

The



# MANAGER

Certification Program...

**...BECAUSE YOUR LEAN MANAGER CAN'T DO IT ALONE.**

The volatility in the marketplace isn't going to change, but what can change is the way you approach it. Ensure your organization's long-term success by building the capabilities needed to proactively identify your equipment reliability issues.



**PRODUCTIVITY**



# IN TODAY'S WORKING ENVIRONMENT

long-term sustainable success is achieved when all operations and systems function as needed. This is a BIG job. While your Lean Manager is focusing on your production flow, ensuring it is waste-free and efficient, who is identifying and addressing your equipment reliability issues? These are the issues that are negatively affecting your capacity, flow, safety, quality, environmental impact and more.

By improving equipment reliability you will positively impact goals like: reducing downtime, improving yield, ensuring quality and increasing the amount of product going out the door. **Total Productive Maintenance** is the ultimate equipment reliability program and will help you achieve these goals.

## Gains from TPM include...

- ROIs of up to tenfold
- Reducing quality defects by up to 50%
- Significantly improving capacity
- Drastically reducing or eliminating unplanned downtime
- Extending the lifetime and value of existing assets
- Slashing maintenance costs by 50% or more

A process, like TPM, that focuses on equipment reliability is too important to your business success not to have a well-trained TPM Manager to guide the implementation. It can safely be said that a key role of the TPM Manager is one who positively impacts production flow by leading and teaching the organization to proactively identify and address equipment reliability issues before they negatively affect your business.

## TPM MANAGER CERTIFICATION PROGRAM



For over 30 years Productivity has been helping organizations improve their maintenance operations through the implementation of TPM. Working in concert with the Fisher College of Business at The Ohio State University, Productivity has combined years of TPM implementation experience with the resources of one of the top business schools in the country to create the **Total Productive Maintenance Manager Certification Program**.

This Certification program will teach you how to implement Total Productive Maintenance in a cost-effective manner. The program has been designed for individuals charged with implementing a reliable method for improving the maintenance process and overall equipment reliability. This certification focuses on three critical areas necessary for success:

Plan	The preparatory phase of the TPM process, what needs to be done to ensure readiness, and create a solid foundation for your program.
Implement	The techniques and methodologies you will need to transition your organization from a reactive to proactive maintenance excellence environment.
Lead	The cultural and leadership characteristics necessary to keep your effort on track and ensure all of your improvement efforts are in direct support of the organization's overall goals.

Over four non-consecutive weeks you will participate in a series of learning modules, then in-between your weeks of training, you will be required to apply the methods of operations at your own facility.

## GET A RETURN ON YOUR INVESTMENT

Most investments are inherently risky...but investing in the TPM Certification Program is virtually risk free. You will probably realize savings in excess of the registration fee from just the implementation of the homework. In fact, this has been the case for most all past attendees! Imagine, a return on your investment in only four months and the skills you need to establish a reliability program in your facility that will keep your equipment running optimally for its extended life cycle.

## PROGRAM SPONSORSHIP

It is required that each participant in the program have a management sponsor to attest to the participant's qualification for the program and to the results achieved through the homework assignments.

## PROGRAM REQUIREMENTS

To be considered for this program, you must be affiliated with a manufacturing or service organization actively engaged in process improvement techniques. You should have a fundamental understanding of TPM and supporting Lean techniques.

## INDIVIDUAL BENEFITS

- Increase your TPM knowledge
- Differentiate yourself in a market filled with skilled professionals
- Demonstrate your skills to organization leaders
- Provides access into a benchmarking community of other certified professionals



Participants who successfully complete the four-week training and mentoring program, pass the certification exam, and demonstrate successful implementation of the techniques in their own facility are then certified by Productivity Inc. and the Fisher College of Business as TPM Managers. Program graduates earn 16 CEUs.

Participants who have completed this certification program will have an overall knowledge of the eight pillars of TPM and will be able to:

- Establish and customize an internal TPM Implementation strategy
- Properly use machine performance data to identify and execute a Tactical Action Plan for success
- Justify and implement a complete maintenance planning and scheduling process
- Conduct and lead Autonomous Maintenance Kaizen events
- Design and perform site specific TPM Auditing
- Establish a baseline data collection and understand the use of the OEE metric
- Understand the need for and conduct breakdown analysis reviews
- Organize and control spare parts
- Use the principles of the Early Equipment Management process

# 2012 TPM Manager Certification Curriculum

		Week One August 6-10	Week Two September 10-14	Week Three October 22-26	Week Four December 3-6
M	AM PM	Context and Strategy TPM as an enabler	Homework Review TPM Leadership	Homework Review Maintenance Improvement	Facilitator and Coaching Skills Final Project Reports
T	AM PM	The Zero Failure Principle Review of the TPM Pillars	5S and Visual Mgmt Autonomous Maintenance	Maintenance Improvement Continued	Quality Maintenance Environment, Safety & Health/Going Green Office TPM
W	AM PM	The Master Plan	Standard Work for TPM Six Sigma and TPM (DMAIC, SIPOC & CEDAC)	Maintenance Improvement Continued	Early Equipment Mgmt Audit & Accountability
TH	AM PM	Value Stream Analysis Focused Improvement	Plant Application	Plant Application	4 Week Program Recap Final Exam Graduation Dinner
F	AM	Project Mgmt Week in Review Exam & Homework	Set-up Reduction (SMED) Week in Review Exam & Homework	Training & Skill Development Week in Review Exam & Homework	

## What others have said about the program:

*"Well planned and delivered in both theory and application. I felt the plant visits were critical to providing the experiential knowledge need to truly understand the concepts."*

**Michael Smith, Delta**

*"I recommend TPMC (TPM Certification Program) as taught by Productivity Inc. to anyone who is interested in learning how to create a world class operation."*

**Troy Adams, Miba Bearings**

## About your Hosts

**Productivity Inc.** is the only complete resource for implementing a Lean methodology into your organization. From theory to practice, from shop floor to office suite, Productivity Inc.'s public events, training programs, and on-site consulting services help businesses worldwide build capabilities, grow, and achieve lasting cost savings.

The TPM Manager Certification Program is held on the campus of the **Fisher College of Business at The Ohio State University**. For more than 80 years, the Fisher College of Business ([www.cob.ohio-state.edu](http://www.cob.ohio-state.edu)) has produced exceptional leaders who meet the challenges of a changing global business environment through creative and effective solutions.



# TPM MANAGER CERTIFICATION PROGRAM

## Module Descriptions

The following presents a snap-shot of the modules that are included in the TPM Manager Certification Program

### WEEK 1

#### Context and Strategy—TPM as an Enabler

TPM is not a maintenance program. TPM must be an integral part of your organization's business improvement strategy. It is the most effective way to hit critical plant performance metrics like yield, cost, customer service, velocity and safety. Chances are you will fall short of these strategic performance targets absent a meaningful TPM effort. In this session, discover how TPM builds upon established equipment-management approaches that foster team work, improve quality, delivery, enhance safety, and build robust processes enabling you to maximize your production system's overall performance and cost effectiveness. We will explore TPM in the context of overall operations improvement and how it integrates with an organization's improvement strategy.

#### The Zero Failure Principle and the Pillars of TPM

The goal of TPM is to minimize equipment life cycle cost and achieve zero—zero speed losses, zero unplanned downtime, zero safety incidents, zero quality issues, etc. The principle of zero failures states that abnormalities that go unnoticed or are ignored eventually lead to some type of failure. During this session, we will carefully explain each of the basic TPM Pillars and how they relate to each other to create a natural synergy enabling you to achieve the goal of zero. Gain a good understanding of the pillars and how and when you implement them to get the greatest return in the shortest possible time. Actual case studies will be explored to show the rates of sustained improvements and to illustrate the relationship between TPM and the roots of Lean manufacturing.

#### The Master Plan

In this module we will introduce a generic TPM roadmap and a twelve step roll-out implementation process. We will discuss how to customize a plan for your individual environment, what you need to do to establish internal organizational pull and a structure to support the process. We will also review tools such as the TPM Scan and Site Readiness Assessment, used to assess your current state.

#### Value Stream Analysis

Many organization's value stream mapping efforts provide them with a cloudy picture of current state because they lack information about the state of their equipment process needs. In this module, students will learn the skill of VSA to probe deep into the data to find the weaknesses within the organization. This information will then guide the Tactical plan for implementation.

#### Focused Improvement

As a part of implementing your plan you will need to identify areas and specific pieces of equipment where you will begin your improvement efforts. Focused Improvement is the process of using overall equipment effectiveness and other machine data to identify a launch point as well as a tool to pinpoint weakness identified in your value stream map. In this session we will define the true calculation of OEE and the methods for reporting the data and show you how to use the Focused Improvement Diagram (a visual systematic approach to the DMAIC process) to document, monitor, and trend equipment related losses, and to create a process for determining the remedial actions necessary for loss control/elimination.

#### Project Chartering and Project Management

Project chartering and project management are central to continuous improvement. This module introduces the A3 framework which provides the documentation and guidelines that govern the successful identification, monitoring, opening and closing of TPM projects. We will also explore project management principles, success factors, management guidelines, the easy to use practices of monitoring project status, and the aggregate contribution to the company's improvement strategy/initiatives.

#### Homework

At the conclusion of the week 1 training session, several homework assignments will be made. These assignments are structured to reinforce the learning that takes place in the classroom sessions. Homework assignments may include items such as assessing your current state, collecting and analyzing information to facilitate master planning, creating a project charter, and selecting an initial application (pilot) area.

# WEEK 2

## Homework Reports

Each participant will be required to prepare and make a brief presentation explaining the learning and discoveries made by completing their week 1 homework assignment. The focus on the report-out is solely on sharing learning, not presentation skills. These report-out sessions offer great opportunities to address real-world TPM implementation issues, so questions and “yeah buts” are strongly encouraged.

## TPM Leadership

The overall success of your TPM initiative depends on your leadership and your ability to lead the change process. In this module we look at the fundamental challenges of leading a TPM transformation, how to build a network of “assistants”, address the most common transformational issues, and discuss the options and alternatives to proving remedial corrective-actions and countermeasures.

## 5S/Visual Workplace and Mistake Proofing

This module covers the principles and techniques needed to apply 5S and establish visual management systems to improve equipment process reliability, workplace communication and adherence to standards. Learn how to implement visual controls, visual displays, and mistake proofing to ensure normal operating conditions are monitored, standard work is adhered to, and abnormalities are recognized immediately.

## Autonomous Maintenance

Autonomous Maintenance is the foundational pillar of TPM and when properly implemented can eliminate the causes of 40-60% of unplanned downtime. In this module, we will guide you through the seven steps of autonomous maintenance, how to transform the relationship between operators and maintenance, and how to implement operator-based maintenance activities that contribute to overall equipment effectiveness.

## Standard Work for TPM

Standard work is a key element in the elimination of waste and a critical component of both operator based maintenance (Autonomous Maintenance Pillar) and maintenance improvement (Maintenance Improvement Pillar). In this module, you will learn a proven methodology to develop a standard procedure, and then apply document control and visual workplace principles and techniques to train others in their new best practice.

## Six Sigma and TPM (DMAIC, SIPOC, CEDAC)

A recent study showed that 60% to 80% of all Six Sigma projects had equipment reliability issues as either a root cause or a significant contributing cause. Therefore, to reduce overall process variation, it is imperative to improve equipment process reliability. In this module we will discuss the relationship between Six Sigma and TPM. We will explore the fundamentals of Six Sigma and review how to determine the appropriate place to conduct Six Sigma analysis of a process. Learn to discover significant variables and how knowledge of variation enhances management decisions and value to the customer. Through simulations you will get a first-hand demonstration of the Six Sigma methodology in action. An overview of the DMAIC and CEDAC methodologies as well as the SIPOC process will be presented.

## Plant Application

Participants will travel to a local manufacturing facility for a real-time, hands-on application exercise. While at the facility you will be assigned specific project areas where you will work with a team to execute a variety of TPM applications taken from the classroom learning. Teams will apply the various process improvement tools, make recommendations for improvement, and report on their findings.

## Set-Up Reduction (The SMED System)

TPM addresses the concept of the Six Big Losses, defined by Nakajima as formidable obstacles to equipment effectiveness. Implementation of the Quick Changeover methodology directly addresses one of these losses—set up and adjustment—and will help you dramatically reduce the downtime associated with set-ups and other machine changeovers resulting in increased flexibility and customer responsiveness. The changeover methodology can also play a major role in reducing the time to complete major machine repairs, PM's, and many more similar applications. This module will demonstrate how you can use the principles of Quick Changeover to greatly improve a variety of maintenance and other activities found anywhere people and processes interact.

## Homework

At the conclusion of the week 2 training session, several homework assignments will be made. These assignments are structured to further reinforce the learning that takes place in the classroom sessions.

## WEEK 3

### Homework Reports

Each participant will be required to prepare and make a brief presentation explaining the learning and discoveries made by completing their week 2 homework assignment. The focus on the report-out is solely on sharing learning, not presentation skills. These report-out sessions offer great opportunities to address real-world lean implementation issues, so questions and “yeah buts” are strongly encouraged.

### Maintenance Improvement

The goal of the Maintenance Improvement Pillar of TPM is to move away from reactive to a proactive or planned maintenance process. As part of this process, maintenance personnel analyze breakdowns to reveal equipment weaknesses and then modify equipment to improve its operation, maintainability, and lengthen equipment life. In this module we will discuss the activities embedded in the four maintenance techniques—preventative, corrective, prevention, and breakdown and how and when to use them.

**Sub-modules to this topic include:**

- The importance of stores management,
- Proper implementation of maintenance planning and scheduling.
- Maintenance skills development.
- Lubrication management, predictive maintenance tools, documentation management, etc.
- Establishing the Maintenance Scorecard
- Establishment and usage of the Computerized Maintenance Management System.

### Plant Application

Participants will travel to a local manufacturing facility for a real-time, hands-on application exercise. While at the facility you will be assigned specific project areas where you will work with a team to execute a variety of applications taken from the classroom learning. Teams will apply the various process improvement tools, make recommendations for improvement, and report on their findings.

### Training and Skills Development

This often overlooked Pillar of TPM usually gets put aside because conventional wisdom tells us each of the other TPM pillars require training, therefore we must already be performing the Training and Skills pillar. This module will show that having a specific focus on the Training and Skills pillar will enhance building your capabilities and reduce training cost at the same time. You will learn tools and techniques that will increase your training effectiveness in both hard and soft skills critical to an effective TPM implementation.

### Homework

At the conclusion of the week 3 training session, several homework assignments will be made. These assignments are structured to further reinforce the learning that takes place in the classroom sessions.

## WEEK 4

### TPM Manager—Facilitator and Coaching Skills

The experts say that a key person in the organizational structure for TPM implementation is the TPM Manager. They are critical links between management hierarchy and the people out in the work place. TPM Managers bridge the gap between the current and desired culture. In this module you will learn a variety of techniques to coach and facilitate team members, whose support will be vital to the change process. These techniques will allow you to effectively communicate the TPM plan, overcome resistance to change, plus gain and sustain support for the initiative.

### Homework Reports and Final Project Summaries

Each participant will be required to prepare and make a brief presentation explaining the learning and discoveries made by completing the week 3 homework assignment. The focus on the report-out is solely on sharing learning, not presentation skills. These report-out sessions offer great opportunities to address real-world lean implementation issues, so questions and “yeah buts” are strongly encouraged.

Each participant will be required to revisit their initial project charters and business impacts in a final presentation that explains their journey from initial current state to future state and the discoveries made along the way.

## Homework Reports and Final Project Summaries

Each participant will be required to prepare and make a brief presentation explaining the learning and discoveries made by completing the week 3 homework assignment. The focus on the report-out is solely on sharing learning, not presentation skills. These report-out sessions offer great opportunities to address real-world lean implementation issues, so questions and “yea buts” are strongly encouraged.

Each participant will be required to revisit their initial project charters and business impacts in a final presentation that explains their journey from initial current state to future state and the discoveries made along the way.

## Quality Maintenance Round Table

The overall goal of the Quality Maintenance Pillar of TPM is to maintain your equipment in perfect condition in order to produce a perfect product. It is like moving from quality control to quality assurance! The Quality Maintenance pillar of TPM focuses on establishing and monitoring equipment conditions in order to preclude quality defects. To accomplish this, the Quality Maintenance Pillar uses the tools of Six Sigma to identify conditions that affect quality, establish a baseline for those conditions, and to create a process for periodic monitoring of those conditions. In this roundtable discussion we will explore the integration of TPM and the tools of Six Sigma and learn how applying both of these methodologies in tandem presents today’s most powerful means of achieving your equipment performance goals of “zero breakdown” and “zero defects” with minimum maintenance costs.

## Environmental Health and Safety, and Going Green

Safety, reducing injuries and accidents, and negative environmental impacts are basic tenets of TPM. In this module we will explore how the TPM Pillars can be used in a collaborative context with your company’s EHS initiatives. Learn how to effectively link TPM and EHS to achieve safety and environmental, chemical, and energy waste reduction, ensure compliance, and maximize improvement opportunities

## Office TPM and Support Systems

Unlike the production department, administrative and support functions such as planning, R & D, customer service, and accounting do not add value directly to the product. Yet they play a vital role in the organizations overall value chain. These functions must be flexible in order to respond to a rapidly changing business environment, outperform the competition, and win customer confidence. To accomplish these goals these functions must understand their role in support of the TPM process in the production area, and ask how they use the TPM principles and practices to enhance their own effectiveness? In this module we will learn the importance of educating, training and involving your administrative areas in TPM, as well as looking at actual examples of office TPM improvements and their associated cost/time savings.

## Early Equipment Management

Early Equipment Management (EEM) is a structured process, which mandates a collaborative partnership between production, maintenance, and engineering that focuses on reducing the complexity associated with the real-time operation and maintenance of equipment. EEM brings the principles of Lean to the design and manufacture of equipment. The Early Equipment Management strategy consists of three elements:

### 1. Design for Quality Assurance    2. Design for Maintainability    3. Life Cycle Costing

In this module, you will learn how to develop a powerful EEM strategy ideal for your specific production environment which will result in equipment that is easy to operate, easy to maintain, and “right-sized” to aid in establishing flow and increasing your value add.

## TPM Audit and Accountability

The success of your TPM implementation is often measured by the change in critical internal measurements such as throughput, quality and even safety. These numbers reflect how well TPM is working to improve the overall company, but those who are tasked with implementing TPM need quicker, real-time data to steer the implementation effort. Setting up a proper TPM auditing process can be the catalyst to improving the speed and quality of your implementation process. This session will teach you how to design, conduct, report and use the TPM audit to improve your implementation effort.

## Program Review/Exam

## Graduation Dinner

# SUMMER/FALL 2012 PROGRAM

## TPM Manager Certification Program Registration

Week 1: August 6-10

Week 3: October 22-26

Week 2: September 10-14

Week 4: December 3-6

(Participants must attend all four weeks)

Tel: 800-966-5423 or 203-225-0451 Fax: 203-225-0771

www.productivityinc.com

Please print. Copy this form for additional registrations.

NAME _____		TITLE _____	
COMPANY _____			
ADDRESS _____			
CITY _____		STATE _____	ZIP _____
(     ) _____	(     ) _____		
PHONE _____	FAX _____	EMAIL _____	

**Payment Options:** Payment must be received BEFORE the event. This event fills up quickly therefore we cannot confirm reservations until payment is received.

**Program Tuition:** \$15,000.00

ENCLOSED IS MY CHECK FOR \$ \_\_\_\_\_ PAYABLE TO: PRODUCTIVITY INC., DRAWN ON A U.S. BANK.

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**Cancellation Policy:** Conference registrations may be transferred to another colleague without charge. To be considered for a refund, we must receive notice of cancellation in writing no later than 21 business days prior to the event. Cancellations received within 21 business days are subject to the full registration fee and money will be held on account for up to one year for use at a future workshop or conference. If no notification of cancellation is provided, registration fees will be forfeited. There is a \$200 processing fee for all cancellations. On rare occasions, circumstances may make it necessary to cancel or postpone an event. As such, we encourage attendees to book refundable/reusable airline tickets. We will not be responsible for incidental costs incurred by registrants.

By registering for this event, the registrant hereby acknowledges and agrees that any photographs or videos taken during the event may be used in marketing efforts, including but not limited to news and promotions (web/print) without compensation to the registrant.

**Accommodations:** A block of rooms is being held for Productivity Inc. TPMC attendees at the Blackwell Hotel on The Ohio State University campus. The address is 2110 Tuttle Park Place, Columbus, OH 43210. Productivity Inc. attendees have been given a reduced rate of \$129.00 per night single or double occupancy. Please call 614-247-4000 or toll free 866-247-4003 for reservations and identify yourself as a Productivity TPMC attendee. The special rate is available up to four weeks prior to the event; after this date the hotel cannot guarantee availability. For more information on the Blackwell Hotel, please visit [www.theblackwell.com](http://www.theblackwell.com). The hotel is approximately 8 miles from the Columbus International Airport.

Note: All registrant applications will be evaluated for acceptance into the program. Consultants may not attend.

Productivity Inc.  
MAIL TO: 375 Bridgeport Ave, 3rd Floor  
Shelton, CT 06484

FAX BACK TO: 203-225-0771

REGISTER ONLINE: [www.productivityinc.com](http://www.productivityinc.com)