### Measuring the Impact of SMT’s Skill Solutions:

<table>
<thead>
<tr>
<th>Category</th>
<th>Measurement</th>
<th>Improvement</th>
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</thead>
<tbody>
<tr>
<td><strong>Output or Production</strong></td>
<td>Total Output by Unit of Capacity</td>
<td>AVG Improvement 27%</td>
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<tr>
<td></td>
<td>By Employee</td>
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<td>By Shift</td>
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<td>By Cell</td>
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<tr>
<td>Unit: Output or production by unit of measure. (Units/Shift)</td>
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<tr>
<td>Direction: Maximize</td>
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<tr>
<td><strong>Maintenance Overtime</strong></td>
<td>Total Number of Overtime Hours by Unit</td>
<td>AVG Improvement (decrease in overtime) 59%</td>
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<td>By Employee</td>
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<tr>
<td>Unit: OT Hours Incurred</td>
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<td>Direction: Minimize</td>
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<tr>
<td><strong>Quality</strong></td>
<td>Quality</td>
<td>AVG Improvement 21%</td>
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<td>By Employee</td>
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<td>By Shift</td>
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<td>By Cell</td>
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<tr>
<td>Unit: Percentage</td>
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<tr>
<td>Direction: Maximize</td>
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<tr>
<td><strong>Downtime</strong></td>
<td>Downtime</td>
<td>AVG Improvement (decrease in downtime) 44%</td>
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<tr>
<td>Unit: Percentage</td>
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<td>Direction: Minimize</td>
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Scientific Management Techniques is the Global Leader in “HANDS-ON” Industrial Skills Assessment Programs and Skills Training Programs. World-Class manufacturing organizations deploy SMT’s programs to improve workforce skills and drive performance and profitability in their production facilities.

These programs are unique, validated, proven highly effective in forty-four countries and deliver a Return-On-Investment in excess of 100% the first year of implementation. Powerful Productivity Tools.

**COMPETENCY-BASED “MANUFACTURING SKILL ASSESSMENT MACHINES”**

This scientific-based, data-driven program simplifies the hiring process. The solution lowers the risk and cost of hiring and aligns the hiring process with industrial lean/TPM initiatives. With the Assessment Machines our clients know the skill set/skill level of each candidate prior to hire.

Identifying and measuring the skills required to operate, maintain and troubleshoot your facility is the single most effective way to ensure a quality hire and drive industrial performance. Many organizations assess their incumbent workforce and deliver highly targeted training based on the assessment data.

**FIVE HANDS-ON “MANUFACTURING SKILL ASSESSMENT MACHINES”**

- Mechanical Skills
- Electrical Skills
- PLC Skills
- CNC Skills
- Process Control Skills

As the skills shortage grows more acute each year and margin pressures mount it’s more critical than ever before to make the right hiring decision. SMT’s industrial skills Assessment Machines and Assessment Protocols are used in the hiring process for the selection and evaluation of maintenance mechanics, machine operators, industrial electricians, PLC technicians, electro-mechanical personnel, CNC operation personnel and process control technicians.

- Hire the Right Skill Sets
- Improve Performance & Profitability
- Identify Problem Solving Skills
- Lower the Risk & Cost of Hiring
- Measure Competencies and Instinct
- Minimize Downtime
- Avoid the Bad Hire

- Train the Skills Required to Optimize Performance
- Identify Troubleshooting Ability
- Identify Trainability
- Impact Lean, Six Sigma, & TPM Programs
- Separate Candidates by Skill Level
- Match the Right Person with the Right Job
- Reduce Employee Turnover

If you’re hiring without identifying skills in advance you may be accepting risks that can be easily avoided.

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19 Star Drive, Suite E • Merrimack, NH 03054, USA • 603-421-0222
Mechanical Skills Assessments  Identify troubleshooting ability

The Standard Timing Model (STM) is our Mechanical Skills Assessment Machine. This process identifies and measures pre-existing skill sets/skill levels and is also used to identify mechanical aptitude. The particular assessment used is a function of the position being staffed. The STM delivers a Maintenance Level Assessment used when hiring industrial maintenance professionals and an Operator Level Assessment for hiring experienced operators and identifying aptitude in entry level candidates.

The STM identifies and measures a broad range of mechanical skills. Collectively, the skills identified represent Mechanical Troubleshooting Ability; the ability to analyze and define causes of malfunctions in machinery and solve them quickly and correctly.

PLC Skills Assessments  Separate candidates and incumbents by skill level

Our PLC Test Device (PLCTD) is engineered to test and train hardware technicians and PLC programmers. It will identify the troubleshooting skills of industrial equipment maintenance personnel. Much more than a written aptitude test, the PLC Testing Device is hands-on, providing direct feedback from a test panel.

The testing device evaluates job candidates and incumbents in the positions of maintenance personnel, technicians, and programmers responsible for the upkeep and troubleshooting of automated production lines and automated production equipment. It provides a clear indication of candidate’s PLC troubleshooting strengths and weaknesses.

Electrical Skills Assessments  Impact Lean, Six Sigma & TPM Initiatives

Our Electrical Skills Test Device (ESTD) is designed to screen and train for industrial electricians and electro-mechanical production positions. The device provides a means of quantitatively screening candidates for industrial electrician positions, for use in evaluating job applicants and as a grading device for training purposes.

The ESTD resembles an industrial control panel as closely as possible in a portable device and was designed in a joint effort by an electrical engineer and a training director who realized the difficulty of evaluating the abilities of electricians.

CNC Skills Assessments  Lower the risk and cost of hiring

The CNC Test Device (CNCTD) is designed to screen and train for CNC setup operators with production responsibilities. The device provides a means of quantitatively screening for CNC setup operator positions, for use in evaluating job applicants and as a grading device for training purposes.

The CNC Selection-Evaluation Assessment program takes the uncertainty out of the hiring process. No longer will hiring managers need to hope a candidate possesses the skills and experience they represent. The assessment program separates individuals by skill levels, identifying the strongest candidates to drive productivity in your facility.
The Process Control Test Device (PCTD) is used to screen and train individuals in the area of Process Control Technology and Applications. The device identifies existing skill sets in the fundamental Process Control elements of Pressure, Temperature, Flow and Level. Using the device candidates will be able to configure, tune and control a process loop as it applies to real world process applications. With the PCTD there are both Basic and Advanced level assessments, the specific assessment used is a function of the position being staffed.

The PCTD assessment machine and testing protocols will identify and measure a candidates pre-existing skill sets and pinpoint specific process control training needs.
MECHATRONICS TRAINING PROGRAM

“Basic and Advanced Manufacturing Skill Training Program”

These programs train the critical “hard skills” required to operate, maintain, and troubleshoot a modern manufacturing facility.

A hands-on competence based program incorporating the use of over 200 training aids that replicate real-world conditions in industry. We teach the theory, then directly apply the theory with hands-on exercises using our training aids.

The curriculum is 100% demand-driven. We work with our manufacturing clients globally to ensure the program trains the specific skills required to optimize performance. The curriculum has been designed by and for industrial operations professionals.

The American Council on Education (ACE Credit) has reviewed SMT’s training curriculum and recommends the issuance of college credit for successful completions of eight individual sections of our curriculum.

The curriculum can be characterized as a continuous “needs analysis” of the skills required to operate, maintain, and troubleshoot a modern manufacturing facility. We work closely and continuously with our industrial clients regarding the skills they require to maximize performance. We improve existing units and design new curriculum based on real-time identified needs.

“I was introduced to SMT’s standard timing model in the early 90’s as a plant maintenance manager and used it as a very effective screening tool for hiring. In subsequent roles as plant manager I brought the tool in not only for hiring but also as a training tool for our TPM programs with great effect. Operators were able to see the interaction of cams, gears, drives and take this learning directly to improving their own maintenance and operation in my factories. We also had great success with your electrical testing module, again for both screening and training. I have used SMT for years and this company has great and proven products, training and techniques.”

Unilever

“We have been using SMT’s tools at Sonoco to help us make better hiring decisions for over 15 years. Within that time frame, the overall technical skills of our entire maintenance organization have increased considerably. Here at Sonoco, we made a conscious decision many years ago to hire better-qualified maintenance employees. These tools not only helped us pick the best candidates, but also established a baseline that all candidates must exceed in order to be hired. This hiring process, applied over that many years, has been a huge benefit to Sonoco.”

Sonoco Products Company

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Level One – Basic Mechanics Training Program

Volume 1: Shop Mathematics
Unit 1: Base 10, Decimals, Decimal Equivalents, Percentages
Unit 2: Fractions
Unit 3: Algebraic Expressions, Simple Equations, Ratio, Proportion
Unit 4: Graphs, Charts, Data Handling
Unit 5: Weights, Measures, Metric Conversion
Unit 6: Exponents, Square Roots, Right Triangles
Unit 7: Angles, Plane Figures, Area
Unit 8: Measurement of Solid Figures, Volume, Intro. To Trig.
Unit 9: Trigonometric Tables

Volume 2: Blueprint Reading & Machine Drawing
Unit 1: Elements of Blueprints and Machine Drawing

Volume 3: Measurement
Unit 1: Linear Measurement

Volume 4: Hand Tools
Unit 1: Care and Use of Hand Tools
Unit 2: Mechanical Fasteners

Volume 5: Basic Mechanical Components I
Unit 1: Basic Machines
Unit 2: Shafts, Couplings, Pulleys, Belts and Chain Drives
Unit 3: Gears and Gear Ratios
Unit 4: Advanced Couplings
Unit 5: Basic Alignment

Volume 6: Bearings & Lubrication
Unit 1: Principles of Bearing Operation, Components, Bearings
Unit 2: Principles of Friction and Lubricants

Volume 7: Basic Mechanical Components II
Unit 1: Levers, Cranks, Linkages, and Springs
Unit 2: Types and Uses of Cams, Timing Adjustments
Unit 3: Use of Elementary Timing Model in Timing Adjustments

Volume 8: Machine Adjustment Fundamentals Using The ATM
Unit 1: Troubleshooting, Problem Solving, and Problem Identification Techniques
Unit 2: Set Up Machine Standards Using the ATM
Unit 3: Problem Solving on Multiple Systems Using the ATM

Volume 8-A: Basic Pneumatics & Hydraulics
Unit 2A: Air Compression, Properties of Air
Unit 2B: Basic Pneumatics, Compressors, and Air Pressure Gauges
Unit 3A: Hydraulic Flow and Control

Volume 9: Electrical Components
Unit 1: Principles of Electricity, AC & DC Circuits
Unit 2: Basic Circuit Components, Switches, and Relays
Unit 3: Digital Multimeter, Basic Measurements
Unit 4: Input and Output Devices
Unit 5: Electrical Schematics
Unit 6: Generators & Transformers
Unit 7: DC Machines
Unit 8: Three-Phase AC & DC Motors

Volume 10: Pump Basics
Unit 1: Pumping Basics

Volume 11: Valve Operation & Types
Unit 1: Valve Operation and Type

Volume 11A: Basic Process Control
Unit 1: Introduction to Process Control
Unit 2: Basic Definitions
Unit 3: Pressure
Unit 4: Temperature
Unit 5: Level
Unit 6: Flow
Unit 7: Analytical Instruments and Terminology
Unit 8: Transmitters
Unit 9: Controllers
Unit 10: Process Control and Control Loops
Unit 11: Control Schemes

Level Two – Advanced Mechanics Training Program

Volume 12: Introduction to Industrial Maintenance
Unit 1: Failure Analysis

Volume 13: Gearbox Maintenance
Unit 1: Gear Maintenance

Volume 14: Bearing Maintenance
Unit 1: Bearing Maintenance

Volume 15: Advanced Pneumatic Fundamentals
Unit 1: Control Components, Pneumatic Drives
Unit 2: Circuit Design

Volume 16: Advanced Hydraulic Fundamentals
Unit 1: Control Components, Hydraulic Drives
Unit 2: Circuit Design

Volume 17: Advanced Electrical
Unit 1: Capacitors
Unit 2: Inductors
Unit 3: Power in AC Circuits
Unit 4: Electrical Troubleshooting Using the ECT
Unit 5: Troubleshooting, AC Motors
Unit 6: Troubleshooting, DC Motors

Volume 18: Pump Maintenance
Unit 1: Pump Maintenance

Volume 19: Introduction to Welding (DISCONTINUED)
Unit 1: Welding Safety
Unit 2: Gas Welding, Cutting, and Heating
Unit 3: Introduction to Arc Welding, MIG - TIG

Volume 20: Machine Shop Practices (DISCONTINUED)
Unit 1: Machine Shop Safety
Unit 2: Hand Tools and Bench Work
Unit 3: Metal Cutting
Unit 4: The Lathe
Unit 5: The Milling Machine
Unit 6: The Drilling Machine
Unit 7: The Grinding Machine

Volume 21: Advanced Machine Adjustment Fundamentals Using the PMS
Unit 1: Troubleshooting, Problem Solving, and Problem Identification Techniques
Unit 2: Set Up Machine Standards Using The Packaging Machine Simulator
Unit 3: Problem Solving on Multiple Systems Using the Packaging Machine Simulator

Volume 22: Ladder Logic
Unit 1: Basic Ladder Logic
Unit 2: Planning and I/O Symbols
Unit 3: Numbering Systems, Codes, and Logic
Unit 4: Symbols and Ladder Logic Basics
Unit 5: Ladder Logic Format
Unit 6: Program Functions
Unit 7: Program Examples
Unit 8: Glossary of Terms

Volume 23: PLC Advanced Electrical
Unit 1: Introduction to the PLC
Unit 2: PLC Programming and Operation
Unit 3: Maintenance and Troubleshooting

VOLUME 24: Advanced Process Control
Unit 1: Process Control- Intro Advanced
Unit 2: Advanced Pressure
Unit 3: Advanced Level
Unit 4: Advanced Flow Measurement
Unit 5: Advanced Temperature
Unit 6: Analytical-PH
Unit 7: Advanced Actuators
Unit 8: Advanced Process Control-Frequency Drives
Unit 9: Heat Exchangers
Unit 10: Hazardous Applications
Unit 11: Flowmeter Installation
Unit 12: Instrument Calibration