







MANUFACTURE SMARTER.

CERTIFICATE COURSE CATALOG

LEADERSHIP & WORKFORCE · INDUSTRY 4.0 · SIX SIGMA
PROJECT MANAGEMENT · LEAN · QUALITY MANAGEMENT
FOOD · GD&T · BLUEPRINT READING · WELDING
BUSINESS SECURITY · VIRTUAL CLASSES



• 2024 •



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MICHIGAN MANUFACTURING TECHNOLOGY CENTER 2024 CERTIFICATE COURSES MICHIGAN MANUFACTURING TECHNOLOGY CENTER 2024 CERTIFICATE COURSES

WHO WE ARE

Since 1991, the Michigan Manufacturing Technology Center (MMTC) has been consulting with Michigan's small and mediumsized manufacturers on how to compete and grow. Our team of experts are passionate about what they do and don't stop until the job is done. We've worked with thousands of manufacturers to diversify, get lean, and stay relevant. By continuing to work on projects with the same amount of passion, we will do our part to ensure the future of Michigan manufacturing for decades to come.

Today, the Michigan Manufacturing Technology Center is driving innovation and best practices to keep up with changes in the global economy through consulting services such as sustainability and workforce training, expertise in technology implementation, website development, and more. No other organization in the state of Michigan has the people, the experience, or the breadth of resources that we provide. We're strongly committed to our mission of working with manufacturers to thrive and prosper.

TRAINING LOCATIONS

Classes are held at locations across Michigan, including at our headquarters in Plymouth, as well as Troy, Warren, Lansing, Owosso, Traverse City, Benton Harbor, Marshall and Kalamazoo.

ON-SITE TRAINING AVAILABLE

To support and empower employees and businesses with invaluable training opportunities, The Center offers customizable, on-site training courses covering Operational Excellence, Business Growth, Workforce Skill Development, and Supply Chain Optimization. For more information about services available at your organization, call 888.414.6682.

NEARBY LODGING

For attendees needing overnight accommodations, MMTC has partnered with various hotels in the area to offer discounted rates. To search choices near our Plymouth, Mich. location, visit The-Center.org.

MICHIGAN WORKS! & GOING PRO TALENT FUND

The Going PRO Talent Fund (GPTF) provides competitive awards to employers to assist in training, developing and retaining current and new employees. It helps to ensure Michigan's employers have the talent they need to compete and grow, and individuals have the skills they need for in-demand jobs. To begin the application process, companies must first contact their local Michigan Works! office to assess their talent skill gaps and determine if GPTF funding would be an appropriate solution.

CANCELLATION/RESCHEDULING POLICY

ALL CANCELLATION AND RESCHEDULING CHANGES ARE SUBJECT TO THE FOLLOWING CONDITIONS:

- · All cancellations and course rescheduling must be received by written notice. Send emails to: events@the-center.org.
- · Any course registration canceled will be refunded less a \$100 fee.
- · Any courses rescheduled at least 15 calendar days prior to the original course date may be assessed a fee of \$100.
- · Any course registration canceled less than 15 calendar days prior to the original course date, as well as NO SHOWS, will forfeit all registration dues.

If you have questions or need additional support, contact us at (888) 414-6682.

This booklet reflects certificate courses offered by MMTC. For a complete schedule of courses for 2024, visit The-Center.org. All courses listed in this catalog include a certificate upon completion.

CREATE A TARGETED

WORKFORCE TRAINING PLAN

WITH THE CENTER

Manufacturers are facing an unprecedented talent shortage. Building a relevant, effective training plan is key to developing and retaining all employees, regardless of their role or level within the organization. Manufacturers seeking additional funding and support for their training initiatives can find help through the Going PRO Talent Fund (GPTF). GPTF provides competitive funding to employers to assist in training, developing and retaining current and newly hired employees.

CUSTOMIZE YOUR COMPANY'S TRAINING PLAN

The Michigan Manufacturing Technology Center's (MMTC) experts can help companies develop a realistic, targeted training plan according to their needs and goals. Make planning easier using The Center's:

Interactive Course Planning Guide.



With MMTC's interactive planning guide, make choosing your training path easier. With this electronic document, planning the who, what and how much is as simple as a few strokes of your keyboard. It also allows you to view all courses, calculate investment, review on-site requirements and more.

Target Audience Guide.



Take the guesswork out of planning. Want to know which classes are tailored towards managers, auditors, technology leaders and more? This guide breaks down who benefits most from each course.

WANT TO TAILOR TRAINING TO ADDRESS BUSINESS NEEDS? Contact your Business Solutions Representative.

To access MMTC's training resources, visit www.the-center.org/Resources/GoingPRO or scan the QR Code.





GD&T/BLUEPRINT READING/WELDING

BLUEPRINT READING (CEU Credits: .7)

How to interpret a technical drawing is an essential skill to anyone involved in the manufacturing industry, especially prior to learning GD&T. This course is designed for those who need an introduction to drawing interpretation.

1 day of class | \$395/person | IF ONSITE: min. of 6 participants



BLUEPRINT READING FOR WELDERS

This course is designed for those who need an introduction to drawing interpretation. A special focus on the most common welding symbols on blueprints will be presented with the context of GD&T that is primarily affected - perpendicularity and flatness.

1 day of class | \$395/person | IF ONSITE: min. of 6 participants

TOLERANCE STACKS ANALYSIS

After learning the concepts of GD&T, many participants find they need a methodical way of adding tolerances into an overall stack-up analysis. The Tolerance Stacks program is designed for engineers and those who work with stacks. While there is no standard way to do stacks, a spreadsheet method is introduced which allows for both traditional plus/minus tolerances and geometric tolerances. MMC "bonus" and "shift" tolerances are covered.



2 days of ONSITE TRAINING | \$725/person (minimum of 8 participants)

GD&T FUNDAMENTALS

Need a basic understanding of GD&T? This course provides an overview of the GD&T system, proper identification and call out of datum features, and the effect of modifiers, especially MMC. Attendees will also learn how GD&T saves money over traditional tolerances and how to interpret the 14 symbols.

1 day of class | \$445/person | IF ONSITE: min. of 6 participants

GD&T COMPREHENSIVE

This course provides a comprehensive introduction to understanding GD&T standards and their application. In addition to what is taught in our GD&T Fundamentals course, dive deeper and learn about the GD&T system, proper identification and call out of datum features, the effect of modifiers, how GD&T saves money over traditional tolerances, and how to interpret the 14 symbols.

2 days of classes | \$845/person | IF ONSITE: min. of 6 participants



WELDING SKILLS ENHANCEMENT

Enhance the skills of your TIG, MIG or STICK welders to improve output and efficiencies. From introductory to experienced, this training is designed to adapt to any level of welding capability. Attendees will practice on equipment and materials used on the job. Upon completion, participants will not only be able to set up their welding equipment, but perform welding, brazing and soldering processes with increased quality.



3 days of ONSITE TRAINING | \$995/person (minimum of 6 participants)

CONNECT WITH US

ANYWHERE, ANYPLACE, 24/7

Connect with the Michigan Manufacturing Technology Center online to find opportunities for networking, knowledge sharing with peers, upcoming events and the latest in manufacturing news.

MANUFACTURE SMARTER BLOG

From Lean Manufacturing to Six Sigma, our blog delivers the latest manufacturing topics and trends from industry experts. Subscribe at The-Center.org/blog.

LINKEDIN

Connect with us in a professional setting, gaining access to up-to-date industry news, training and job opportunities.

FACEBOOK

From manufacturing tips and news to courses, events and discounts, MMTC's official Facebook page has it all. 'Like Us' and join the conversation!

INSTAGRAM

Follow us on Instagram to see manufacturing in action.

SCAN & STAY CONNECTED:







AT YOUR COMPANY LOCATION

WANT TO SCHEDULE A COURSE AT YOUR LOCATION? CALL 888.414.6682.

INDUSTRY 4.0

ADVANCED MANUFACTURING **TECHNOLOGIES**

Gain an understanding of the Industry 4.0 technologies that have changed the way businesses design, test, manufacture and service products. Class discussions center around the ways in which different technologies - including 3D Scanning/Design, Product/Process Simulation, Digital Twin, Smart Products and Additive Manufacturing - can be applied to continuously improve all aspects of operations, complete with ROI calculations and expected benefits of implementation.

½ day of class | \$295/person

DIGITAL PROCESS CONTROL

Do you know how well your business is performing? By implementing targeted digital process control throughout a facility, manufacturers can achieve greater interconnectivity and insight into current operations to optimize performance. This course focuses on how to do that! With technologies such as sensors, the Internet of Things and machine monitoring effectively in place, manufacturers can gain a real-time, comprehensive view of current operations to identify key areas in need of improvement and make corrective actions in the moment.

½ day of class | \$295/person

ENHANCED OPERATIONS MANAGEMENT

This class provides an overview of Enhanced Operations Management (EOM) and how it can be used with technology to make systems implementation easier. Attendees will learn about the components of EOM, Big Data and Analytics, System Integration and insight on how to get started. Participants will leave with an understanding of the benefits of implementing technology in their operational management system.

½ day of class | \$295/person

HUMAN MACHINE INTERACTION

The use of automation and Industry 4.0 technologies provides manufacturers with a way to improve aspects related to quality and efficiency, while making humans' jobs easier. Learn how technologies such as Robots/Cobots, Augmented & Virtual Reality and System Integration, support workers and help eliminate sources of waste to increase employee engagement, productivity, quality and savings.

½ day of class | \$295/person

IMPROVING INFORMATION SECURITY THROUGH RISK MANAGEMENT

In the current age of cyber crime, the information that is important to our business is continually at risk, and a cybersecurity incident can be devastating. It is vital that each business understand and manage the risks to their information, systems and network that support their business.

This class provides participants with the means to identify and mitigate information security risks using the NIST Cybersecurity Framework. By utilizing the five primary framework categories (Identify, Protect, Detect, Respond, Recover) participants will learn how to identify information that needs to be protected, improve processes to reduce risk, identify if the information has been compromised and learn how to recover from these compromises.

1 day of class | \$495/person | IF ONSITE: min. of 6 participants



INTRODUCTION TO ADDITIVE MANUFACTURING

With increasing costs, supply chain issues, and the need for rapid prototyping and manufacturing processes, Additive Manufacturing (specifically 3D printing) has become the solution many companies have turned to. This course has been designed to address and overcome the challenges small and medium-sized enterprises face when adopting 3D printing technology. Topics covered include the various 3D printing technologies, advantages/ disadvantages of each, and hands-on learning to understand the components, operations, testing and maintenance. Emphasis is also placed on understanding the software involved in 3D printing including Standard Triangle Language (STL) files and RS-274 (G-Code). **Note: This is a hands-on course providing participants an opportunity to interact with 3D printers and associated software.

2 days of classes | \$995/person | IF ONSITE: min. of 8 participants



INTRODUCTION TO COLLABORATIVE ROBOTICS

With the growing concerns of labor shortages, the applications for automation and robotics are increasing. Advances in collaborative robotics enables even small manufacturers to deploy automation safely, quickly and affordably. This course is designed for robotics beginners and will cover: robot/cobot basics, components, basic safety, basic programming & how to select the right robot/cobot. **Note: This a hands-on course, providing participants opportunities to interact with multiple brands of cobotic controllers, equipment setups and tasks.

1 day of class | \$495/person | IF ONSITE: min. of 8 participants

NEW CLASSES/DATES ARE ADDED FREQUENTLY. For a schedule of all 2024 courses, visit The-Center.org. WANT TO TAILOR TRAINING TO ADDRESS BUSINESS NEEDS? Contact your Business Solutions Representative.

EMERGING LEADERS IN MANUFACTURING CERTIFICATION

Provide your staff with the skills needed for success within the world of manufacturing. This program, taught in collaboration with Schoolcraft College, is open to people new to manufacturing and those who are looking to grow. Topics include skills for leaders, quality management, Lean manufacturing, Industry 4.0 and handson manufacturing and engineering. Classroom training only.

5 days of classes | \$1,400/person

FINANCE FOR THE NON-FINANCIAL **MANAGER**

This class exposes non-financial managers to financial concepts that are relevant to managing any type of business, with an additional focus on manufacturing. The key concept is that managers make daily decisions that impact the financial health of the business, so they need to understand the basics of financial management.



8 hours of ONSITE TRAINING | \$295/person (minimum of 8 participants)

MANUFACTURING SKILLS **DEVELOPMENT** (CEU Credits: 1.4)

This training is designed for employees who are either new to the manufacturing environment or those who need a more thorough understanding of manufacturing. This course provides a foundation for the processes, approach and culture needed to run an effective and efficient operation. Topics covered include quality management, problem solving, Lean manufacturing, culture and motivation.

2 days of classes | \$995/person | IF ONSITE: min. of 8 participants

PRACTICAL APPROACH TO PROJECT MANAGEMENT (CEU Credits: 1.4)

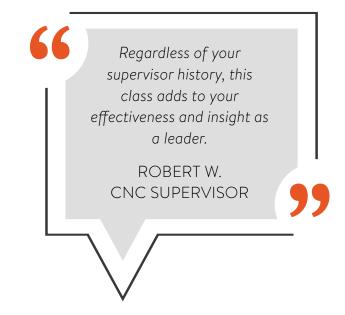
Focus on the discipline of initiating, planning, executing, controlling and closing the work of a team to achieve specific goals and meet specific success criteria. After attending this course, you will be able to understand the project manager's role in supporting strategic objectives that contribute to the bottom line. Gain leadership skills and business intelligence tools and techniques required to meet project requirements.

2 days of classes | \$1,200/person | IF ONSITE: min. of 6 participants

SALES ACCELERATION

Hoping to take your sales strategies to the next level? This course is tailored specifically towards salespeople in the manufacturing industry. Learn how to better understand the current market and how effectively your company is competing within it, using a variety of proven tools such as:

- Sales / Marketing Strategy
- Market Research Strategy
- SWOT / PEST Analyses
- · Website / Social Media
- CRM Analysis
- · Sales Management Tools



SUPERVISOR SKILLS (CEU Credits: 2.8)

Do you have an employee with leadership potential or a newly promoted supervisor and want to give them practical management training? Gain the knowledge and skills needed to thrive in today's management environment. Learn how to identify various leadership styles, different behavioral characteristics and how to relate to each, communication barriers and how to overcome them, and more.

4 days of classes | \$975/person | IF ONSITE: min. of 11 participants

SUPERVISOR SKILLS 2.0 - SUSTAINED LEADERSHIP PROGRAM (CEU Credits: 1.5)

Good leadership is not just characterized by the ability to motivate a group toward a common goal—it's the ability to be someone people want to follow. This course further equips participants with the skills needed to become effective leaders. Topics covered include power of influence, crucial accountability, social styles and learning styles. Prerequisite: MMTC's Supervisor Skills (CEU Credits: 2.8) course

3 days of classes | \$975/person | IF ONSITE: min. of 11 participants

AT YOUR COMPANY LOCATION

WANT TO SCHEDULE A COURSE AT YOUR LOCATION? CALL 888.414.6682.

LEAN PRINCIPLES & TECHNIQUES

5S TRAINING & APPLICATION

The 5S program for the shop floor is a good starting point for a Lean manufacturing improvement activity. Participants will brainstorm methods for removing additional constraints from the manufacturing process in a specific model area within your organization. Learn the basic principles of 5S and successful implementation, the importance of an effective work environment, how to sustain change, and how to overcome issues associated with 5S.



1 ½ days of ONSITE TRAINING | \$600/person 1 ½ days or Onto..._ (minimum of 5 participants)

5S/VISUAL MANAGEMENT

Over time, most workplaces become cluttered with outdated and unnecessary information. This course provides the tools needed to clear the clutter and create a visual workplace where there is a place for everything. Learn how to transform a factory into a well-organized operation where messages concerning product quality, productivity, schedule and safety are accurately delivered.

½ day of class | \$295/person | IF ONSITE: min. of 8 participants

A3 PROBLEM SOLVING

Use problem-solving tools to assist in the continuous improvement process with emphasis on creating and implementing a Lean Business Strategy. Gain the knowledge to confidently measure and improve your processes through data-driven decision making. An exercise in understanding and creating an A3 report is included.

½ day of class | \$295/person | IF ONSITE: min. of 8 participants

ADVANCED PROBLEM SOLVING: LEAN SIX SIGMA YELLOW BELT (CEU Credits: 2.1)

Lean Six Sigma Yellow Belt (LSSYB) training develops the skills of the professional who participates as a supporting team member in a variety of Six Sigma projects led by Six Sigma Green or Black Belts. Upon class completion (no project required), a LSSYB will understand the broad aspects and foundational elements of Lean Six Sigma methodology. Gain the knowledge to implement, perform, interpret and apply Lean Six Sigma principles in a skilled, yet limited/supportive, context.

3 days of classes | \$1,500/person | IF ONSITE: min. of 6 participants



COST IDENTIFICATION & MANAGEMENT

Take part in designing an Activity-Based Quoting system tailored to your company's needs. Each model is unique and is intended to help clients understand the true costs of the activities they engage in. These activities ultimately drive cost structure, so building a quotation template that helps to quickly determine the true costs of current and prospective work is critical to business profitability. This course is designed for companies with less than 50 employees at a single facility who can provide multiple financial documents prior to course



5 days of ONSITE TRAINING | \$1,800/person (minimum of 6 participants)

KAIZEN PRACTITIONER

A typical Kaizen event for each model area/product group consists of five days of focused team activity. Participants learn the benefits, characteristics, building blocks and key performance measures as they facilitate a successful Kaizen event in their own organization. Kaizens available include 5S, Single Minute Exchange of Dies, Total Productive Maintenance and Kanban. Objectives include:

- Understand Kaizen and basic steps for success
- · Document plant layout with Value Stream Mapping
- · Document strengths and opportunities in model area
- · Apply Lean tools and techniques where applicable
- · Balance the workload and restructure the work area to



5 days of ONSITE TRAINING | \$2,000/person (minimum of 6 participants)



LEAN APPLICATIONS WORKFORCE TRAINING (CEU Credits: 3.5)

Get acquainted with the Lean tools used to help identify and eliminate waste in a manufacturing environment. Training is designed to promote a sustainable continuous improvement effort and ensure positive outcomes in the long-term strategic deployment of Lean manufacturing practices.

5 days of classes | \$1,995/person IF ONSITE: min. of 8 participants

NEW CLASSES/DATES ARE ADDED FREQUENTLY. For a schedule of all 2024 courses, visit The-Center.org. WANT TO TAILOR TRAINING TO ADDRESS BUSINESS NEEDS? Contact your Business Solutions Representative.

AT YOUR COMPANY LOCATION

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LEAN PRINCIPLES & TECHNIQUES

LEAN OFFICE CHAMPION (CEU Credits: 2.1)

Apply Lean principles beyond the manufacturing floor. Typically 70% of labor costs are attributed to above-the-shop-floor activities and support operations such as quoting, accounting, sales and engineering. This training offers a comprehensive hands-on approach to teach team leaders how to identify opportunities for improvement through reduction in TIME conducting transactional activities.

3 days of classes | \$1,500/person IF ONSITE: min. of 10 participants

LEAN SIMULATION

Learn how Lean can be applied to an organization to maximize customer value, minimize waste, and reduce costs through workplace organization and visual controls, cellular manufacturing, quality at the source and pull scheduling. Lean factory simulation gives participants an understanding of how Lean principles, when effectively applied, can positively impact their company. Learn how to transform a traditional manufacturer into a Lean producer by focusing on material and information flow resulting in lead-time reductions.

1 day of class | \$395/person | IF ONSITE: min. of 10 participants



LEAN SIX SIGMA GREEN BELT (CEU Credits: 5.6)

Lean Six Sigma Green Belt (LSSGB) training covers the application of established Lean and Six Sigma techniques to remove wastes. improve operational speed, lower costs and increase customer satisfaction. This certification focuses on improved quality and accuracy, minimized cost and variation, on-time delivery and optimized operational speed; all which enable organizations to become more efficient and profitable producers. Participants receive a LSSGB certification upon submission of a Lean Six Sigma project report that is reviewed and approved by our Six Sigma Master Black Belt. A project sponsor is strongly recommended and is expected to attend the first session.

8 days of classes | \$3,450/person | IF ONSITE: min. of 7 participants

MISTAKE-PROOFING

Understand the benefits of building in quality at the source. Implement methods or devices into the manufacturing process instead of inspection only at the end of the process. Best practice examples of how companies prevent errors or defects are introduced. A hands-on factory simulation is included.

½ day of class | \$295/person | IF ONSITE: min. of 8 participants



Supply Chain Management is fundamental to business success. The journey from idea creation to end product is a complicated process with many moving parts. How a company manages this process can directly translate into business success. This course presents fundamental material management tools needed to successfully manage some of those process. This class is designed for those who need an introduction and/or a new emphasis on

2 days of classes | \$1,200/person | IF ONSITE: min. of 6 participants

SET-UP TIME REDUCTION (SMED/QCO)

This course focuses on reducing set-up times in order to increase flexibility. Single Minute Exchange of Dies (SMED) refers to the theory and techniques for performing set-up operations in less than 10 minutes. Participants will learn how inexpensive techniques can be implemented to achieve guick changeovers (QCO), which can improve production and reduce waste.



1 ½ days of ONSITE TRAINING | \$600/person (minimum of 5 participants)

STANDARD WORK

A key ingredient in the creation of a Lean enterprise, Standard Work is a set of procedures for each operational process that documents the most effective, balanced combination of people, machines, materials and space to meet customer demand. Without Standard Work, processes will change for operational convenience, which are often not in the best interest of the organization or customer.

½ day of class | \$295/person | IF ONSITE: min. of 8 participants

LEAN PRINCIPLES & TECHNIQUES

TOTAL PRODUCTIVE MAINTENANCE (TPM) APPLICATION TRAINING

Teach operations the philosophy and skills necessary to transform productive maintenance activities from a "cost burden" to a "cost savings." At the end of instruction, clients should understand:

- The principles and benefits of TPM and autonomous maintenance
- · Calculate Overall Equipment Effectiveness
- The role maintenance provides in continuous improvement
- · Improvements made at the shop level can dramatically improve overall company performance



1½ days of ONSITE TRAINING | \$600/person (minimum of 5 participants)

TOTAL PRODUCTIVE MAINTENANCE/ OUICK CHANGEOVER (TPM/OCO)

Calculate and use Overall Equipment Effectiveness, the key metric for measuring equipment performance. Emphasis is placed on teamwork and integration between production and maintenance departments. Two hours of this session focus on reducing set-up times for manufacturers, increasing flexibility. Frequent set-ups are necessary to produce a variety of goods in small lots (low volume-high mix). Inexpensive but highly effective techniques are shown to achieve quick changeovers.

1 day of class | \$495/person | IF ONSITE: min. of 6 participants



VALUE STREAM MAPPING & DEPLOYMENT PLAN

Value-Stream Mapping helps clients see manufacturing processes as a Lean production system. Learn how to redesign manufacturing and information flow processes to maximize customer value while minimizing costs and waste. Participants will develop value stream maps on a product/product family, including developing a current state value stream map, identifying waste areas, and creating a future state value stream map. Students then learn how to create a deployment plan to ensure that the future state becomes a reality.



3 days of ONSITE TRAINING | \$895/person (minimum of 7 participants)

NEW CLASSES/DATES ARE ADDED FREQUENTLY. For a schedule of all 2024 courses, visit <u>The-Center.org</u>. WANT TO TAILOR TRAINING TO ADDRESS BUSINESS NEEDS? Contact your Business Solutions Representative.

QUALITY MANAGEMENT

8D PROBLEM SOLVING (CEU Credits: .7)

Root cause analysis and problem-solving tools are presented and demonstrated in this session. Both internal (yield issues) and external (warranty, field failure, customer complaint) problems are introduced. Understanding is gained through practical, hands-on exercises using common measurement gauges. Problems are introduced to demonstrate the typical formats for reporting the findings, applying solutions and corrections.

1 day of class | \$395/person | IF ONSITE: min. of 6 participants



AS13000 8D PROBLEM SOLVING

This interactive course provides participants with the knowledge and skills needed to take a problem through a process involving tools such as 5-Whys, Brainstorming, Fishbone Diagrams, Is/ Is Not and others defined in AS13000. Get oriented with the AS13000 Problem Solving basics and 8D reporting methods.

2 days of classes | \$795/person | IF ONSITE: min. of 6 participants

AIAG-VDA FMEA FOR PRACTITIONERS (CEU Credits: 1.4)

This interactive course equips participants with the knowledge and skills needed to complete the new FMEA methodology, which includes the activities surrounding the 7-Step Approach and use of Action Priority ratings. The seven steps are covered with exercises designed to ensure maximum understanding. At course completion, participants will possess the tools needed to objectively evaluate the effectiveness of their current FMEA process while planning and using the new AIAG-VDA-FMEA process.

2 days of classes | \$795/person | IF ONSITE: min. of 6 participants

AS 9100D INTERNAL AUDITOR (CEU Credits: 2.1)

AS9100D Internal Auditor training provides the knowledge necessary for participants to meet the requirements of Clause 9.2 of the aerospace quality standard. Participants will review the requirements for an AS9100D compliant quality management system, which forms the basis for their audits. Additional focus will be made on the "flow-down" of customerspecific requirements in addition to ISO 9001 basics. Learn internal audit methodology, terminology and techniques, as well as the PDCA (planning an audit assignment, performing the audit, reporting and follow-up activities) of internal auditing.

3 days of classes | \$995/person | IF ONSITE: min. of 7 participants

CORE TOOLS: APQP, PPAP AND FMEA (CEU Credits: 1.4)

This course blends APQP, PPAP and FMEA and guides participants through the steps of the launch process. Utilized correctly, the deployment of these core tools leads to continuous improvement, defect prevention and reduction in variation and waste.

2 days of classes | \$795/person | IF ONSITE: min. of 6 participants

CORE TOOLS: MEASUREMENT SYSTEMS ANALYSIS (CEU Credits: .7)

Measurement Systems Analysis examines sources of variation in the measurement process, as well as information about measurement characteristics based on accuracy, precision and

1 day of class | \$395/person | IF ONSITE: min. of 6 participants

CORE TOOLS: STATISTICAL PROCESS CONTROL (CEU Credits: .7)

Attendees will run a group of sequentially produced parts and measure them to determine average, range and sigma. Control limits are calculated and additional samples are measured and plotted to determine where the process is going and why. Interpretations of results and capability study exercises are

1 day of class | \$395/person | IF ONSITE: min. of 6 participants

IATF 16949:2016 INTERNAL AUDITOR (CEU Credits: 2.8)

IATF 16949 Internal Auditor training provides participants with the knowledge necessary to meet the requirements of Clause 9.2 of the automotive quality standard. Participants will review the requirements for an IATF 16949-compliant quality management system, which forms the basis for their audits. Additional focus will be made on the "flow-down" of Customer-Specific Requirements in addition to ISO 9001 basics. Learn internal audit methodology, terminology and techniques, as well as the PDCA (planning an audit assignment, performing the audit using the "process approach", reporting and follow-up activities) of internal auditing. This course also covers what internal auditors need to know regarding automotive core tools.

4 days of classes | \$1,195/person | IF ONSITE: min. of 6 participants

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QUALITY MANAGEMENT

ISO 9001:2015 INTERNAL AUDITOR (CEU Credits: 2.1)

ISO 9001 Internal Auditor training focuses on providing participants with the knowledge needed to meet the requirements of Clause 9.2 of the internal quality standard. Participants will review the requirements for an ISO 9001 compliant quality management system, which forms the basis for their audits. Learn internal audit methodology, terminology and techniques, as well as the PDCA (planning an audit assignment, performing the audit, reporting and follow-up activities) of internal auditing. Internal audits are an important feature of organizations wanting to become ISO 9001 certified as a prerequisite to the "Stage 1" certification audit by a registrar.

3 days of classes | \$995/person | IF ONSITE: min. of 6 participants



ISO 9001:2015 LEAD AUDITOR

ISO 9001 Lead Auditor training provides the knowledge necessary for participants to meet the training requirement of being a Lead Auditor. Attendees will take part in highly interactive training sessions including workshops, case studies and role playing, including reviewing the development of quality management systems and the requirements for an ISO 9001-compliant quality management system, which forms the basis for their audits. Additional focus will be placed on the role of being an audit team leader for external audits, in addition to the ISO 9001 basics.

4 days of classes | \$1,195/person | IF ONSITE: min. of 6 participants

ISO 13485:2016 INTERNAL AUDITOR (CEU Credits: 2.8)

Understand the specifics of the ISO 13485 Medical Device system, and how to audit to it. Learn how the various requirements may, or may not, apply to your type of organization and be better prepared to implement, understand, and audit your system. Auditor tips and techniques are studied as well as scheduling, planning, and performing audits. You will conduct several mock audits and end with a practical understanding of both the ISO 9001 and added ISO 13485 system audit programs.

4 days of classes | \$1,195/person | IF ONSITE: min. of 6 participants

ISO 14001:2015 INTERNAL AUDITOR (CEU Credits: 1.4)

The ISO 14001:2015 Internal Auditor course will guickly acquaint you with ISO 14001:2015 standards and requirements. This class will cover ISO 14001:2015 elements and standards, how to diagnose conformances and non-conformances, details of the audit process, measures for implementing corrective action, structured steps for conducting an audit, and structures sequence of a typical audit via an interactive simulation session.

2 days of classes | \$795/person | IF ONSITE: min. of 6 participants

LAYERED PROCESS AUDIT

Layered Process Audits (LPA) offer companies tremendous benefits. They involve all plant personnel, including multiple levels of management, and cover all key areas in the manufacturing process. Creating an LPA system that is truly effective and obtaining the best, most accurate results requires a solid plan, detailed preparation and knowledgeable personnel.

Learn how to plan, prepare and conduct an LPA on your company's manufacturing processes. Through a combination of coursework and practical application, our instructor will guide you to establish the necessary planning, checklists and reports through hands-on mentoring in a familiar environment.



6 hours of ONSITE TRAINING | \$400/person (minimum of 5 participants)



NEW! OUALITY IN LABELING

If you've ever had a mislabeling reject from your customers, this seminar is right for you. Morning instruction includes a review of the process steps that can get your system to avoid generating mislabeling rejects. The afternoon is spent on your line(s) determining gaps between current practice and best labeling practice.



■ 1 day of ONSITE TRAINING | \$495/person (minimum of 6 participants)

SIX SIGMA

INTRODUCTION TO DESIGN OF **EXPERIMENTS**

Introduction to Design of Experiments is an interactive course focused on the fundamentals of experimental design for variables (continuous) type response (Y) data. Factors tested can be attribute (categorical) or variables (continuous) type. Included are statistical tests for analyzing one or more factors concurrently. A sequential learning approach is presented to allow the student to achieve real results regardless of experience level. Hypothesis tests for analyzing given populations as well as Factorial experiments to build new knowledge, are included.

2 days of classes | \$995/person | IF ONSITE: min. of 5 participants

ADVANCED DESIGN OF EXPERIMENTS

This course focuses on advanced experimental design techniques for variable type response data. Topics covered include a full review of proper design of experiments and analysis, statistically sound approaches for quickly finding significant factors, accounting for nuisance noise variables, multiple approaches for process or product optimization, and techniques for analyzing multiple response variables simultaneously. Application of techniques using Minitab software is also presented.

3 days of classes | \$1,800/person | IF ONSITE: min. of 6 participants

MINITAB TRAINING

Training focuses on the fundamentals of MiniTab execution and is ideal for individuals wanting to improve their MiniTab skills. Individuals with no previous MiniTab experience who need to use the software to create and manipulate data files, conduct basic data analysis and use basic quality tools such as Run Charts, Pareto Charts and Cause and Effect Diagrams, or who set-up a DOE Run Matrix, should register.

1 day of class | \$495/person | IF ONSITE: min. of 6 participants

ADVANCED PROBLEM SOLVING: LEAN SIX SIGMA YELLOW BELT (CEU Credits: 2.1)

Lean Six Sigma Yellow Belt (LSSYB) training develops the skills of the professional who participates as a supporting team member in a variety of Six Sigma projects. Upon class completion (no project required), a LSSYB will understand the broad aspects and foundational elements of Lean Six Sigma methodology. Learn to implement, perform, interpret and apply Lean Six Sigma principles in a skilled, yet limited/supportive, context.

3 days of classes | \$1,500/person | IF ONSITE: min. of 6 participants



LEAN SIX SIGMA GREEN BELT (CEU Credits: 5.6)

Lean Six Sigma Green Belt (LSSGB) training covers the application of established Lean and Six Sigma techniques to remove wastes, improve operational speed, lower costs and increase customer satisfaction. This certification focuses on improved quality and accuracy, minimized cost and variation, on-time delivery and optimized operational speed; all which enable organizations to become more efficient and profitable producers. Participants receive a LSSGB certification upon submission of a Lean Six Sigma project report that is reviewed and approved by our Six Sigma Master Black Belt.

* A project sponsor is strongly recommended and is expected to attend the first session.

8 days of classes | \$3,450/person | IF ONSITE: min. of 7 participants

NEW CLASSES/DATES ARE ADDED FREQUENTLY. For a schedule of all 2024 courses, visit The-Center.org. WANT TO TAILOR TRAINING TO ADDRESS BUSINESS NEEDS? Contact your Business Solutions Representative. AT YOUR COMPANY LOCATION

WANT TO SCHEDULE A COURSE AT YOUR LOCATION? CALL 888.414.6682.

SIX SIGMA

SIX SIGMA BLACK BELT (CEU Credits: 7.0)

Training employees as Six Sigma Black Belts will provide the valuable skills needed to tackle the toughest problems confronting your organization. Coupling the proven Define, Measure, Analyze, Improve, and Control (DMAIC) problem-solving methodology with robust statistical tools. Six Sigma offers a carefully defined road map for achieving business process improvements. Black belt trainees obtain a solid understanding of the tools and methods associated with the Six Sigma approach.

The pace of instruction allows trainees to absorb and quickly deploy Six Sigma. With each session, trainees can immediately apply newly acquired skills to their certification project. This improves the retention of key Six Sigma principles, reinforces contextual learning and builds trainee confidence. On-site mentoring by the instructor allows for any fine-tuning with the trainee and his/her sponsor in their own work environment.

Certification Timeline: The Black Belt candidate is expected to certify within 12 months of the first day of class. If the time line is not met there will be a late fee for certification. The penalty for late certification increases with time

* Participation of a project sponsor (usually the candidate's manager or other company leader) is a requirement for Black Belt certification. A sponsor is expected to attend the first training session with the Black Belt candidate, and to be involved in the project review sessions occurring throughout the certification process.

10 days of classes | \$7,350/person | IF ONSITE: min. of 5 participants



SIX SIGMA GREEN BELT (CEU Credits: 3.5)

From executive leaders to front-line employees, Six Sigma Green Belt training enhances the way employees approach their day-to-day work. Providing employees with Six Sigma Green Belt training equips them with a logical and objective way to identify, measure and eliminate problems within an organization. Suddenly, employees don't have to just cope with process problems - they begin to recognize and implement solutions to them.

A blend of DMAIC project management methods and practical data analysis techniques provide employees with new ways to contribute to the bottom line.

Certification Timeline: At the end of the course, each participant will receive a certificate of completion for attending. Certification has three elements: participant has attended all session days, has passed the final exam and provided evidence of involvement in a Six Sigma project to the instructor in the form of a project report.

* A project sponsor is strongly recommended and ensures that project efforts are consistent with the organization's overall strategy. A sponsor is expected to attend the first training session, and to be involved in the project review sessions throughout the certification process.

5 days of classes | \$2,800/person | IF ONSITE: min. of 5 participants

FOOD

FOOD PROCESSING SKILLS **DEVELOPMENT**

Join us as we cover topics small business owners and front-line workers in the food industry should know. Learn about current Good Manufacturing Practices and how to write them, the Food Safety Modernization Act and how to identify and control hazards that impact your food safety plan. Lean culture, 5S, the eight types of waste and problem-solving skills are addressed.

1 day of class | \$395/person | IF ONSITE: min. of 6 participants

PREVENTIVE CONTROLS QUALIFIED INDIVIDUAL (PCOI)

A Preventive Controls Qualified Individual (PCQI) is required to prepare and oversee the implementation of the facility's Food Safety Plan in compliance with FSMA requirements. Key course topics include developing a Food Safety Plan, Hazard Analysis and Preventive Controls, verification and validation procedures. corrective action (recall plan) and record keeping.

This course is recognized by the FDA as meeting the requirements to become a PCQI. Individuals successfully completing this training will receive a certificate from the Food Safety Preventive Controls Alliance (FSPCA).

2 days of classes | \$895/person | IF ONSITE: min. of 5 participants

RISK MANAGEMENT IN FOOD PROCESSING

There are many failures that can occur during food processing. Learn how to identify, prioritize, and eliminate failures that can lead to inefficiencies in subsequent processing steps or ultimately dissatisfied customers. Implement Lean tools such as standard work, problem solving, and error proofing to reduce or eliminate processing failures. At the end of training, participants should be able to perform FMEA analysis on their own processes and make the necessary improvements to eliminate the chance of a failure.



1½ days of ON-SITE TRAINING | \$600/person (minimum of 5 participants)

VIRTUAL CLASSES

MMTC's live-stream, instructor-led virtual classes incorporate multiple learning processes resulting in improved content retention and increased application to the workplace.

VIRTUAL: 8D PROBLEM SOLVING

Many things can go wrong in a manufacturing facility, including errors in specifications, overrun/underrun of quantities and missing production and shipping deadlines. But, what is the root cause of the problem? And, what can be done to solve it? This course presents the necessary solution tools and teaches how to utilize them. Participants will gain a deeper understanding of how to report findings, determine and apply remedies, and solve the problems so they don't happen again.

½ day of class | \$295/person

VIRTUAL: FINANCE FOR THE NON-FINANCIAL MANAGER

This class exposes non-financial managers to financial concepts that are relevant to managing any type of business, with an additional focus on manufacturing. The key concept is that managers make daily decisions that impact the financial health of the business, so they need to understand the basics of financial management.

½ day of class | \$295/person

VIRTUAL: FRONTLINE LEADER

Learn the tools needed to improve communication, engagement and productivity. Leaders will become more competent and confident resulting in increased employee engagement, better productivity, higher employee satisfaction and reduced turnover. Using our exclusive Active Learning Model participants will learn through assessment, practice, application and reflection.

4 days of classes | \$995/person

VIRTUAL: PROJECT MANAGEMENT FUNDAMENTALS

Learn the discipline of initiating, planning, executing, controlling and closing the work of a team to achieve specific goals and meet specific success criteria. Training will focus on how a project is a temporary endeavor designed to produce a unique product, service or result with a defined beginning and end undertaken to meet unique goals and objectives.

Two - ½ day classes | \$790/person

NEW CLASSES/DATES ARE ADDED FREQUENTLY. For a schedule of all 2024 courses, visit <u>The-Center.org</u>. WANT TO TAILOR TRAINING TO ADDRESS BUSINESS NEEDS? Contact your Business Solutions Representative.



The ongoing skilled trades employee shortage is causing many manufacturers to hire from outside of the industry, bringing in people without manufacturing skills or backgrounds. To ease workers' transitions into a manufacturing environment, a strong training program is essential. This is especially critical now as millennials make up a large part of the available workforce, and 87% of millennials view professional development and career growth as very important. To show your company is interested in investing in its employees, training is the answer.

In addition, providing ongoing training to workers contributes to both employee engagement and productivity as their skills are enhanced and efficiencies are improved. This can greatly impact your bottom line, as companies that invest in employee training achieve a 24% higher profit margin than those who don't.

With so much at stake, most companies cannot afford to neglect training for workers. Consider, for example, the following benefits that come from training:

- Training reduces stress and builds confidence. Whether someone is completely new to a manufacturing environment, or simply trying to learn a new process within the facility, the effectiveness of their training will determine how well they perform. In fact, 74% of workers stated that lack of training was the biggest hurdle in achieving their full potential at work. By gaining additional guidance and understanding through training, workers will be set up for success as they can more confidently approach their jobs.
- Improved confidence leads to better job satisfaction and production quality. When workers are confident in their abilities, they become more engaged. This

heightened engagement not only improves worker happiness, but also can have massive impacts on quality and productivity.

- Job satisfaction leads to improved employee retention. To ensure talent stays within your company, training can help. As you continue to invest in the skills of workers, their job satisfaction increases, thus eliminating their desire to look elsewhere for work. With 40% of workers leaving their jobs within the first year due to poor training, this aspect cannot be ignored.
- Employee retention leads to more favorable company reviews. By demonstrating that you care about your workers and investing in their professional development, workers will be much more likely to view your company in a favorable way. This will be reflected in employee surveys and workplace culture.
- Favorable reviews attract more workers to your company. When workers are happy with their company, they will likely spread the word to others in person or on review sites such as Glassdoor and Indeed. By establishing a strong reputation as a company that invests in workers and wants them to grow and succeed, hiring efforts will be supported as candidates will view your company in a more favorable and desirable way.

A properly trained employee feels better about the job they are doing and produces quality work. When they produce quality work, they are more engaged in their job and motivated to improve the business as a whole. And just as one bad apple can spoil the basket, the opposite also is true: happiness and engagement are contagious.

NOTES			



THE MOST ADVANCED SUPPLY CHAIN TOOL FOR MICHIGAN MANUFACTURERS

CONNEX™ Michigan is a FREE, cloud-based platform that centralizes the Michigan supply chain network into a searchable database. Sponsored by the Michigan Manufacturing Technology Center and supported by the MEDC, CONNEX™ is designed to be the premier system for domestic supply chain sourcing and networking. CONNEX™ offers:

- Powerful search capability. Use search filters to connect based on exact needs.
- Business recovery & resilience. Immediate access to suppliers and supply chain partners.
- Supply chain optimization. Find suppliers and highlight risks within your supply chain.
- Business development. Highlight your assets, certifications, capabilities and other industry information to help manufacturers find you.

WANT TO MAXIMIZE YOUR OPPORTUNITIES? UPGRADE TO CONNEX™ MARKETPLACE!

CONNEX™ Marketplace connects ALL U.S. suppliers, manufacturers, primes and OEMs into one searchable, NATIONAL database. Upgrade for only \$500/year after you create your free CONNEX™ Michigan account.



FOR MORE INFORMATION REGARDING OUR CERTIFICATE COURSES, CONTACT YOUR MICHIGAN MANUFACTURING TECHNOLOGY CENTER BUSINESS SOLUTIONS MANAGER:

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