



# Lean Mining® Practitioner Certification Program





**Our Competitive Urgency**  
The ability to compete and win in the global marketplace is being determined by how effectively organizations define a clear vision and integrate their People, Processes and Technology in the most efficient, effective, and customer-focused manner.

## What is a Lean Mining® Practitioner (LMP) Certification Program?

LMP Certification Program is a practical, hands-on training program designed to provide managers, superintendents, supervisors and specialists in the mining and metals industry with the knowledge and skills to:

- Successfully employ principles of Lean Mining® to collaboratively identify problems and formulate solutions by organizing people, equipment, material and capital
- Develop a culture of sustained business excellence and continuous improvement
- Use Lean Mining® knowledge to motivate people, achieve results, reduce costs, improve the operation and address business needs



## Lean Mining® Practitioner Program develops Project Leaders, Technical Problem Solvers, Change Agents and Lean Mining® Subject Matter Experts

### Who Should Attend

Operations and Office managers, supervisors, Operational Excellence specialists and individuals responsible for training and development.

### What is Lean?

Lean Thinking suggests a way of managing and operating your business. Lean is a practical management system based on a philosophy of:

- Putting the Customer first
- Recognizing People as the most valuable resource
- Employing Kaizen for Continuous Improvement
- Going to the Gemba, where work is performed, to see how value is added, taking an operations floor focus

### Lean is a collection of best known:

- Management Practices
- Operating Principles
- Tools
- Methodologies

When properly applied, they will lead your company to higher profits, greater business success, stability, growth, and profitability.

## The difference between Lean Manufacturing and Lean Mining®

The concept of Lean Production was first introduced to the Western world in 1990 when professors Jones and Womack of MIT published a book "The Machine that Changed the World". Lean Production (Manufacturing) is based on the Toyota Production System.

Initially implementation of Lean started in the automotive industry. Now Lean is implemented in many industries and organizations, including hospitals, government and administration.

Some practices of Lean Manufacturing are applicable to the mining and metals industry and some are not. Our panel of Lean and Mining experts selected best practices, tools and methods from the Lean "tool box" and developed a comprehensive 14 Module certification training program for Lean Mining® Practitioners.

### The Difference

A cyclical nature of mining promotes reactive behaviour to changing market conditions. When times are good, production is amplified, often sacrificing efficiency in order to maximize revenue. At the first sign of slowing economy cost cutting measures are widely implemented in an attempt to regain control over escalating costs in a climate of falling metal prices.

Most organizations plan their operations based on the following model:  $\text{Sales Price} = \text{Profit} + \text{Cost}$ . Lean views this model differently  $\text{Profit} = \text{Sales Price} - \text{Cost}$ . In mining, sales price is determined by



Commodity Markets not by company profitability policies (EBITDA Goals). In Lean Mining model emphasis is on cost reduction - costs are controllable and must be reduced in order to achieve profits.

### What is Lean Mining®?

The Lean Mining® program results in an effective production system where raw material is progressively transformed into finished products with just the right amount of work supported by a healthy cost structure.

Lean Mining® seeks to couple the Mine with the Mill for better business integration to increase throughput (capacity), manage variation, decrease costs, increase quality, increase overall equipment efficiencies and reduce the lead time while improving safety and environment.

Lean Mining® responds to changing conditions to facilitate the production process by removing barriers to flow. This creates a certain level of process control and feedback loops to measure the behaviour of the system. Therefore, the quality and timeliness of the Information Flow is just as important as the Material Flow itself.



# Overview of Training Modules

## Our Training Approach

We offer competency based training. You will use your own natural learning abilities to develop a set of new skills by following a training process called:

- Hear
- See
- Do

Traditional training methods explain the meaning and structure of a new language (Lean) through lectures, tests and explanations. Our approach eliminates translation and tedious explanations, allowing you to intuitively grasp new concepts, through thinking, direct practice and active learning.

By eliminating translation and explanations “why” from your learning, dynamic immersion activates your own natural learning abilities. You will begin to think in your new language from the very beginning—the same way you learned your first set of problem solving and managerial skills.



## Module 1

### Effective Lean Transformation

Overview of history of Lean and Toyota Production System (TPS).

What is Lean/TPS and what is Lean Transformation? Whether you are starting your Lean Journey or strengthening Lean Transformation within your organization, this module will provide you with tools to better understand where you are today and what your future can look like.

## Module 2

### True North (Hoshin Kanri) – Achieving Annual Objectives

Hoshin Kanri (True North) module introduces a systematic, step-by-step process, of creating and managing the implementation of company’s annual objectives.

It is a planning methodology for ensuring that the strategic goals and annual objectives of a company drive progress and action at every level within the organization.

Hoshin Kanri methodology is based on Dr. W. Edwards Deming’s Plan-Do-Check-Act (PDCA) methodology.

## Module 3

### Learning to See - Eyes for Waste, Eyes for Flow

This module is design to help Operation’s Supervisors and Managers to improve their knowledge and understanding of Lean. It is an overview of the basic tools, methodologies and principles of Lean. You will learn how to use the Lean Assessment Tools to accurately evaluate your company’s current lean capabilities and develop realistic goals for where to focus next.



## Module 4

### Visual Management in Operations

Visual Management enables Supervisors, Managers and employees to monitor progress of production and immediately see any interruption to production flow. It allows them to quickly assess the situation (normal/abnormal), without asking too many questions, and to take immediate corrective action to return to normal (standard) conditions.

## Module 5

### Production Planning and Supply Chain Management

This module will teach how to create a material movement and material handling system. It focuses on how to transition from a mass-production material-handling system to a lean system that reliably transfers raw materials into finished goods. You will learn about tools and methodologies you need to develop an efficient, reliable material management system for purchased parts, work in process inventories and finished goods in a lean environment.

## Module 6

### How to Manage in a Lean Environment

Leverage all the Lean knowledge to perform your daily activities on regular and frequent basis to address and prevent any existing (current) or any potential problems related to availability and performance of equipment, materials, people, information and methods.

## Module 7

### Principles of Just-in-Time (JIT)

Just-in-Time is a management methodology of producing only what is needed, in exact quantity required and delivering it where it is needed on time. In this module participants will learn how to streamline the system in order to implement customer demand Pull system using principles of JIT and Kanban.

## Project Assignment

Prior to the first training session participants will be assigned or will be asked to select a problem to solve or an improvement idea to implement. This problem (project) should meet the following criteria:

- It can be solved and implemented in three months
- It delivers measurable benefits to the company
- It falls within your area of responsibilities

At every training session after that, participants will actively demonstrate their understanding of new Lean tools and methods by incorporating them into the your problem solving activities.



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## Training Schedule

### Training Session 1

- Effective Lean Transformation
- True North (Hoshin Kanri)

### Training Session 2

- Learning to See - Eyes for Waste, Eyes for Flow
- Visual Management in Operations
- Production Planning and Supply Chain Management

### Training Session 3

- Principles of Just-in-Time (JIT)
- Value Stream Mapping (VSM)
- How to Manage in a Lean Environment

### Training Session 4

- Introduction to P-D-C-A and Problem Solving
- Advanced Problem Solving using A3 format - MTL

### Training Session 5

- TWI Job Instructions (JI) - How to Instruct People
- Introduction to Standardized Work

### Training Session 6

- Lean Leadership
- Toyota Kata

## Module 8

### Value Stream Mapping (VSM)

Value-stream maps are the blueprint for lean transformations. A value stream map documents material and information flow, along with key data for every operation and every process. Materials used in this module are based on a workbook "Learning to See" by John Shook and Mike Rother.

## Module 9

### Introduction to P-D-C-A and Practical Problem Solving

The concept of solving problems is not new. Sustaining a lean transformation requires continuous problem solving by everyone in the company. In order to build the culture of problem solving, an organization needs a "Community of Thinkers"; working together on continuous improvement and the PDCA based practical problem solving process which aligns business objectives.

## Module 10

### Advanced Problem Solving using A3 format - MTL

Gain in-depth understanding of sound A3 problem solving thinking and management by following the stages of learning shared in "Managing to Learn" workbook by John Shook. Understanding a role that A3 Report plays in the process of gaining alignment with the stakeholders in a problem situation and seeking their agreement to proceed with the proposed countermeasures or improvements is critical to success of any company.

## Module 11

### TWI Job Instructions (JI) - How to Instruct People

TWI Job Instructions is a proven method of how to train new or experienced employees on performing their job according to existing company standards and methods. The objective of JI is to teach leaders (managers, supervisors and trainers) how to develop a well-trained workforce.

Job Instructions is a pre-requisite Standardized Work.

## Module 12

### Introduction to Standardized Work

The principle behind the Standardized Work is to perform efficient production, in a consecutive sequence, by focusing on human movements and systematically combining work tasks. Standardized Work is a system that allows each operator and supervisor to regulate and to control every single work process. Standardized Work is a foundation of Kaizen.

## Module 13

### Lean Leadership

Having deep skills and technological experience is not enough. Becoming a Leader, requires the development and utilization of strong people skills. Lean Leadership is exclusively about people – you do not lead machines or processes, you lead people. In this module participants will learn how to identify roles and responsibilities for Supervisors and Managers.

## Module 14

### Toyota Kata

Improvement Kata is a management practice that provides the means to achieve two equally important objectives: rapid PDCA Improvement Cycles and developing managers and leaders as coaches for creating a culture of continuous improvement, adaption and innovation. The Improvement KATA module is based on Mike Rother's book "Toyota Kata - Managing people for improvement, adaptiveness and superior results".





## About Program Leader Marek Piatkowski

Marek is a Management Consultant specializing in improving overall operational efficiencies through the effective implementation of Toyota Production System (TPS) / Lean Transformation.

Marek's initial knowledge and expertise of TPS / Lean Transformation tools, methodologies and practices comes from working for Toyota Motor Manufacturing in Cambridge, Ontario. In 1987 Marek was hired as a number seven employee of Toyota Motor Manufacturing Canada (TMMC) as an Education and Training manager.

He was a member of the Start-Up Management Team responsible for starting the operation, recruiting new employees (Team Members), development and implementation of all training activities, development of company policies, equipment installation and start-up of production. Following a successful start-up of the company Marek was involved in a development and education of Toyota Suppliers, internal and external Continuous Improvement activities (Kaizen), launching a new model vehicle and promotion of Toyota Production System.

In 1994 Marek entered a field of consulting helping companies with a process of Lean Transformation. Since then he has worked with numerous operations in North, Central and South America, Asia and Europe where he has a proven track record of successful implementation of TPS/Lean Transformation.

His clients include companies in the automotive industry, aerospace, healthcare, medical devices, appliances, furniture, consumer goods, food industry, mining, service industry, packaging, plastics, glass, rubber, personal computers and electronics.

In his work he has proven that Lean is not a trend or a movement. Lean is a collection of tools, methodologies, techniques and processes, that when implemented correctly and in the right sequence, will generate measurable results, help companies reduce costs and improve overall operational efficiency and On-Time Deliveries.

TPS / Lean is a Management System. Any company venturing into a Lean Journey must consider not only changes to their equipment, manufacturing and Supply Chain management practices, but also a review their management practices and most likely modify their organizational structure. As a part of his experience in implementing Lean Marek also emphasizes the organizational development and training process to achieve the business objectives and benefits that are requisite of the above improvement processes.

Marek graduated from Systems Design Engineering from University of Waterloo, Ontario in 1977. Prior to joining Toyota he worked in the electronic industry. He is a Faculty Associate of Jim Womack's Lean Enterprise Institute.





[info@flowpartners.com](mailto:info@flowpartners.com)  
[info@leaninstitutecanada.org](mailto:info@leaninstitutecanada.org)