



Registered Apprenticeship Program Industrial Manufacturing Production Technician
Related Technical Instruction 264 hrs. 33 days

Related technical instruction teaches apprentices the science and theory behind their daily duties. The related instruction comprises 264 hours of the apprenticeship program, The apprentice is paid by the employer to attend.

Industrial Manufacturing 1	100 hours
Industrial Math for the Occupation	50 hours
Industrial Manufacturing 2	50 hours
Communication for Apprentices	64 hours
Total Related Technical Instruction: 264 hours	

Industrial Manufacturing 1

MSSC Safety Course - Module #1

- Working in Manufacturing
- Impact of Manufacturing
- Responding to Customer Expectations
- Customer Needs
- Best Practice Companies
- Communication
- Production Group Communication
- Communication Strategies
- Production Teams
- Training and Leadership
- Safety Organization
- Personal Protective Equipment
- Fire & Electrical Safety
- Work Area Safety
- Hazardous Material Safety
- Tool and Machine Safety
- Material Handling Safety

MSSC Quality Practices and Measurement Course - Module #2

- Blueprint Reading 1
- (Multi-view Drawings)
- Blueprint Reading 2
- (Assembly Drawings and Fasteners)
- Blueprint Reading 3
- (GD&T)
- Basic Measurement
- Precision Measurement Tools
- Dimensional Gauging
- Quality Systems
- Introduction to SPC
- Control Charts
- Continuous Improvement - 1
- Continuous Improvement - 2

- Inspections
 - Audits
 - Prevention and Correction
 - Documentation
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OHSA 10

- Introduction to OSHA
 - Walking and Working Surfaces
 - Exit Routes
 - Electrical Hazards
 - Personal Protective Equipment
 - Hazard Communication
 - Materials Handling
 - Machine Guarding
 - Bloodborne Pathogens
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First Aid/ CPR

This Course teaches students to effectively recognize and treat adult emergencies in the critical first minutes until emergency medical services personnel arrive. The course also provides a complete health and safety training solution for first aid, adult, child and infant CPR and AED.

Industrial Math Skills for the occupation

- powers and roots
- percentages,
- PEMDAS grouping
- fractions,
- decimals
- volume
- weight
- metric systems
- basic geometry and angles
- graphs
- square and cube roots

Blueprint Reading, Visual inspection & Measurement

A high-level overview of current blueprint reading techniques is presented including these topics:

- standard lines and symbols
 - orthographic projection and isometric views
 - auxiliary views
 - detail and assembly drawings
 - dimensions
 - tolerances
 - threads and fasteners,
 - surface finish,
 - sectional views,
 - title block information,
 - depiction of certain common machining features e.g. boss, knurling, etc.,
 - specialized forms of engineering drawings,
 - brief introduction of the 14 basic GD&T symbol
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Industrial Manufacturing 2

MSSC –Manufacturing Processes and Production - Module #3

- Contacting the Customer
- Designing Product
- Types of Production and Manufacturing
- Mechanical Principles
- Mechanical Linkages
- Materials
- Material Testing, Selection and Development
- Production Process
- Matching Process
- Machine Tooling
- Machine Operations
- Tools Usage
- Equipment Procedures
- Production Planning and Workflow
- Components
- Production Control
- Process Documentation
- Packaging
- Distribution

MSSC – Maintenance Awareness Module # 4

- Maintenance Awareness
- Introduction and Welding
- Basic Electrical Circuits
- Electrical Measurement
- Electrical Power
- Pneumatic Power Systems
- Hydraulic Power Systems
- Lubrication Concepts
- Bearings and Couplings
- Belt Drives
- Chain Drives
- Machine Control Concepts
- Machine Automation
- High Vacuum Systems
- Laser Systems

Intro to Lean Problem Solving

The eight-hour 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.

The classroom presentation is an interactive overview of lean manufacturing, introducing concepts and methodologies for implementation in a simulated production facility. Apprentices act as production workers, applying the lean tools to their individual workspaces as well as across the entire product line. This train-do technique over four “shifts” illustrates cause and effect relationships for each of the lean tools presented. Participants review methodology and lessons learned from previous shifts, deciding what and how to implement while working with realistic constraints such as available resources, cash flow and resistance to change.

Participants will gain an understanding of the eight wastes in manufacturing and learn how to improve productivity by applying standard work, visual controls, set-up reduction, batch size reduction, point-of-use storage, quality at the source, pull systems and more.

Communication for Apprentices

Frontline leadership/Trends and Technologies

A. Leadership Skills

This module will explore the characteristics and skills of exemplary leaders. Leadership will be investigated through the understanding of characteristic and task/relationship models of leadership. Motivation of others will also be explored through the use of several models. Participants will discuss the impact of motivation on organizational results as well as develop concrete strategies for increasing motivation in the workplace.

B. Managing Change/ Trends and Technology

This module will explore the problems and opportunities associated with the implementation of change in the workplace. The concept of paradigms will be introduced and explored in the context of the participant's environment. The impact of change on the individual from an intellectual as well as emotional standpoint will be discussed. Strategies for reducing resistance to change will be developed and demonstrated.

C. Managing Performance

This module will focus on the importance of quality on company performance. Quality will be defined. Supervisory attitudes and responsibility for quality will be emphasized. The concept of internal and external customer satisfaction will be discussed as well as the need for continuous improvement. Techniques for measuring quality will be developed as well as a methodology for implementing successful corrective action.

Participants will be equipped to manage the 'change' with respect to the basic role of the supervisor, increasing motivation and monitoring performance of their workers.

Industrial Communication for front line employees

Better English skills and communication skills equal a better workplace and provides for more opportunities. In this class-

- Workplace protocol is explained to the workers
- Appropriate communications to your supervisor and why
- How to properly communicated in the workplace
- Communication is key to a safe environment
- Industrial job expectations are reviewed
- The why of standard operating practices is explained
- Why asking questions to insure understanding is a good thing

Employees will have a better understanding of the required and expected communications with their bosses and co-workers. Why the proper communication is so important and that it is OK to ask questions to improve understanding. Improved communications skills help foster an improved workplace.

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