operations consultant is an expert in operations management and operations research methods commonly known as Lean techniques. The Midlevel Lean Operations Consultant will provide hands on analysis, guidance, and development of Lean systems in a lead engineer capacity.</p> <p>The Midlevel Lean Operations Consultant possesses a Bachelor's degree in business, operations management, as well as a minimum of five years business experience. The Midlevel Lean Operations Consultant will also possess Certification in Six Sigma, Baldrige, or equivalent from a recognized training organization as well as five years experience implementing Quality solutions.</p> <p>Activities that may be performed by the Midlevel Lean Operations Consultant include: value stream mapping, queuing theory, logistics planning, supply chain management, demand forecasting, materials resource planning (MRP), control charts, cost analysis, cost management, data analysis, data transformation, Kanban, lean systems, lean, lean six sigma, lean operations, lean systems, metrics design, metrics, operations research, simulation, spc, sqc, statistical analysis, statistical process control, statistical quality control, supply chain integration.</p>



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<p><b>Senior Supply Chain Consultant</b></p>	<p>Supply chain analysis, supply chain management, supply chain integration – The Senior Supply Chain Consultant is an expert in operations research and supply chain management techniques. Senior supply chain consultants will possess a Master's degree in operations research / operations management, or equivalent experience. The Senior Supply Chain Consultant works in a leadership role guiding analysts and junior grade operations consultants in assessment and re-engineering of the supply chain. Supply chain consulting addresses items such as customer analysis, supplier relationships, supplier management, distribution analysis, order quantity, transportation modeling and analysis, distribution channels, inventory management, and inspection.</p> <p>The Senior Supply Chain Consultant possesses a Master's degree in business, operations management, as well as a minimum of ten years business and information systems experience. The Senior Supply Chain Consultant will also possess Certification in Six Sigma, Baldrige, or equivalent from a recognized training organization as well as ten years experience implementing Quality solutions.</p> <p>Activities performed by the Senior Supply Chain Consultant include: Benchmarking, cost analysis, cost estimating, cost management, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, Kanban, lean systems, lean, lean six sigma, lean operations, lean systems, operations research, process improvement, quality control, simulation, spc, sqc, statistical analysis, statistical process control, statistical quality control, supply chain integration, value stream mapping, queuing theory.</p>
<p><b>Midlevel Supply Chain Consultant</b></p>	<p>Supply chain analysis, supply chain management, supply chain integration – The Midlevel Supply Chain Consultant is an expert in operations research and supply chain management techniques. Midlevel supply chain consultants will possess a Bachelor's degree in operations research / operations management, or equivalent experience. The Midlevel Supply Chain Consultant conducts assessment and re-engineering of the supply chain. Supply chain consulting addresses items such as customer analysis, supplier relationships, supplier management, distribution analysis, order quantity, transportation modeling and analysis, distribution channels, inventory management, and inspection.</p> <p>The Midlevel Supply Chain Consultant possesses a Bachelor's degree in business, operations management, as well as a minimum of five years business experience. The Midlevel Supply Chain Consultant will also possess Certification in Six Sigma, Baldrige, or equivalent from a recognized training organization as well as five years experience implementing Quality solutions.</p> <p>Activities performed by the Midlevel Supply Chain Consultant include: Benchmarking, cost analysis, cost estimating, cost management, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, Kanban, lean systems, lean, lean six sigma, lean operations, lean systems, operations research, process improvement, quality control, simulation, spc, sqc, statistical analysis, statistical process control, statistical quality control, supply chain integration, value stream mapping, queuing theory.</p>



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<p><b>Senior Strategy Consultant</b></p>	<p>Strategic planning, business planning, capital planning – The Senior Strategy Consultant provides high level strategic facilitation, guidance, and advice on organization level strategic matters. Senior Strategy Consultants are experts in various business and organization management disciplines such as finance, marketing, operations, sales, and human resources management. Further, Senior Strategy Consultants are educated and experienced with traditional and innovative strategic planning techniques such as SWOT, Porter 's five forces, Process Management, Business Case Analysis, and brainstorming.</p> <p>The Senior Strategy Consultant will possess a Master's of Business Administration (MBA) or Master's of Industrial Administration or equivalent graduate education as well as a minimum of ten years experience providing strategic level advice and guidance to successful organizations.</p> <p>Activities performed by the Senior Strategy Consultant may include: Facilitation, strategic planning sessions, business case development, capital budgeting analysis, investment analysis, market analysis, customer analysis, business planning, development of organizational goals and objectives, and brainstorming sessions.</p>
<p><b>Senior Subject Matter Expert</b></p>	<p>The Senior Subject Matter Expert possesses a high degree of functional knowledge in particular areas of business and operations. Areas of expertise may include areas such as procurement, finance, human resources management, information technology, marketing, construction, healthcare, and education. Senior Subject Matter Experts work as an integral part of the consulting team providing insights into methods and best practices while ensuring that solutions are tempered by the their perspective. Assists with identifying candidates for outsourcing and privatization while refocusing on core mission objectives.</p> <p>Subject Matter Experts may possess varied levels of education and experience. However, the Subject Matter Expert will be recognized as an expert in the related field. Relative experience in the field will be well above average in both duration and responsibility. The Senior Subject Matter Expert will be recognized by industry organizations as a leader in the field.</p>
<p><b>Midlevel Subject Matter Expert</b></p>	<p>The Midlevel Subject Matter Expert possesses hands on functional knowledge in particular areas of business and operations. Areas of expertise may include areas such as procurement, finance, human resources management, information technology, marketing, construction, healthcare, and education. Midlevel Subject Matter Experts work as an integral part of the consulting team providing insights into methods and best practices while ensuring that solutions are tempered by the their perspective. . Assists with identifying candidates for outsourcing and privatization while refocusing on core mission objectives.</p> <p>Subject Matter Experts may possess varied levels of education and experience. However, the Subject Matter Expert will be recognized as an expert in the related field. Relative experience in the field will be well above average in both duration and responsibility.</p>



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<p><b>Project Manager</b></p>	<p>The Project Manager is a skilled and trained professional in traditional and innovative project management methods. Our project managers are certified Project Management Professionals (PMP) by the Project Management Institute. Our project management professionals make use of our Process Oriented Software Design approach and are versed in Six Sigma as well as other quality/productivity methods. Project Managers are responsible for project planning, estimating, cost management, reporting, contract compliance, staffing, team motivation, and customer satisfaction. Further, project managers assist with identifying candidates for outsourcing and privatization while refocusing on core mission objectives. Prepares mission and vision statements, plans, and related doctrine to guide efforts toward implementation. Coordinates efforts and provides leadership in government and industry meetings. Provides internal planning, guidance, and management structure for tracking accomplishment of work assigned. Shall possess experience with the following: Business process management, cost estimating, cost management, customer satisfaction analysis, DMAIC, IV&amp;V, metrics design, performance analysis, performance evaluation, performance management, planning, process automation, process engineering, process improvement, process management, process portfolio management, program management, project management, quality assurance, quality control, Six Sigma, strategic IT services, critical path method, contract management, value stream mapping, queuing theory,</p> <p>Minimum Education / Minimum General Experience: A Bachelor's degree in administration, business, engineering, or economics and five years of relevant experience; or an equivalent combination of education and experience.</p> <p>Activities performed by the Project Manager include: automation, process engineering, process improvement, process management, process portfolio management, program management, project management, quality assurance, quality control, Six Sigma, strategic IT services, critical path method, contract management, value stream mapping, queuing theory,</p>
<p><b>Program Manager</b></p>	<p>Program management, contract management, project coordination, compliance – Program Managers perform the tasks associated with client and project communication and coordination on large scale engagements involving multiple projects which may or may not be related. Ensures high level contractual, financial, and strategic objectives are recognized and accounted across projects. Has experience in developing downsizing approaches and procedures. Assists in identifying candidates for outsourcing and privatization while refocusing on core mission objectives. Prepares customer reports and presentations. Manages overall engagement Quality management an improvement plans. Coordinates efforts and provides leadership in government and industry meetings. Provides internal planning, guidance, and management structure for tracking accomplishment of work assigned.</p> <p>Minimum Education / Minimum General Experience: A graduate degree in administration, business, engineering, or computer science, economics, or science and eight years of relevant experience; or an equivalent combination of education and experience.</p>



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<p><b>Solution Manager</b></p>	<p>Tactical customer relationship management, accountability for execution of issue resolution and continual improvement activities – The Solution Manager is a unique role found only within 6STG. The Solution Manager is an expert in Lean Six Sigma and other quality methods and is well versed in information systems. The role is to provide ongoing tracking, analysis, training, recommendations, and leadership on continual improvement initiatives for client process systems. The Solution Manager regularly reviews data and activities from client processes, people, and information systems, as well as evaluation of competitive, industry, and customer issues and best practices. Provides analytical expertise on difficult client issues. The Solution Manager shall be well versed in client strategic goals and objectives and will ensure that tactical initiatives are completed in a matter that drives attainment of these goals and objectives.</p> <p>Shall possess experience with the following: Baldrige, benchmarking, BPM, business process management, control charts, cost analysis, cost estimating, cost management, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, DMAIC, IV&amp;V, Kanban, lean systems, lean six sigma, metrics design, operations research, organizational assessment, organizational evaluation, performance analysis, process engineering, process improvement, process management, process portfolio management, product evaluation, project management, quality assurance, quality consulting, quality control, quality function deployment, quality improvement, six sigma consulting, six sigma tools, Six Sigma, simulation, spc, sqc, statistical analysis, statistical process control, statistical quality control, supply chain integration, survey services, surveys, total quality management, TQM, transactional six sigma, value stream mapping, queuing theory</p> <p>Minimum Education / Minimum General Experience: A graduate degree in administration, business, engineering, or computer science, economics, or science and eight years of relevant experience; or an equivalent combination of education and experience.</p>
<p><b>Senior Analyst</b></p>	<p>Systems analysis, organizational analysis, performance analysis – The Senior Analyst designs and administers “systems” analysis projects addressing end-to-end, top-to-bottom systems including the customers, inputs, processes, people, technologies, outputs, and customers of the system. Implements complex organizational change which addresses strategic, structural, process and behavioral factors. Develops data collection plans, conducts surveys and data collection missions, organizational assessments, cultural change programs and business process improvement recommendations. Assists governmental agencies in implementing the Government Performance and Results Act in strategic planning and the executive order directed toward labor management partnerships.</p> <p>Shall possess experience with the following: cost analysis, cost estimating, cost management, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, evaluation, IV&amp;V, Kanban, lean systems, lean six sigma, lean systems, metrics design, organizational assessment, organizational evaluation, performance analysis, performance assessment, process engineering, process improvement, process portfolio management, quality assurance, quality control, six sigma consulting, spc, sqc, statistical analysis, statistical quality control, survey services, CMMi, TQM</p> <p>Minimum Education / Minimum General Experience: A bachelor's degree in business, engineering, sciences, computer science, mathematics, or economics and five years of relevant experience or an equivalent combination of education and experience.</p>



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<p><b>Midlevel Analyst</b></p>	<p>Systems analysis, organizational analysis, performance analysis – The Midlevel Analyst administers “systems” analysis projects addressing end-to-end, top-to-bottom systems including the customers, inputs, processes, people, technologies, outputs, and customers of the system. Implements complex organizational change which addresses strategic, structural, process and behavioral factors. Conducts surveys and data collection missions, organizational assessments, cultural change programs and business process improvement recommendations. Assists governmental agencies in implementing the Government Performance and Results Act in strategic planning and the executive order directed toward labor management partnerships.</p> <p>Shall possess experience with the following: cost analysis, cost estimating, cost management, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, evaluation, IV&amp;V, metrics design, organizational assessment, organizational evaluation, performance analysis, performance assessment, process engineering, process improvement, quality assurance, quality control, survey services</p> <p>Minimum Education / Minimum General Experience: A bachelor's degree in business, engineering, sciences, computer science, mathematics, or economics and two years of relevant experience or an equivalent combination of education and experience.</p>
<p><b>Junior Analyst</b></p>	<p>Systems analysis, organizational analysis, performance analysis – The Junior Analyst conducts data collection and review on “systems” analysis projects addressing end-to-end, top-to-bottom systems including the customers, inputs, processes, people, technologies, outputs, and customers of the system. Conducts surveys and data collection missions, performs initial data cleansing and transformation. Must demonstrate a clear path of education and experience in the business or engineering area of endeavor.</p> <p>Shall possess experience with the following: cost analysis, cost estimating, cost management, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, evaluation, performance analysis, performance assessment, process engineering, process improvement, quality assurance, quality control, spc, sqc, statistical analysis, statistical quality control, survey services</p> <p>Minimum Education / Minimum General Experience: A bachelor's degree in business, engineering, sciences, computer science, mathematics, or economics and one year of relevant experience or an equivalent combination of education and experience.</p>
<p><b>Tech Writer</b></p>	<p>Collects technical data and information and prepares customized reports, technical documentation, training materials, presentation materials, process flow charts, procedural data, and meeting/briefing agendas, minutes, and action items. Provides editorial and quality assurance support for documents, data, training materials, and reports generated to support client engagements.</p> <p>Minimum Education / Minimum General Experience: An undergraduate degree in arts or science and two years of relevant experience; or an equivalent combination of education and experience.</p>



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12-719-3683

Contract Administrator: Gregory M Sieber  
Phone number: (703)437-5236, x111  
Fax number: (703)995-0667  
E-mail: gmsieber@msipros.com  
Website URL: <http://www.msipros.com>

**Senior Business  
Process Management  
(BPM) Consultant**

Business process management design and implementation – The Senior BPM Consultant demonstrates mastery of BPM modeling products such as BizFlow, Savvion and others, related technologies, theory, and methods as well as project financial and management principles. Our BPM professionals make use of our Process Oriented Software Design approach and are versed in Six Sigma as well as other quality/productivity methods. As such, BPM solutions designed and implemented by our personnel will contain the mechanisms and processes necessary to ensure infrastructure continually evolves to meet organizational needs. Further, our BPM solutions account for true end-to-end business processes by placing emphasis upon rigorous process engineering facilitated by software development. Knowledgeable in software development and enterprise application integration technologies and methods, project execution, evaluation and planning, process engineering and technology transfer. The Senior BPM Consultant plays a significant role in the definition of processes and requirements, analysis, design, and implementation of BPM automated processes as well as related control and improvement processes.

Shall possess experience with the following: benchmarking, Bizflow, Savvion, BPM implementation, business process management, control charts, cost analysis, cost estimating, cost management, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, design for six sigma, DMAIC, evaluation, metrics design, performance analysis, performance evaluation, process automation, process engineering, process improvement, process management, process portfolio management, quality consulting, quality control, six sigma consulting, six sigma tools, Six Sigma, software development methodologies, simulation, statistical analysis, statistical process control, statistical quality control, transactional six sigma, value stream mapping, .Net development, acceptance testing, analysis, application development, application monitoring, development, enterprise architecture, flow charting, information systems consulting, IT architecture, Java development, object modeling, requirements gathering and analysis, UMD, regression testing, software consulting, software design, systems development lifecycle, rational rose, extreme programming, process oriented design

Minimum Education / Minimum General Experience: Master’s degree in engineering or computer science and six years of development experience, as well as general business or engineering experience.



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**Website URL:** <http://www.msipros.com>

<p><b>Midlevel Business Process Management (BPM) Consultant</b></p>	<p>Business process management design and implementation – The Midlevel BPM Consultant demonstrates mastery of BPM programming products such as BizFlow, Savvion and others, related technologies, theory, and methods. Our BPM professionals make use of our Process Oriented Software Design approach and are versed in Six Sigma as well as other quality/productivity methods. As such, BPM solutions designed and implemented by our personnel will contain the mechanisms and processes necessary to ensure infrastructure continually evolves to meet organizational needs. Further, our BPM solutions account for true end-to-end business processes by placing emphasis upon rigorous process engineering facilitated by software development. Knowledgeable in software development and enterprise application integration technologies and methods, project execution, evaluation and planning, process engineering and technology transfer. The Midlevel BPM Consultant plays a significant role in requirements, analysis, design, and implementation of BPM automated processes as well as related control and improvement processes.</p> <p>Shall possess experience with the following: benchmarking, Bizflow, Savvion, BPM implementation, business process management, control charts, cost analysis, cost estimating, cost management, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, design for six sigma, DMAIC, evaluation, metrics design, performance analysis, performance evaluation, process automation, process engineering, process improvement, process management, process portfolio management, quality consulting, quality control, six sigma consulting, six sigma tools, Six Sigma, software development methodologies, simulation, statistical analysis, statistical process control, statistical quality control, transactional six sigma, value stream mapping, .Net development, acceptance testing, analysis, application development, application monitoring, development, enterprise architecture, flow charting, information systems consulting, IT architecture, Java development, object modeling, requirements gathering and analysis, UMD, regression testing, software consulting, software design, systems development lifecycle, rational rose, extreme programming, process oriented design</p> <p>Minimum Education / Minimum General Experience: Bachelor's degree in engineering or computer science and three years of development experience, as well as general business or engineering experience.</p>
<p><b>Junior Business Process Management (BPM) Consultant</b></p>	<p>Business process management design and implementation – The Junior BPM Consultant demonstrates working knowledge of BPM programming products such as BizFlow, Savvion and others, related technologies, theory, and methods. Our BPM professionals make use of our Process Oriented Software Design approach and are versed in Six Sigma as well as other quality/productivity methods. As such, BPM solutions designed and implemented by our personnel will contain the mechanisms and processes necessary to ensure infrastructure continually evolves to meet organizational needs. Further, our BPM solutions account for true end-to-end business processes by placing emphasis upon rigorous process engineering facilitated by software development. The Junior BPM Consultant plays a role in requirements gathering, and implementation of BPM automated processes under the guidance of more experienced BPM professionals. Must demonstrate a clear path of education and experience in the business or engineering area of endeavor.</p> <p>Shall possess experience with the following: Bizflow, Savvion, BPM implementation, business process management, control charts, cost analysis, data analysis, data transformation, defect analysis, defect reduction, DMAIC, process automation, process engineering, process improvement, statistical analysis, statistical process control, statistical quality control, value stream mapping, .Net development, acceptance testing, flow charting, information systems consulting, Java development, requirements gathering and analysis, systems development lifecycle, rational rose, extreme programming, process oriented design</p> <p>Minimum Education / Minimum General Experience: A technical certificate of achievement or Bachelor's degree in engineering or computer science and one year of development experience, as well as general business or engineering experience.</p>



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<p><b>Senior Statistician</b></p>	<p>Statistical analysis, modeling, prediction – The Senior Statistician demonstrates mastery of advanced statistics methods and theory. Works with consulting team and clients to develop an understanding of the types of data available, objectives, constraints, and controls. Assists in defining and implementing appropriate statistical analysis methods and develops statistical models for sensitivity analysis and prediction. Shall be proficient with statistical techniques including: Regression analysis, hypothesis testing, probability theory, queuing, distribution models, ANOVA, linear equations for optimality, and advanced mathematics.</p> <p>Minimum Education / Minimum General Experience: A Master's degree in engineering, operations research, or mathematics and five years experience implementing statistics in the business or Government environment, as well as general business or engineering experience.</p>
<p><b>Midlevel Statistician</b></p>	<p>Statistical analysis, modeling, prediction – The Midlevel Statistician demonstrates mastery of advanced statistics methods and theory. Works with consulting team and clients to develop an understanding of the types of data available, objectives, constraints, and controls. Assists in defining and implementing appropriate statistical analysis methods and develops statistical models for sensitivity analysis and prediction.</p> <p>Shall be proficient with statistical techniques including: Regression analysis, hypothesis testing, probability theory, queuing, distribution models, ANOVA, linear equations for optimality, and advanced mathematics.</p> <p>Minimum Education / Minimum General Experience: A Bachelor's degree in engineering, operations research, or mathematics and three years experience implementing statistics in the business or Government environment, as well as general business or engineering experience.</p>
<p><b>Junior Statistician</b></p>	<p>Statistical analysis, modeling, prediction – The Junior Statistician has formal education in statistics methods and theory. Works with consulting team and clients under the direction of senior statisticians or Six Sigma Black Belts to develop and run various statistical models as needed. Performs data collection and cleansing. Assists in defining and implementing appropriate statistical analysis methods and develops statistical models for sensitivity analysis and prediction.</p> <p>Shall be proficient with statistical techniques including: Regression analysis, hypothesis testing, probability theory, queuing, distribution models, ANOVA, linear equations for optimality, and advanced mathematics.</p> <p>Minimum Education / Minimum General Experience: A Bachelor's degree in engineering, operations research, or mathematics. No business experience in statistical analysis is required.</p>



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**Senior BizFlow Consultant**

Business process management design and implementation – The Senior BizFlow Consultant demonstrates mastery of the BPM modeling product BizFlow, related technologies, theory, and methods as well as project financial and management principles. Our BPM professionals make use of our Process Oriented Software Design approach and are versed in Six Sigma as well as other quality/productivity methods. As such, BPM solutions designed and implemented by our personnel will contain the mechanisms and processes necessary to ensure processes continually evolves to meet organizational needs. Further, our BPM solutions account for true end-to-end business processes by placing emphasis upon rigorous process engineering facilitated by software development. Be warned that BPM implementation requires a new software methodology. Traditional methods bury the value of BPM. Knowledgeable in software development and enterprise application integration technologies and methods, project execution, evaluation and planning, process engineering and technology transfer. The Senior BizFlow Consultant plays a significant role in the definition of processes and requirements, analysis, design, and implementation of BizFlow automated processes as well as related control and improvement processes.

Shall possess experience with the following:  
benchmarking, Bizflow, BPM implementation, business process management, control charts, cost analysis, cost estimating, cost management, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, design for six sigma, DMAIC, evaluation, metrics design, performance analysis, performance evaluation, process automation, process engineering, process improvement, process management, process portfolio management, quality consulting, quality control, six sigma consulting, six sigma tools, Six Sigma, software development methodologies, simulation, statistical analysis, statistical process control, statistical quality control, transactional six sigma, value stream mapping, .Net development, acceptance testing, analysis, application development, application monitoring, development, enterprise architecture, flow charting, information systems consulting, IT architecture, Java development, object modeling, requirements gathering and analysis, UMD, regression testing, software consulting, software design, systems development lifecycle, rational rose, extreme programming, process oriented design

Minimum Education / Minimum General Experience: Master’s degree in engineering or computer science and six years of development experience, as well as general business or engineering experience.



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**Midlevel BizFlow Consultant**

Business process management design and implementation – The Midlevel BPM Consultant demonstrates mastery of BPM modeling products such as BizFlow, Savvion and others, related technologies, theory, and methods. Our BPM professionals make use of our Process Oriented Software Design approach and are versed in Six Sigma as well as other quality/productivity methods. As such, BPM solutions designed and implemented by our personnel will contain the mechanisms and processes necessary to ensure processes continually evolves to meet organizational needs. Further, our BPM solutions account for true end-to-end business processes by placing emphasis upon rigorous process engineering facilitated by software development. Be warned that BPM implementation requires a new software methodology. Traditional methods bury the value of BPM. Knowledgeable in software development and enterprise application integration technologies and methods, project execution, evaluation and planning, process engineering and technology transfer. The Midlevel BizFlow Consultant plays a significant role in requirements, analysis, design, and implementation of BPM automated processes as well as related control and improvement processes.

Shall possess experience with the following:  
benchmarking, Bizflow, Savvion, BPM implementation, business process management, control charts, cost analysis, cost estimating, cost management, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, design for six sigma, DMAIC, evaluation, metrics design, performance analysis, performance evaluation, process automation, process engineering, process improvement, process management, process portfolio management, quality consulting, quality control, six sigma consulting, six sigma tools, Six Sigma, software development methodologies, simulation, statistical analysis, statistical process control, statistical quality control, transactional six sigma, value stream mapping, .Net development, acceptance testing, analysis, application development, application monitoring, development, enterprise architecture, flow charting, information systems consulting, IT architecture, Java development, object modeling, requirements gathering and analysis, UMD, regression testing, software consulting, software design, systems development lifecycle, rational rose, extreme programming, process oriented design

Minimum Education / Minimum General Experience: Bachelor's degree in engineering or computer science and three years of development experience, as well as general business or engineering experience.



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**Website URL:** <http://www.msipros.com>

<p><b>Junior BizFlow Consultant</b></p>	<p>Business process management design and implementation – The Junior BPM Consultant demonstrates working knowledge of BPM modeling products such as BizFlow, Savvion and others, related technologies, theory, and methods. Our BPM professionals make use of our Process Oriented Software Design approach and are versed in Six Sigma as well as other quality/productivity methods. As such, BPM solutions designed and implemented by our personnel will contain the mechanisms and processes necessary to ensure processes continually evolves to meet organizational needs. Further, our BPM solutions account for true end-to-end business processes by placing emphasis upon rigorous process engineering facilitated by software development. Be warned that BPM implementation requires a new software methodology. Traditional methods bury the value of BPM. The Junior BizFlow Consultant plays a role in requirements gathering, and implementation of BPM automated processes under the guidance of more experienced BPM professionals. Must demonstrate a clear path of education and experience in the business or engineering area of endeavor.</p> <p>Shall possess experience with the following: Bizflow, Savvion, BPM implementation, business process management, control charts, cost analysis, data analysis, data transformation, defect analysis, defect reduction, DMAIC, process automation, process engineering, process improvement, statistical analysis, statistical process control, statistical quality control, value stream mapping, .Net development, acceptance testing, flow charting, information systems consulting, Java development, requirements gathering and analysis, systems development lifecycle, rational rose, extreme programming, process oriented design</p> <p>Minimum Education / Minimum General Experience: A technical certificate of achievement or Bachelor's degree in engineering or computer science and one year of development experience, as well as general business or engineering experience.</p>
<p><b>Senior Savvion Consultant</b></p>	<p>Business process management design and implementation – The Senior Savvion Consultant demonstrates mastery of the BPM modeling product Savvion, related technologies, theory, and methods as well as project financial and management principles. Our BPM professionals make use of our Process Oriented Software Design approach and are versed in Six Sigma as well as other quality/productivity methods. As such, BPM solutions designed and implemented by our personnel will contain the mechanisms and processes necessary to ensure processes continually evolve to meet organizational needs. Further, our BPM solutions account for true end-to-end business processes by placing emphasis upon rigorous process engineering facilitated by software development. Be warned that BPM implementation requires a new software methodology. Traditional methods bury the value of BPM. Knowledgeable in software development and enterprise application integration technologies and methods, project execution, evaluation and planning, process engineering and technology transfer. The Senior Savvion Consultant plays a significant role in the definition of processes and requirements, analysis, design, and implementation of Savvion automated processes as well as related control and improvement processes.</p> <p>Shall possess experience with the following: benchmarking, Savvion, BPM implementation, business process management, control charts, cost analysis, cost estimating, cost management, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, design for six sigma, DMAIC, evaluation, metrics design, performance analysis, performance evaluation, process automation, process engineering, process improvement, process management, process portfolio management, quality consulting, quality control, six sigma consulting, six sigma tools, Six Sigma, software development methodologies, simulation, statistical analysis, statistical process control, statistical quality control, transactional six sigma, value stream mapping, .Net development, acceptance testing, analysis, application development, application monitoring, development, enterprise architecture, flow charting, information systems consulting, IT architecture, Java development, object modeling, requirements gathering and analysis, UMD, regression testing, software consulting, software design, systems development lifecycle, rational rose, extreme programming, process oriented design</p> <p>Minimum Education / Minimum General Experience: Master's degree in engineering or computer science and six years of development experience, as well as general business or engineering experience.</p>



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<p><b>Midlevel Savvion Consultant</b></p>	<p>Business process management design and implementation – The Midlevel BPM Consultant demonstrates mastery of the BPM products Savvion, related technologies, theory, and methods. Our BPM professionals make use of our Process Oriented Software Design approach and are versed in Six Sigma as well as other quality/productivity methods. As such, BPM solutions designed and implemented by our personnel will contain the mechanisms and processes necessary to ensure processes continually evolves to meet organizational needs. Further, our BPM solutions account for true end-to-end business processes by placing emphasis upon rigorous process engineering facilitated by software development. Be warned that BPM implementation requires a new software methodology. Traditional methods bury the value of BPM. Knowledgeable in software development and enterprise application integration technologies and methods, project execution, evaluation and planning, process engineering and technology transfer. The Midlevel Savvion Consultant plays a significant role in requirements, analysis, design, and implementation of Savvion automated processes as well as related control and improvement processes.</p> <p>Shall possess experience with the following: benchmarking, Savvion, BPM implementation, business process management, control charts, cost analysis, cost estimating, cost management, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, design for six sigma, DMAIC, evaluation, metrics design, performance analysis, performance evaluation, process automation, process engineering, process improvement, process management, process portfolio management, quality consulting, quality control, six sigma consulting, six sigma tools, Six Sigma, software development methodologies, simulation, statistical analysis, statistical process control, statistical quality control, transactional six sigma, value stream mapping, .Net development, acceptance testing, analysis, application development, application monitoring, development, enterprise architecture, flow charting, information systems consulting, IT architecture, Java development, object modeling, requirements gathering and analysis, UMD, regression testing, software consulting, software design, systems development lifecycle, rational rose, extreme programming, process oriented design</p> <p>Minimum Education / Minimum General Experience: Bachelor's degree in engineering or computer science and three years of development experience, as well as general business or engineering experience.</p>
<p><b>Junior Savvion Consultant</b></p>	<p>Business process management design and implementation – The Junior BPM Consultant demonstrates working knowledge of the BPM modeling product Savvion, related technologies, theory, and methods. Our BPM professionals make use of our Process Oriented Software Design approach and are versed in Six Sigma as well as other quality/productivity methods. As such, BPM solutions designed and implemented by our personnel will contain the mechanisms and processes necessary to ensure processes continually evolves to meet organizational needs. Further, our BPM solutions account for true end-to-end business processes by placing emphasis upon rigorous process engineering facilitated by software development. Be warned that BPM implementation requires a new software methodology. Traditional methods bury the value of BPM. The Junior Savvion Consultant plays a role in requirements gathering, and implementation of Savvion automated processes under the guidance of more experienced BPM professionals. Must demonstrate a clear path of education and experience in the business or engineering area of endeavor.</p> <p>Shall possess experience with the following: Savvion, BPM implementation, business process management, control charts, cost analysis, data analysis, data transformation, defect analysis, defect reduction, DMAIC, process automation, process engineering, process improvement, statistical analysis, statistical process control, statistical quality control, value stream mapping, .Net development, acceptance testing, flow charting, information systems consulting, Java development, requirements gathering and analysis, systems development lifecycle, rational rose, extreme programming, process oriented design</p> <p>Minimum Education / Minimum General Experience: A technical certificate of achievement or Bachelor's degree in engineering or computer science and one year of development experience, as well as general business or engineering experience.</p>

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<p><b>Senior Testing Consultant</b></p>	<p>Testing plans, stress testing, regression testing – The Senior Testing Consultant demonstrates mastery of software testing tools, techniques, and theory. Responsible for design of testing programs that discover hidden potential problems, incorporate quantitative analysis, promote defect reduction, and provide valuable information to designers and developers for continual improvement of the design and development processes. 6STG testing processes place a high degree of importance upon data transformation and predictive analysis. The testing team is tasked not with simply finding defects, but with pointing out the root causes within supplier processes and working collaboratively with designers and developers to reduce defects and improve performance. The Senior Testing Consultant is an expert in data analysis and process improvement methods such as Six Sigma. As such, this consultant leads the testing organization in implementation of these methods and tools and works collaboratively with designers and developers on a regular basis. Our technology professionals make use of our Process Oriented Software Design approach and are versed in Six Sigma as well as other quality/productivity methods. As such, testing infrastructure designed and implemented by our personnel will contain the mechanisms and processes necessary to ensure infrastructure continually evolves to meet organizational needs.</p> <p>Minimum Education / Minimum General Experience: Master's degree in engineering or computer science and six years of development and testing experience, as well as general business or engineering experience.</p>
<p><b>Midlevel Testing Consultant</b></p>	<p>Testing plans, stress testing, regression testing – The Midlevel Testing Consultant demonstrates mastery of software testing tools, techniques, and theory. Responsible for implementing testing programs that discover hidden potential problems, incorporate quantitative analysis, promote defect reduction, and provide valuable information to designers and developers for continual improvement of the design and development processes. 6STG testing processes place a high degree of importance upon data transformation and predictive analysis. The testing team is tasked not with simply finding defects, but with pointing out the root causes within supplier processes and working collaboratively with designers and developers to reduce defects and improve performance. The Midlevel Testing Consultant is an expert in data analysis and process improvement methods such as Six Sigma. As such, this consultant works daily in implementation of these methods and tools and works collaboratively with designers and developers on a regular basis. Our technology professionals make use of our Process Oriented Software Design approach and are versed in Six Sigma as well as other quality/productivity methods. As such, testing infrastructure designed and implemented by our personnel will contain the mechanisms and processes necessary to ensure infrastructure continually evolves to meet organizational needs.</p> <p>Minimum Education / Minimum General Experience: Bachelor's degree in engineering or computer science and three years of development and testing experience, as well as general business or engineering experience.</p>
<p><b>Junior Testing Consultant</b></p>	<p>Stress testing, regression testing – The Junior Testing Consultant demonstrates working knowledge of software testing tools, techniques, and theory. Responsible for conducting tests that discover hidden potential problems, codifying results for quantitative analysis. Must demonstrate a clear path of education and experience in the business or engineering area of endeavor. 6STG testing processes place a high degree of importance upon data transformation and predictive analysis. The testing team is tasked not with simply finding defects, but with pointing out the root causes within supplier processes and working collaboratively with designers and developers to reduce defects and improve performance. The Junior Testing Consultant is conducts many of the tests and properly records results. Our technology professionals make use of our Process Oriented Software Design approach and are versed in Six Sigma as well as other quality/productivity methods. As such, testing infrastructure designed and implemented by our personnel will contain the mechanisms and processes necessary to ensure infrastructure continually evolves to meet organizational needs.</p> <p>Minimum Education / Minimum General Experience: Bachelor's degree or technical certificate in engineering or computer science and one year of development and testing experience, as well as general business or engineering experience.</p>



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<p><b>Contract Writer</b></p>	<p>Contract writing, contracting, terms and conditions – The Contract Writer demonstrates mastery of technical contract writing techniques, terms, methods, and trends. Responsible for creating client contracts used to create legal arrangements that promote vendor performance, consistency, and continual improvement of Government vendor relations as well as continual improvement of performance factors. The Contract Writer will possess a strong background in contract law, risk management, complex contract writing and contractual procedures such as statements of work, task order processes, transmittals, inspections, renewals, notices, and arbitrations. 6STG Contract Writers incorporate some basic techniques found within Six Sigma, such as elements of the project charter to incorporate meaningful, quantifiable performance and management terms ensuring an effective and efficient relationship.</p> <p>Minimum Education / Minimum General Experience: Master's degree in business administration / JD, or Law degree and four years of contracting experience, as well as general business or engineering experience.</p>
<p><b>Senior ITIL Service Management Consultant</b></p>	<p>ITIL Consultant required with a minimum of 5 years experience of implementing ITIL standards as an ITIL practitioner. Lead efforts on an IT Change Management, Configuration Management, Asset Management, Release Management, Problem and Incident Management, initiatives. The goal is to transform an IT organization with silo-based operations and limited process, to a proactive, service-oriented community where technology changes are managed and monitored in a cooperative manner. ITIL certified with excellent interpersonal skills. The role involves review of the processes and procedures within an existing ICT function with a view to undertaking a gap analysis against ITIL standards and will make recommendations in terms of how to initiate an ITIL implementation.</p> <p>Essential Skills &amp; Experience : BS Computer Science, Engineering, or Information Systems/Technology required; 10 years of hands-on process engineering in the software development lifecycle arena, with a minimum of 5 years in ITIL process definition, design, and development with a focus on business process reengineering .</p> <p>Job Description: 5+ years direct experience in IT with prior experience in IT and driving Organizational Change; Evangelizing the need for new or improved processes with various IT groups from Networks to Applications; Identify Change Management champions and stakeholders within the organization; Adapt best practices and work with key IT staff to establish a CM process; Establish/Oversee a Change Requirements board for assessing risk, categorizing and managing changes to IT infrastructure; Lead the implementation and deployment of the solution including defining overall process, guidelines for all major IT groups (Networks, Systems, Databases, Middleware and Applications), requirements for tool customizations, change notification matrices and creating reports for IT operations staff, and executive/CIO audience; Conduct post-mortems to help improve tools &amp; process while training IT staff to be self-sufficient in leading a successful operation; Measure and assess the impact of the new process to the business; Ensure the integration of the function with the other associated ITIL projects such as Asset, Availability, Problem, Knowledge and Service Management; Collecting and analyzing data from the customer.; Presenting findings in the customer organization.; Work with customer project team as needed.; Assist in validating and verifying that customer project plans will deliver the benefits delineated in the Project Charter.; Provide templates and best practice guidance as needed Enforce Six Sigma process discipline; Conduct/facilitate internal or customer information gathering/workshop sessions as required. Assist in Business Alignment Analysis for customers. Assist in the development of plans for process improvement if required. Provide detailed knowledge in the specific areas (Six Sigma/CAP) when conducting analysis; Conduct Quality Reviews of material developed to ensure compliance with six sigma principles; Knowledge of other ITIL disciplines such as Asset, Availability, Problem and Service Management; Hands-on development of ITIL processes.; Familiarity with tools such as Peregrine Service Center , Remedy; Familiarity with enterprise tools such as Tivoli , BMC, HP (OpenView), Micromuse (Netcool) etc... ; ITIL Master Certification; Excellent Project Management skills, strong client management skills.</p>



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<p><b>Savvion Architect</b></p>	<p>Business process management design and implementation – The Savvion Architect demonstrates mastery of the BPM modeling product Savvion, related technologies, theory, and methods. Our BPM professionals make use of our Process Oriented Software Design approach and are versed in Six Sigma as well as other quality/productivity methods. As such, BPM solutions designed and implemented by our personnel will contain the mechanisms and processes necessary to ensure processes continually evolve to meet organizational needs. Further, our BPM solutions account for true end-to-end business processes by placing emphasis upon rigorous process engineering facilitated by software development. Be warned that BPM implementation requires a new software methodology. Traditional methods bury the value of BPM. Knowledgeable in software development and enterprise application integration technologies and methods, project execution, evaluation and planning, process engineering and technology transfer. The Savvion Architect plays a significant role in the definition of processes and requirements, analysis, design, and implementation of Savvion automated processes as well as related control and improvement processes.</p> <p>The Savvion Architect makes decisions regarding optimal use of the BPM application for an effective, scalable, and high performance BPM solution. Other responsibilities include:</p> <ul style="list-style-type: none"> <li>• Interact with customers to gather and analyze business requirements</li> <li>• Manage delivery to the non-functional requirements: performance, scalability, availability, reliability and security</li> <li>• Deliver technical training and mentorship to customers and implementation partners</li> </ul> <p>Shall possess experience with the following: benchmarking, Savvion, BPM implementation, business process management, control charts, cost analysis, cost estimating, cost management, customer satisfaction analysis, data analysis, data transformation, defect analysis, defect reduction, design for six sigma, DMAIC, evaluation, metrics design, performance analysis, performance evaluation, process automation, process engineering, process improvement, process management, process portfolio management, quality consulting, quality control, six sigma consulting, six sigma tools, Six Sigma, software development methodologies, simulation, statistical analysis, statistical process control, statistical quality control, transactional six sigma, value stream mapping, .Net development, acceptance testing, analysis, application development, application monitoring, development, enterprise architecture, flow charting, information systems consulting, IT architecture, Java development, J2EE Architecture and Application Servers, Web Services and Service Oriented Architecture (SOA), object modeling, requirements gathering and analysis, UMD, regression testing, software consulting, software design, systems development lifecycle, rational rose, extreme programming, process oriented design</p> <p>Minimum Education / Minimum General Experience: Master’s degree in engineering or computer science and seven years of development experience, as well as general business or engineering experience.</p>
<p><b>Process Portfolio Management Executive Seminar</b></p>	<p>Process Portfolio Management (PPM) is the most advanced form of organizational management to date. The world’s top corporations are implementing process portfolio management to bring process excellence to the strategic level in the organization. 6 Sigma Technology Group is a pioneer into the realm of process portfolio management. In fact, 6 Sigma Technology Group owns the rights to the term process portfolio management. Process Portfolio Management is an organizational management methodology that defines relationships between people, processes, technologies as well as all supplier, inputs, outputs, and customers. Then relates all attributes of the organization to metrics, goals, and objectives. This is a one day executive seminar in which executive consultants from 6 Sigma Technology Group will present the concept of PPM to organizational leaders and managers in a collaborative setting. Attendees will leave this seminar with a strong foundation in this critical new approach to management and will be better prepared to make decisions regarding implementation of organization wide strategic management and operational excellence methods.</p> <p>Maximum class size: 12</p>



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### Process Portfolio Management Training

Process Portfolio Management (PPM) is the most advanced form of organizational management to date. The world's top corporations are implementing process portfolio management to bring process excellence to the strategic level in the organization. 6 Sigma Technology Group is a pioneer into the realm of process portfolio management. In fact, 6 Sigma Technology Group owns the rights to the term process portfolio management. Process Portfolio Management is an organizational management methodology that defines relationships between people, processes, technologies as well as all supplier, inputs, outputs, and customers. Then relates all attributes of the organization to metrics, goals, and objectives. This is a two day management training class in which managers will be educated in the concept and trained in the tactical level methods and tools required to implement PPM. Consultants from 6 Sigma Technology Group will present the concept of PPM to attendees and then provide detailed training on each phase of implementation in a collaborative setting. Attendees will leave this seminar with a strong foundation in this critical new approach to management and will be trained in the techniques and technologies to be used in a typical organizational improvement methodology.

Maximum class size: 20



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### SIN 874-4 COURSE DESCRIPTIONS

MSI001	Title of Course, Description and Objectives	Duration	Min	Max
	<b>ONE DAY SPECIALIZED CONTINUOUS PROCESS IMPROVEMENT (CPI) TRAINING MODULES</b>	<b>1 Day</b>	<b>10</b>	<b>20</b>

Supplemental training modules are the critical elements of the Lean Six Sigma experiential learning process that ensure trainees are exposed to the skills they need to thrive in their specific environment. Supplemental training modules are derived from our suite of ever-growing and evolving set of supplemental training material. They are delivered in one sessions for groups of up to 25. Supplemental training modules include topics such as Minitab, Theory of Constraints 101, Design for Lean Six Sigma, Lean Six Sigma Program Deployment and Control, Voice of the Customer, How to conduct Rapid Improvement Events, Integration of information systems with Lean Six Sigma, Lean Six Sigma and Enterprise Architecture, Risk Analysis, Change Management, Charter writing, Kan Ban, ITIL and Lean Six Sigma, How conduct a Discovery Workshop, ASQ Black Belt Exam Preparation, DFSS for information technologists, Advanced Root Cause Analysis, and more.

**COURSE OBJECTIVES:**

- Educate attendees on the fundamental value and use of Each Training Module Subject
- Educate attendees on the fundamental tenets and terminology of Each Training Module Subject
- Educate attendees on the fundamental value and use of Each Training Module Subject
- Educate attendees on the methods for integrating Each Training Module Subject with other related CPI, BPM and related improvement approaches

MSI002	Title of Course, Description and Objectives	Duration	Min	Max
	<b>EXECUTIVE SEMINAR</b>	<b>2 Days</b>	<b>10</b>	<b>20</b>

This Executive training is for senior managers and executives investigating the possibility of implementing CPI, Hoshin Kanri, BMP and/or Lean Six Sigma within their organizations. The two day executive training and development course will include a simulation exercise demonstrating the power of defect reduction, waste reduction, statistical quality control, and standardization. The course emphasizes the business value of CPI, BMP, Hoshin Kanri and Lean Six Sigma along with a solid foundation in what these improvement approaches can deliver, the phases of each, practical details concerning implementing successfully, common mistakes, how to integrate these approaches with other critical support functions such as finance and information technology, The class also explores how these improvement tools integrate with other process and business performance disciplines and how they enabled strategic decision making. Executive and leadership development skills will enable leaders to understand and plan future organizational transformations. Additionally, the class covers where to find additional resources and how best to conduct the CPI, Hoshin Kanri, BMP and/or Lean Six Sigma decision making process.

**COURSE OBJECTIVES:**

- Educate attendees on the fundamental value and use of CPI, Hoshin Kanri, BMP and/or Lean Six Sigma
- Educate attendees on the fundamental tenets of CPI, Hoshin Kanri, BMP and/or Lean Six Sigma
- Prepare attendees for the next steps in their research and decision making regarding the adoption of CPI, Hoshin Kanri, BMP and/or Lean Six Sigma
- Educate attendees on the importance of creating a culture of CPI, Hoshin Kanri, BMP and/or Lean Six Sigma excellence
- Educate attendees on the steps and techniques of CPI, Hoshin Kanri, BMP and/or Lean Six Sigma
- Educate attendees on the role of CPI, Hoshin Kanri, BMP and/or Lean Six Sigma in strategic management and decision making
- Educate attendees on the proper way to successfully adopt CPI, Hoshin Kanri, BMP and/or Lean Six Sigma for the long term



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MSI003	Title of Course, Description and Objectives	Duration	Min	Max
	<b>EVENT FACILITATION</b>	<b>2 Days</b>	<b>10</b>	<b>20</b>
<p>This two day course is tailored to arm process improvement personnel with “real” ways to be successful while facilitating and conducting rapid improvement events, kaizen events, and workshops. This class teaches a results oriented, highly functional, brass tacks approach to identifying the right workshop methodology and executing lean-and-mean while ensuring customer satisfaction. MSI's Rapid Improvement Events (RIE) facilitation training is an interactive session with minimal slide presentation and emphasis on learning tangible RIE techniques. MSI is a leader in workshop facilitation. Our master RIE facilitators are renowned for their ability in industry and Government. We have pulled together the best practices these Masters have employed for decades to develop this class. The training enables personnel to conduct fast paced interactive two day training even where students are challenged to learn and apply effective rapid improvement even techniques. These techniques can be applied to RIEs, Kaizen Events, Work-Outs, Value Stream Workshops as well as nearly any process improvement workshop.</p> <p>Training Modules Include:</p> <ul style="list-style-type: none"> <li>- RIE Strategy for Success</li> <li>- Selecting the Best Approach</li> <li>- Planning and Preparation</li> <li>- Participant Management</li> <li>- Beginning With the End in Mind</li> <li>- Scope, Analysis, &amp; Recommendations</li> <li>- Facilitation techniques</li> <li>- Pulling it All Together and Planning Next Steps</li> <li>- After the Event</li> </ul> <p><b>COURSE OBJECTIVES:</b></p> <ul style="list-style-type: none"> <li>•Provide students with the skills needed to effectively apply their Lean, Six Sigma, TOC or other training in RIEs</li> <li>•Provide students with the skills to rapidly analyze, improve, and control processes, functions, and organizations</li> <li>•Teach students key RIE facilitation techniques</li> <li>•Teach students the skills to make RIEs a rewarding event for attendees</li> </ul>				
MSI004	Title of Course, Description and Objectives	Duration	Min	Max
	<b>EXECUTIVE LEAN SIX SIGMA (LSS) CHAMPION</b>	<b>2 Days</b>	<b>10</b>	<b>20</b>
<p>Executive training is for senior managers and executives investigating the possibility of implementing Lean Six Sigma within their organization. The course is two days and will include a simulation exercise demonstrating the power of defect reduction, waste reduction, statistical quality control, and standardization. The course emphasizes the business value of Lean Six Sigma along with a solid foundation in what Lean Six Sigma is about, the phases and how it works, how to implement successfully, common mistakes, how to integrate Lean Six Sigma with other critical support functions such as finance and information technology, The class also explores how Lean Six Sigma integrates with other process and business performance disciplines and how Lean Six Sigma enables strategic decision making. The value of Lean Six Sigma is communicated in terms of the non-manufacturing, business environment in which certain traditional Lean Six Sigma practices are less appropriate while others are more powerful. Additionally, the class covers where to find additional resources and how best to conduct the Lean Six Sigma decision making process.</p> <p><b>COURSE OBJECTIVES</b></p> <ul style="list-style-type: none"> <li>•Educate attendees on the fundamental value and use of Lean Six Sigma</li> <li>•Educate attendees on the fundamental tenets of Lean Six Sigma</li> <li>•Prepare attendees for the next steps in their research and decision making regarding the adoption of Lean Six Sigma</li> <li>•Educate attendees on the importance of creating a culture of Lean Six Sigma excellence</li> <li>•Educate attendees on the steps and techniques of Lean Six Sigma</li> <li>•Educate attendees on the role of Lean Six Sigma in strategic management and decision making</li> <li>•Educate attendees on the proper way to successfully adopt Lean Six Sigma for the long term</li> </ul>				



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MSI005	Title of Course, Description and Objectives	Duration	Min	Max
	<b>LEAN CONTINUOUS PROCESS IMPROVEMENT (CPI) FOR SERVICE AND TRANSACTIONAL PROCESSES OVERVIEW</b>	<b>2 Days</b>	<b>10</b>	<b>20</b>
<p>Lean Continuous Process Improvement for Service and Transaction is a two day course designed to impart participants with a solid foundation in the theory and practice of Continuous Process Improvement and Lean Continuous Process Improvement for Service and Transaction. The course incorporates value stream management and enterprise lean thinking. The course is designed to meet the needs of both executives and line workers such that everyone develops a common understanding of CPI and Lean Continuous Process Improvement for Service and Transaction and the improvements that can be realized through the use of various CPI approaches. These improvements include increased throughput, shortened cycle times, reduced defects and lower costs. This class places emphasis on helping participants understand how to eliminate non-valued add activities, reduce process variation and mitigate the impacts of constraints.</p> <p><b>COURSE OBJECTIVES:</b></p> <ul style="list-style-type: none"> <li>Educate attendees on the fundamental value and use of CPI and Lean for service and transactional process</li> <li>Educate attendees on the fundamental tenets and terminology of CPI and Lean for service and transactional process</li> <li>Educate attendees on the fundamental value and use of CPI and Lean for service and transactional process</li> <li>Educate attendees on the methods for integrating CPI and Lean for service and transaction</li> </ul>				
MSI006	Title of Course, Description and Objectives	Duration	Min	Max
	<b>LEAN SIX SIGMA (LSS) YELLOW BELT</b>	<b>5 Days</b>	<b>10</b>	<b>20</b>
<p>Yellow Belt training is a one week course providing attendees with a solid foundation in the theory and practice of Lean Six Sigma. The course is designed to meet the needs of both executives and line workers such that everyone develops a common understanding of What Lean Six Sigma means programmatically, within the project, and for the individuals in the organization. This class places emphasis upon enabling the Yellow Belt to effectively stabilize process, control, analyze, and incrementally improve. The Toyota / Toyota Production System approach to training is employed where possible and an emphasis on hands on learning is encouraged.</p> <p><b>COURSE OBJECTIVES:</b></p> <ul style="list-style-type: none"> <li>Educate attendees on the fundamental value and use of Lean Six Sigma</li> <li>Prepare attendees to become value adding members of Lean Six Sigma engineering efforts</li> <li>Make steps toward building a culture of Lean Six Sigma excellence</li> <li>Enable attendees to create detailed flowcharts and process maps of processes in order to relay the most accurate information to the organization's Black Belts</li> <li>Enable attendees to conduct basic data collection and analysis techniques</li> <li>Provide attendees with the tools and knowledge for understanding the nature of in process issues and the methods for remediation and reporting</li> <li>Give attendees the ability to control and improve processes using simple scientific methods and qualitative techniques</li> </ul>				



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MSI007	Title of Course, Description and Objectives	Duration	Min	Max
	<b>LEAN SIX SIGMA (LSS) GREEN BELT</b>	<b>2 Weeks</b>	<b>10</b>	<b>20</b>
<p>This two week course provides Green Belt Candidates with a solid understanding of Six Sigma principles, the “DMAIC” project roadmap and the key improvement tools and methodologies that are used within that roadmap. The class is delivered in two five day segments. The second five day segment is typically delivered two weeks after completion of the first segment. This time period allows the candidate time to obtain internal approval for the improvement project and to begin initial data collection and measurement using techniques learned in the first segment. Students capable of making all tollgate reviews will be given a Green Belt certification during the final week. Students requiring additional time will submit their materials electronically after completion of the program.</p> <p>The MSI approach to Green Belt Training places more emphasis upon “Kaizen” or continuous improvement methods and incorporates MSI’s hybrid training methodology which is based upon action learning and the Toyota University approach to training. Trainees receive a combination of classroom and job site training so they employ useful tools directly to their work. It is part of our philosophy that Green Belts in their large numbers throughout the organization are critical to the cultural change that leads to the lofty goal of being a Toyota like organization. Our approach is to create Green Belts capable of sustaining and improving Quality rather than half way pre-paring them to conduct full DMAIC projects. This is of far greater benefit to the individual and the organization.</p> <p>This knowledge will enable the candidates to serve as active contributors on a Six Sigma project, to conduct analysis on their production processes, and most importantly will arm the Green Belt with the tools and knowledge for continuous improvement of their processes.</p> <p><b>COURSE OBJECTIVES:</b></p> <ul style="list-style-type: none"> <li>• Educate attendees on the fundamental value and use of Lean Six Sigma</li> <li>• Prepare attendees to become value adding members of Lean Six Sigma engineering efforts</li> <li>• Make steps toward building a culture of Lean Six Sigma excellence</li> <li>• Enable attendees to create detailed flowcharts and process maps of processes in order to relay the most accurate information to the organization’s Black Belts</li> <li>• Enable attendees to conduct basic data collection and analysis techniques</li> <li>• Provide a context for making decisions regarding which tools to utilize on a Six Sigma effort.</li> <li>• Give attendees the ability to control and improve processes using simple scientific methods and qualitative techniques</li> <li>• Give attendees the ability to conduct incremental improvement efforts using LSS techniques</li> </ul>				
MSI008	Title of Course, Description and Objectives	Duration	Min	Max
	<b>LEAN SIX SIGMA (LSS) BLACK BELT</b>	<b>4 Weeks</b>	<b>10</b>	<b>20</b>
<p>This four week course provides Lean Six Sigma Black Belts with a solid understanding of Lean Six Sigma principles, the DMAIC project roadmap, Design For Six Sigma (DFSS), advanced tools, program level knowledge, knowledge of risks and challenges, project management skills, and cultural change skills. The class is delivered in four five day segments. Each five day segment is typically delivered two to three weeks after completion of the prior segment. This time period allows the candidate time to obtain internal approval for the improvement project and to begin initial data collection and measurement, and to use the tools taught in each phase. Our training approach emphasizes real world use of the techniques on real projects, so that certified Black Belts can truly say they have achieved success with Lean Six Sigma and can confidently use the methods after training. The MSI approach to Black Belt Training places more emphasis upon “Kaizen” or continuous improvement methods and incorporates MSI’s hybrid training methodology which is based upon action learning and the Toyota University approach to training. Trainees receive a combination of classroom and job site training so they employ useful tools directly to their work. This approach gives the student the benefit of a more JIT training approach and the ability to work with the instructor and share ideas with the class. Students capable of making all tollgate reviews will be given a Black Belt certification during the final week. Students requiring additional time will submit their materials electronically after completion of the program.</p> <p>The MSI approach to Black Belt Training encourages a balance between “Kaizen” or continuous improvement methods and Lean Six Sigma Projects. We teach Black Belts that their most important deliverable is often and continuous improvement frame-work even if initial improvements from the project are not possible or not recognized. This is especially true in transactional Six Sigma. The Black Belts will mentor and enable Green Belts in their large numbers throughout the organization to affect the cultural change.</p> <p>This knowledge will enable the candidates to serve as active leaders on Six Sigma projects, to conduct analysis on their production processes, to mentor and coach Green Belts, and to track and manage continuous improvement of organizational processes.</p> <p><b>COURSE OBJECTIVES:</b></p> <ul style="list-style-type: none"> <li>• Educate attendees on the fundamental value and use of Lean Six Sigma</li> <li>• Prepare attendees to become leaders of Lean Six Sigma engineering efforts</li> </ul>				



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- Provide Black Belts with the skills to analyze, improve, and control the organizations business processes.
- Teach Black Belts how to institutionalize a culture of excellence
- Teach Black Belts how to deal with project roadblocks and pit-falls
- Enable attendees to conduct extensive data collection and advanced analysis techniques
- Provide training and skills in the assessment of process outputs.
- Give attendees depth of knowledge in the quantitative methods of Lean Six Sigma
- Teach attendees the value of pro-active management, techniques, and the importance of a Kaizen end state system.
- Give attendees the ability to control and improve processes using simple scientific methods and qualitative techniques
- Provide attendees with an under-standing of how to manage a Lean Six Sigma deployment and infrastructure – best practices

MSI009	Title of Course, Description and Objectives	Duration	Min	Max
	<b>STRATEGIC LEADERSHIP AND LEADERSHIP COACHING</b>	<b>1 Day</b>	<b>10</b>	<b>20</b>

The Strategic Leadership Executive Workshop is a one day workshop in which enterprise level strategic planning, leadership and Human Capital management approaches are introduced and evaluated against the needs of the organization and the organization's mission. A descriptive Leadership vision and mission are developed from which external analysis, customer analysis, and internal analysis factors can be converged to prepare the leader for the development of enterprise focus goals and top level means by which short and long term goals will be achieved. The Strategic Leadership Executive Workshop also introduces or re-acquaints leaders with the latest leadership, coaching, mentoring and related human capital best practices from industry and academia within the context of management science and CPI. Examples subject areas include Conflict resolution, unlocking hidden strengths, implementing democracy and giving second chances. Additional modules cover the context within which effective leadership must be deployed including, uncertainty, the new normal, generational diversity, and disparate digital skill levels. The workshop also includes ample time for the exploration of actual leadership challenges and the examination of potential solutions.

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of enterprise level strategic planning, leadership and Human Capital management techniques
- Provide an overview of a variety of enterprise level strategic planning, leadership and Human Capital management techniques
- Prepare attendees for the next steps in their research and decision making regarding the adoption of enterprise level strategic planning, leadership and Human Capital management techniques
- Educate attendees on the importance of creating a culture of enterprise level strategic planning, leadership and Human Capital management excellence
- Educate attendees on the role of enterprise level strategic planning, leadership and Human Capital management techniques in strategic management and decision making
- Educate attendees on the proper way to successfully adopt enterprise level strategic planning, leadership and Human Capital management techniques for the long term

MSI010	Title of Course, Description and Objectives	Duration	Min	Max
	<b>HOSHIN KANRI QUICK START TRAINING PACKAGE</b>	<b>4 Weeks</b>	<b>10</b>	<b>20</b>

MSI's Hoshin Kanri training is designed for all levels of management from team leaders and branch chiefs to the highest level of executive-leadership. This course and the related action learning workshops emphasizing the business value of Hoshin Kanri planning and the critical role Hoshin Kanri plays in world class Lean organizations and Strategic Planning. Foundationally, the class educates attendees on the fundamentals and application of Hoshin Kanri in an organization. Further, the class imparts the knowledge necessary to successful implementation, avoidance of common mistakes, and integration of Hoshin Kanri with Lean Six Sigma and balanced scorecards. Class room training is followed by a series of workshops at the executive and management levels in which students experience action learning and apply Hoshin Kanri tools and techniques with the support of our trainers to create the first pass of totally participative goals.

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of Hoshin Kanri
- Educate attendees on the fundamental tenets of Hoshin Kanri and Strategic Planning
- Educate attendees on the use of Hoshin Kanri
- Educate attendees on the methods for integrating Hoshin Kanri with value stream management, Lean Six Sigma, and balanced scorecard



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- Development of the organization's first draft of totally participative goals

### SUBJECTS / MATERIAL COVERED:

1. Hoshin Kanri Overview
2. The Hoshin Kanri process
  - a. The Deming Cycle and Hoshin Kanri
  - b. Creating vision, mission, strategies, objectives, goals, and identifying CTQ's
    - i. Dimensions of time, performance, and change
  - c. Creating a goal setting and measurement framework
    - i. Using value streams or service oriented architecture
    - ii. Using organization structure
    - iii. The dimensions of a good measurement program
  - d. Identifying, selecting, and communicating goals and metrics
  - e. Totally participative policy deployment "catch ball"
  - f. Controlling the policy (Check and Act)
    - i. Regular reviews and use of the prescribed quality methodology (PDCA, LSS, etc.)
3. More on measurement. How to do it without creating work.
4. Integrating Hoshin Kanri with Lean Six Sigma, Value Stream Management, and Balanced Scorecards

### WORKSHOP 1 – STRATEGIC PLANNING

1. A one to two day workshop for organizations with an existing strategic plan and/or enough market and customer expertise to develop a useful strategy. A structured discussion of customer, market, regulatory, emerging technology, and other relevant factors to identify the overall strategy for the organization. This is a true strategy workshop addressing the nature and intent of the organization and how it will perform within the market. The workshop is intended to generate consensus on a high level plan for becoming the organization of the future.
2. Includes development of strategy artifacts to be used in in Workshop 2 for defining strategic goals and means
3. Note. If your organization does not have existing strategy or strategic market information based on experience and analysis, strategic analysis is required prior to this workshop.

### WORKSHOP 2 – ENTERPRISE GOALS AND MEANS

1. Taking strategy and turning it into measureable goals and objectives
2. Identifying the means for achieving goals, timelines, and metrics

### WORKSHOP(S) 3 – TOTALLY PARTICIPATIVE DEPLOYMENT

1. Cascading development of objectives, metrics, and means up and down throughout the organization
2. Note, this workshop may need to be repeated depending on the size of the organization and the iterations of the catch ball process

MSI011	Title of Course, Description and Objectives	Duration	Min	Max
	<b>HOSHIN KANRI STRATEGIC PLANNING AND GOAL DEPLOYMENT</b>	<b>1 Day</b>	<b>10</b>	<b>20</b>

Hoshin Kanri training is for all levels of management from the front line up through the highest level of executive management. This is a one day course and action learning workshops emphasizing the business value of Hoshin Kanri planning and the critical role Hoshin Kanri plays in world class Lean organizations. Foundationally, the class educates attendees on the fundamentals and application of Hoshin Kanri in any organization. Further, the class educates on how to implement successfully, common mistakes, and how to integrate Hoshin Kanri with Lean Six Sigma and balanced scorecards. Class room training is followed by a series of workshops at the executive and management levels in which students experience action learning and apply Hoshin Kanri tools and techniques with the support of our trainers to create the first pass of totally participative goals.

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of Hoshin Kanri
- Educate attendees on the fundamental tenets of Hoshin Kanri
- Educate attendees on the use of Hoshin Kanri
- Educate attendees on the methods for integrating Hoshin Kanri with value stream management, Lean Six Sigma, and balanced scorecard
- Development of the organizations first draft of totally participative goals

MSI012	Title of Course, Description and Objectives	Duration	Min	Max
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	VALUE STREAM MANAGEMENT EXECUTIVE TRAINING	1 day	10	20
<p>Value Stream Management (VSM) is the most advanced form of organizational management to date. It is the fundamental driver for Enterprise Architecture. The world's top corporations and Government organizations are implementing Enterprise Architecture / value stream management to bring process excellence to the strategic level in the organization. MSI is a pioneer in the realm of value stream management and is especially suited to introducing the potential of VSM to executive audiences. Value Stream Management is an organizational management methodology that defines relationships between people, processes, technologies as well as all supplier, inputs, outputs, and customers. Then relates all attributes of the organization to metrics, goals, and objectives. This is a one day manager and practitioners seminar in which executive consultants from MSI will present the concepts of Enterprise Architecture / VSM to organizational managers in a collaborative setting. Attendees will leave this seminar with a strong foundation in this critical new approach to management and will be better prepared to make decisions regarding implementation of organization wide strategic management and operational excellence methods.</p> <p><b>COURSE OBJECTIVES:</b></p> <ul style="list-style-type: none"> <li>Educate Executives on the fundamental value and use of VSM</li> <li>Educate Executives on the tenets and terminology of VSM</li> <li>Educate Executives on the use of VSM</li> <li>Educate Executives on the generation and analysis of value stream maps</li> <li>Educate Executives on the methods for integrating VSM with Failure Modes and Effects Analysis (FMEA)</li> <li>Educate Executives on the methods for integrating VSMS across the enterprise</li> <li>Educate Executives on creating an ideal state process map</li> </ul>				
<b>MSI013</b>	<b>Title of Course, Description and Objectives</b>	<b>Duration</b>	<b>Min</b>	<b>Max</b>
	<b>MINITAB</b>	<b>3 days</b>	<b>10</b>	<b>20</b>
<p>MSI's MiniTab Class is designed to take an individual from no knowledge of MiniTab to the point that they can do sophisticated analysis to include Advanced DOE. This is built as a step by step class. The documentation was designed to be used as a step by step reference from the basics through the advanced. Prior to each MiniTab session, is a detailed class on the how and why of the techniques that are covered within that section. Subject areas covered are as follows</p> <p><b>COURSE OBJECTIVES:</b></p> <ul style="list-style-type: none"> <li>Day One: Understanding MiniTab Layout; Graphical analyses; Basic Stats; MSE</li> <li>Day Two: Hypothesis testing; Statistical tests;</li> <li>Day Three: Capability; Power and Sample Size; Correlation and Regression</li> <li>Day Four: DOE Steepest Ascent; Central Composite Design (CCD)</li> <li>Day Five: DOE Continued DOE (Advanced) Steepest Ascent; Central Composite Design (CCD); RSM; Mixture design; Characterization; Taguchi</li> </ul>				
<b>MSI014</b>	<b>Title of Course, Description and Objectives</b>	<b>Duration</b>	<b>Min</b>	<b>Max</b>
	<b>INTRODUCTION TO PROCESS AUTOMATION AND PROCESS ORIENTED DESIGN</b>	<b>2 Days</b>	<b>10</b>	<b>20</b>
<p>This course in Business Process Automation (BPA) and Process Oriented Design (POD) is designed to impart the introductory knowledge and expertise necessary for automating standard business processes and functions through the use of BPA and POD technologies, tools and methodologies such as Lean Six Sigma, Baldrige, Hoshin Kanri, BPM, and CPI. It focuses on "operate the organization" instead of "count the organization" approaches to business automation. Designed and developed by experts in process automation and engineering methods, MSI's BPA and BOD approach represents the most advanced approach to date. MSI's process automation training will ensure participants develop the capacity to integrate processes, systems and information to create standard, streamlined, and repeatable business processes. This is a two day course that presents and overview of available industry approaches and software. It presents the concept and benefits of BPA and POD to attendees. Process Oriented Design™ (POD) is the only software development methodology that ensures proper engineering of critical processes in parallel to and integrated with software development design and development. POD incorporates best practices from Agile, CMMI, and Systems Engineering. Designed and developed by experts in process engineering methods such as lean six sigma and Baldrige, POD represents the most advanced approach to date for system design and development. POD uses simple qualitative and complex techniques to ensure that systems are true systems, not simply software. A true system accounts for all elements of the production process including processes, people, technologies and related inputs, outputs, customers, and suppliers. With the rapid adoption of process excellence and Business Process Management (BPM) applications, the need has never been greater for a software engineering approach that integrates meaningful process engineering techniques. Any organization implementing BPM solutions should be</p>				



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12-719-3683

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using POD or the value of BPM will not be realized. BPM implementation brings the potential to implement powerful process management within an organization. However, if not properly implemented from concept through management, BPM is a dangerous tool that gives false hope to management. From requirements gathering through delivery and support of the system, BPM is a different breed of software implementation and must be implemented using the techniques found in POD to ensure success

### COURSE OBJECTIVES:

- Educate Attendees on the fundamental value, benefits and terminology of PDA and POD
- Educate Attendees on current BPA and POD techniques, tools and software
- Educate Attendees on the use of BPA and POD
- Educate Attendees on the application of BPA and POD to basic business processes and functions

MSI015	Title of Course, Description and Objectives	Duration	Min	Max
	<b>ADVANCED PROCESS AUTOMATION AND PROCESS ORIENTED DESIGN</b>	<b>3 Days</b>	<b>10</b>	<b>20</b>

This advanced course in Business Process Automation (BPA) and Process Oriented Design (POD) is designed to provide experienced BPA practitioners with advanced knowledge and expertise necessary to automating complex, enterprise-wide business processes and functions through the use of advanced technologies, tools and methodologies such as Lean Six Sigma, Baldrige, Hoshin Kanri, BPM, and CPI. This course in Business Process Automation (BPA) and Process Oriented Design (POD) is designed to impart the introductory knowledge and expertise necessary to automating standard business processes and functions through the use of BPA and POD technologies, tools and methodologies such as Lean Six Sigma, Baldrige, Hoshin Kanri, BPM, and CPI. It focuses on "operate the organization" instead of "count the organization" approaches to business automation. Designed and developed by experts in process automation and engineering methods, MSI's BPA and BOD approach represents the most advanced approach to date. MSI's process automation training will ensure participants develop the capacity to integrate processes, systems and information to create standard, streamlined, and repeatable business processes. The course presents the concept and benefits of BPA and POD to attendees. Process Oriented Design™ (POD) is the only software development methodology that ensures proper engineering of critical processes in parallel to and integrated with software development design and development. Designed and developed by experts in process engineering methods such as lean six sigma and Baldrige, POD represents the most advanced approach to date for system design and development. POD incorporates best practices from Agile, CMMI, and Systems Engineering. POD uses simple qualitative and complex techniques to ensure that systems are true systems, not simply software. A true system accounts for all elements of the production process including processes, people, technologies and related inputs, outputs, customers, and suppliers. With the rapid adoption of process excellence and Business Process Management (BPM) applications, the need has never been greater for a software engineering approach that integrates meaningful process engineering techniques. Any organization implementing BPM solutions should be using POD or the value of BPM will not be realized. BPM implementation brings the potential to implement powerful process management within an organization. However, if not properly implemented from concept through management, BPM is a dangerous tool that gives false hope to management. From requirements gathering through delivery and support of the system, BPM is a different breed of software implementation and must be implemented using the techniques found in POD to ensure success This is a three day course that explores in detail available industry approaches and software. It presents advanced concept and benefits of BPA and POD to attendees.

### COURSE OBJECTIVES:

- Educate Attendees on the advanced capabilities of BPA and POD
- Educate Attendees on advanced BPA and POD techniques, tools and software
- Educate Attendees on the application of BPA and POD across an organization in support of complex business processes

MSI016	Title of Course, Description and Objectives	Duration	Min	Max
	<b>DISCOVERY WORKSHOP</b>	<b>2 Days</b>	<b>10</b>	<b>20</b>

This course teaches leaders and managers the methodology and techniques for assessing organizational alignment to mission and goals as well as process and organizational design. The goal of this course is to give leaders and managers the expertise necessary for identifying the path to improvement, prioritized improvements, a clear picture of organizational maturity, and a snapshot of strategic alliance. The course teaches leaders and managers through a facilitated three day workshop and results in a mission alignment model; prioritized project list; an opportunities list; and an action plan. The course helps leaders develop a foundation and the business case to obtain and assign resources needed to transform an organization into a High Performing Organization (HPO). The course prepares an organization to holistically define and analyze existing operations using a Systems Thinking model.

Training Modules



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### Day One

#### Introductions

#### Meeting Overview and Objectives

Discuss your organization and its value stream, customers, and culture

Identify mission, goals, and CTQs

Issues exercise and development of problem statements

### Day Two

Break out teams to drill into problems

or

Process mapping

Agree upon initial projects

Develop POA&M (high level)

### COURSE OBJECTIVES

- Educate attendees on the value of defining the strategic environment
- Educate attendees on the establishment of the relationship among mission – goals – and CTQs
- Educate attendees on stakeholder perspectives and voice of the customer
- Educate attendees on culture/relationship of the value stream stakeholders
- Provide an overview of value stream management
- Assist attendees with the development of Major Problem Statements

MSI017	Title of Course, Description and Objectives	Duration	Min	Max
	<b>RAPID ASSESSMENT ON THE JOB TRAINING</b>	<b>8 Weeks</b>	<b>10</b>	<b>20</b>

This course is a hands on action learning experience focused on a particular office or business function. Attendees will participate in just in time training sessions and then implement training under the coaching of our expert instructors. The objective of this course is to equip organizations with the knowledge and expertise necessary for identifying and designing an improved business operating model that moves the organization to become a High Performing Organization (HPO). The class will generate an improved operating model that enables agile, data driven management of functions based on a balanced set of customer driven metrics. Executive and Management staff are trained on the job and in the classroom environment by a team of MSI's experts on advanced management techniques and will co-develop an improved operating model through the course. The course enables the actual creation of surveys, training plans, and reports that can be used to holistically define and analyze existing operations using a Systems Thinking model. Additional training is focused on developing the assessment skill necessary to developing and evaluating alternative operating models, selection, and planning of an improved operating model. Through this course, MSI teaches our rapid evaluation methodology, developed over more than a dozen years of consulting experience. The MSI rapid evaluation approach has been used to help executive and managers learn to analyze organizations and define high performing business models.

### Training Modules

#### Strategy

1. Strategic guidance document (vision, mission, goals, tactics)

#### Define Phase

1. Current State Critical to Success Matrix
2. Current State Process Maps
3. Current State Organizational Models
4. Current State Customer Profiles

#### Measure & Analyze Phase

1. Detailed Analysis Models
2. Customer Management Models
3. Courses of Action
4. Recommendations
5. Final Analysis Report

#### Design Phase

1. Quality Function Deployment
2. Goal Deployment Model



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3. A high level future state design and operating model for a high performance CSO operation.

- Goal Deployment Matrix
- Quality Function Deployment
- Performance Measurement
- Continuous Improvement
- Customer Satisfaction Management
- Processes and Value Streams
- Manpower, organizational structure, training, roles and responsibilities
- Information systems requirements
- Policy
- Financial management
- Acquisitions and contracting
- 4. Implementation Plan

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of CPI Program Review and Assessment
- Prepare attendees to become value adding members of CPI Program Review and Assessment
- Make steps toward building a culture of CPI excellence
- Enable attendees to create detailed Strategic Guidance, Matrices, Process Maps, Models, and Implementation Plans
- Enable attendees to conduct basic data collection and analysis techniques
- Provide attendees with the tools and knowledge for understanding the nature of CPI remediation and the development of a HPOs
- Give attendees the ability to control and improve processes using CPI methods

MSI018	Title of Course, Description and Objectives	Duration	Min	Max
	<b>LEAN FOR SERVICE AND TRANSACTIONAL PROCESSES</b>	<b>5 Days</b>	<b>10</b>	<b>20</b>

Lean for service and transactional process training is a one week course providing attendees with a solid foundation in the theory and practice of Lean in service and transactional environments. The course is designed to meet the needs of both executives and line workers such that everyone develops a common understanding of Lean means programmatically, within the project, and for the individuals in the organization. This class places emphasis upon using value stream analysis, 5S, pull systems, and level loading to organize work effectively, reduce waste, and improve cycle times.

### COURSE OBJECTIVES

- Educate attendees on the fundamental value and use of Lean for service and transactional process
- Educate attendees on the fundamental tenets and terminology of Lean for service and transactional process
- Educate attendees on the fundamental value and use of Lean for service and transactional process
- Educate attendees on the methods for integrating Lean for service and transactional process with other related CPI, BPM and related improvement approaches

MSI019	Title of Course, Description and Objectives	Duration	Min	Max
	<b>PROCESS ORIENTED DESIGN EXECUTIVE OVERVIEW</b>	<b>1/2 Day</b>	<b>10</b>	<b>20</b>

Process Oriented Design™ (POD) is the only software development methodology that ensures proper engineering of critical processes in parallel to and integrated with software development design and development. Designed and developed by experts in process engineering methods such as lean six sigma and Baldrige, POD represents the most advanced approach to date for system design and development. POD uses simple qualitative and complex techniques to ensure that systems are true systems, not simply software. A true system accounts for all elements of the production process including processes, people, technologies and related inputs, outputs, customers, and suppliers. With the rapid adoption of process excellence and Business Process Management (BPM) applications, the need has never been greater for a software engineering approach that integrates meaningful process engineering techniques. Any organization implementing BPM solutions should be using POD or the value of BPM will not be realized. BPM implementation brings the potential to implement powerful process management within an organization. However, if not properly implemented from concept through management, BPM is a dangerous tool that gives false hope to management. From requirements gathering through delivery and support of the system, BPM is a different breed of software implementation and must be implemented using the techniques found in POD to ensure success. This half day executive overview presents the concept and benefits of POD to attendees. Organizations implementing process excellence and those implementing BPM



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solutions will be interested in attending this seminar. It is recommended that a cross section of various levels and departments attend this overview.

### COURSE OBJECTIVES:

- Educate Executives on the fundamental value and use of POD
- Educate Executives on the fundamental tenets and terminology of POD
- Educate Executives on the use of POD
- Educate Executives on the generation and analysis of POD Solutions

MSI020	Title of Course, Description and Objectives	Duration	Min	Max
	<b>PROCESS ORIENTED DESIGN TRAINING</b>	<b>1/2 Day</b>	<b>10</b>	<b>20</b>

Process Oriented Design™ (POD) is the only software development methodology that ensures proper engineering of critical processes in parallel to and integrated with software development design and development. Designed and developed by experts in process engineering methods such as lean six sigma and Baldrige, POD represents the most advanced approach to date for system design and development. POD uses simple qualitative and complex techniques to ensure that systems are true systems, not simply software. A true system accounts for all elements of the production process including processes, people, technologies and related inputs, outputs, customers, and suppliers. With the rapid adoption of process excellence and Business Process Management (BPM) applications, the need has never been greater for a software engineering approach that integrates meaningful process engineering techniques. Any organization implementing BPM solutions should be using POD or the value of BPM will not be realized. BPM implementation brings the potential to implement powerful process management within an organization. However, if not properly implemented from concept through management, BPM is a dangerous tool that gives false hope to management. From requirements gathering through delivery and support of the system, BPM is a different breed of software implementation and must be implemented using the techniques found in POD to ensure success. This half day manager and practitioners overview presents the concept and benefits of POD to attendees. Organizations implementing process excellence and those implementing BPM solutions will be interested in attending this seminar. It is recommended that a cross section of various levels and departments attend this overview.

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of POD
- Educate attendees on the fundamental tenets and terminology of POD
- Educate attendees on the use of POD
- Educate attendees on the generation and analysis of POD Solutions

MSI021	Title of Course, Description and Objectives	Duration	Min	Max
	<b>VALUE STREAM MANAGEMENT AND ENTERPRISE ARCHITECTURE TRAINING</b>	<b>5 Days</b>	<b>10</b>	<b>20</b>

Value Stream Management (VSM) is the most advanced form of organizational management to date. It is the fundamental driver for Enterprise Architecture. The world's top corporations and Government organizations are implementing Enterprise Architecture / value stream management to bring process excellence to the strategic level in the organization. MSI is a pioneer in the realm of value stream management. Value Stream Management is an organizational management methodology that defines relationships between people, processes, technologies as well as all supplier, inputs, outputs, and customers. Then relates all attributes of the organization to metrics, goals, and objectives. This is a one day manager to executive seminar in which executive consultants from MSI will present the concepts of Enterprise Architecture / VSM to organizational leaders and managers in a collaborative setting. Attendees will leave this seminar with a strong foundation in this critical new approach to management and will be better prepared to make decisions regarding implementation of organization wide strategic management and operational excellence methods.

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of VSM
- Educate attendees on the fundamental tenets and terminology of VSM
- Educate attendees on the use of VSM
- Educate attendees on the generation and analysis of value stream maps
- Educate attendees on the methods for integrating VSM with Failure Modes and Effects Analysis (FMEA)
- Educate attendees on the methods for integrating VSMs

MSI022	Title of Course, Description and Objectives	Duration	Min	Max
	<b>PROCESS PORTFOLIO MANAGEMENT EXECUTIVE SEMINAR</b>	<b>1 Day</b>	<b>6</b>	<b>12</b>



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Process Portfolio Management (PPM) is the most advanced form of organizational management to date. The world's top corporations are implementing process portfolio management to bring process excellence to the strategic level in the organization. MSI is a pioneer into the realm of process portfolio management. In fact, MSI owns the rights to the term process portfolio management. Process Portfolio Management is an organizational management methodology that defines relationships between people, processes, technologies as well as all supplier, inputs, outputs, and customers. Then relates all attributes of the organization to metrics, goals, and objectives. This is a one day executive seminar in which executive consultants from MSI will present the concept of PPM to organizational leaders and managers in a collaborative setting. Executives will leave this seminar with a strong foundation in this critical new approach to management and will be better prepared to make decisions regarding implementation of organization wide strategic management and operational excellence methods.

Provide Executives with a strong foundation in this critical approach to management  
Educate Executives on the fundamental value and use of Process Portfolio Management  
Provide Executives with the tools and knowledge for understanding the nature of Process Portfolio Management  
Give Executives the ability to control and improve processes using Process Portfolio Management  
Educate Executives on the techniques and technologies to be used in a typical organizational improvement methodology that Process Portfolio Management  
Prepare executives to take decisions regarding implementation of organization wide strategic management and operational excellence methods.

MSI023	Title of Course, Description and Objectives	Duration	Min	Max
	<b>PROCESS PORTFOLIO MANAGEMENT TRAINING</b>	<b>2 Days</b>	<b>10</b>	<b>20</b>

Process Portfolio Management (PPM) is the most advanced form of organizational management to date. The world's top corporations are implementing process portfolio management to bring process excellence to the strategic level in the organization. MSI is a pioneer into the realm of process portfolio management. MSI owns the rights to the term process portfolio management. Process Portfolio Management is an organizational management methodology that defines relationships between people, processes, technologies as well as all supplier, inputs, outputs, and customers. Then relates all attributes of the organization to metrics, goals, and objectives. This is a two day management training class in which managers will be educated in the concept and trained in the tactical level methods and tools required to implement PPM. Consultants from MSI will present the concept of PPM to attendees and then provide detailed training on each phase of implementation in a collaborative setting.

### COURSE OBJECTIVES:

- Provide attendees with a strong foundation in this critical approach to management
- Educate attendees on the fundamental value and use of Process Portfolio Management
- Provide attendees with the tools and knowledge for understanding the nature of Process Portfolio Management
- Give attendees the ability to control and improve processes using Process Portfolio Management
- Educate attendees on the techniques and technologies to be used in a typical organizational improvement methodology that Process
- Portfolio Management.

MSI024	Title of Course, Description and Objectives	Duration	Min	Max
	<b>CONTINUOUS PROCESS IMPROVEMENT (CPI) PROGRAM REVIEW AND YB / GB ASSESSMENT WORKSHOP</b>	<b>6 Days</b>	<b>10</b>	<b>20</b>

The objective of this course is to provide participants and their organizations with the knowledge and expertise necessary to perform Lean Six Sigma (LSS) and Continuous Process Improvement (CPI) Program Review and Assessment. This LSS and CPI Program Review and Assessment training explores the success of leveraging CPI based on Lean Six Sigma in non-manufacturing environments. The Lean Six Sigma masters at MSI have developed numerous techniques that move beyond the text book and incorporate other proven practices from other management science disciplines. These experts will provide participants with pragmatic CPI information and techniques, emphasizing real world examples and potential uses of the techniques that can be used to accomplish a comprehensive CPI program review. Our methods incorporate a holistic approach to understanding all elements of the process centric system, including: People; Process; Technology; Products; Suppliers; Competitors; Stakeholders; and Customers. Attendees will be armed with the method for evaluating their program; will have a maturity model for assessing the program; and will be provided with a theoretical model of the ideal Governmental LSS program.



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### Course Modules

- Organization - Prepare and Complete Assessment for all Organization Related Program Review Areas
- Processes - Prepare and Complete Assessment for all Process Related Program Review Areas
- Technology - Prepare and Complete Assessment for all Technology Related Program Review Areas
- Administrative - Prepare and Complete Assessment for all Administrative Related Program Review Areas

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of CPI Program Review and Assessment
- Prepare attendees to become value adding members of CPI Program Review and Assessment
- Enable attendees to create and complete Organization, Process, Technology and Administrative Review Areas Assessments
- Provide attendees with the tools and knowledge for understanding the nature of CPI remediation and the development of a HPOs
- Give attendees the ability to control and improve processes using CPI methods

MSI025	Title of Course, Description and Objectives	Duration	Min	Max
	<b>CUSTOMER RELATIONSHIP MANAGEMENT - INTRODUCTION</b>	<b>2 Days</b>	<b>10</b>	<b>20</b>

Customer Relationship Management Introduction is a two day course providing attendees with a solid foundation in the theory and practice of CRM, customer service management, service improvement, and customer satisfaction. The course is designed to meet the needs of executives, managers and line workers such that everyone develops a common understanding of What CRM means programmatically, within the organization, and for each individual in the organization. MSI is particularly well versed in leveraging CPI, BPM and Six Sigma for service process improvements and we are prepared to impart the strategic value that can be realized through designing Customer Relationship Management into process improvement programs. Our improvement and CRM strategy places the customer at the direct center of process design which means that the needs of current and potential customers are comprehensively decomposed and integrated into all improvement activities. This class provides an expansive introduction of key CRM concepts, tools, solutions such as Voice of the Customer, Value Stream Management, Pure-Play and other CRM solutions, plus Personalization and Customization of the Customer experience. The course also places CRM in the context of emergent private and public sectors trends including Cloud, cybersecurity and Mobility.

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of CRM
- Make steps toward building a culture of CRM excellence
- Prepare attendees to take preliminary steps toward identifying the organizations customers and their needs
- Enable attendees to conduct basic CRM data collection and analysis techniques
- Provide attendees with the knowledge necessary to taking preliminary decisions concerning the implementation of CRM approaches and tools.
- Help attendees prepare for the integration of CRM efforts with other process improvement activities including CPI, Lean Six Sigma and BPM.

MSI026	Title of Course, Description and Objectives	Duration	Min	Max
	<b>CUSTOMER RELATIONSHIP MANAGEMENT - ADVANCED</b>	<b>3 Days</b>	<b>10</b>	<b>20</b>

Customer Relationship Management Advanced is a three day course providing attendees with the knowledge and expertise necessary to applying CRM practices and concepts within their organizations. Attendees will be well versed in theory and practice of CRM, customer service management, service improvement, and customer satisfaction. The course additionally explores the use of CRM in the context of other improvement efforts such as CPI, BPM, Hoshin Kanri and Lean Six Sigma and as a stand-alone improvement program. The course builds on MSI's CRM Introduction offering and is designed to meet the needs of executives, managers and line workers. MSI is particularly well versed in leveraging a wide range of management science principles and methodologies that allow for the concentrated use of CRM to improve processes and business functions. The application of the concepts and knowledge provided through this course will allow participants to realize expanded CRM-driven strategic value. Our improvement and CRM strategy places the customer at the direct center of process design which means that the needs of current and potential customers are comprehensively decomposed and integrated into all improvement activities. This class places emphasis on an advanced exploration of CRM concepts, tools, solutions such as Voice of the Customer, Value Stream Management, Pure-Play and other CRM solutions, and Personalization and Customization of the Customer experience. Importantly, the full integration of CRM with other processes and business improvement approaches including CPI, BPM, BPA, Lean Six Sigma, and Hoshin Kanri is examined in detail. The course also focuses on the delivery of CRM excellence within and outside the enterprise.



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### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of CRM
- Explore how best to build and inculcate an enterprise-wide culture of CRM excellence
- Prepare attendees to comprehensively identify all customers & stakeholders and how to integrate these needs into an overall CRM strategy and program
- Enable attendees to perform advanced CRM data collection and analysis techniques
- Provide attendees with the knowledge necessary to taking, fully informed and enterprise-wide decisions concerning the implementation of CRM approaches and tools.
- Give attendees the knowledge necessary to appropriately accomplishing the integration of CRM efforts with other strategic planning, process improvement and service delivery activities.

MSI027	Title of Course, Description and Objectives	Duration	Min	Max
	<b>CUSTOMER RELATIONSHIP MANAGEMENT - PACKAGE</b>	<b>5 Days</b>	<b>10</b>	<b>20</b>

The Customer Relationship Management Package is a one week, intensive course providing attendees with a solid foundation in the theory, practice and application of CRM and the knowledge and expertise necessary to applying CRM within their organizations. The course is designed to meet the needs of executives, managers and line workers such that everyone develops a common understanding of What CRM means programmatically, within the organization, and for each individual in the organization. The course additionally explores the use of CRM in the context of other improvement efforts such as CPI, BPM, Hoshin Kanri and Lean Six Sigma and as a stand-alone improvement program. MSI is particularly well versed in leveraging CPI, BPM and Six Sigma for service process improvements and we are prepared to impart the strategic value that can be realized through designing Customer Relationship Management into process improvement programs. Our improvement and CRM strategy places the customer at the direct center of process design which means that the needs of current and potential customers are comprehensively decomposed and integrated into all improvement activities. This class provides a detailed exploration of the key CRM concepts, tools, solutions such as Voice of the Customer, Value Stream Management, Pure-Play and other CRM solutions, plus Personalization and Customization of the Customer experience. The course also places CRM in the context of emergent private and public sectors trends including Cloud, cybersecurity and Mobility.

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of CRM
- Prepare attendees to take preliminary steps toward identifying the organizations customers and their needs and follow-on with the comprehensive identification of all customers & stakeholders
- Educate attendees on how to integrate customer & stakeholder needs into an overall CRM strategy and program
- Enable attendees to conduct basic and advanced CRM data collection and analysis techniques
- Explore how best to build and inculcate an enterprise-wide culture of CRM excellence
- Provide attendees with the knowledge necessary to taking, fully informed and enterprise-wide decisions concerning the implementation of CRM approaches and tools.
- Give attendees the knowledge necessary to appropriately accomplishing the integration of CRM efforts with other strategic planning, process improvement and service delivery activities.

MSI028	Title of Course, Description and Objectives	Duration	Min	Max
	<b>LEADERSHIP COACHING SESSION</b>	<b>1 Day</b>	<b>1</b>	<b>10</b>

The Leadership and Coaching Session is a one day workshop in which Executives are introduced to or re-acquainted with the latest leadership, coaching, mentoring and related human capital best practices from industry and academia within the context of management science and CPI. Examples subject areas include Conflict resolution, unlocking hidden strengths, implementing democracy and giving second chances. Additional modules cover the context within which effective leadership must be deployed including, uncertainty, the new normal, generational diversity, and disparate digital skill levels. The workshop also includes ample time for the exploration of actual leadership challenges and the examination of potential solutions.

### COURSE OBJECTIVES;

- Educate attendees on the latest Leadership and Management Trends from Industry and Academia
- Educate Executives on the differing approaches for achieving management and leadership excellence
- Educate Executives on the need for enterprise level strategic planning, leadership and Human Capital management techniques
- Prepare Executives to use emergent leadership and management approaches to drive organizational success and inspire the workforce



## GSA Schedule: PROFESSIONAL SERVICES SCHEDULE (PSS)

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12-719-3683

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MSI029	Title of Course, Description and Objectives	Duration	Min	Max
	<b>SAFETY AND TECHNOLOGY: LOW VOLTAGE SAFETY W/ARC FLASH</b>	<b>2 Days</b>	<b>1</b>	<b>10</b>
<p>With the dangers inherent to working on and around energized panels and equipment, industrial businesses that have maintenance departments must insure that their qualified electrical people are aware of 1) the recent electrical safety mandates and 2) safe work practices in and around energized equipment. MSI's EHWS class – designed to encourage electrical safe work practices and maintenance O&amp;M effectiveness among qualified maintenance people and to emphasize federal and state mandates - focuses on the following topics during the 2-day program:</p> <p><b>COURSE OBJECTIVES:</b></p> <ul style="list-style-type: none"> <li>• Introduction and Basis of the Training – this section covers the bases of this safety training program (NFPA 70E, NEC, OSHA).</li> <li>• Basic electrical safety to include OSHA 1910 “Qualified Worker” Sub Part S annual refresher.</li> <li>• Electrical Fundamentals – this section establishes the electrical foundation that individuals who are not true electricians can build on to gain electrical work practice safety qualifications. A clear discussion of why faults occur, energy dynamic of faults in an industrial facility and why the worker must be aware of the greatly increased danger posed by industrial circuits follow. This plays well with the growing trend to cross-train workers, training that TPC has extensive experience providing its customers.</li> <li>• Electrical Hazards - shock, arc flash and burn, shock and arc boundaries, discussion of the arc event are covered in this section.</li> <li>• PPE Fundamentals - acceptable and unacceptable clothing and accessories for shock and arc risk boundary approach, arc flash-specific PPE details by HRC, care and maintenance of ARC-specific ATPV rated PPE, FR Welding vs. FR ATPV rated for Arc Flash are discussed. This section also discusses layering of clothing as a method to increase ATPV.</li> <li>• Electricians Tools - safer arc and shock boundaries are defined and discussed, including insulated vs. comfort grip.</li> <li>• Metering Safety - appropriate meters and test instruments for industrial plants with high power hazards are discussed.</li> <li>• Shock Reduction and AEGCP – the use of GFCI devices and the Assured Equipment Grounding Program to reduce shock injuries and deaths are discussed. Included in this section is a discussion of how arc events can start and kill individuals when they, for various reasons, touch or contact live parts with tools and become engulfed in an arc.</li> <li>• Workspace Stepback Requirements - OSHA and NEC-mandated workspace distances required for workers to have adequate space to safely work on panels in the plant are covered in this section.</li> <li>• Work Practices - this brief overview of safer work practices that will help companies and their employees reduce shock, arc and other electrical-related injuries.</li> </ul> <p>I. Day One Discussion Topics</p> <p>A. Introduction</p> <p>B. Fundamentals of Industrial Electricity - Understanding the risks</p> <p>C. Electrical Hazards - Shock and Arc</p> <p>D. PPE Overview and Selection</p> <p>1. Electricians Tools for Arc and Shock Risk boundaries</p> <p>2. Metering safety for arc flash and shock prevention.</p> <p>3. Shock Hazard Reduction.</p> <p>E. Work environment special conditions</p> <p>F. Work Practices and workplace safety</p> <p>G. Reference Appendix and supplemental documents.</p> <p>H. Written test (if required by the customer)</p> <p>II. Day Two</p> <p>A. Witness Testing – each qualified person must demonstrate:</p> <p>1. the care, selection and usage of proper PPE</p> <p>2. panel labels and the information on them</p> <p>3. arc flash hazards and approach boundaries and safe use of tools when working in and around energized panels &amp; equipment</p>				
MSI030	<b>SAFETY AND TECHNOLOGY: HIGH VOLTAGE SAFETY W/ ARC FLASH</b>	<b>2 Days</b>	<b>1</b>	<b>10</b>
<p>With the dangers inherent to working on and around energized panels and equipment, industrial businesses that have maintenance departments must insure that their qualified electrical people are aware of 1) the recent electrical safety mandates and 2) safe work practices in and around energized equipment. MSI's Electrical Hazards &amp; Workplace Safety (EHWS) class – designed to encourage electrical safe work practices and maintenance O&amp;M effectiveness among qualified maintenance people and to emphasize federal and</p>				



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state mandates - focuses on the following topics during the 2-day program:

### COURSE OBJECTIVES:

- Introduction and Basis of the Training – this section covers the bases of this safety training program (NFPA 70E, NEC, OSHA).
- Electrical Fundamentals – this section establishes the electrical foundation that individuals who are not true electricians can build on to gain electrical work practice safety qualifications. A clear discussion of why faults occur, energy dynamic of faults in an industrial facility and why the worker must be aware of the greatly increased danger posed by industrial circuits follow. This plays well with the growing trend to cross-train workers, training that TPC has extensive experience providing its customers.
- Electrical Hazards - shock, arc flash and burn, shock and arc boundaries, discussion of the arc event are covered in this section.
- PPE Fundamentals - acceptable and unacceptable clothing and accessories for shock and arc risk boundary approach, arc flash-specific PPE details by HRC, care and maintenance of ARC-specific ATPV rated PPE, FR Welding vs. FR ATPV rated for Arc Flash are discussed. This section also discusses layering of clothing as a method to increase ATPV.
- Electricians Tools - safer arc and shock boundaries are defined and discussed, including insulated vs. comfort grip.
- Metering Safety - appropriate meters and test instruments for industrial plants with high power hazards are discussed.
- Shock Reduction and AEGCP – the use of GFCI devices and the Assured Equipment Grounding Program to reduce shock injuries and deaths are discussed. Included in this section is a discussion of how arc events can start and kill individuals when they, for various reasons, touch or contact live parts with tools and become engulfed in an arc.
- Workspace Stepback Requirements - OSHA and NEC-mandated workspace distances required for workers to have adequate space to safely work on panels in the plant are covered in this section.
- Work Practices - this brief overview of safer work practices that will help companies and their employees reduce shock, arc and other electrical-related injuries.

#### I. Day One Discussion Topics

- A. Introduction
- B. Fundamentals of Industrial Electricity - Understanding the risks
- C. Electrical Hazards - Shock and Arc
- D. PPE Overview and Selection
  - 1. Electricians Tools for Arc and Shock Risk boundaries
  - 2. Metering safety for arc flash and shock prevention.
  - 3. Shock Hazard Reduction.
- E. Work environment special conditions
- F. Work Practices and workplace safety
- G. Reference Appendix and supplemental documents.
- H. Written test (if required by the customer)

#### II. Day Two

- B. Witness Testing – each qualified person must demonstrate:
  - 4. the care, selection and usage of proper PPE
  - 5. panel labels and the information on them
  - 6. arc flash hazards and approach boundaries and safe use of tools when working in and around energized panels & equipment

MSI031	Title of Course, Description and Objectives	Duration	Min	Max
	<b>SAFETY AND TECHNOLOGY: STEAM DISTRIBUTION O&amp;M</b>	<b>3 Days</b>	<b>1</b>	<b>10</b>

With the dangers inherent to working on and around Steam Distribution systems and equipment, industrial businesses that have maintenance departments must insure that their qualified Steam management personnel are aware of 1) the recent steam safety mandates and 2) safe work practices in and around steam equipment. MSI's Steam Distribution O&M class – designed to encourage safe work practices and maintenance O&M effectiveness among qualified maintenance people and to emphasize federal and state mandates - focuses on the following topics during the 3-day program:

### COURSE OBJECTIVES:

- I. How Power Plants Work (111)
  - A. Steam – The Primary Force
    - 1. Energy for Power Plants

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2. Converting Energy to Electricity
  3. The Importance of Air in Combustion
  4. Removing Ashes and Flue Gases
  5. Heating the Air
  6. Boiler Design
  7. Controlling the Water Level
  8. Feedwater Heater
  9. The Economizer
  - B. How Heat is Converted to Power
    1. The Turbine
    2. The Generator
    3. Using Exhausted Steam
    4. Producing a Vacuum
    5. Using the Condensate
    6. Improved Coal Handling
    7. Boiler Efficiency
  - C. Power Plant Efficiency
    1. Thermodynamic Efficiency
    2. Pumps
    3. Feedwater Heating
    4. Air Heating
    5. The Superheater
    6. Circulation Problems in High-Pressure Boilers
    7. Minimum Temperatures in the System
    8. Minor Refinements
    9. Condenser Performance
  - D. Handling Water, Fuel, and Wastes
    1. Water Requirements
    2. Physical Properties of Water
    3. Chemical Properties of Water
    4. Water Softening and Purification
    5. Cooling Water
    6. Water Disposal Problems
    7. Air Cooling
    8. Fossil Fuel Handling and Wastes
    9. Flue Gases
    10. Particle Removal
    11. Problem Transfer
    12. Looking to the Future
  - E. Power Plant Operation and Control
    1. Operating Features of a Power Plant
    2. Power Plant Controls
    3. Temperature Measurement
    4. Pressure Measurement
    5. Special Measurements
    6. Other Power Sources
    7. Nuclear Power
- II. Generating Steam in the Power Plant (112)
- A. Transforming Energy into Work
    1. Energy and Matter
    2. Fuels

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3. Combustion
  4. Temperature Measurement
  5. Pressure Measurement
  6. Quantity of Heat
  7. Heat Transfer
  8. Conduction
  9. Radiation
  10. Convection
  11. Sensible and Latent Heat
  12. Vaporization
  13. Boiling Point
  14. Enthalpy
  15. Heat and Work
  16. Basic Steam Generation
- B. Boiler Operation**
1. Types of Boilers
  2. Boiler Characteristics
  3. Water Treatment for Boiler Use
  4. Boiler and Cooling Tower Blowdown
  5. Wastewater Disposal
  6. Efficiency in the Power Plant
  7. Thermodynamic Efficiency
  8. Conserving Energy in the Power Plant
- C. Boiler Maintenance**
1. Soot Removal
  2. Scale Removal
  3. Corrosion
  4. Casing Corrosion
  5. Refractory
  6. Control Systems
  7. Calibration and Cleaning
  8. Compressed Air Systems
  9. Maintaining Boiler Auxiliaries
  10. Maintaining Stacks and Cyclones
  11. Maintenance Schedules and Reports
- D. Combustion and How It Works**
1. Coal Ranks
  2. Coal Analyses
  3. Coal Sizes
  4. Coal Storage
  5. Oil Properties
  6. Natural Gas
  7. Chemistry of Combustion
  8. Oil Burners
  9. Gas Burners
  10. Flame Color
  11. Flame Adjustment for Oil and Gas
  12. Coal Firing Systems
  13. Pulverized Coal Burners
  14. Overfeed Stokers
  15. Underfeed Stokers
  16. Ash Analysis for Carbon



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- 17. Combustion Efficiency
- 18. Handling Unburned Solids
- E. Steam Generation
  - 1. The Steam Generation Process
  - 2. Temperature and Pressure Relationship
  - 3. Superheating Steam and Steam Quality
  - 4. Volume and Pressure Relationship
  - 5. Steam Tables for Saturated Steam
  - 6. How to Use Steam Tables
  - 7. Circulation of Boiler Water
  - 8. Steam Circulation and Tube Temperature
  - 9. Steam Drum Design
  - 10. Operating a High-Pressure Boiler at Low Pressure
  - 11. The Complete Steam Generation System
  - 12. Conserving Energy
  - 13. Blowdown
  - 14. Makeup Water

MSI032	Title of Course, Description and Objectives	Duration	Min	Max
	<b>SAFETY AND TECHNOLOGY: PLUMBING AND PIPEFITTING FOR PLANTS &amp; BLDGS.</b>	<b>3 Days</b>	<b>1</b>	<b>10</b>

With the dangers inherent to working on and around Plumbing and Pipefitting systems and equipment, industrial businesses that have maintenance departments must insure that their qualified Plumbing and Pipefitting personnel are aware of 1) the recent Plumbing and Pipefitting safety mandates and 2) safe work practices in and around Plumbing and Pipefitting equipment. MSI's Plumbing and Pipefitting for Plants & Bldgs. class – designed to encourage safe work practices and maintenance O&M effectiveness among qualified maintenance people and to emphasize federal and state mandates - focuses on the following topics during the 3-day program:

**COURSE OBJECTIVES:**

- I. Pipefitting Tools (107-3)
  - A. Pipe Wrenches
  - B. Using a Pipe Wrench
  - C. Pipe Vises
  - D. Cutting Pipe
  - E. Reaming Pipe
  - F. Threading Pipe
  - G. Tapping Pipe
  - H. Cutting Tubing and Plastic Pipe
- I. Flaring Metal Tubing
  - J. Caring for Pipe Tools
- II. Plumbing Tools (107-4)
  - A. Plumbing Codes
  - B. Plumbing System
  - C. Joining Copper Pipe
  - D. Tube Bending
  - E. Cutting Cast-Iron Pipe
  - F. Joining Cast-Iron Pipe
  - G. Assembling Plastic Pipe
  - H. Force-Cup Plungers; Augers
  - I. Line-Clearing Tools
  - J. Sewer Tapes
  - K. Special Wrenches
  - L. Measuring Pipe

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III. Maintenance Pipefitting (345)

A. Piping Dimensions and Terminology

1. Piping Standards
2. Basic Pipe Dimensions
3. Piping System Symbols
4. Pipe Fittings
5. Flanges
6. Flange Facings and Finishes
7. Using Dimensional Tables
8. Calculating Lengths from Existing Pipes
9. Straight Offsets
10. Rolling Offsets

B. Threaded Piping Systems

1. Threads
2. Thread Terminology
3. Measuring Pipe Threads
4. Threaded Pipe Fittings
5. Measuring Pipe for Installation
6. Cutting Pipe
7. Threader and Dies
8. Threading Pipe
9. Finishing the Pipe
10. Inspecting Old Threads
11. Applying Sealants
12. Assembly of Components
13. Testing the System
14. Troubleshooting/Emergency Repairs
15. Replacement

C. Welded Piping Systems

1. Welds Based on Type of Connection
2. Fittings for Welded Pipe Systems
3. Welding Rings
4. System Alignment
5. Squareness
6. Aligning Fittings
7. Hole Positioning
8. Measurements
9. Preparing the Work
10. Squaring the Flange
11. Weld Cracks
12. Inspection
13. Repairs

D. Plastic Piping Systems

1. Thermoplastic Pipe Materials
2. Advantages of Thermoplastic Materials
3. Disadvantages of Thermoplastic Materials
4. Standards for Thermoplastic Pipe
5. Thermosetting Pipe Materials
6. Fluids Carried by Thermosetting Pipe
7. Advantages of Thermosetting Materials
8. Disadvantages of Thermosetting Materials



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- 9. Standards for Thermosetting Pipe
- 10. Installing Thermoplastic Pipe
- 11. Installing Thermosetting Pipe
- 12. Troubleshooting Plastic Piping Systems
- E. Pipefitting Accessories
  - 1. Hangers and Supports
  - 2. Special Mountings
  - 3. Steam Traps
  - 4. Types of Traps
  - 5. Steam Trap Installation
  - 6. Trap Cleaning
  - 7. Filters, Strainers, and Separators
  - 8. Installation
  - 9. Cleaning
  - 10. Expansion Joints and Fittings
  - 11. Expansion Joint Applications
  - 12. Expansion Joint Selection and Installation
  - 13. Maintenance

MSI033	Title of Course, Description and Objectives	Duration	Min	Max
	<b>SAFETY AND TECHNOLOGY: HVAC CONTROLS AND DISTRIBUTION</b>	<b>3 Days</b>	<b>1</b>	<b>10</b>

With the dangers inherent to working on and around HVAC Controls and Distribution systems and equipment, industrial businesses that have maintenance departments must insure that their qualified HVAC personnel are aware of 1) the recent HVAC safety mandates and 2) safe work practices in and around HVAC equipment. MSI's HVAC Controls and Distribution class – designed to encourage safe work practices and maintenance O&M effectiveness among qualified maintenance people and to emphasize federal and state mandates - focuses on the following topics during the 3-Day program:

**COURSE OBJECTIVES:**

- I. Control Systems (437)
  - A. Introduction to Control Systems
    - 1. The Need for Controls
    - 2. Automatic Control
    - 3. Control System Basics
    - 4. Control Methods
    - 5. Two-Position Control
    - 6. Floating Control
    - 7. Proportional Control
    - 8. Open and Closed-Loop Control
    - 9. Control System Operating Power
    - 10. Self-Powered Control System
    - 11. Pneumatic and Hydraulic Control Systems
    - 12. Electric and Electronic Control Systems
  - B. Sensors and Controlled Devices
    - 1. Sensors
    - 2. Temperature Sensors
    - 3. Humidity Sensors
    - 4. Pressure Sensors
    - 5. Controlled Devices
    - 6. Dampers
    - 7. Valves
    - 8. Variable-Speed Drives
  - C. Automatic Control Systems
    - 1. Two-Position Electric Control

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- 2. Floating Electric Control
- 3. Proportional Electric Control
- 4. Pneumatic Control Systems
- 5. Pneumatic Controllers
- 6. Pneumatic Actuators
- 7. Pneumatic Relays and Switches
- 8. Electronic Control Systems
- 9. Proportional Band and Gain
- 10. PID Control
- D. Control of Refrigeration and Air-Conditioning Processes
  - 1. Primary Control
  - 2. Low-Pressure Control
  - 3. High-Pressure Control
  - 4. High-Temperature Cutout Control
  - 5. Low-Water-Temperature Cutout Control
  - 6. Anti-Recycle Timers
  - 7. Condenser Pressure Regulators
  - 8. Oil-Pressure Controls
  - 9. Oil-Level Float Controls
  - 10. Motor Overload Protection
  - 11. Capacity Controls
  - 12. System Interlock
  - 13. Control of Air-Conditioning Systems
  - 14. Flow Control in Hydronic Systems
  - 15. Space-Temperature Control
  - 16. Seasonal Changeover; Pressure Regulation
  - 17. Flow Switches
  - 18. Control of a Complex Air-Handling System
- E. Maintaining and Troubleshooting Controls
  - 1. Establishing a PM Program
  - 2. Maintaining Pressure Controls
  - 3. Maintaining Thermostats
  - 4. Maintaining Float Switches and Valves
  - 5. Maintaining Oil-Pressure Controls
  - 6. Maintaining Timers
  - 7. Maintaining Condenser Controls
  - 8. Maintaining Compressor Capacity Controls
  - 9. Maintaining Valves and Accessories
  - 10. Maintaining Instrument Air
  - 11. Maintaining Pneumatic Controllers
  - 12. Maintaining Pneumatically Controlled Devices
  - 13. Maintaining Pressure Switches and Pneumatic Relays
  - 14. Maintaining Electric/Electronic Power Sources
  - 15. Maintaining Electric Controllers
  - 16. Maintaining Electronic Controllers
  - 17. Maintaining Electrically Controlled Actuators
  - 18. Maintaining Electric and Electronic Switches
  - 19. Troubleshooting a Control System
  - 20. Following Up

II. Air Handling Systems (438)

A. Air Movement and Distribution



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1. The Air-Handling System
2. Comfort Air Conditioning
3. Process Air Conditioning
4. Heat and Moisture Transport
5. How Air Moves
6. Types of Airflow
7. Pressure Relationships
8. Controlling Ventilation and Pressurization
9. Dual-Duct Systems
10. System Velocity
- B. Fans and Fan Motors
  1. Fan Construction
  2. Centrifugal Fans
  3. Axial-Flow Fans
  4. Fan Performance Curves
  5. System Characteristics
  6. Preventive Maintenance for Fans
  7. Impeller Maintenance
  8. Belts and Drive-Train Maintenance
  9. Bearing Maintenance and Replacement
  10. Fan Motor Problems
  11. Troubleshooting a Noisy Fan
- C. Ductwork Types, Fabrication, and Repair
  1. Types of Ducts
  2. Duct Designations
  3. Duct Systems
  4. Duct Fittings and Connections
  5. Insulation
  6. Diffusers and Other Terminal Devices
  7. Fabricating Sheet Metal Ducts
  8. Duct Reinforcement
  9. Duct Maintenance
- D. Air Filtration
  1. The Process of Air Filtration
  2. Mechanical Air Filters
  3. Establishing a Service Schedule
  4. Servicing Impingement Filters
  5. Replacing Dry Media Filters
  6. Installing HEPA Filters
  7. Selecting Replacement Air Filters
  8. Electronic Air Cleaners
  9. Maintaining Electronic Air Cleaners
- E. Air System Balancing and Troubleshooting
  1. A Systematic Procedure
  2. Measuring Instruments
  3. Auxiliary Instruments
  4. Pretest Data Collection
  5. Preparing the System
  6. Measuring and Adjusting the Main Airflow
  7. Measuring and Adjusting Branch Ducts
  8. Adjusting Registers and Diffusers
  9. Troubleshooting Air-Handling Systems

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- F. Indoor Air Quality and Sick Building Syndrome
  - 1. Sick Building Syndrome (SBS) Characteristics
  - 2. Investigating a Potential SBS Problem
  - 3. Internal SBS Contributors
  - 4. External SBS Contributors
  - 5. HVAC Systems as Contaminant Sources
  - 6. Particulates and IAQ
  - 7. Pollutant Pathways
  - 8. Odors and Contamination
  - 9. Building-Related Illness (BRI)
- III. System Troubleshooting (439)
  - A. Preparation for Troubleshooting
    - 1. Mechanical Refrigeration Systems
    - 2. Keys to Effective Troubleshooting
    - 3. Safety in Troubleshooting
    - 4. Tools and Equipment
    - 5. Supplies (Consumables)
    - 6. Human Relations Skills
  - B. Troubleshooting Procedures
    - 1. Six Steps of Troubleshooting
      - a. Step One—Stating the Problem
      - b. Step Two—Collecting Data
        - i. Routine Preliminary Checks
        - ii. Detailed Checks
        - iii. Not Enough Cooling Example
      - c. Step Three—Analyzing the Data
      - d. Step Four—Deciding on an Action
      - e. Step Five—Making the Repairs
      - f. Step Six—Checking the Results;
    - 2. Avoiding a Recurrence of the Problem
  - C. Troubleshooting Electric Controls
    - 1. A Troubleshooting Flowchart
    - 2. Checking the Contactor
    - 3. A1 Procedures
    - 4. Armature, Transformer, and Bad Connections
    - 5. A2 Procedures
    - 6. Faulty Coils, Relays, and Switches
    - 7. B Procedures
    - 8. The Power Side
  - D. Troubleshooting Pneumatic Controls
    - 1. Equipment and Tools
    - 2. The Problem—Unstable Control
    - 3. Checking the Control Air Supply; Output Pressure Test
    - 4. Checking for Air Leaks; Checking Other Controllers
    - 5. Actuator Problems
    - 6. Thermostat Adjustments
    - 7. When All Else Fails
  - E. Troubleshooting the Refrigerant Circuit
    - 1. Preliminary Checks
    - 2. Analyzing the Complaint
    - 3. Checking Refrigerant Pressures
    - 4. Checking Refrigerant Charge



## GSA Schedule: PROFESSIONAL SERVICES SCHEDULE (PSS)

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5. Checking for Refrigerant Leaks
6. Compressor Cycling
7. Checking High-Side Components
8. Low-Side Problems
9. Distribution System Problems

MSI034	Title of Course, Description and Objectives	Duration	Min	Max
	<b>SAFETY AND TECHNOLOGY: CHILLER O&amp;M</b>	3 Days	1	10

With the dangers inherent to working on and around HVAC Controls and Distribution systems and equipment, industrial businesses that have maintenance departments must insure that their qualified HVAC personnel are aware of 1) the recent HVAC safety mandates and 2) safe work practices in and around HVAC equipment. MSI's HVAC Controls and Distribution class – designed to encourage safe work practices and maintenance O&M effectiveness among qualified maintenance people and to emphasize federal and state mandates - focuses on the following topics during the 3-day program:

### COURSE OBJECTIVES:

- I. Control Systems (437)
  - A. Introduction to Control Systems
    1. The Need for Controls
    2. Automatic Control
    3. Control System Basics
    4. Control Methods
    5. Two-Position Control
    6. Floating Control
    7. Proportional Control
    8. Open and Closed-Loop Control
    9. Control System Operating Power
    10. Self-Powered Control System
    11. Pneumatic and Hydraulic Control Systems
    12. Electric and Electronic Control Systems
  - B. Sensors and Controlled Devices
    1. Sensors
    2. Temperature Sensors
    3. Humidity Sensors
    4. Pressure Sensors
    5. Controlled Devices
    6. Dampers
    7. Valves
    8. Variable-Speed Drives
  - C. Automatic Control Systems
    1. Two-Position Electric Control
    2. Floating Electric Control
    3. Proportional Electric Control
    4. Pneumatic Control Systems
    5. Pneumatic Controllers
    6. Pneumatic Actuators
    7. Pneumatic Relays and Switches
    8. Electronic Control Systems
    9. Proportional Band and Gain
    10. PID Control
  - D. Control of Refrigeration and Air-Conditioning Processes
    1. Primary Control
    2. Low-Pressure Control
    3. High-Pressure Control



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4. High-Temperature Cutout Control
5. Low-Water-Temperature Cutout Control
6. Anti-Recycle Timers
7. Condenser Pressure Regulators
8. Oil-Pressure Controls
9. Oil-Level Float Controls
10. Motor Overload Protection
11. Capacity Controls
12. System Interlock
13. Control of Air-Conditioning Systems
14. Flow Control in Hydronic Systems
15. Space-Temperature Control
16. Seasonal Changeover; Pressure Regulation
17. Flow Switches
18. Control of a Complex Air-Handling System
- E. Maintaining and Troubleshooting Controls
  1. Establishing a PM Program
  2. Maintaining Pressure Controls
  3. Maintaining Thermostats
  4. Maintaining Float Switches and Valves
  5. Maintaining Oil-Pressure Controls
  6. Maintaining Timers
  7. Maintaining Condenser Controls
  8. Maintaining Compressor Capacity Controls
  9. Maintaining Valves and Accessories
  10. Maintaining Instrument Air
  11. Maintaining Pneumatic Controllers
  12. Maintaining Pneumatically Controlled Devices
  13. Maintaining Pressure Switches and Pneumatic Relays
  14. Maintaining Electric/Electronic Power Sources
  15. Maintaining Electric Controllers
  16. Maintaining Electronic Controllers
  17. Maintaining Electrically Controlled Actuators
  18. Maintaining Electric and Electronic Switches
  19. Troubleshooting a Control System
  20. Following Up
- II. Air Handling Systems (438)
  - A. Air Movement and Distribution
    1. The Air-Handling System
    2. Comfort Air Conditioning
    3. Process Air Conditioning
    4. Heat and Moisture Transport
    5. How Air Moves
    6. Types of Airflow
    7. Pressure Relationships
    8. Controlling Ventilation and Pressurization
    9. Dual-Duct Systems
    10. System Velocity
  - B. Fans and Fan Motors
    1. Fan Construction
    2. Centrifugal Fans



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- 3. Axial-Flow Fans
  - 4. Fan Performance Curves
  - 5. System Characteristics
  - 6. Preventive Maintenance for Fans
  - 7. Impeller Maintenance
  - 8. Belts and Drive-Train Maintenance
  - 9. Bearing Maintenance and Replacement
  - 10. Fan Motor Problems
  - 11. Troubleshooting a Noisy Fan
  - C. Ductwork Types, Fabrication, and Repair
    - 1. Types of Ducts
    - 2. Duct Designations
    - 3. Duct Systems
    - 4. Duct Fittings and Connections
    - 5. Insulation
    - 6. Diffusers and Other Terminal Devices
    - 7. Fabricating Sheet Metal Ducts
    - 8. Duct Reinforcement
    - 9. Duct Maintenance
  - D. Air Filtration
    - 1. The Process of Air Filtration
    - 2. Mechanical Air Filters
    - 3. Establishing a Service Schedule
    - 4. Servicing Impingement Filters
    - 5. Replacing Dry Media Filters
    - 6. Installing HEPA Filters
    - 7. Selecting Replacement Air Filters
    - 8. Electronic Air Cleaners
    - 9. Maintaining Electronic Air Cleaners
  - E. Air System Balancing and Troubleshooting
    - 1. A Systematic Procedure
    - 2. Measuring Instruments
    - 3. Auxiliary Instruments
    - 4. Pretest Data Collection
    - 5. Preparing the System
    - 6. Measuring and Adjusting the Main Airflow
    - 7. Measuring and Adjusting Branch Ducts
    - 8. Adjusting Registers and Diffusers
    - 9. Troubleshooting Air-Handling Systems
  - F. Indoor Air Quality and Sick Building Syndrome
    - 1. Sick Building Syndrome (SBS) Characteristics
    - 2. Investigating a Potential SBS Problem
    - 3. Internal SBS Contributors
    - 4. External SBS Contributors
    - 5. HVAC Systems as Contaminant Sources
    - 6. Particulates and IAQ
    - 7. Pollutant Pathways
    - 8. Odors and Contamination
    - 9. Building-Related Illness (BRI)
- III. System Troubleshooting (439)
- A. Preparation for Troubleshooting



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1. Mechanical Refrigeration Systems
2. Keys to Effective Troubleshooting
3. Safety in Troubleshooting
4. Tools and Equipment
5. Supplies (Consumables)
6. Human Relations Skills
- B. Troubleshooting Procedures
  1. Six Steps of Troubleshooting
    - a. Step One—Stating the Problem
    - b. Step Two—Collecting Data
      - i. Routine Preliminary Checks
      - ii. Detailed Checks
      - iii. Not Enough Cooling Example
    - c. Step Three—Analyzing the Data
    - d. Step Four—Deciding on an Action
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    - f. Step Six—Checking the Results;
  2. Avoiding a Recurrence of the Problem
- C. Troubleshooting Electric Controls
  1. A Troubleshooting Flowchart
  2. Checking the Contactor
  3. A1 Procedures
  4. Armature, Transformer, and Bad Connections
  5. A2 Procedures
  6. Faulty Coils, Relays, and Switches
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  7. When All Else Fails
- E. Troubleshooting the Refrigerant Circuit
  1. Preliminary Checks
  2. Analyzing the Complaint
  3. Checking Refrigerant Pressures
  4. Checking Refrigerant Charge
  5. Checking for Refrigerant Leaks
  6. Compressor Cycling
  7. Checking High-Side Components
  8. Low-Side Problems
  9. Distribution System Problems

MSI035	Title of Course, Description and Objectives	Duration	Min	Max
	<b>SAFETY AND TECHNOLOGY: INVENTORY CONTROL</b>	<b>3 Days</b>	<b>1</b>	<b>10</b>

This Inventory Control class delivers the understanding of managing inventory, including the key principles and techniques. The workshop provides complete process of inventory optimization starting from diagnostics, developing processes, algorithms, metrics, and optimization. The inventory control training is a 3-Day course.

**COURSE OBJECTIVES:**

To master and practice techniques to:

- Analyze, manage and optimize your inventory management
- Identify the goals and objectives of inventory management, and measure their process against these goals
- Control inventory levels
- Calculate safety stock, reorder points, and order quantities
- Evaluate inventory management systems
- Better maintain inventory accuracy
- Understand type of inventory costs and how to manage them
- Align strategic plan with inventory performance management and benchmarking
- Inventory management techniques to improve inventory turnover ratio and transform frozen assets into cash!
- Inventory management methods for saving money, satisfying customers and speeding up the flow of inventory.
- Reducing costs of inventory obsolescence
- Responsiveness to your customers' real needs and shaping customer expectations
- Improving scheduling and shop loading efficiency
- Narrow the gap between issuance and stock replacement
- Fine-tune record-keeping accuracy for better inventory management
- Determining exact material status and inventory dollar burden
- The strategic role of inventory management techniques
- Establish the optimal inventory level
- Inventory planning and replenishment
- Distribution center and warehousing operations
- Inventory accuracy and audits
- Inventory management, measurement and reporting
- Inventory forecasting and demand management
- Lead-time analysis and reduction

#### DAY 1

##### Inventory Management

- Introduction to Inventory Management
- Cost related to Inventory
  - Inventory carrying costs
  - Ordering costs
  - Item costs
  - Out-of-stock costs
- Making trade-offs: Total cost considerations
- Two types of demand: Independent and Dependent
- Two types of inventory: Cycle and Safety Inventory policies
- Diagnosing your inventory challenges
- Defining your inventory policies and processes

#### DAY 2

##### Inventory Optimization

- Improving the warehouse and inventory management to create a new performance baseline
- Metrics and Performance Management
- Inventory Optimization Process
- Industry practices
  - Emerging practices
  - Best practices
  - Standard practices
  - Declining practices



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- Organization and skill
- Monitoring and alerts

### DAY 3

#### Coaching Session

Customized coaching session and practical exercises using client data and real world inventory management challenges. Participants will conduct real inventory management execution through knowledge sharing and hands-on support from experienced instructor.

MSI036	Title of Course, Description and Objectives	Duration	Min	Max
	<b>SAFETY AND TECHNOLOGY: MAINTENANCE PLANNING &amp; SCHEDULING</b>	<b>3 Days</b>	<b>1</b>	<b>10</b>

This Maintenance Planning & Scheduling class includes all the requirements set forth in the solicitation and will be tailored as appropriate for relevance within your organization. Our class is based upon a combination of basic project/resource planning techniques as found within the Project Management Body of Knowledge (PMBOK), reliability centered maintenance, and statistical quality control. The combination of these disciplines within maintenance planning ensures the right level of preventative maintenance is scheduled efficiently. Additionally, through statistical quality control, system down time and failures are better predicted and detected before system failure. The Maintenance Planning & Scheduling training is a three day course.

#### COURSE OBJECTIVES:

- The fundamentals of planning and scheduling required for any successful maintenance program.
  - Defining and measuring your maintenance ecosystem including use of the Failure Modes Effects and Criticality Analysis model
  - Defining the skills needed and skills management
  - Developing a plan for effective maintenance planning & scheduling
  - The basics of Reliability Centered Maintenance
  - Basic Statistical Quality Control (control charts)
- Quantifying the value of effective maintenance
  - Defining service levels
  - Quantifying down time and failures
  - Capturing the value of problems avoided
  - Reporting & Benchmarking for Maintenance Efficiency
  - Learn How to Sell Scheduling & Planning to Management
  - Measure the Work Performance of Your Team Understand the Role & Duties of a Planner
- Understand the Role & Duties of a Scheduler
- Identify Different Maintenance Management Approaches
- Understand the Support System Required for a Successful Program
- Learn to Work with Purchasing, Operations & Engineering
- Basic Project/Resource Management
  - How to Develop Priority Systems
  - How to Control Backlog
  - Identify Critical Path Methods for Maintenance
  - How to Deal with Emergencies in Maintenance Planning & Scheduling

MSI037	Title of Course, Description and Objectives	Duration	Min	Max
	<b>SAFETY AND TECHNOLOGY: PUMP REPAIR &amp; MAINTENANCE</b>	<b>3 Days</b>	<b>1</b>	<b>10</b>

With the dangers inherent to working on and around Pump systems and equipment, industrial businesses that have maintenance departments must insure that their qualified Pump personnel are aware of 1) the recent Pump safety mandates and 2) safe work practices in and around Pump equipment. MSI's Pump Repair & Maintenance class – designed to encourage safe work practices and maintenance O&M effectiveness among qualified maintenance people and to emphasize federal and state mandates - focuses on the following topics during the 3-day program:

#### COURSE OBJECTIVES:

##### I. Pumps

- A. Pump Development and Application
  1. The Development of Pumps

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- 2. Pumping Systems
- 3. Water Pumping Systems
- 4. Chemical Pumping Systems
- 5. Waste Pumping Systems
- 6. High-Viscosity Material Pumping Systems
- 7. Solids Pumping Systems
- B. Basic Pump Hydraulics
  - 1. Pumping Terminology
  - 2. Calculating Total Head
  - 3. Horsepower Calculations
  - 4. Total Energy vs. Available NPSH
  - 5. Available NPSH vs. Required NPSH
  - 6. Pump Performance Curves
  - 7. Head Capacity Curves
  - 8. Efficiency Curves; Horsepower Curves; Curve Families; Pump Selection
- C. End-Suction Centrifugal Pumps
  - 1. Introduction to Centrifugal Pumps
  - 2. Pump Operation
  - 3. Pump Part Definitions
  - 4. Pump Casing Materials
  - 5. End-Suction Casing Configurations
  - 6. Split-Case Centrifugal Pumps
  - 7. Double-Volute Pumps
  - 8. Impeller Types
  - 9. Wearing Rings
  - 10. Shafts, Bearings, and Sleeves
- D. Propeller and Turbine Pumps
  - 1. Turbine Pump Introduction
  - 2. Lineshaft Turbines' Submersible Turbines
  - 3. Flow Patterns
  - 4. Axial-Flow Propeller Pumps
  - 5. Mixed-Flow Propeller Pumps
  - 6. Special Propeller Pumps
  - 7. Turbine Pump Construction
  - 8. Vertical Turbine Pump Applications
  - 9. Regenerative Turbine Pumps
- E. Rotary Pumps
  - 1. Introduction to Rotary Pumps
  - 2. External-Gear Pumps
  - 3. Internal-Gear Pumps
  - 4. Lobe Pumps
  - 5. Screw Pumps
  - 6. Vane Pumps
  - 7. Rotary Piston Pumps
  - 8. Flexible-Member Pumps
  - 9. Rotary Pump Installations
- F. Reciprocating Pumps
  - 1. Reciprocating Pump Applications, Parts and Classifications
  - 2. Steam-Driven Pump Operation
  - 3. The Fluid End
  - 4. The Steam End
  - 5. Power Pump Operations



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- 6. Horizontal and Vertical Plunger Pumps
- 7. Flexible-Member Pumps
- 8. Rotary Pump Installations
- G. Metering Pumps
  - 1. Introduction to Metering Pumps
  - 2. Metering Pump Classifications
  - 3. Plunger and Piston Metering Pumps
  - 4. Diaphragm Pumps
  - 5. Air-Operated Metering Pumps
  - 6. Rotary Metering Pumps
- H. Special-Purpose Pumps
  - 1. Handling Difficult Materials
  - 2. Chemical Pumps
  - 3. Special Chemical Pumps
  - 4. Magnetic-Drive Pumps
  - 5. Canned-Motor Pumps
  - 6. Centrifugal Slurry Pumps
  - 7. Pulp-Handling Pumps
  - 8. Trash and Sewage Pumps
  - 9. Diaphragm Pumps
  - 10. Reciprocating Slurry Pumps
  - 11. Vortex Pumps
- I. Packings and Seals
  - 1. Pump Sealing Requirements
  - 2. Stuffing Boxes
  - 3. Types of Stuffing Boxes
  - 4. Packing Materials
  - 5. Installing Packing
  - 6. Mechanical Seals
  - 7. Special Seals
- J. Pump Maintenance
  - 1. Pump Bearings
  - 2. Sleeve Bearings
  - 3. Antifriction Bearings
  - 4. Special Bearings
  - 5. Bearing Lubrication
  - 6. Bearing Seals
  - 7. Pump Installation
  - 8. Pump Maintenance
  - 9. End-Suction Centrifugal Pumps
  - 10. Vertical Turbine Pumps
  - 11. Rotary Pumps
  - 12. Reciprocating Pumps
  - 13. Difficult Material Pumps
  - 14. Other Maintenance Problems

MSI038	Title of Course, Description and Objectives	Duration	Min	Max
	<b>BOILER OPERATIONS &amp; MAINTENANCE</b>	<b>3 Days</b>	<b>1</b>	<b>10</b>



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With the dangers inherent to working on and around Boiler Operations & Maintenance systems and equipment, industrial businesses that have maintenance departments must insure that their qualified Boiler personnel are aware of 1) the recent Boiler safety mandates and 2) safe work practices in and around Boiler equipment. MSI's Boiler Op & Maintenance class – designed to encourage safe work practices and maintenance O&M effectiveness among qualified maintenance people and to emphasize federal and state mandates - focuses on the following topics during the 3-day program:

### **COURSE OBJECTIVES:**

#### **II. How Power Plants Work (111)**

##### **B. Steam – The Primary Force**

8. Energy for Power Plants
9. Converting Energy to Electricity
10. The Importance of Air in Combustion
11. Removing Ashes and Flue Gases
12. Heating the Air
13. Boiler Design
14. Controlling the Water Level
15. Feedwater Heater
16. The Economizer

##### **B. How Heat is Converted to Power**

1. The Turbine
8. The Generator
9. Using Exhausted Steam
10. Producing a Vacuum
11. Using the Condensate
12. Improved Coal Handling
13. Boiler Efficiency

##### **F. Power Plant Efficiency**

1. Thermodynamic Efficiency
2. Pumps
3. Feedwater Heating
4. Air Heating
5. The Superheater
6. Circulation Problems in High-Pressure Boilers
7. Minimum Temperatures in the System
8. Minor Refinements
9. Condenser Performance

##### **G. Handling Water, Fuel, and Wastes**

1. Water Requirements
2. Physical Properties of Water
3. Chemical Properties of Water
4. Water Softening and Purification
5. Cooling Water
6. Water Disposal Problems
7. Air Cooling
8. Fossil Fuel Handling and Wastes
9. Flue Gases
10. Particle Removal
11. Problem Transfer
12. Looking to the Future

##### **H. Power Plant Operation and Control**

1. Operating Features of a Power Plant
2. Power Plant Controls

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- 3. Temperature Measurement
  - 4. Pressure Measurement
  - 5. Special Measurements
  - 6. Other Power Sources
  - 7. Nuclear Power
- II. Generating Steam in the Power Plant (112)
- F. Transforming Energy into Work
    - 17. Energy and Matter
    - 18. Fuels
    - 19. Combustion
    - 20. Temperature Measurement
    - 21. Pressure Measurement
    - 22. Quantity of Heat
    - 23. Heat Transfer
    - 24. Conduction
    - 25. Radiation
    - 26. Convection
    - 27. Sensible and Latent Heat
    - 28. Vaporization
    - 29. Boiling Point
    - 30. Enthalpy
    - 31. Heat and Work
    - 32. Basic Steam Generation
  - G. Boiler Operation
    - 1. Types of Boilers
    - 2. Boiler Characteristics
    - 3. Water Treatment for Boiler Use
    - 4. Boiler and Cooling Tower Blowdown
    - 5. Wastewater Disposal
    - 6. Efficiency in the Power Plant
    - 7. Thermodynamic Efficiency
    - 8. Conserving Energy in the Power Plant
  - H. Boiler Maintenance
    - 1. Soot Removal
    - 2. Scale Removal
    - 3. Corrosion
    - 4. Casing Corrosion
    - 5. Refractory
    - 6. Control Systems
    - 7. Calibration and Cleaning
    - 8. Compressed Air Systems
    - 9. Maintaining Boiler Auxiliaries
    - 10. Maintaining Stacks and Cyclones
    - 11. Maintenance Schedules and Reports
  - I. Combustion and How It Works
    - 1. Coal Ranks
    - 2. Coal Analyses
    - 3. Coal Sizes
    - 4. Coal Storage
    - 5. Oil Properties
    - 6. Natural Gas



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7. Chemistry of Combustion
8. Oil Burners
9. Gas Burners
10. Flame Color
11. Flame Adjustment for Oil and Gas
12. Coal Firing Systems
13. Pulverized Coal Burners
14. Overfeed Stokers
15. Underfeed Stokers
16. Ash Analysis for Carbon
17. Combustion Efficiency
18. Handling Unburned Solids
- J. Steam Generation
  1. The Steam Generation Process
  2. Temperature and Pressure Relationship
  3. Superheating Steam and Steam Quality
  4. Volume and Pressure Relationship
  5. Steam Tables for Saturated Steam
  6. How to Use Steam Tables
  7. Circulation of Boiler Water
  8. Steam Circulation and Tube Temperature
  9. Steam Drum Design
  10. Operating a High-Pressure Boiler at Low Pressure
  11. The Complete Steam Generation System
  12. Conserving Energy
  13. Blowdown
  14. Makeup Water

MSI041	Title of Course, Description and Objectives	Duration	Min	Max
	<b>ON THE JOB TRAINING</b>	<b>1 Day</b>	<b>1</b>	<b>10</b>

One day on the job training of Technical or Engineering techniques relevant to the workplace. On the Job training is for instructors to provide practical instruction, taking class room theory to workplace application. Subject matter experts will follow students to their workplace where new methods and techniques will be applied by students and integrated into the work of the organization and demonstrated to management. On the Job Training provides students with the ability to learn how new methods and techniques can be used on the job as well as their associated value to the organization. On the Job Training is a quick way to generate immediate return on the training investment.

**COURSE OBJECTIVES:**

- Educate attendees on the fundamental value and use of the technical and engineering techniques required in the workplace
- Educate attendees on the fundamental tenets and terminology of Technical or Engineering techniques
- Educate attendees on the use of Technical or Engineering techniques
- Educate attendees on the methods for integrating Technical or Engineering techniques with other program and project management approaches

Yellow Belt training is a one week course providing attendees with a solid foundation in the theory and practice of Lean Six Sigma. The course is designed to meet the needs of both executives and line workers such that everyone develops a common understanding of What Lean Six Sigma means programmatically, within the project, and for the individuals in the organization. This class places emphasis upon enabling the Yellow Belt to effectively stabilize process, control, analyze, and incrementally improve. The Toyota / Toyota Production System approach to training is employed where possible and an emphasis on hands on learning is encouraged.

**COURSE OBJECTIVES:**

- Educate attendees on the fundamental value and use of Lean Six Sigma
- Prepare attendees to become value adding members of Lean Six Sigma engineering efforts



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- Make steps toward building a culture of Lean Six Sigma excellence
- Enable attendees to create detailed flowcharts and process maps of processes in order to relay the most accurate information to the organization's Black Belts
- Enable attendees to conduct basic data collection and analysis techniques
- Provide attendees with the tools and knowledge for understanding the nature of in process issues and the methods for remediation and reporting
- Give attendees the ability to control and improve processes using simple scientific methods and qualitative techniques

MSI007	Title of Course, Description and Objectives	Duration	Min	Max
	<b>LEAN SIX SIGMA (LSS) GREEN BELT</b>	<b>2 Weeks</b>	<b>10</b>	<b>20</b>

This two week course provides Green Belt Candidates with a solid understanding of Six Sigma principles, the "DMAIC" project roadmap and the key improvement tools and methodologies that are used within that roadmap. The class is delivered in two five day segments. The second five day segment is typically delivered two weeks after completion of the first segment. This time period allows the candidate time to obtain internal approval for the improvement project and to begin initial data collection and measurement using techniques learned in the first segment. Students capable of making all tollgate reviews will be given a Green Belt certification during the final week. Students requiring additional time will submit their materials electronically after completion of the program.

The MSI approach to Green Belt Training places more emphasis upon "Kaizen" or continuous improvement methods and incorporates MSI's hybrid training methodology which is based upon action learning and the Toyota University approach to training. Trainees receive a combination of classroom and job site training so they employ useful tools directly to their work. It is part of our philosophy that Green Belts in their large numbers throughout the organization are critical to the cultural change that leads to the lofty goal of being a Toyota like organization. Our approach is to create Green Belts capable of sustaining and improving Quality rather than half way pre-paring them to conduct full DMAIC projects. This is of far greater benefit to the individual and the organization.

This knowledge will enable the candidates to serve as active contributors on a Six Sigma project, to conduct analysis on their production processes, and most importantly will arm the Green Belt with the tools and knowledge for continuous improvement of their processes.

**COURSE OBJECTIVES:**

- Educate attendees on the fundamental value and use of Lean Six Sigma
- Prepare attendees to become value adding members of Lean Six Sigma engineering efforts
- Make steps toward building a culture of Lean Six Sigma excellence
- Enable attendees to create detailed flowcharts and process maps of processes in order to relay the most accurate information to the organization's Black Belts
- Enable attendees to conduct basic data collection and analysis techniques
- Provide a context for making decisions regarding which tools to utilize on a Six Sigma effort.
- Give attendees the ability to control and improve processes using simple scientific methods and qualitative techniques
- Give attendees the ability to conduct incremental improvement efforts using LSS techniques

MSI008	Title of Course, Description and Objectives	Duration	Min	Max
	<b>LEAN SIX SIGMA (LSS) BLACK BELT</b>	<b>4 Weeks</b>	<b>10</b>	<b>20</b>

This four week course provides Lean Six Sigma Black Belts with a solid understanding of Lean Six Sigma principles, the DMAIC project roadmap, Design For Six Sigma (DFSS), advanced tools, program level knowledge, knowledge of risks and challenges, project management skills, and cultural change skills. The class is delivered in four five day segments. Each five day segment is typically delivered two to three weeks after completion of the prior segment. This time period allows the candidate time to obtain internal approval for the improvement project and to begin initial data collection and measurement, and to use the tools taught in each phase. Our training approach emphasizes real world use of the techniques on real projects, so that certified Black Belts can truly say they have achieved success with Lean Six Sigma and can confidently use the methods after training. The MSI approach to Black Belt Training places more emphasis upon "Kaizen" or continuous improvement methods and incorporates MSI's hybrid training methodology which is based upon action learning and the Toyota University approach to training. Trainees receive a combination of classroom and job site training so they employ useful tools directly to their work. This approach gives the student the benefit of a more JIT training approach and the ability to work with the instructor and share ideas with the class. Students capable of making all tollgate reviews will be given a Black Belt certification during the final week. Students requiring additional time will submit their materials electronically after completion of the program.

The MSI approach to Black Belt Training encourages a balance between "Kaizen" or continuous improvement methods and Lean Six Sigma Projects. We teach Black Belts that their most important deliverable is often and continuous improvement frame-work even if initial improvements from the project are not possible or not recognized. This is especially true in transactional Six Sigma. The Black Belts will



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mentor and enable Green Belts in their large numbers throughout the organization to affect the cultural change. This knowledge will enable the candidates to serve as active leaders on Six Sigma projects, to conduct analysis on their production processes, to mentor and coach Green Belts, and to track and manage continuous improvement of organizational processes.

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of Lean Six Sigma
- Prepare attendees to become leaders of Lean Six Sigma engineering efforts
- Provide Black Belts with the skills to analyze, improve, and control the organizations business processes.
- Teach Black Belts how to institutionalize a culture of excellence
- Teach Black Belts how to deal with project roadblocks and pit-falls
- Enable attendees to conduct extensive data collection and advanced analysis techniques
- Provide training and skills in the assessment of process outputs.
- Give attendees depth of knowledge in the quantitative methods of Lean Six Sigma
- Teach attendees the value of pro-active management, techniques, and the importance of a Kaizen end state system.
- Give attendees the ability to control and improve processes using simple scientific methods and qualitative techniques
- Provide attendees with an under-standing of how to manage a Lean Six Sigma deployment and infrastructure – best practices

MSI009	Title of Course, Description and Objectives	Duration	Min	Max
	<b>STRATEGIC LEADERSHIP AND LEADERSHIP COACHING</b>	<b>1 Day</b>	<b>10</b>	<b>20</b>

The Strategic Leadership Executive Workshop is a one day workshop in which enterprise level strategic planning, leadership and Human Capital management approaches are introduced and evaluated against the needs of the organization and the organization's mission. A descriptive Leadership vision and mission are developed from which external analysis, customer analysis, and internal analysis factors can be converged to prepare the leader for the development of enterprise focus goals and top level means by which short and long term goals will be achieved. The Strategic Leadership Executive Workshop also introduces or re-acquaints leaders with the latest leadership, coaching, mentoring and related human capital best practices from industry and academia within the context of management science and CPI. Examples subject areas include Conflict resolution, unlocking hidden strengths, implementing democracy and giving second chances. Additional modules cover the context within which effective leadership must be deployed including, uncertainty, the new normal, generational diversity, and disparate digital skill levels. The workshop also includes ample time for the exploration of actual leadership challenges and the examination of potential solutions.

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of enterprise level strategic planning, leadership and Human Capital management techniques
- Provide an overview of a variety of enterprise level strategic planning, leadership and Human Capital management techniques
- Prepare attendees for the next steps in their research and decision making regarding the adoption of enterprise level strategic planning, leadership and Human Capital management techniques
- Educate attendees on the importance of creating a culture of enterprise level strategic planning, leadership and Human Capital management excellence
- Educate attendees on the role of enterprise level strategic planning, leadership and Human Capital management techniques in strategic management and decision making
- Educate attendees on the proper way to successfully adopt enterprise level strategic planning, leadership and Human Capital management techniques for the long term

MSI010	Title of Course, Description and Objectives	Duration	Min	Max
	<b>HOSHIN KANRI QUICK START TRAINING PACKAGE</b>	<b>4 Weeks</b>	<b>10</b>	<b>20</b>

MSI's Hoshin Kanri training is designed for all levels of management from team leaders and branch chiefs to the highest level of executive-leadership. This course and the related action learning workshops emphasizing the business value of Hoshin Kanri planning and the critical role Hoshin Kanri plays in world class Lean organizations and Strategic Planning. Foundationally, the class educates attendees on the fundamentals and application of Hoshin Kanri in an organization. Further, the class imparts the knowledge necessary to successful implementation, avoidance of common mistakes, and integration of Hoshin Kanri with Lean Six Sigma and balanced scorecards. Class room training is followed by a series of workshops at the executive and management levels in which students experience action learning and apply Hoshin Kanri tools and techniques with the support of our trainers to create the first pass of totally participative goals.



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### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of Hoshin Kanri
- Educate attendees on the fundamental tenets of Hoshin Kanri and Strategic Planning
- Educate attendees on the use of Hoshin Kanri
- Educate attendees on the methods for integrating Hoshin Kanri with value stream management, Lean Six Sigma, and balanced scorecard
- Development of the organization's first draft of totally participative goals

### SUBJECTS / MATERIAL COVERED:

1. Hoshin Kanri Overview
2. The Hoshin Kanri process
  - a. The Deming Cycle and Hoshin Kanri
  - b. Creating vision, mission, strategies, objectives, goals, and identifying CTQ's
    - i. Dimensions of time, performance, and change
  - c. Creating a goal setting and measurement framework
    - i. Using value streams or service oriented architecture
    - ii. Using organization structure
    - iii. The dimensions of a good measurement program
  - d. Identifying, selecting, and communicating goals and metrics
  - e. Totally participative policy deployment "catch ball"
  - f. Controlling the policy (Check and Act)
    - i. Regular reviews and use of the prescribed quality methodology (PDCA, LSS, etc.)
3. More on measurement. How to do it without creating work.
4. Integrating Hoshin Kanri with Lean Six Sigma, Value Stream Management, and Balanced Scorecards

### WORKSHOP 1 – STRATEGIC PLANNING

1. A one to two day workshop for organizations with an existing strategic plan and/or enough market and customer expertise to develop a useful strategy. A structured discussion of customer, market, regulatory, emerging technology, and other relevant factors to identify the overall strategy for the organization. This is a true strategy workshop addressing the nature and intent of the organization and how it will perform within the market. The workshop is intended to generate consensus on a high level plan for becoming the organization of the future.
2. Includes development of strategy artifacts to be used in in Workshop 2 for defining strategic goals and means
3. Note. If your organization does not have existing strategy or strategic market information based on experience and analysis, strategic analysis is required prior to this workshop.

### WORKSHOP 2 – ENTERPRISE GOALS AND MEANS

1. Taking strategy and turning it into measureable goals and objectives
2. Identifying the means for achieving goals, timelines, and metrics

### WORKSHOP(S) 3 – TOTALLY PARTICIPATIVE DEPLOYMENT

1. Cascading development of objectives, metrics, and means up and down throughout the organization
2. Note, this workshop may need to be repeated depending on the size of the organization and the iterations of the catch ball process

MSI011	Title of Course, Description and Objectives	Duration	Min	Max
	<b>HOSHIN KANRI STRATEGIC PLANNING AND GOAL DEPLOYMENT</b>	<b>1 Day</b>	<b>10</b>	<b>20</b>

Hoshin Kanri training is for all levels of management from the front line up through the highest level of executive management. This is a one day course and action learning workshops emphasizing the business value of Hoshin Kanri planning and the critical role Hoshin Kanri plays in world class Lean organizations. Foundationally, the class educates attendees on the fundamentals and application of Hoshin Kanri in any organization. Further, the class educates on how to implement successfully, common mistakes, and how to integrate Hoshin Kanri with Lean Six Sigma and balanced scorecards. Class room training is followed by a series of workshops at the executive and management levels in which students experience action learning and apply Hoshin Kanri tools and techniques with the support of our trainers to create the first pass of totally participative goals.

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of Hoshin Kanri
- Educate attendees on the fundamental tenets of Hoshin Kanri



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- Educate attendees on the use of Hoshin Kanri
- Educate attendees on the methods for integrating Hoshin Kanri with value stream management, Lean Six Sigma, and balanced scorecard
- Development of the organizations first draft of totally participative goals

MSI012	Title of Course, Description and Objectives	Duration	Min	Max
	<b>VALUE STREAM MANAGEMENT EXECUTIVE TRAINING</b>	<b>1 day</b>	<b>10</b>	<b>20</b>

Value Stream Management (VSM) is the most advanced form of organizational management to date. It is the fundamental driver for Enterprise Architecture. The world's top corporations and Government organizations are implementing Enterprise Architecture / value stream management to bring process excellence to the strategic level in the organization. MSI is a pioneer in the realm of value stream management and is especially suited to introducing the potential of VSM to executive audiences. Value Stream Management is an organizational management methodology that defines relationships between people, processes, technologies as well as all supplier, inputs, outputs, and customers. Then relates all attributes of the organization to metrics, goals, and objectives. This is a one day manager and practitioners seminar in which executive consultants from MSI will present the concepts of Enterprise Architecture / VSM to organizational managers in a collaborative setting. Attendees will leave this seminar with a strong foundation in this critical new approach to management and will be better prepared to make decisions regarding implementation of organization wide strategic management and operational excellence methods.

### COURSE OBJECTIVES:

- Educate Executives on the fundamental value and use of VSM
- Educate Executives on the tenets and terminology of VSM
- Educate Executives on the use of VSM
- Educate Executives on the generation and analysis of value stream maps
- Educate Executives on the methods for integrating VSM with Failure Modes and Effects Analysis (FMEA)
- Educate Executives on the methods for integrating VSMs across the enterprise
- Educate Executives on creating an ideal state process map

MSI013	Title of Course, Description and Objectives	Duration	Min	Max
	<b>MINITAB</b>	<b>3 days</b>	<b>10</b>	<b>20</b>

MSI's MiniTab Class is designed to take an individual from no knowledge of MiniTab to the point that they can do sophisticated analysis to include Advanced DOE. This is built as a step by step class. The documentation was designed to be used as a step by step reference from the basics through the advanced. Prior to each MiniTab session, is a detailed class on the how and why of the techniques that are covered within that section. Subject areas covered are as follows

### COURSE OBJECTIVES:

- Day One: Understanding MiniTab Layout; Graphical analyses; Basic Stats; MSE
- Day Two: Hypothesis testing; Statistical tests;
- Day Three: Capability; Power and Sample Size; Correlation and Regression
- Day Four: DOE Steepest Ascent; Central Composite Design (CCD)
- Day Five: DOE Continued DOE (Advanced) Steepest Ascent; Central Composite Design (CCD); RSM; Mixture design; Characterization; Taguchi

MSI014	Title of Course, Description and Objectives	Duration	Min	Max
	<b>INTRODUCTION TO PROCESS AUTOMATION AND PROCESS ORIENTED DESIGN</b>	<b>2 Days</b>	<b>10</b>	<b>20</b>

This course in Business Process Automation (BPA) and Process Oriented Design (POD) is designed to impart the introductory knowledge and expertise necessary for automating standard business processes and functions through the use of BPA and POD technologies, tools and methodologies such as Lean Six Sigma, Baldrige, Hoshin Kanri, BPM, and CPI. It focuses on "operate the organization" instead of "count the organization" approaches to business automation. Designed and developed by experts in process automation and engineering methods, MSI's BPA and BOD approach represents the most advanced approach to date. MSI's process automation training will ensure participants develop the capacity to integrate processes, systems and information to create standard, streamlined, and repeatable business processes. This is a two day course that presents and overview of available industry approaches and software. It presents the concept and benefits of BPA and POD to attendees. Process Oriented Design™ (POD) is the only software development methodology that ensures proper engineering of critical processes in parallel to and integrated with software development design and development. POD incorporates best practices from Agile, CMMI, and Systems Engineering. Designed and developed by experts in process engineering methods such as



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lean six sigma and Baldrige, POD represents the most advanced approach to date for system design and development. POD uses simple qualitative and complex techniques to ensure that systems are true systems, not simply software. A true system accounts for all elements of the production process including processes, people, technologies and related inputs, outputs, customers, and suppliers. With the rapid adoption of process excellence and Business Process Management (BPM) applications, the need has never been greater for a software engineering approach that integrates meaningful process engineering techniques. Any organization implementing BPM solutions should be using POD or the value of BPM will not be realized. BPM implementation brings the potential to implement powerful process management within an organization. However, if not properly implemented from concept through management, BPM is a dangerous tool that gives false hope to management. From requirements gathering through delivery and support of the system, BPM is a different breed of software implementation and must be implemented using the techniques found in POD to ensure success

### COURSE OBJECTIVES:

- Educate Attendees on the fundamental value, benefits and terminology of PDA and POD
- Educate Attendees on current BPA and POD techniques, tools and software
- Educate Attendees on the use of BPA and POD
- Educate Attendees on the application of BPA and POD to basic business processes and functions

MSI015	Title of Course, Description and Objectives	Duration	Min	Max
	<b>ADVANCED PROCESS AUTOMATION AND PROCESS ORIENTED DESIGN</b>	<b>3 Days</b>	<b>10</b>	<b>20</b>

This advanced course in Business Process Automation (BPA) and Process Oriented Design (POD) is designed to provide experienced BPA practitioners with advanced knowledge and expertise necessary to automating complex, enterprise-wide business processes and functions through the use of advanced technologies, tools and methodologies such as Lean Six Sigma, Baldrige, Hoshin Kanri, BPM, and CPI. This course in Business Process Automation (BPA) and Process Oriented Design (POD) is designed to impart the introductory knowledge and expertise necessary to automating standard business processes and functions through the use of BPA and POD technologies, tools and methodologies such as Lean Six Sigma, Baldrige, Hoshin Kanri, BPM, and CPI. It focuses on "operate the organization" instead of "count the organization" approaches to business automation. Designed and developed by experts in process automation and engineering methods, MSI's BPA and BOD approach represents the most advanced approach to date. MSI's process automation training will ensure participants develop the capacity to integrate processes, systems and information to create standard, streamlined, and repeatable business processes. The course presents the concept and benefits of BPA and POD to attendees. Process Oriented Design™ (POD) is the only software development methodology that ensures proper engineering of critical processes in parallel to and integrated with software development design and development. Designed and developed by experts in process engineering methods such as lean six sigma and Baldrige, POD represents the most advanced approach to date for system design and development. POD incorporates best practices from Agile, CMMI, and Systems Engineering. POD uses simple qualitative and complex techniques to ensure that systems are true systems, not simply software. A true system accounts for all elements of the production process including processes, people, technologies and related inputs, outputs, customers, and suppliers. With the rapid adoption of process excellence and Business Process Management (BPM) applications, the need has never been greater for a software engineering approach that integrates meaningful process engineering techniques. Any organization implementing BPM solutions should be using POD or the value of BPM will not be realized. BPM implementation brings the potential to implement powerful process management within an organization. However, if not properly implemented from concept through management, BPM is a dangerous tool that gives false hope to management. From requirements gathering through delivery and support of the system, BPM is a different breed of software implementation and must be implemented using the techniques found in POD to ensure success This is a three day course that explores in detail available industry approaches and software. It presents advanced concept and benefits of BPA and POD to attendees.

### COURSE OBJECTIVES:

- Educate Attendees on the advanced capabilities of BPA and POD
- Educate Attendees on advanced BPA and POD techniques, tools and software
- Educate Attendees on the application of BPA and POD across an organization in support of complex business processes

MSI016	Title of Course, Description and Objectives	Duration	Min	Max
	<b>DISCOVERY WORKSHOP</b>	<b>2 Days</b>	<b>10</b>	<b>20</b>

This course teaches leaders and managers the methodology and techniques for assessing organizational alignment to mission and goals as well as process and organizational design. The goal of this course is to give leaders and managers the expertise necessary for identifying the path to improvement, prioritized improvements, a clear picture of organizational maturity, and a snapshot of strategic alliance. The course teaches leaders and managers through a facilitated three day workshop and results in a mission alignment model; prioritized project list; an



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opportunities list; and an action plan. The course helps leaders develop a foundation and the business case to obtain and assign resources needed to transform an organization into a High Performing Organization (HPO). The course prepares an organization to holistically define and analyze existing operations using a Systems Thinking model.

### Training Modules

#### Day One

##### Introductions

##### Meeting Overview and Objectives

Discuss your organization and its value stream, customers, and culture

Identify mission, goals, and CTQs

Issues exercise and development of problem statements

#### Day Two

Break out teams to drill into problems

or

Process mapping

Agree upon initial projects

Develop POA&M (high level)

### COURSE OBJECTIVES

- Educate attendees on the value of defining the strategic environment
- Educate attendees on the establishment of the relationship among mission – goals – and CTQs
- Educate attendees on stakeholder perspectives and voice of the customer
- Educate attendees on culture/relationship of the value stream stakeholders
- Provide an overview of value stream management
- Assist attendees with the development of Major Problem Statements

MSI017	Title of Course, Description and Objectives	Duration	Min	Max
	<b>RAPID ASSESSMENT ON THE JOB TRAINING</b>	<b>8 Weeks</b>	<b>10</b>	<b>20</b>

This course is a hands on action learning experience focused on a particular office or business function. Attendees will participate in just in time training sessions and then implement training under the coaching of our expert instructors. The objective of this course is to equip organizations with the knowledge and expertise necessary for identifying and designing an improved business operating model that moves the organization to become a High Performing Organization (HPO). The class will generate an improved operating model that enables agile, data driven management of functions based on a balanced set of customer driven metrics. Executive and Management staff are trained on the job and in the classroom environment by a team of MSI's experts on advanced management techniques and will co-develop an improved operating model through the course. The course enables the actual creation of surveys, training plans, and reports that can be used to holistically define and analyze existing operations using a Systems Thinking model. Additional training is focused on developing the assessment skill necessary to developing and evaluating alternative operating models, selection, and planning of an improved operating model. Through this course, MSI teaches our rapid evaluation methodology, developed over more than a dozen years of consulting experience. The MSI rapid evaluation approach has been used to help executive and managers learn to analyze organizations and define high performing business models.

### Training Modules

#### Strategy

1. Strategic guidance document (vision, mission, goals, tactics)

#### Define Phase

1. Current State Critical to Success Matrix

2. Current State Process Maps

3. Current State Organizational Models

4. Current State Customer Profiles

#### Measure & Analyze Phase

1. Detailed Analysis Models

2. Customer Management Models

3. Courses of Action

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- 4. Recommendations
- 5. Final Analysis Report
- Design Phase
  - 1. Quality Function Deployment
  - 2. Goal Deployment Model
  - 3. A high level future state design and operating model for a high performance CSO operation.
    - Goal Deployment Matrix
    - Quality Function Deployment
    - Performance Measurement
    - Continuous Improvement
    - Customer Satisfaction Management
    - Processes and Value Streams
    - Manpower, organizational structure, training, roles and responsibilities
    - Information systems requirements
    - Policy
    - Financial management
    - Acquisitions and contracting
    - 4. Implementation Plan

**COURSE OBJECTIVES:**

- Educate attendees on the fundamental value and use of CPI Program Review and Assessment
- Prepare attendees to become value adding members of CPI Program Review and Assessment
- Make steps toward building a culture of CPI excellence
- Enable attendees to create detailed Strategic Guidance, Matrices, Process Maps, Models, and Implementation Plans
- Enable attendees to conduct basic data collection and analysis techniques
- Provide attendees with the tools and knowledge for understanding the nature of CPI remediation and the development of a HPOs
- Give attendees the ability to control and improve processes using CPI methods

MSI018	Title of Course, Description and Objectives	Duration	Min	Max
	<b>LEAN FOR SERVICE AND TRANSACTIONAL PROCESSES</b>	<b>5 Days</b>	<b>10</b>	<b>20</b>

Lean for service and transactional process training is a one week course providing attendees with a solid foundation in the theory and practice of Lean in service and transactional environments. The course is designed to meet the needs of both executives and line workers such that everyone develops a common understanding of Lean means programmatically, within the project, and for the individuals in the organization. This class places emphasis upon using value stream analysis, 5S, pull systems, and level loading to organize work effectively, reduce waste, and improve cycle times.

**COURSE OBJECTIVES**

- Educate attendees on the fundamental value and use of Lean for service and transactional process
- Educate attendees on the fundamental tenets and terminology of Lean for service and transactional process
- Educate attendees on the fundamental value and use of Lean for service and transactional process
- Educate attendees on the methods for integrating Lean for service and transactional process with other related CPI, BPM and related improvement approaches

MSI019	Title of Course, Description and Objectives	Duration	Min	Max
	<b>PROCESS ORIENTED DESIGN EXECUTIVE OVERVIEW</b>	<b>1/2 Day</b>	<b>10</b>	<b>20</b>

Process Oriented Design™ (POD) is the only software development methodology that ensures proper engineering of critical processes in parallel to and integrated with software development design and development. Designed and developed by experts in process engineering methods such as lean six sigma and Baldrige, POD represents the most advanced approach to date for system design and development. POD uses simple qualitative and complex techniques to ensure that systems are true systems, not simply software. A true system accounts for all elements of the production process including processes, people, technologies and related inputs, outputs, customers, and suppliers. With the rapid adoption of process excellence and Business Process Management (BPM) applications, the need has never been greater for a software engineering approach that integrates meaningful process engineering techniques. Any organization implementing BPM solutions



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12-719-3683

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should be using POD or the value of BPM will not be realized. BPM implementation brings the potential to implement powerful process management within an organization. However, if not properly implemented from concept through management, BPM is a dangerous tool that gives false hope to management. From requirements gathering through delivery and support of the system, BPM is a different breed of software implementation and must be implemented using the techniques found in POD to ensure success. This half day executive overview presents the concept and benefits of POD to attendees. Organizations implementing process excellence and those implementing BPM solutions will be interested in attending this seminar. It is recommended that a cross section of various levels and departments attend this overview.

### COURSE OBJECTIVES:

- Educate Executives on the fundamental value and use of POD
- Educate Executives on the fundamental tenets and terminology of POD
- Educate Executives on the use of POD
- Educate Executives on the generation and analysis of POD Solutions

MSI020	Title of Course, Description and Objectives	Duration	Min	Max
	<b>PROCESS ORIENTED DESIGN TRAINING</b>	<b>1/2 Day</b>	<b>10</b>	<b>20</b>

Process Oriented Design™ (POD) is the only software development methodology that ensures proper engineering of critical processes in parallel to and integrated with software development design and development. Designed and developed by experts in process engineering methods such as lean six sigma and Baldrige, POD represents the most advanced approach to date for system design and development. POD uses simple qualitative and complex techniques to ensure that systems are true systems, not simply software. A true system accounts for all elements of the production process including processes, people, technologies and related inputs, outputs, customers, and suppliers. With the rapid adoption of process excellence and Business Process Management (BPM) applications, the need has never been greater for a software engineering approach that integrates meaningful process engineering techniques. Any organization implementing BPM solutions should be using POD or the value of BPM will not be realized. BPM implementation brings the potential to implement powerful process management within an organization. However, if not properly implemented from concept through management, BPM is a dangerous tool that gives false hope to management. From requirements gathering through delivery and support of the system, BPM is a different breed of software implementation and must be implemented using the techniques found in POD to ensure success. This half day manager and practitioners overview presents the concept and benefits of POD to attendees. Organizations implementing process excellence and those implementing BPM solutions will be interested in attending this seminar. It is recommended that a cross section of various levels and departments attend this overview.

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of POD
- Educate attendees on the fundamental tenets and terminology of POD
- Educate attendees on the use of POD
- Educate attendees on the generation and analysis of POD Solutions

MSI021	Title of Course, Description and Objectives	Duration	Min	Max
	<b>VALUE STREAM MANAGEMENT AND ENTERPRISE ARCHITECTURE TRAINING</b>	<b>5 Days</b>	<b>10</b>	<b>20</b>

Value Stream Management (VSM) is the most advanced form of organizational management to date. It is the fundamental driver for Enterprise Architecture. The world's top corporations and Government organizations are implementing Enterprise Architecture / value stream management to bring process excellence to the strategic level in the organization. MSI is a pioneer in the realm of value stream management. Value Stream Management is an organizational management methodology that defines relationships between people, processes, technologies as well as all supplier, inputs, outputs, and customers. Then relates all attributes of the organization to metrics, goals, and objectives. This is a one day manager o=executive seminar in which executive consultants from MSI will present the concepts of Enterprise Architecture / VSM to organizational leaders and managers in a collaborative setting. Attendees will leave this seminar with a strong foundation in this critical new approach to management and will be better prepared to make decisions regarding implementation of organization wide strategic management and operational excellence methods.

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of VSM
- Educate attendees on the fundamental tenets and terminology of VSM
- Educate attendees on the use of VSM



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- Educate attendees on the generation and analysis of value stream maps
- Educate attendees on the methods for integrating VSM with Failure Modes and Effects Analysis (FMEA)
- Educate attendees on the methods for integrating VSMs

MSI022	Title of Course, Description and Objectives	Duration	Min	Max
	<b>PROCESS PORTFOLIO MANAGEMENT EXECUTIVE SEMINAR</b>	<b>1 Day</b>	<b>6</b>	<b>12</b>

Process Portfolio Management (PPM) is the most advanced form of organizational management to date. The world's top corporations are implementing process portfolio management to bring process excellence to the strategic level in the organization. MSI is a pioneer into the realm of process portfolio management. In fact, MSI owns the rights to the term process portfolio management. Process Portfolio Management is an organizational management methodology that defines relationships between people, processes, technologies as well as all supplier, inputs, outputs, and customers. Then relates all attributes of the organization to metrics, goals, and objectives. This is a one day executive seminar in which executive consultants from MSI will present the concept of PPM to organizational leaders and managers in a collaborative setting. Executives will leave this seminar with a strong foundation in this critical new approach to management and will be better prepared to make decisions regarding implementation of organization wide strategic management and operational excellence methods.

- Provide Executives with a strong foundation in this critical approach to management
- Educate Executives on the fundamental value and use of Process Portfolio Management
- Provide Executives with the tools and knowledge for understanding the nature of Process Portfolio Management
- Give Executives the ability to control and improve processes using Process Portfolio Management
- Educate Executives on the techniques and technologies to be used in a typical organizational improvement methodology that Process Portfolio Management
- Prepare executives to take decisions regarding implementation of organization wide strategic management and operational excellence methods.

MSI023	Title of Course, Description and Objectives	Duration	Min	Max
	<b>PROCESS PORTFOLIO MANAGEMENT TRAINING</b>	<b>2 Days</b>	<b>10</b>	<b>20</b>

Process Portfolio Management (PPM) is the most advanced form of organizational management to date. The world's top corporations are implementing process portfolio management to bring process excellence to the strategic level in the organization. MSI is a pioneer into the realm of process portfolio management. MSI owns the rights to the term process portfolio management. Process Portfolio Management is an organizational management methodology that defines relationships between people, processes, technologies as well as all supplier, inputs, outputs, and customers. Then relates all attributes of the organization to metrics, goals, and objectives. This is a two day management training class in which managers will be educated in the concept and trained in the tactical level methods and tools required to implement PPM. Consultants from MSI will present the concept of PPM to attendees and then provide detailed training on each phase of implementation in a collaborative setting.

**COURSE OBJECTIVES:**

- Provide attendees with a strong foundation in this critical approach to management
- Educate attendees on the fundamental value and use of Process Portfolio Management
- Provide attendees with the tools and knowledge for understanding the nature of Process Portfolio Management
- Give attendees the ability to control and improve processes using Process Portfolio Management
- Educate attendees on the techniques and technologies to be used in a typical organizational improvement methodology that Process Portfolio Management.

MSI024	Title of Course, Description and Objectives	Duration	Min	Max
	<b>CONTINUOUS PROCESS IMPROVEMENT (CPI) PROGRAM REVIEW AND YB / GB ASSESSMENT WORKSHOP</b>	<b>6 Days</b>	<b>10</b>	<b>20</b>

The objective of this course is to provide participants and their organizations with the knowledge and expertise necessary to perform Lean Six Sigma (LSS) and Continuous Process Improvement (CPI) Program Review and Assessment. This LSS and CPI Program Review and Assessment training explores the success of leveraging CPI based on Lean Six Sigma in non-manufacturing environments. The Lean Six Sigma masters at MSI have developed numerous techniques that move beyond the text book and incorporate other proven practices from other management science disciplines. These experts will provide participants with pragmatic CPI information and techniques, emphasizing real world examples and potential uses of the techniques that can be used to accomplish a comprehensive CPI program review. Our



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methods incorporate a holistic approach to understanding all elements of the process centric system, including: People; Process; Technology; Products; Suppliers; Competitors; Stakeholders; and Customers. Attendees will be armed with the method for evaluating their program; will have a maturity model for assessing the program; and will be provided with a theoretical model of the ideal Governmental LSS program.

### Course Modules

- Organization - Prepare and Complete Assessment for all Organization Related Program Review Areas
- Processes - Prepare and Complete Assessment for all Process Related Program Review Areas
- Technology - Prepare and Complete Assessment for all Technology Related Program Review Areas
- Administrative - Prepare and Complete Assessment for all Administrative Related Program Review Areas

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of CPI Program Review and Assessment
- Prepare attendees to become value adding members of CPI Program Review and Assessment
- Enable attendees to create and complete Organization, Process, Technology and Administrative Review Areas Assessments
- Provide attendees with the tools and knowledge for understanding the nature of CPI remediation and the development of a HPOs
- Give attendees the ability to control and improve processes using CPI methods

MSI025	Title of Course, Description and Objectives	Duration	Min	Max
	<b>CUSTOMER RELATIONSHIP MANAGEMENT - INTRODUCTION</b>	<b>2 Days</b>	<b>10</b>	<b>20</b>

Customer Relationship Management Introduction is a two day course providing attendees with a solid foundation in the theory and practice of CRM, customer service management, service improvement, and customer satisfaction. The course is designed to meet the needs of executives, managers and line workers such that everyone develops a common understanding of What CRM means programmatically, within the organization, and for each individual in the organization. MSI is particularly well versed in leveraging CPI, BPM and Six Sigma for service process improvements and we are prepared to impart the strategic value that can be realized through designing Customer Relationship Management into process improvement programs. Our improvement and CRM strategy places the customer at the direct center of process design which means that the needs of current and potential customers are comprehensively decomposed and integrated into all improvement activities. This class provides an expansive introduction of key CRM concepts, tools, solutions such as Voice of the Customer, Value Stream Management, Pure-Play and other CRM solutions, plus Personalization and Customization of the Customer experience. The course also places CRM in the context of emergent private and public sectors trends including Cloud, cybersecurity and Mobility.

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of CRM
- Make steps toward building a culture of CRM excellence
- Prepare attendees to take preliminary steps toward identifying the organizations customers and their needs
- Enable attendees to conduct basic CRM data collection and analysis techniques
- Provide attendees with the knowledge necessary to taking preliminary decisions concerning the implementation of CRM approaches and tools.
- Help attendees prepare for the integration of CRM efforts with other process improvement activities including CPI, Lean Six Sigma and BPM.

MSI026	Title of Course, Description and Objectives	Duration	Min	Max
	<b>CUSTOMER RELATIONSHIP MANAGEMENT - ADVANCED</b>	<b>3 Days</b>	<b>10</b>	<b>20</b>

Customer Relationship Management Advanced is a three day course providing attendees with the knowledge and expertise necessary to applying CRM practices and concepts within their organizations. Attendees will be well versed in theory and practice of CRM, customer service management, service improvement, and customer satisfaction. The course additionally explores the use of CRM in the context of other improvement efforts such as CPI, BPM, Hoshin Kanri and Lean Six Sigma and as a stand-alone improvement program. The course builds on MSI's CRM Introduction offering and is designed to meet the needs of executives, managers and line workers. MSI is particularly well versed in leveraging a wide range of management science principles and methodologies that allow for the concentrated use of CRM to improve processes and business functions. The application of the concepts and knowledge provided through this course will allow participants to realize expanded CRM-driven strategic value. Our improvement and CRM strategy places the customer at the direct center of process design which means that the needs of current and potential customers are comprehensively decomposed and integrated into all improvement activities. This class places emphasis on an advanced exploration of CRM concepts, tools, solutions such as Voice of the



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Customer, Value Stream Management, Pure-Play and other CRM solutions, and Personalization and Customization of the Customer experience. Importantly, the full integration of CRM with other processes and business improvement approaches including CPI, BPM, BPA, Lean Six Sigma, and Hoshin Kanri is examined in detail. The course also focuses on the delivery of CRM excellence within and outside the enterprise.

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of CRM
- Explore how best to build and inculcate an enterprise-wide culture of CRM excellence
- Prepare attendees to comprehensively identify all customers & stakeholders and how to integrate these needs into an overall CRM strategy and program
- Enable attendees to perform advanced CRM data collection and analysis techniques
- Provide attendees with the knowledge necessary to taking, fully informed and enterprise-wide decisions concerning the implementation of CRM approaches and tools.
- Give attendees the knowledge necessary to appropriately accomplishing the integration of CRM efforts with other strategic planning, process improvement and service delivery activities.

MSI027	Title of Course, Description and Objectives	Duration	Min	Max
	<b>CUSTOMER RELATIONSHIP MANAGEMENT - PACKAGE</b>	<b>5 Days</b>	<b>10</b>	<b>20</b>

The Customer Relationship Management Package is a one week, intensive course providing attendees with a solid foundation in the theory, practice and application of CRM and the knowledge and expertise necessary to applying CRM within their organizations. The course is designed to meet the needs of executives, managers and line workers such that everyone develops a common understanding of What CRM means programmatically, within the organization, and for each individual in the organization. The course additionally explores the use of CRM in the context of other improvement efforts such as CPI, BPM, Hoshin Kanri and Lean Six Sigma and as a stand-alone improvement program. MSI is particularly well versed in leveraging CPI, BPM and Six Sigma for service process improvements and we are prepared to impart the strategic value that can be realized through designing Customer Relationship Management into process improvement programs. Our improvement and CRM strategy places the customer at the direct center of process design which means that the needs of current and potential customers are comprehensively decomposed and integrated into all improvement activities. This class provides a detailed exploration of the key CRM concepts, tools, solutions such as Voice of the Customer, Value Stream Management, Pure-Play and other CRM solutions, plus Personalization and Customization of the Customer experience. The course also places CRM in the context of emergent private and public sectors trends including Cloud, cybersecurity and Mobility.

### COURSE OBJECTIVES:

- Educate attendees on the fundamental value and use of CRM
- Prepare attendees to take preliminary steps toward identifying the organizations customers and their needs and follow-on with the comprehensive identification of all customers & stakeholders
- Educate attendees on how to integrate customer & stakeholder needs into an overall CRM strategy and program
- Enable attendees to conduct basic and advanced CRM data collection and analysis techniques
- Explore how best to build and inculcate an enterprise-wide culture of CRM excellence
- Provide attendees with the knowledge necessary to taking, fully informed and enterprise-wide decisions concerning the implementation of CRM approaches and tools.
- Give attendees the knowledge necessary to appropriately accomplishing the integration of CRM efforts with other strategic planning, process improvement and service delivery activities.

MSI028	Title of Course, Description and Objectives	Duration	Min	Max
	<b>LEADERSHIP COACHING SESSION</b>	<b>1 Day</b>	<b>1</b>	<b>10</b>

The Leadership and Coaching Session is a one day workshop in which Executives are introduced to or re-acquainted with the latest leadership, coaching, mentoring and related human capital best practices from industry and academia within the context of management science and CPI. Examples subject areas include Conflict resolution, unlocking hidden strengths, implementing democracy and giving second chances. Additional modules cover the context within which effective leadership must be deployed including, uncertainty, the new normal, generational diversity, and disparate digital skill levels. The workshop also includes ample time for the exploration of actual leadership challenges and the examination of potential solutions.

### COURSE OBJECTIVES;



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Educate attendees on the latest Leadership and Management Trends from Industry and Academia  
Educate Executives on the differing approaches for achieving management and leadership excellence  
Educate Executives on the need for enterprise level strategic planning, leadership and Human Capital management techniques  
Prepare Executives to use emergent leadership and management approaches to drive organizational success and inspire the workforce

MSI029	Title of Course, Description and Objectives	Duration	Min	Max
	<b>SAFETY AND TECHNOLOGY: LOW VOLTAGE SAFETY W/ARC FLASH</b>	<b>2 Days</b>	<b>1</b>	<b>10</b>

With the dangers inherent to working on and around energized panels and equipment, industrial businesses that have maintenance departments must insure that their qualified electrical people are aware of 1) the recent electrical safety mandates and 2) safe work practices in and around energized equipment. MSI's EHWS class – designed to encourage electrical safe work practices and maintenance O&M effectiveness among qualified maintenance people and to emphasize federal and state mandates - focuses on the following topics during the 2-day program:

### COURSE OBJECTIVES:

- Introduction and Basis of the Training – this section covers the bases of this safety training program (NFPA 70E, NEC, OSHA).
- Basic electrical safety to include OSHA 1910 “Qualified Worker” Sub Part S annual refresher.
- Electrical Fundamentals – this section establishes the electrical foundation that individuals who are not true electricians can build on to gain electrical work practice safety qualifications. A clear discussion of why faults occur, energy dynamic of faults in an industrial facility and why the worker must be aware of the greatly increased danger posed by industrial circuits follow. This plays well with the growing trend to cross-train workers, training that TPC has extensive experience providing its customers.
- Electrical Hazards - shock, arc flash and burn, shock and arc boundaries, discussion of the arc event are covered in this section.
- PPE Fundamentals - acceptable and unacceptable clothing and accessories for shock and arc risk boundary approach, arc flash-specific PPE details by HRC, care and maintenance of ARC-specific ATPV rated PPE, FR Welding vs. FR ATPV rated for Arc Flash are discussed. This section also discusses layering of clothing as a method to increase ATPV.
- Electricians Tools - safer arc and shock boundaries are defined and discussed, including insulated vs. comfort grip.
- Metering Safety - appropriate meters and test instruments for industrial plants with high power hazards are discussed.
- Shock Reduction and AEGCP – the use of GFCI devices and the Assured Equipment Grounding Program to reduce shock injuries and deaths are discussed. Included in this section is a discussion of how arc events can start and kill individuals when they, for various reasons, touch or contact live parts with tools and become engulfed in an arc.
- Workspace Stepback Requirements - OSHA and NEC-mandated workspace distances required for workers to have adequate space to safely work on panels in the plant are covered in this section.
- Work Practices - this brief overview of safer work practices that will help companies and their employees reduce shock, arc and other electrical-related injuries.

#### I. Day One Discussion Topics

- A. Introduction
- B. Fundamentals of Industrial Electricity - Understanding the risks
- C. Electrical Hazards - Shock and Arc
- D. PPE Overview and Selection
  1. Electricians Tools for Arc and Shock Risk boundaries
  2. Metering safety for arc flash and shock prevention.
  3. Shock Hazard Reduction.
- E. Work environment special conditions
- F. Work Practices and workplace safety
- G. Reference Appendix and supplemental documents.
- H. Written test (if required by the customer)

#### II. Day Two

- A. Witness Testing – each qualified person must demonstrate:
  1. the care, selection and usage of proper PPE
  2. panel labels and the information on them
  3. arc flash hazards and approach boundaries and safe use of tools when working in and around energized panels & equipment

MSI030	Title of Course, Description and Objectives	Duration	Min	Max
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SAFETY AND TECHNOLOGY: HIGH VOLTAGE SAFETY W/ ARC FLASH		2 Days	1	10
<p>With the dangers inherent to working on and around energized panels and equipment, industrial businesses that have maintenance departments must insure that their qualified electrical people are aware of 1) the recent electrical safety mandates and 2) safe work practices in and around energized equipment. MSI's Electrical Hazards &amp; Workplace Safety (EHWS) class – designed to encourage electrical safe work practices and maintenance O&amp;M effectiveness among qualified maintenance people and to emphasize federal and state mandates - focuses on the following topics during the 2-day program:</p> <p><b>COURSE OBJECTIVES:</b></p> <ul style="list-style-type: none"> <li>• Introduction and Basis of the Training – this section covers the bases of this safety training program (NFPA 70E, NEC, OSHA).</li> <li>• Electrical Fundamentals – this section establishes the electrical foundation that individuals who are not true electricians can build on to gain electrical work practice safety qualifications. A clear discussion of why faults occur, energy dynamic of faults in an industrial facility and why the worker must be aware of the greatly increased danger posed by industrial circuits follow. This plays well with the growing trend to cross-train workers, training that TPC has extensive experience providing its customers.</li> <li>• Electrical Hazards - shock, arc flash and burn, shock and arc boundaries, discussion of the arc event are covered in this section.</li> <li>• PPE Fundamentals - acceptable and unacceptable clothing and accessories for shock and arc risk boundary approach, arc flash-specific PPE details by HRC, care and maintenance of ARC-specific ATPV rated PPE, FR Welding vs. FR ATPV rated for Arc Flash are discussed. This section also discusses layering of clothing as a method to increase ATPV.</li> <li>• Electricians Tools - safer arc and shock boundaries are defined and discussed, including insulated vs. comfort grip.</li> <li>• Metering Safety - appropriate meters and test instruments for industrial plants with high power hazards are discussed.</li> <li>• Shock Reduction and AEGCP – the use of GFCI devices and the Assured Equipment Grounding Program to reduce shock injuries and deaths are discussed. Included in this section is a discussion of how arc events can start and kill individuals when they, for various reasons, touch or contact live parts with tools and become engulfed in an arc.</li> <li>• Workspace Stepback Requirements - OSHA and NEC-mandated workspace distances required for workers to have adequate space to safely work on panels in the plant are covered in this section.</li> <li>• Work Practices - this brief overview of safer work practices that will help companies and their employees reduce shock, arc and other electrical-related injuries.</li> </ul> <p>I. Day One Discussion Topics</p> <ul style="list-style-type: none"> <li>A. Introduction</li> <li>B. Fundamentals of Industrial Electricity - Understanding the risks</li> <li>C. Electrical Hazards - Shock and Arc</li> <li>D. PPE Overview and Selection               <ul style="list-style-type: none"> <li>1. Electricians Tools for Arc and Shock Risk boundaries</li> <li>2. Metering safety for arc flash and shock prevention.</li> <li>3. Shock Hazard Reduction.</li> </ul> </li> <li>E. Work environment special conditions</li> <li>F. Work Practices and workplace safety</li> <li>G. Reference Appendix and supplemental documents.</li> <li>H. Written test (if required by the customer)</li> </ul> <p>II. Day Two</p> <ul style="list-style-type: none"> <li>B. Witness Testing – each qualified person must demonstrate:               <ul style="list-style-type: none"> <li>4. the care, selection and usage of proper PPE</li> <li>5. panel labels and the information on them</li> <li>6. arc flash hazards and approach boundaries and safe use of tools when working in and around energized panels &amp; equipment</li> </ul> </li> </ul>				
<b>MSI031</b>	<b>Title of Course, Description and Objectives</b>	<b>Duration</b>	<b>Min</b>	<b>Max</b>
	<b>SAFETY AND TECHNOLOGY: STEAM DISTRIBUTION O&amp;M</b>	<b>3 Days</b>	<b>1</b>	<b>10</b>

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With the dangers inherent to working on and around Steam Distribution systems and equipment, industrial businesses that have maintenance departments must insure that their qualified Steam management personnel are aware of 1) the recent steam safety mandates and 2) safe work practices in and around steam equipment. MSI's Steam Distribution O&M class – designed to encourage safe work practices and maintenance O&M effectiveness among qualified maintenance people and to emphasize federal and state mandates - focuses on the following topics during the 3-day program:

**COURSE OBJECTIVES:**

I. How Power Plants Work (111)

A. Steam – The Primary Force

1. Energy for Power Plants
2. Converting Energy to Electricity
3. The Importance of Air in Combustion
4. Removing Ashes and Flue Gases
5. Heating the Air
6. Boiler Design
7. Controlling the Water Level
8. Feedwater Heater
9. The Economizer

B. How Heat is Converted to Power

1. The Turbine
2. The Generator
3. Using Exhausted Steam
4. Producing a Vacuum
5. Using the Condensate
6. Improved Coal Handling
7. Boiler Efficiency

C. Power Plant Efficiency

1. Thermodynamic Efficiency
2. Pumps
3. Feedwater Heating
4. Air Heating
5. The Superheater
6. Circulation Problems in High-Pressure Boilers
7. Minimum Temperatures in the System
8. Minor Refinements
9. Condenser Performance

D. Handling Water, Fuel, and Wastes

1. Water Requirements
2. Physical Properties of Water
3. Chemical Properties of Water
4. Water Softening and Purification
5. Cooling Water
6. Water Disposal Problems
7. Air Cooling
8. Fossil Fuel Handling and Wastes
9. Flue Gases
10. Particle Removal
11. Problem Transfer
12. Looking to the Future

E. Power Plant Operation and Control

1. Operating Features of a Power Plant
2. Power Plant Controls

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3. Temperature Measurement
  4. Pressure Measurement
  5. Special Measurements
  6. Other Power Sources
  7. Nuclear Power
- II. Generating Steam in the Power Plant (112)
- A. Transforming Energy into Work
1. Energy and Matter
  2. Fuels
  3. Combustion
  4. Temperature Measurement
  5. Pressure Measurement
  6. Quantity of Heat
  7. Heat Transfer
  8. Conduction
  9. Radiation
  10. Convection
  11. Sensible and Latent Heat
  12. Vaporization
  13. Boiling Point
  14. Enthalpy
  15. Heat and Work
  16. Basic Steam Generation
- B. Boiler Operation
1. Types of Boilers
  2. Boiler Characteristics
  3. Water Treatment for Boiler Use
  4. Boiler and Cooling Tower Blowdown
  5. Wastewater Disposal
  6. Efficiency in the Power Plant
  7. Thermodynamic Efficiency
  8. Conserving Energy in the Power Plant
- C. Boiler Maintenance
1. Soot Removal
  2. Scale Removal
  3. Corrosion
  4. Casing Corrosion
  5. Refractory
  6. Control Systems
  7. Calibration and Cleaning
  8. Compressed Air Systems
  9. Maintaining Boiler Auxiliaries
  10. Maintaining Stacks and Cyclones
  11. Maintenance Schedules and Reports
- D. Combustion and How It Works
1. Coal Ranks
  2. Coal Analyses
  3. Coal Sizes
  4. Coal Storage
  5. Oil Properties
  6. Natural Gas



## GSA Schedule: PROFESSIONAL SERVICES SCHEDULE (PSS)

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 GS-10F-0022S  
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**DUNS #:**  
 12-719-3683

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 Phone number: (703)437-5236, x111  
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 E-mail: gmsieber@msipros.com  
 Website URL: <http://www.msipros.com>

- 7. Chemistry of Combustion
- 8. Oil Burners
- 9. Gas Burners
- 10. Flame Color
- 11. Flame Adjustment for Oil and Gas
- 12. Coal Firing Systems
- 13. Pulverized Coal Burners
- 14. Overfeed Stokers
- 15. Underfeed Stokers
- 16. Ash Analysis for Carbon
- 17. Combustion Efficiency
- 18. Handling Unburned Solids
- E. Steam Generation
  - 1. The Steam Generation Process
  - 2. Temperature and Pressure Relationship
  - 3. Superheating Steam and Steam Quality
  - 4. Volume and Pressure Relationship
  - 5. Steam Tables for Saturated Steam
  - 6. How to Use Steam Tables
  - 7. Circulation of Boiler Water
  - 8. Steam Circulation and Tube Temperature
  - 9. Steam Drum Design
  - 10. Operating a High-Pressure Boiler at Low Pressure
  - 11. The Complete Steam Generation System
  - 12. Conserving Energy
  - 13. Blowdown
  - 14. Makeup Water

MSI032	Title of Course, Description and Objectives	Duration	Min	Max
	<b>SAFETY AND TECHNOLOGY: PLUMBING AND PIPEFITTING FOR PLANTS &amp; BLDGS.</b>	<b>3 Days</b>	<b>1</b>	<b>10</b>

With the dangers inherent to working on and around Plumbing and Pipefitting systems and equipment, industrial businesses that have maintenance departments must insure that their qualified Plumbing and Pipefitting personnel are aware of 1) the recent Plumbing and Pipefitting safety mandates and 2) safe work practices in and around Plumbing and Pipefitting equipment. MSI's Plumbing and Pipefitting for Plants & Bldgs. class – designed to encourage safe work practices and maintenance O&M effectiveness among qualified maintenance people and to emphasize federal and state mandates - focuses on the following topics during the 3-day program:

**COURSE OBJECTIVES:**

- I. Pipefitting Tools (107-3)
  - A. Pipe Wrenches
  - B. Using a Pipe Wrench
  - C. Pipe Vises
  - D. Cutting Pipe
  - E. Reaming Pipe
  - F. Threading Pipe
  - G. Tapping Pipe
  - H. Cutting Tubing and Plastic Pipe
- I. Flaring Metal Tubing
  - J. Caring for Pipe Tools
- II. Plumbing Tools (107-4)
  - A. Plumbing Codes
  - B. Plumbing System

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- C. Joining Copper Pipe
- D. Tube Bending
- E. Cutting Cast-Iron Pipe
- F. Joining Cast-Iron Pipe
- G. Assembling Plastic Pipe
- H. Force-Cup Plungers; Augers
- I. Line-Clearing Tools
- J. Sewer Tapes
- K. Special Wrenches
- L. Measuring Pipe

**III. Maintenance Pipefitting (345)**

- A. Piping Dimensions and Terminology
  - 1. Piping Standards
  - 2. Basic Pipe Dimensions
  - 3. Piping System Symbols
  - 4. Pipe Fittings
  - 5. Flanges
  - 6. Flange Facings and Finishes
  - 7. Using Dimensional Tables
  - 8. Calculating Lengths from Existing Pipes
  - 9. Straight Offsets
  - 10. Rolling Offsets
- B. Threaded Piping Systems
  - 1. Threads
  - 2. Thread Terminology
  - 3. Measuring Pipe Threads
  - 4. Threaded Pipe Fittings
  - 5. Measuring Pipe for Installation
  - 6. Cutting Pipe
  - 7. Threader and Dies
  - 8. Threading Pipe
  - 9. Finishing the Pipe
  - 10. Inspecting Old Threads
  - 11. Applying Sealants
  - 12. Assembly of Components
  - 13. Testing the System
  - 14. Troubleshooting/Emergency Repairs
  - 15. Replacement
- C. Welded Piping Systems
  - 1. Welds Based on Type of Connection
  - 2. Fittings for Welded Pipe Systems
  - 3. Welding Rings
  - 4. System Alignment
  - 5. Squareness
  - 6. Aligning Fittings
  - 7. Hole Positioning
  - 8. Measurements
  - 9. Preparing the Work
  - 10. Squaring the Flange
  - 11. Weld Cracks
  - 12. Inspection



## GSA Schedule: PROFESSIONAL SERVICES SCHEDULE (PSS)

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- 13. Repairs
- D. Plastic Piping Systems
  - 1. Thermoplastic Pipe Materials
  - 2. Advantages of Thermoplastic Materials
  - 3. Disadvantages of Thermoplastic Materials
  - 4. Standards for Thermoplastic Pipe
  - 5. Thermosetting Pipe Materials
  - 6. Fluids Carried by Thermosetting Pipe
  - 7. Advantages of Thermosetting Materials
  - 8. Disadvantages of Thermosetting Materials
  - 9. Standards for Thermosetting Pipe
  - 10. Installing Thermoplastic Pipe
  - 11. Installing Thermosetting Pipe
  - 12. Troubleshooting Plastic Piping Systems
- E. Pipefitting Accessories
  - 1. Hangers and Supports
  - 2. Special Mountings
  - 3. Steam Traps
  - 4. Types of Traps
  - 5. Steam Trap Installation
  - 6. Trap Cleaning
  - 7. Filters, Strainers, and Separators
  - 8. Installation
  - 9. Cleaning
  - 10. Expansion Joints and Fittings
  - 11. Expansion Joint Applications
  - 12. Expansion Joint Selection and Installation
  - 13. Maintenance

MSI033	Title of Course, Description and Objectives	Duration	Min	Max
	<b>SAFETY AND TECHNOLOGY: HVAC CONTROLS AND DISTRIBUTION</b>	<b>3 Days</b>	<b>1</b>	<b>10</b>

With the dangers inherent to working on and around HVAC Controls and Distribution systems and equipment, industrial businesses that have maintenance departments must insure that their qualified HVAC personnel are aware of 1) the recent HVAC safety mandates and 2) safe work practices in and around HVAC equipment. MSI's HVAC Controls and Distribution class – designed to encourage safe work practices and maintenance O&M effectiveness among qualified maintenance people and to emphasize federal and state mandates - focuses on the following topics during the 3-Day program:

**COURSE OBJECTIVES:**

- I. Control Systems (437)
  - A. Introduction to Control Systems
    - 1. The Need for Controls
    - 2. Automatic Control
    - 3. Control System Basics
    - 4. Control Methods
    - 5. Two-Position Control
    - 6. Floating Control
    - 7. Proportional Control
    - 8. Open and Closed-Loop Control
    - 9. Control System Operating Power
    - 10. Self-Powered Control System
    - 11. Pneumatic and Hydraulic Control Systems
    - 12. Electric and Electronic Control Systems
  - B. Sensors and Controlled Devices

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1. Sensors
2. Temperature Sensors
3. Humidity Sensors
4. Pressure Sensors
5. Controlled Devices
6. Dampers
7. Valves
8. Variable-Speed Drives
- C. Automatic Control Systems
  1. Two-Position Electric Control
  2. Floating Electric Control
  3. Proportional Electric Control
  4. Pneumatic Control Systems
  5. Pneumatic Controllers
  6. Pneumatic Actuators
  7. Pneumatic Relays and Switches
  8. Electronic Control Systems
  9. Proportional Band and Gain
  10. PID Control
- D. Control of Refrigeration and Air-Conditioning Processes
  1. Primary Control
  2. Low-Pressure Control
  3. High-Pressure Control
  4. High-Temperature Cutout Control
  5. Low-Water-Temperature Cutout Control
  6. Anti-Recycle Timers
  7. Condenser Pressure Regulators
  8. Oil-Pressure Controls
  9. Oil-Level Float Controls
  10. Motor Overload Protection
  11. Capacity Controls
  12. System Interlock
  13. Control of Air-Conditioning Systems
  14. Flow Control in Hydronic Systems
  15. Space-Temperature Control
  16. Seasonal Changeover; Pressure Regulation
  17. Flow Switches
  18. Control of a Complex Air-Handling System
- E. Maintaining and Troubleshooting Controls
  1. Establishing a PM Program
  2. Maintaining Pressure Controls
  3. Maintaining Thermostats
  4. Maintaining Float Switches and Valves
  5. Maintaining Oil-Pressure Controls
  6. Maintaining Timers
  7. Maintaining Condenser Controls
  8. Maintaining Compressor Capacity Controls
  9. Maintaining Valves and Accessories
  10. Maintaining Instrument Air
  11. Maintaining Pneumatic Controllers
  12. Maintaining Pneumatically Controlled Devices
  13. Maintaining Pressure Switches and Pneumatic Relays



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14. Maintaining Electric/Electronic Power Sources
15. Maintaining Electric Controllers
16. Maintaining Electronic Controllers
17. Maintaining Electrically Controlled Actuators
18. Maintaining Electric and Electronic Switches
19. Troubleshooting a Control System
20. Following Up

### II. Air Handling Systems (438)

#### A. Air Movement and Distribution

1. The Air-Handling System
2. Comfort Air Conditioning
3. Process Air Conditioning
4. Heat and Moisture Transport
5. How Air Moves
6. Types of Airflow
7. Pressure Relationships
8. Controlling Ventilation and Pressurization
9. Dual-Duct Systems
10. System Velocity

#### B. Fans and Fan Motors

1. Fan Construction
2. Centrifugal Fans
3. Axial-Flow Fans
4. Fan Performance Curves
5. System Characteristics
6. Preventive Maintenance for Fans
7. Impeller Maintenance
8. Belts and Drive-Train Maintenance
9. Bearing Maintenance and Replacement
10. Fan Motor Problems
11. Troubleshooting a Noisy Fan

#### C. Ductwork Types, Fabrication, and Repair

1. Types of Ducts
2. Duct Designations
3. Duct Systems
4. Duct Fittings and Connections
5. Insulation
6. Diffusers and Other Terminal Devices
7. Fabricating Sheet Metal Ducts
8. Duct Reinforcement
9. Duct Maintenance

#### D. Air Filtration

1. The Process of Air Filtration
2. Mechanical Air Filters
3. Establishing a Service Schedule
4. Servicing Impingement Filters
5. Replacing Dry Media Filters
6. Installing HEPA Filters
7. Selecting Replacement Air Filters
8. Electronic Air Cleaners
9. Maintaining Electronic Air Cleaners

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- E. Air System Balancing and Troubleshooting
  - 1. A Systematic Procedure
  - 2. Measuring Instruments
  - 3. Auxiliary Instruments
  - 4. Pretest Data Collection
  - 5. Preparing the System
  - 6. Measuring and Adjusting the Main Airflow
  - 7. Measuring and Adjusting Branch Ducts
  - 8. Adjusting Registers and Diffusers
  - 9. Troubleshooting Air-Handling Systems
- F. Indoor Air Quality and Sick Building Syndrome
  - 1. Sick Building Syndrome (SBS) Characteristics
  - 2. Investigating a Potential SBS Problem
  - 3. Internal SBS Contributors
  - 4. External SBS Contributors
  - 5. HVAC Systems as Contaminant Sources
  - 6. Particulates and IAQ
  - 7. Pollutant Pathways
  - 8. Odors and Contamination
  - 9. Building-Related Illness (BRI)
- III. System Troubleshooting (439)
  - A. Preparation for Troubleshooting
    - 1. Mechanical Refrigeration Systems
    - 2. Keys to Effective Troubleshooting
    - 3. Safety in Troubleshooting
    - 4. Tools and Equipment
    - 5. Supplies (Consumables)
    - 6. Human Relations Skills
  - B. Troubleshooting Procedures
    - 1. Six Steps of Troubleshooting
      - a. Step One—Stating the Problem
      - b. Step Two—Collecting Data
        - i. Routine Preliminary Checks
        - ii. Detailed Checks
        - iii. Not Enough Cooling Example
      - c. Step Three—Analyzing the Data
      - d. Step Four—Deciding on an Action
      - e. Step Five—Making the Repairs
      - f. Step Six—Checking the Results;
    - 2. Avoiding a Recurrence of the Problem
  - C. Troubleshooting Electric Controls
    - 1. A Troubleshooting Flowchart
    - 2. Checking the Contactor
    - 3. A1 Procedures
    - 4. Armature, Transformer, and Bad Connections
    - 5. A2 Procedures
    - 6. Faulty Coils, Relays, and Switches
    - 7. B Procedures
    - 8. The Power Side
  - D. Troubleshooting Pneumatic Controls
    - 1. Equipment and Tools
    - 2. The Problem—Unstable Control



## GSA Schedule: PROFESSIONAL SERVICES SCHEDULE (PSS)

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- 3. Checking the Control Air Supply; Output Pressure Test
- 4. Checking for Air Leaks; Checking Other Controllers
- 5. Actuator Problems
- 6. Thermostat Adjustments
- 7. When All Else Fails
- E. Troubleshooting the Refrigerant Circuit
  - 1. Preliminary Checks
  - 2. Analyzing the Complaint
  - 3. Checking Refrigerant Pressures
  - 4. Checking Refrigerant Charge
  - 5. Checking for Refrigerant Leaks
  - 6. Compressor Cycling
  - 7. Checking High-Side Components
  - 8. Low-Side Problems
  - 9. Distribution System Problems

MSI034	Title of Course, Description and Objectives	Duration	Min	Max
	<b>SAFETY AND TECHNOLOGY: CHILLER O&amp;M</b>	3 Days	1	10

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**COURSE OBJECTIVES:**

- I. Control Systems (437)
  - A. Introduction to Control Systems
    - 1. The Need for Controls
    - 2. Automatic Control
    - 3. Control System Basics
    - 4. Control Methods
    - 5. Two-Position Control
    - 6. Floating Control
    - 7. Proportional Control
    - 8. Open and Closed-Loop Control
    - 9. Control System Operating Power
    - 10. Self-Powered Control System
    - 11. Pneumatic and Hydraulic Control Systems
    - 12. Electric and Electronic Control Systems
  - B. Sensors and Controlled Devices
    - 1. Sensors
    - 2. Temperature Sensors
    - 3. Humidity Sensors
    - 4. Pressure Sensors
    - 5. Controlled Devices
    - 6. Dampers
    - 7. Valves
    - 8. Variable-Speed Drives
  - C. Automatic Control Systems
    - 1. Two-Position Electric Control
    - 2. Floating Electric Control
    - 3. Proportional Electric Control
    - 4. Pneumatic Control Systems



## GSA Schedule: PROFESSIONAL SERVICES SCHEDULE (PSS)

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5. Pneumatic Controllers
6. Pneumatic Actuators
7. Pneumatic Relays and Switches
8. Electronic Control Systems
9. Proportional Band and Gain
10. PID Control
- D. Control of Refrigeration and Air-Conditioning Processes
  1. Primary Control
  2. Low-Pressure Control
  3. High-Pressure Control
  4. High-Temperature Cutout Control
  5. Low-Water-Temperature Cutout Control
  6. Anti-Recycle Timers
  7. Condenser Pressure Regulators
  8. Oil-Pressure Controls
  9. Oil-Level Float Controls
  10. Motor Overload Protection
  11. Capacity Controls
  12. System Interlock
  13. Control of Air-Conditioning Systems
  14. Flow Control in Hydronic Systems
  15. Space-Temperature Control
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  17. Flow Switches
  18. Control of a Complex Air-Handling System
- E. Maintaining and Troubleshooting Controls
  1. Establishing a PM Program
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  3. Maintaining Thermostats
  4. Maintaining Float Switches and Valves
  5. Maintaining Oil-Pressure Controls
  6. Maintaining Timers
  7. Maintaining Condenser Controls
  8. Maintaining Compressor Capacity Controls
  9. Maintaining Valves and Accessories
  10. Maintaining Instrument Air
  11. Maintaining Pneumatic Controllers
  12. Maintaining Pneumatically Controlled Devices
  13. Maintaining Pressure Switches and Pneumatic Relays
  14. Maintaining Electric/Electronic Power Sources
  15. Maintaining Electric Controllers
  16. Maintaining Electronic Controllers
  17. Maintaining Electrically Controlled Actuators
  18. Maintaining Electric and Electronic Switches
  19. Troubleshooting a Control System
  20. Following Up
- II. Air Handling Systems (438)
  - A. Air Movement and Distribution
    1. The Air-Handling System
    2. Comfort Air Conditioning
    3. Process Air Conditioning

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4. Heat and Moisture Transport
5. How Air Moves
6. Types of Airflow
7. Pressure Relationships
8. Controlling Ventilation and Pressurization
9. Dual-Duct Systems
10. System Velocity
- B. Fans and Fan Motors
  1. Fan Construction
  2. Centrifugal Fans
  3. Axial-Flow Fans
  4. Fan Performance Curves
  5. System Characteristics
  6. Preventive Maintenance for Fans
  7. Impeller Maintenance
  8. Belts and Drive-Train Maintenance
  9. Bearing Maintenance and Replacement
  10. Fan Motor Problems
  11. Troubleshooting a Noisy Fan
- C. Ductwork Types, Fabrication, and Repair
  1. Types of Ducts
  2. Duct Designations
  3. Duct Systems
  4. Duct Fittings and Connections
  5. Insulation
  6. Diffusers and Other Terminal Devices
  7. Fabricating Sheet Metal Ducts
  8. Duct Reinforcement
  9. Duct Maintenance
- D. Air Filtration
  1. The Process of Air Filtration
  2. Mechanical Air Filters
  3. Establishing a Service Schedule
  4. Servicing Impingement Filters
  5. Replacing Dry Media Filters
  6. Installing HEPA Filters
  7. Selecting Replacement Air Filters
  8. Electronic Air Cleaners
  9. Maintaining Electronic Air Cleaners
- E. Air System Balancing and Troubleshooting
  1. A Systematic Procedure
  2. Measuring Instruments
  3. Auxiliary Instruments
  4. Pretest Data Collection
  5. Preparing the System
  6. Measuring and Adjusting the Main Airflow
  7. Measuring and Adjusting Branch Ducts
  8. Adjusting Registers and Diffusers
  9. Troubleshooting Air-Handling Systems
- F. Indoor Air Quality and Sick Building Syndrome
  1. Sick Building Syndrome (SBS) Characteristics
  2. Investigating a Potential SBS Problem

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3. Internal SBS Contributors
4. External SBS Contributors
5. HVAC Systems as Contaminant Sources
6. Particulates and IAQ
7. Pollutant Pathways
8. Odors and Contamination
9. Building-Related Illness (BRI)

### III. System Troubleshooting (439)

#### A. Preparation for Troubleshooting

1. Mechanical Refrigeration Systems
2. Keys to Effective Troubleshooting
3. Safety in Troubleshooting
4. Tools and Equipment
5. Supplies (Consumables)
6. Human Relations Skills

#### B. Troubleshooting Procedures

1. Six Steps of Troubleshooting
  - a. Step One—Stating the Problem
  - b. Step Two—Collecting Data
    - i. Routine Preliminary Checks
    - ii. Detailed Checks
    - iii. Not Enough Cooling Example
  - c. Step Three—Analyzing the Data
  - d. Step Four—Deciding on an Action
  - e. Step Five—Making the Repairs
  - f. Step Six—Checking the Results;
2. Avoiding a Recurrence of the Problem

#### C. Troubleshooting Electric Controls

1. A Troubleshooting Flowchart
2. Checking the Contactor
3. A1 Procedures
4. Armature, Transformer, and Bad Connections
5. A2 Procedures
6. Faulty Coils, Relays, and Switches
7. B Procedures
8. The Power Side

#### D. Troubleshooting Pneumatic Controls

1. Equipment and Tools
2. The Problem—Unstable Control
3. Checking the Control Air Supply; Output Pressure Test
4. Checking for Air Leaks; Checking Other Controllers
5. Actuator Problems
6. Thermostat Adjustments
7. When All Else Fails

#### E. Troubleshooting the Refrigerant Circuit

1. Preliminary Checks
2. Analyzing the Complaint
3. Checking Refrigerant Pressures
4. Checking Refrigerant Charge
5. Checking for Refrigerant Leaks
6. Compressor Cycling



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- 7. Checking High-Side Components
- 8. Low-Side Problems
- 9. Distribution System Problems

MSI035	Title of Course, Description and Objectives	Duration	Min	Max
	<b>SAFETY AND TECHNOLOGY: INVENTORY CONTROL</b>	<b>3 Days</b>	<b>1</b>	<b>10</b>

This Inventory Control class delivers the understanding of managing inventory, including the key principles and techniques. The workshop provides complete process of inventory optimization starting from diagnostics, developing processes, algorithms, metrics, and optimization. The inventory control training is a 3-Day course.

### COURSE OBJECTIVES:

To master and practice techniques to:

- Analyze, manage and optimize your inventory management
- Identify the goals and objectives of inventory management, and measure their process against these goals
- Control inventory levels
- Calculate safety stock, reorder points, and order quantities
- Evaluate inventory management systems
- Better maintain inventory accuracy
- Understand type of inventory costs and how to manage them
- Align strategic plan with inventory performance management and benchmarking
- Inventory management techniques to improve inventory turnover ratio and transform frozen assets into cash!
- Inventory management methods for saving money, satisfying customers and speeding up the flow of inventory.
- Reducing costs of inventory obsolescence
- Responsiveness to your customers' real needs and shaping customer expectations
- Improving scheduling and shop loading efficiency
- Narrow the gap between issuance and stock replacement
- Fine-tune record-keeping accuracy for better inventory management
- Determining exact material status and inventory dollar burden
- The strategic role of inventory management techniques
- Establish the optimal inventory level
- Inventory planning and replenishment
- Distribution center and warehousing operations
- Inventory accuracy and audits
- Inventory management, measurement and reporting
- Inventory forecasting and demand management
- Lead-time analysis and reduction

### DAY 1

#### Inventory Management

- Introduction to Inventory Management
- Cost related to Inventory
  - Inventory carrying costs
  - Ordering costs
  - Item costs
  - Out-of-stock costs
- Making trade-offs: Total cost considerations
- Two types of demand: Independent and Dependent
- Two types of inventory: Cycle and Safety Inventory policies
- Diagnosing your inventory challenges
- Defining your inventory policies and processes



## GSA Schedule: PROFESSIONAL SERVICES SCHEDULE (PSS)

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### DAY 2

#### Inventory Optimization

- Improving the warehouse and inventory management to create a new performance baseline
- Metrics and Performance Management
- Inventory Optimization Process
- Industry practices
  - Emerging practices
  - Best practices
  - Standard practices
  - Declining practices
- Organization and skill
- Monitoring and alerts

### DAY 3

#### Coaching Session

Customized coaching session and practical exercises using client data and real world inventory management challenges. Participants will conduct real inventory management execution through knowledge sharing and hands-on support from experienced instructor.

MSI036	Title of Course, Description and Objectives	Duration	Min	Max
	<b>SAFETY AND TECHNOLOGY: MAINTENANCE PLANNING &amp; SCHEDULING</b>	<b>3 Days</b>	<b>1</b>	<b>10</b>

This Maintenance Planning & Scheduling class includes all the requirements set forth in the solicitation and will be tailored as appropriate for relevance within your organization. Our class is based upon a combination of basic project/resource planning techniques as found within the Project Management Body of Knowledge (PMBOK), reliability centered maintenance, and statistical quality control. The combination of these disciplines within maintenance planning ensures the right level of preventative maintenance is scheduled efficiently. Additionally, through statistical quality control, system down time and failures are better predicted and detected before system failure. The Maintenance Planning & Scheduling training is a three day course.

#### COURSE OBJECTIVES:

- The fundamentals of planning and scheduling required for any successful maintenance program.
  - Defining and measuring your maintenance ecosystem including use of the Failure Modes Effects and Criticality Analysis model
  - Defining the skills needed and skills management
  - Developing a plan for effective maintenance planning & scheduling
  - The basics of Reliability Centered Maintenance
  - Basic Statistical Quality Control (control charts)
- Quantifying the value of effective maintenance
  - Defining service levels
  - Quantifying down time and failures
  - Capturing the value of problems avoided
  - Reporting & Benchmarking for Maintenance Efficiency
  - Learn How to Sell Scheduling & Planning to Management
  - Measure the Work Performance of Your Team Understand the Role & Duties of a Planner
- Understand the Role & Duties of a Scheduler
- Identify Different Maintenance Management Approaches
- Understand the Support System Required for a Successful Program
- Learn to Work with Purchasing, Operations & Engineering
- Basic Project/Resource Management
  - How to Develop Priority Systems
  - How to Control Backlog
  - Identify Critical Path Methods for Maintenance
  - How to Deal with Emergencies in Maintenance Planning & Scheduling

MSI037	Title of Course, Description and Objectives	Duration	Min	Max
	<b>SAFETY AND TECHNOLOGY: PUMP REPAIR &amp; MAINTENANCE</b>	<b>3 Days</b>	<b>1</b>	<b>10</b>

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With the dangers inherent to working on and around Pump systems and equipment, industrial businesses that have maintenance departments must insure that their qualified Pump personnel are aware of 1) the recent Pump safety mandates and 2) safe work practices in and around Pump equipment. MSI's Pump Repair & Maintenance class – designed to encourage safe work practices and maintenance O&M effectiveness among qualified maintenance people and to emphasize federal and state mandates - focuses on the following topics during the 3-day program:

**COURSE OBJECTIVES:**

I. Pumps

A. Pump Development and Application

1. The Development of Pumps
2. Pumping Systems
3. Water Pumping Systems
4. Chemical Pumping Systems
5. Waste Pumping Systems
6. High-Viscosity Material Pumping Systems
7. Solids Pumping Systems

B. Basic Pump Hydraulics

1. Pumping Terminology
2. Calculating Total Head
3. Horsepower Calculations
4. Total Energy vs. Available NPSH
5. Available NPSH vs. Required NPSH
6. Pump Performance Curves
7. Head Capacity Curves
8. Efficiency Curves; Horsepower Curves; Curve Families; Pump Selection

C. End-Suction Centrifugal Pumps

1. Introduction to Centrifugal Pumps
2. Pump Operation
3. Pump Part Definitions
4. Pump Casing Materials
5. End-Suction Casing Configurations
6. Split-Case Centrifugal Pumps
7. Double-Volute Pumps
8. Impeller Types
9. Wearing Rings
10. Shafts, Bearings, and Sleeves

D. Propeller and Turbine Pumps

1. Turbine Pump Introduction
2. Lineshaft Turbines' Submersible Turbines
3. Flow Patterns
4. Axial-Flow Propeller Pumps
5. Mixed-Flow Propeller Pumps
6. Special Propeller Pumps
7. Turbine Pump Construction
8. Vertical Turbine Pump Applications
9. Regenerative Turbine Pumps

E. Rotary Pumps

1. Introduction to Rotary Pumps
2. External-Gear Pumps
3. Internal-Gear Pumps
4. Lobe Pumps
5. Screw Pumps

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- 6. Vane Pumps
- 7. Rotary Piston Pumps
- 8. Flexible-Member Pumps
- 9. Rotary Pump Installations
- F. Reciprocating Pumps
  - 1. Reciprocating Pump Applications, Parts and Classifications
  - 2. Steam-Driven Pump Operation
  - 3. The Fluid End
  - 4. The Steam End
  - 5. Power Pump Operations
  - 6. Horizontal and Vertical Plunger Pumps
  - 7. Flexible-Member Pumps
  - 8. Rotary Pump Installations
- G. Metering Pumps
  - 1. Introduction to Metering Pumps
  - 2. Metering Pump Classifications
  - 3. Plunger and Piston Metering Pumps
  - 4. Diaphragm Pumps
  - 5. Air-Operated Metering Pumps
  - 6. Rotary Metering Pumps
- H. Special-Purpose Pumps
  - 1. Handling Difficult Materials
  - 2. Chemical Pumps
  - 3. Special Chemical Pumps
  - 4. Magnetic-Drive Pumps
  - 5. Canned-Motor Pumps
  - 6. Centrifugal Slurry Pumps
  - 7. Pulp-Handling Pumps
  - 8. Trash and Sewage Pumps
  - 9. Diaphragm Pumps
  - 10. Reciprocating Slurry Pumps
  - 11. Vortex Pumps
- I. Packings and Seals
  - 1. Pump Sealing Requirements
  - 2. Stuffing Boxes
  - 3. Types of Stuffing Boxes
  - 4. Packing Materials
  - 5. Installing Packing
  - 6. Mechanical Seals
  - 7. Special Seals
- J. Pump Maintenance
  - 1. Pump Bearings
  - 2. Sleeve Bearings
  - 3. Antifriction Bearings
  - 4. Special Bearings
  - 5. Bearing Lubrication
  - 6. Bearing Seals
  - 7. Pump Installation
  - 8. Pump Maintenance
  - 9. End-Suction Centrifugal Pumps
  - 10. Vertical Turbine Pumps
  - 11. Rotary Pumps



## GSA Schedule: PROFESSIONAL SERVICES SCHEDULE (PSS)

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- 12. Reciprocating Pumps
- 13. Difficult Material Pumps
- 14. Other Maintenance Problems

MSI038	Title of Course, Description and Objectives	Duration	Min	Max
	<b>BOILER OPERATIONS &amp; MAINTENANCE</b>	<b>3 Days</b>	<b>1</b>	<b>10</b>

With the dangers inherent to working on and around Boiler Operations & Maintenance systems and equipment, industrial businesses that have maintenance departments must insure that their qualified Boiler personnel are aware of 1) the recent Boiler safety mandates and 2) safe work practices in and around Boiler equipment. MSI's Boiler Op & Maintenance class – designed to encourage safe work practices and maintenance O&M effectiveness among qualified maintenance people and to emphasize federal and state mandates - focuses on the following topics during the 3-day program:

**COURSE OBJECTIVES:**

- II. How Power Plants Work (111)
  - B. Steam – The Primary Force
    - 8. Energy for Power Plants
    - 9. Converting Energy to Electricity
    - 10. The Importance of Air in Combustion
    - 11. Removing Ashes and Flue Gases
    - 12. Heating the Air
    - 13. Boiler Design
    - 14. Controlling the Water Level
    - 15. Feedwater Heater
    - 16. The Economizer
  - B. How Heat is Converted to Power
    - 1. The Turbine
    - 8. The Generator
    - 9. Using Exhausted Steam
    - 10. Producing a Vacuum
    - 11. Using the Condensate
    - 12. Improved Coal Handling
    - 13. Boiler Efficiency
  - F. Power Plant Efficiency
    - 1. Thermodynamic Efficiency
    - 2. Pumps
    - 3. Feedwater Heating
    - 4. Air Heating
    - 5. The Superheater
    - 6. Circulation Problems in High-Pressure Boilers
    - 7. Minimum Temperatures in the System
    - 8. Minor Refinements
    - 9. Condenser Performance
  - G. Handling Water, Fuel, and Wastes
    - 1. Water Requirements
    - 2. Physical Properties of Water
    - 3. Chemical Properties of Water
    - 4. Water Softening and Purification



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- 5. Cooling Water
- 6. Water Disposal Problems
- 7. Air Cooling
- 8. Fossil Fuel Handling and Wastes
- 9. Flue Gases
- 10. Particle Removal
- 11. Problem Transfer
- 12. Looking to the Future
- H. Power Plant Operation and Control
  - 1. Operating Features of a Power Plant
  - 2. Power Plant Controls
  - 3. Temperature Measurement
  - 4. Pressure Measurement
  - 5. Special Measurements
  - 6. Other Power Sources
  - 7. Nuclear Power
- II. Generating Steam in the Power Plant (112)
  - F. Transforming Energy into Work
    - 17. Energy and Matter
    - 18. Fuels
    - 19. Combustion
    - 20. Temperature Measurement
    - 21. Pressure Measurement
    - 22. Quantity of Heat
    - 23. Heat Transfer
    - 24. Conduction
    - 25. Radiation
    - 26. Convection
    - 27. Sensible and Latent Heat
    - 28. Vaporization
    - 29. Boiling Point
    - 30. Enthalpy
    - 31. Heat and Work
    - 32. Basic Steam Generation
  - G. Boiler Operation
    - 1. Types of Boilers
    - 2. Boiler Characteristics
    - 3. Water Treatment for Boiler Use
    - 4. Boiler and Cooling Tower Blowdown
    - 5. Wastewater Disposal
    - 6. Efficiency in the Power Plant
    - 7. Thermodynamic Efficiency
    - 8. Conserving Energy in the Power Plant
  - H. Boiler Maintenance
    - 1. Soot Removal
    - 2. Scale Removal
    - 3. Corrosion
    - 4. Casing Corrosion
    - 5. Refractory
    - 6. Control Systems
    - 7. Calibration and Cleaning



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- 8. Compressed Air Systems
- 9. Maintaining Boiler Auxiliaries
- 10. Maintaining Stacks and Cyclones
- 11. Maintenance Schedules and Reports
- I. Combustion and How It Works
  - 1. Coal Ranks
  - 2. Coal Analyses
  - 3. Coal Sizes
  - 4. Coal Storage
  - 5. Oil Properties
  - 6. Natural Gas
  - 7. Chemistry of Combustion
  - 8. Oil Burners
  - 9. Gas Burners
  - 10. Flame Color
  - 11. Flame Adjustment for Oil and Gas
  - 12. Coal Firing Systems
  - 13. Pulverized Coal Burners
  - 14. Overfeed Stokers
  - 15. Underfeed Stokers
  - 16. Ash Analysis for Carbon
  - 17. Combustion Efficiency
  - 18. Handling Unburned Solids
- J. Steam Generation
  - 1. The Steam Generation Process
  - 2. Temperature and Pressure Relationship
  - 3. Superheating Steam and Steam Quality
  - 4. Volume and Pressure Relationship
  - 5. Steam Tables for Saturated Steam
  - 6. How to Use Steam Tables
  - 7. Circulation of Boiler Water
  - 8. Steam Circulation and Tube Temperature
  - 9. Steam Drum Design
  - 10. Operating a High-Pressure Boiler at Low Pressure
  - 11. The Complete Steam Generation System
  - 12. Conserving Energy
  - 13. Blowdown
  - 14. Makeup Water

MSI041	Title of Course, Description and Objectives	Duration	Min	Max
	<b>ON THE JOB TRAINING</b>	<b>1 Day</b>	<b>1</b>	<b>10</b>

One day on the job training of Technical or Engineering techniques relevant to the workplace. On the Job training is for instructors to provide practical instruction, taking class room theory to workplace application. Subject matter experts will follow students to their workplace where new methods and techniques will be applied by students and integrated into the work of the organization and demonstrated to management. On the Job Training provides students with the ability to learn how new methods and techniques can be used on the job as well as their associated value to the organization. On the Job Training is a quick way to generate immediate return on the training investment.

**COURSE OBJECTIVES:**

- Educate attendees on the fundamental value and use of the technical and engineering techniques required in the workplace
- Educate attendees on the fundamental tenets and terminology of Technical or Engineering techniques
- Educate attendees on the use of Technical or Engineering techniques
- Educate attendees on the methods for integrating Technical or Engineering techniques with other program and project management approaches



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