



## Machining Level I Credential Overview

# Turning Operations: Turning Chucking Skills

### OVERVIEW

This certification validates that an individual has the skills and knowledge to successfully complete process planning, basic chucking applications, machine set ups, operations, inspection techniques and safety standards.

### COMPETENCIES

### KNOWLEDGE + SKILLS

|   |   |  |
|---|---|--|
| <b>Applied Mathematics</b>                      | Arithmetic<br>IPR Calculations  | SFM to RPM Conversion<br>Use of Scientific Calculator  |
| <b>Cutting Tool Assembly</b>                    | Fitting (tightening and setting)<br>Inspection of Cutters   | Inspection of Holders  |
| <b>Cutting Tool Selection</b>                   | Cutter Applications<br>Cutter Features/Attributes   | Manufacturers Technical Data References  |
| <b>Geometrical Dimensioning and Tolerancing</b> | Datum Reference Frame (DRF)<br>Degrees of Freedom (DOF)<br>Feature Control Frame<br>Geometric Control Symbols | Geometric Tolerancing Categories<br>Geometric Tolerancing Characteristics<br>Geometric Tolerancing Zone Shapes<br>Symbols Associated with Feature Control Frames |
| <b>Inspection</b>                               | Feature with Size Verification<br>Feature without Size Verification<br>Perpendicularity Verification          | Surface Finish Verification<br>Thread Gaging<br>Total Runout Verification  |
| <b>Machine Maintenance</b>                      | Coolants<br>Oils and Lubrications   | Refractometer Readings   |
| <b>Machine Safety</b>                           | Machine Guarding  |  |
| <b>Machining Applications</b>                   | Boring<br>Drilling<br>Facing<br>ID Grooving   | ID Threading<br>OD Grooving<br>OD Threading<br>OD Turning  |
| <b>Material Preparation</b>                     | Bar Stock Sizes   | Sawing Blanks  |
| <b>Measurements</b>                             | Reading Micrometers<br>Reading Steel Rules<br>Reading Vernier Scales<br>Use of Calipers                       | Use of Dial Indicators<br>Use of Drop Indicators (travel dial)<br>Use of Micrometers<br>Use of Steel Rules   |
| <b>Operations</b>                               | Deburring   | Part Loading (chuck/collet)  |
| <b>Print Reading</b>                            | Block Tolerances<br>Line Types and Conventions<br>Orthographic Projection                                     | Surface Finish Requirements<br>Title Blocks and Revisions  |



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| COMPETENCIES            | KNOWLEDGE + SKILLS   |  |
|-------------------------|--|--|
| <b>Process Planning</b> | Machine Configuration<br>Machine Selection   | Operation Sequencing<br>Workholding Concepts/Devices                             |
| <b>Setup</b>            | Boring Soft Jaws/Collets<br>Mounting Chucks/Collets  | Setting Tools (center and diameter)<br>Tailstock Alignment                       |
| <b>Shop Safety</b>      | Blood Born Pathogen<br>Fire Prevention/Suppression<br>Hazardous Material Information System (HMIS)<br>Lock Out/Tag Out | Personal Protective Equipment (PPE)<br>Safety Data Sheets (SDS)<br>Waste Removal |