### COURSE TITLE - Cellular/Flow Manufacturing Workshop

**Description:** This course demonstrates how to link and balance manufacturing operations to reduce lead-time, minimize Work In Process (WIP) inventory, optimize floor space usage, and improve productivity. Participants are led through a 5-step process for designing and implementing work cells.

**Course Objectives:** Develop an understanding of Cellular Manufacturing and apply that knowledge on the client's shop floor. At the completion of the course, the client participants will have identified and area for improvement and developed a functional work cell.

**Attendees:** All functions and all levels. Equipment Operators, Maintenance Craft Personnel, Supervisors, Purchasing Personnel, Engineers, TPM / CI Coordinator, Managers

**Recommended Class Size:** 6-12

**Duration:** 16 hours

### COURSE TITLE - 5S/Workplace Organization Workshop

**Description:** This workshop focuses on the key concepts and techniques associated with implementation of a 5S system (Sort, Set-in-Order, Shine, Standardize, and Sustain). There are photographed case studies of applications in different companies.

**Course Objectives:** Develop an understanding of 5S / Workplace Organization and apply that knowledge on the client's shop floor. At the completion of this course, each participant will have applied 5S and Visual Controls in an area of their organization.

**Attendees:** All functions and all levels. Equipment Operators, Maintenance Craft Personnel, Supervisors, Purchasing Personnel, Engineers, TPM / CI Coordinator, Managers

**Recommended Class Size:** 6-12

**Duration:** 16 hours

### COURSE TITLE - Administrative Value Stream Mapping Workshop

**Description:** This workshop reviews the eight basic wastes in the context of non-production processes. In addition, a brief review of the various Lean/World Class Enterprise concepts is provided to develop a necessary foundation. The processes covered include, but are not limited to: Sales, Order Entry, New Product Design, Inventory Control, Purchasing, Inventory Management, Invoicing, Scheduling, Production Control, Cost Accounting, and General Accounting.

**Course Objectives:** Develop an understanding of Admin VSM and apply that knowledge on the client's processes. Client will complete a Current and Future State Map of their Admin Processes as well as an Action Plan for improvement.

**Attendees:** All functions and all levels. Administrative Personnel, Supervisors, Engineers, TPM / CI Coordinator, Managers

**Recommended Class Size:** 6-12

**Duration:** 24 hours
**COURSE TITLE - Pull/Kanban Systems Workshop**

**Description:** This workshop demonstrates how to link manufacturing output to customer demand. Participants are led through a 6-step process for designing and implementing a Pull System.

**Course Objectives:** Develop an understanding of Pull Systems and apply that knowledge in the Client's process. At the completion of this course, the client will have a working Pull System with all calculations provided.

**Attendees:** All functions and all levels. Equipment Operators, Maintenance Craft Personnel, Supervisors, Purchasing Personnel, Engineers, TPM / CI Coordinator, Managers

**Recommended Class Size:** 6-12

**Duration:** 16 hours

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**COURSE TITLE - Quick Changeover Workshop**

**Description:** This workshop teaches the fundamental principles of Set-Up Reduction. The course follows the principles first expressed by Dr. Shigeo Shingo and his work on Single Minute Exchange of Dies (SMED). Participants learn the standard methodology in applying SMED to any type of set-up or industry. The techniques covered demonstrate how to reduce changeover time from hours to minutes and even seconds.

**Course Objectives:** Develop an understanding of Quick Changeover and apply that knowledge on the client's shop floor. At the completion of the class the team will have analyzed and improved a changeover on a client process.

**Attendees:** All functions and all levels. Equipment Operators, Maintenance Craft Personnel, Supervisors, Purchasing Personnel, Engineers, TPM / CI Coordinator, Managers

**Recommended Class Size:** 6-12

**Duration:** 16 hours
COURSE TITLE - Value Stream Mapping Workshop

Description: The team will review Value Stream Mapping concepts, and will apply them to a specified product family. The team will develop a Current State Map to depict product family flow. After the Current State Map is complete, the team will work to develop a vision of “what can be”, which is called a Future State Map. The goal will be to build a chain of production where the individual processes are linked to their customer(s) either by continuous flow or pull, and each process gets as close as possible to producing only what its customer(s) need when they need it.

Course Objectives: Develop an understanding of Value Stream Mapping and apply that knowledge on a client's Product Family. At the completion of this course, the client will have created a current and future state value stream map of one of their product families as well as an action plan for improvement.

Attendees: All functions and all levels. Equipment Operators, Maintenance Craft Personnel, Supervisors, Purchasing Personnel, Engineers, TPM / CI Coordinator, Managers

Recommended Class Size: 6-12

Duration: 16 hours

COURSE TITLE - Lean Manufacturing Principles with Simulation Workshop

Description: This full-day workshop combines a comprehensive classroom presentation with hands-on simulation of a production facility. In this workshop, we introduce the basic concepts of Lean Manufacturing and demonstrate the tools and methodology necessary to implement “Lean” on the shop floor.

Course Objectives: Develop an overall understanding of Lean Manufacturing and be prepared to utilize this knowledge in their daily activities.

Attendees: All functions and all levels. Equipment Operators, Maintenance Craft Personnel, Supervisors, Purchasing Personnel, Engineers, TPM / CI Coordinator, Managers

Recommended Class Size: 12-18

Duration: 8 hours
**COURSE TITLE - Advanced Topics in Lean Manufacturing**

**Description:** This workshop takes the concepts of Lean Manufacturing to a deeper level. The workshop is tailored to the needs of the client and focuses on one of the following areas: 5S, Pull Systems, Cellular Manufacturing, Quick Changeover, Value Stream Mapping, or Total Productive Maintenance. If more time is required by the client due to complexity in their operation, multiple days of this course can be linked together to meet their individual needs.

**Course Objectives:** Continue to develop a deep understanding of Lean Manufacturing Topics and apply that knowledge on the client’s shop floor.

**Attendees:** All functions and all levels. Equipment Operators, Maintenance Craft Personnel, Supervisors, Purchasing Personnel, Engineers, TPM / CI Coordinator, Managers

**Recommended Class Size:** 6-12

**Duration:** 8 hours

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**COURSE TITLE - Lean Management- Consulting-Mentoring and Coaching**

**Description:** This multiday workshop introduces participants to Lean Manufacturing concepts and how to apply them in while in a management or supervision position. The workshop covers the following topics in a classroom setting: 5S/Workplace Organization, Visual Controls, Pull Systems, Cellular Manufacturing, Quick Changeover, Value Stream Mapping, Lean in the Office, Total Productive Maintenance, Standard Work Instructions, Training Within Industry, Mistake Proofing, Problem Solving (RCA), Maintenance Planning and Scheduling, Preventive and Predictive Maintenance, Storeroom Management, Start-up Management, Managing Relationships as well as related Manufacturing techniques.

**Course Objectives:** Develop an understanding of what is required to be a Manager / Supervisor in a Lean Manufacturing environment as well as the ability to utilize Lean Tools in a Manufacturing setting.

**Attendees:** All functions and all levels. Supervisors, Purchasing Personnel, Engineers, TPM / CI Coordinator, Managers, Crew Leads, Production Leads, Planner Schedulers, Quality Assurance, Equipment Operators, Maintenance Craft Personnel

**Full consulting services to assist an organization in implementing and sustain Lean Manufacturing practices.**

**Description:** Participants discuss how Total Productive Maintenance (TPM) contributes to the company’s bottom line, to develop strategies to help enlist management support for maintenance and TPM initiatives by using a case study to determining specific savings and Internal Rate of Return (IRR).

**Course Objectives:** Provide knowledge of how to complete an internal assessment of current state of your Maintenance and Reliability practices. Discuss difference between a good and poor asset management strategy, develop and understand how metrics can be used to benchmark current performance, track improvements and calculate the savings by achieving a proactive maintenance culture.

**Attendees:** CEO’s, Plant Managers, Maintenance Managers, Operation Managers, Plant Engineers, Quality and Improvement Managers, Comptrollers, Production Schedulers and Planners, Supervisors, Quality Technicians, Maintenance Planner/Schedulers, Maintenance Supervisor, TPM Coordinator, Maintenance Director, Manufacturing Engineer, Operation Leads, and Maintenance Leads

**Recommended Class Size:** 6 to 20

**Duration:** 8 hours

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**COURSE TITLE** - Introduction to Maintenance Planning & Scheduling

**Description:** Describe the seven prerequisites processes required to achieve effective and efficient planning and scheduling for the shop floor. The participants will evaluate an assessment of current Maintenance planning and scheduling processes, develop performance gaps, complete case studies and develop action plans to move from an expensive reactive culture to a more competitive proactive culture.

**Course Objectives:** To discuss and demonstrate how “WORLD CLASS” Strategies, require an integrated Maintenance and Production schedule to achieve high labor and asset utilizations, reduction in downtime and costly defects. Provide tools to help participants to implement and achieve a high Internal Rate of Return by implementing Maintenance Planning and Scheduling with existing resources. Use Planning and Scheduling tools to develop a case study example of a job plan. Discuss Roles and Responsibilities of all functions, departments and positions for achieving high schedule compliance.

**Attendees:** Maintenance Manager, Supervisor, Planner Scheduler, MRO Storeroom Manager, Production Supervisors, TPM Coordinator, Operation Leads, Maintenance Leads, Engineers and Engineering Managers

**Recommended Class Size:** 6 to 20

**Duration:** 8 hours
**COURSE TITLE**-Introduction to Preventive and Predictive Maintenance

**Description:** Preventive and Predictive Maintenance activities are fundamental in stopping the reactive Maintenance “higher cost” downward spiral. This course will discuss and demonstrate how good Maintenance does not cost more but less by finding failures while they are small through effective and efficient Preventive and Predictive Maintenance programs. These Programs focus on eliminating failures by improving methods, design, operation and control.

**Objectives:** To show how Maintenance Activities are an investment and optimizing Maintenance plans for each piece of equipment should be based on its criticality to the business. Demonstrate how to define equipment criticality based on the consequences of failure. Work case studies on how to develop effective and efficient equipment care plans. By acting in a proactive manner and keeping the equipment operating within design limits, equipment will operate in energy efficient, reliable and predictable way producing quality products.

**Attendees:** Maintenance Supervisor, Maintenance Engineer, Project Manager, Operations Manager, Operations Supervisor, Operations Leads, Maintenance Leads, Operators, Mechanics, Maintenance Planner-Schedulers, Quality Engineers, TPM Coordinator, PPM Coordinator, Maintenance Manager, Lead Technician, PM Technician, Maintenance Coordinator, CI Manager

**Recommended Class Size:** 6 to 20

**Duration:** 8 hours

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**COURSE TITLE - Preventive Maintenance Optimization (PMO)**

**Description:** PMO uses various continuous improvement tools such as Failure Modes and Effects Analysis (FMEA) and Supply Input Process Output Customer (SIPOC) tables to improve an existing Preventive Maintenance program. Severity of consequence of failure in the organization and the resulting loss is used to justify an action plan to improve the maintenance investment and eliminate or at least minimize business risk. The correct Preventive, Predictive or Proactive Maintenance tasks are used to prevent failures from occurring and making the repairs identified by them in a timely manner will reduce downtime and operating costs.

**Objectives:** Familiarize participant with improvement tools that will assist them in determining and recognizing failure modes, and the consequences of failure. Gain knowledge on how to optimize PM, PdM and Proactive Maintenance activities to prevent or detect known failure modes by developing improvement plans for monitoring or preventing failure modes and creating well-defined tasks. This information will be consolidated into a maintenance investment strategy for the selected equipment. By addressing and eliminating known issues, participants will provide immediate contribution to the company’s bottom line.

**Attendees:** Maintenance Supervisor, Maintenance Engineer, Project Managers, Operation Manager, Operation Supervisor and Leads, Maintenance Leads, Operators, Mechanics, Maintenance Planner Schedulers, Quality Engineers, TPM Coordinator, PPM Coordinator, Maintenance Mgr., Lead Technician, PM technician, Maintenance Coordinator

**Recommended Class Size:** 6 to 20

**Duration:** 16 hours
**COURSE TITLE** - Root Cause Analysis Problem Solving Process

**Description:** Problem Solving and Root Cause Analysis kept simple. Attendees will learn how to recognize, prioritize and define problems; apply problem solving tools and methods to immediately address issues when they occur. They will learn practical application of several easy to use analysis tools such as histograms, run charts, scatter diagrams, 5-Why, Fishbone, Cause Mapping, and others. This class is taught on site so real problems are addressed; real solutions are applied resulting in real cost savings being achieved.

**Course Objectives:** Build problem solving knowledge and skills for the attendees, provide knowledge on a simple and standard approach for solving problems that works at all levels of the business. Demonstrate the use of these tools by solving an existing issue to build confidence in participants to use the tool when they return to work.

**Attendees:** Equipment Operators, Maintenance Craft Personnel, Maintenance Supervisor, Maintenance Stores and Purchasing Personnel, Production Supervisor, Quality Assurance, Continuous Improvement, Maintenance Engineer, Maintenance Coordinator, Manufacturing Engineer

**Recommended Class Size:** 6 to 20

**Duration:** 16 hours

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**COURSE TITLE** - TPM-Critical Equipment Care Process Leadership Training

**Description:** This training is a pre-requisite for selected Team Leaders who will be assisting in TPM-Critical Equipment Care Workshops. Team Leaders will learn techniques and selection tools for choosing and prioritizing equipment and assets to be restored to a fully functional condition based on lowering costs and reducing business risks. They will also learn how to select participants, prepare and lead a CEC workshop. This Workshop emphasizes the Toyota Kata method of improvement.

**Course Objectives:** Tools learned in this course will be put to use in planning a CEC Workshop as well as learning the process of how to organize, manage and build teamwork by performing and using the results from a CEC workshop.

**Attendees:** Maintenance & Production Lead personnel, Maintenance Supervisors, Maintenance Managers, Production Managers, Production and Maintenance Directors, Maintenance and Production Planners/Schedulers, TPM Coordinator, Maintenance Engineer, Manufacturing Engineer.

**Recommended Class Size:** 6 to 12

**Duration:** 8 hours
**COURSE TITLE**- TPM-Critical Equipment Care (CEC) Workshop

**Description**: Participants will focus on restoring an identified set of assets at their site to a fully functional condition, developing provisional standards for the asset which includes operator inspections, lubrication standards, updated maintenance PMs and 5 S area standards. The training is built around the seven steps for TPM and forming equipment teams that can continue to drive improvement after the workshop is complete.

**Course Objectives**: Objectives of this workshop are tied to shop floor Critical Equipment Care activities to meet business objectives and to apply the specific tools that can be used to maximize the productivity of a CEC (Autonomous Maintenance) Workshop. Participants will see training videos, presentations and case studies to establish foundational elements of Operator Care Maintenance Program. When performed on site, a piece (s) of equipment will be restored; countermeasures implemented, preliminary cleaning and inspection standards are developed along with lubrication standards.

**Attendees**: All functions and all levels. Equipment Operators, Maintenance Craft Personnel, Maintenance Supervisor, Maintenance Stores and Purchasing Personnel, Maintenance Engineer, TPM Coordinator, Manufacturing Engineer

**Recommended Class Size**: 6 to 20

**Duration**: 32 hours

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**COURSE TITLE**- Maintenance Planning & Scheduling Workflow

**Description**: Develop knowledge, and skills on maintenance work control process flow and identify roles and responsibilities for each process step. Supply, Input, Process, Output, Customer Chart (SIPOC), Process Flow Diagrams and Roles and Responsibilities Charts (RASCI) are used to develop clear expectations and roles for all positions that will define training requirements by job and CMMS functionality.


**Attendees**: Maintenance Manager, Maintenance Supervisors, Maintenance Planner, Maintenance Scheduler, Operation Scheduler, Operation Manager, Operation Supervisor, Lead Operator, Lead Mechanics, Maintenance Storeroom Personnel, Engineers, and Reliability Engineers

**Recommended Class Size**: 6 to 20

**Duration**: 40 hours
**COURSE TITLE** - Introduction to Maintenance Storeroom Management

**Description:** Participants will discuss and complete a detailed assessment comparing their Maintenance Storeroom performance against some known "WORLD CLASS" Maintenance Rebuild and Overhaul (MRO) best practices. They will learn about optimizing the storeroom operations by improving storeroom layout, purchasing strategies, balancing carrying cost with cost of failure, and improving Maintenance Storeroom Strategies. In addition to this strategic learning, participants will learn purchasing roles and responsibilities, importance of good Standard Work Instructions, Inventory Control methods and how to calculate a Return on Investment (ROI) for a storeroom improvement effort. They also will learn how to manage obsolete or slow moving inventory and how to develop an implementation plan.

**Course Objectives:**
- Provide an overview to World Class purchasing and store room best practices.
- Apply these best practices to develop processes for identifying critical spare parts, calculating Inventory Carrying and Purchasing Cost and implementing a Maintenance Storeroom improvement plan to minimize total business cost by analyzing the consequence of failure to determine a desired customer service level for the storeroom.

**Attendees:** Maintenance Buyer, Purchasing Agent, Purchasing Mgr., Purchasing Director, Storeroom Clerk, Storeroom Supervisor, Storeroom Mgr., Purchasing Supervisor, Maintenance Supervisor, Maintenance Mgr.

**Recommended Class Size:** 6 to 20

**Duration:** 16 hours

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**COURSE TITLE** - Effective Standard Work Instruction Process Procedure Writing

**Description:** Good best practice procedures are required to get consistent performance, eliminate variation due to preventable causes in the processes and set a foundation to decrease normal variation. This workshop will teach how to select and interview subject matter experts, develop a process for continuously improving procedures and writing effective procedures to get consistent performance.

**Course Objectives:**
- Participants will understand concepts of setting up a process to develop standard procedures, learn how to effectively interview subject matter experts to draw out important information on doing the specific tasks, and using templates provided develop specific process procedures utilizing process flow diagrams, visual controls and simple descriptive process steps. Leaving the workshop participants will be able to lead improvement effort of writing process procedures with a process that supports team concept and builds shop floor ownership.

**Attendees:** Lead Operators, Quality Assurance, Purchasing, Maintenance Supervisor, Maintenance Engineer, Operation Supervisor, Maintenance Leads, Operators, Mechanics, Maintenance Planner Schedulers and Quality Engineers, TPM Coordinator, PPM Coordinator, Technical writers

**Recommended Class Size:** 6 to 20

**Duration:** 16 hours
COURSE TITLE - Reliable Start-up Management

Description: Participants will learn how to prevent common start-up problems by developing contingency plans for known start-up risks and effectively organizing shop floor for the change. Technical Team members and Start-up team members roles, responsibilities and activities to maximize utilization and minimize costs.

Course Objectives: Learn PFMEA and use the tool to effectively manage known start up risks. Show how responsibilities are developed for the various roles involved in the project and how accountability and responsibility for the project evolves through seven different stages. Develop a set of criteria to manage the Checkout, Commissioning and Start-up of new product lines or equipment to achieve shop floor ownership and the resulting efficiencies. Understand the concept of Critical Path Method of scheduling and how to use it to maximize utilization of valuable and scarce resources during the project execution.

Attendees: All functions and all levels.
Recommended Class Size: 6 to 20
Duration: 24 hours

COURSE TITLE - Training Within Industry - Job Instruction Training – Leadership

Description: Class will be performed on site at a company. Define a method of training that has delivered great results when training low technical skill employees for high technical skilled work. The method was developed during WW II and used by Toyota immediately after the war to improve consistency and achieve reliable production.

Course Objectives: Demonstrate how to conduct a Job Task analysis and complete one as a group. Develop an action plan for developing curriculum to train assigned workers in performing the identified tasks. Completed Job Instruction training sheets for selected areas of operation that can be immediately used to eliminate costly waste and errors resulting in higher profitability for the company.

Attendees: Supervisors, Trainers, Operation Management, Maintenance Management, Human Resources, Department or Crew Leads, Continuous Improvement Personnel,
Recommended Class Size: 6 to 20
Duration: 16 hours