



# Measurement, Materials, & Safety

## OVERVIEW

This certification validates that an individual has the fundamental knowledge of standard steel classifications and numbering systems, reading of precision measuring devices, shop and machine safety, and general machining practices, and inspection techniques.

## COMPETENCIES

## KNOWLEDGE + SKILLS

|                                                 |                                                                                                                           |                                                                                                                              |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>Applied Mathematics</b>                      | Arithmetic<br>Pythagorean Theorem                                                                                         | Right Angle Trigonometry<br>Use of Scientific Calculator                                                                     |
| <b>Filing</b>                                   | File Maintenance<br>File Selection                                                                                        | File Types<br>Filing Techniques                                                                                              |
| <b>Fits</b>                                     | ANSI Standard Fit Symbols                                                                                                 | Classes of Fits                                                                                                              |
| <b>Geometrical Dimensioning and Tolerancing</b> | Feature Control Frame<br>Geometric Control Symbols<br>Geometric Tolerancing Categories                                    | Geometric Tolerancing Characteristics<br>Geometric Tolerancing Zone Shapes<br>Symbols Associated with Feature Control Frames |
| <b>Inspection</b>                               | Gage Block Assembly                                                                                                       | Sampling Procedure                                                                                                           |
| <b>Machine Maintenance</b>                      | Coolants<br>Oils and Lubrications                                                                                         | Refractometer Readings                                                                                                       |
| <b>Machine Safety</b>                           | Machine Guarding                                                                                                          |                                                                                                                              |
| <b>Machining Applications</b>                   | Drilling<br>Pocket Milling                                                                                                | Reaming<br>Tapping                                                                                                           |
| <b>Materials</b>                                | Standard Steel Classification                                                                                             | Standard Steel Numbering System (AISI/SAE)                                                                                   |
| <b>Measurements</b>                             | Reading Micrometers<br>Reading Steel Rule                                                                                 | Reading Vernier Scales                                                                                                       |
| <b>Print Reading</b>                            | Block Tolerances<br>Line Types and Conventions<br>Orthographic Projection                                                 | Surface Finish Requirements<br>Title Blocks and Revisions                                                                    |
| <b>Shop Safety</b>                              | Blood Born Pathogen<br>Fire Prevention/Suppression<br>Hazardous Material Identification System (HMIS)<br>Lock Out/Tag Out | Means of Egress (Evacuation)<br>Personal Protective Equipment (PPE)<br>Safety Data Sheets (SDS)<br>Waste Removal             |