PS4000 MACHINING INDUSTRY ESSENTIALS COURSE OUTLINE:

Safety
- Attitudes toward safety
- Overhead crane safety
- Safety on Forklifts
- Safety on specific machine tools
- Chemical and air-bound hazards
- Safe material handling
- Proper use of Shields and guards
- Personal Protective Equipment and attire
- Accident response

Attitude
- Definition of work ethic
- Understanding how to view manual labor
- Taking responsibility for your actions
- Time management
- Managing expectations
- Building a career in the trades
- The proper attitude toward change
- The history and dignity of work
- Creating a culture of pride in work

Math
- Decimals & Fractions
- Using English & Metric
- Finding area
- Basic algebra
- Calculating feeds & speeds
- Order of operations
- Adding, subtracting, multiply, dividing fractions
- Working with Angles
- Positive and Negative Numbers

Precision Measurement
- Tolerances
- Understanding gaging
- Reading micrometers & calipers
- Using advanced precision measurement equipment
- Usage of Go / No-Go gages
- Part layout
- Understanding reference gages
- Proper care of inspection and measurement equipment

Print Reading
- Views on a print
- Reading tolerances
- Orthographic projection
- Section & cut out views
- Understanding lines
- Connection between prints and CAD
- Basic CAD functions
- Understanding solids
- Intro to GD & T

Basic Machining
- Understanding metal removal processes
- Recognizing common cutters
- Metal removal terminology
- Job planning and processing parts
- Understanding how to make a chip
- Job set-up equipment
- Proper job set-up
- Types of manual machines
- Identifying hand tools

CNC
- History of CNC
- Cartesian coordinate system
- CNC machine standard parts
- Understanding axes & origins
- Understanding G & M Code
- Basic programming on CNC Mills & Lathes
- Incremental vs. Absolute moves
- Understanding the machine controls
- Program editing and troubleshooting
- Understanding high performance cutting tools
- Creating a highly efficient machining operation
- Tool holders & Set ups
- Logical Programming methods
- Components of CNC machines
- Understanding CAM
- Material considerations
- Calculations for High Efficiency Machining