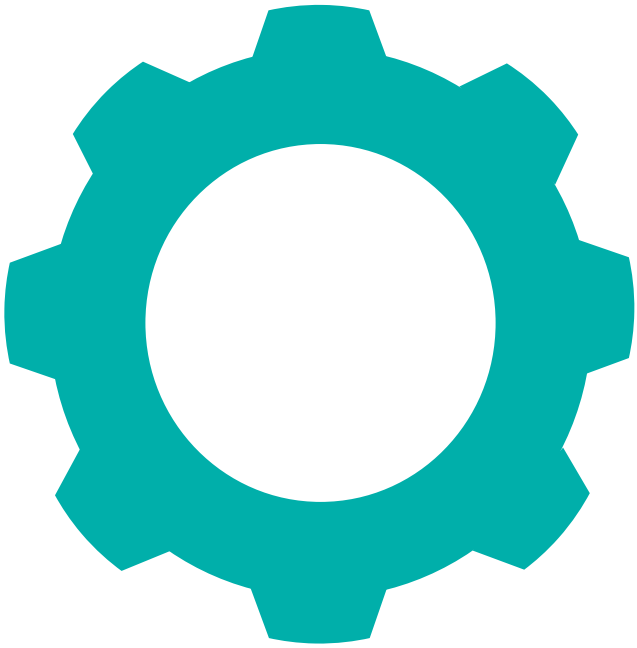
NOCTI

Partner Credential Blueprint

Blue Ridge Community College



Manual Milling Certification (Endorsed by FANUC)

Code: 9600 Version: 01

General Assessment Information

Blueprint Contents

Test Type: This assessment measures general knowledge of the machining industry, and the common processes, terminology, and careers in the industry. This assessment offers a written (multiple-choice) assessment and separate performance tests for milling and turning and can be used at the secondary level, post-secondary level, workforce development centers and businesses. This written (multiple-choice) assessment is delivered online. The performance assessments must be evaluated in a lab or shop.

CIP Code

48.0501 Machine Tool Technology/Machinist

Learning that works for America CTE™

Science, Technology, Engineering, and Mathematics

O*NET™ in*it

51-4011.00 Computer-Controlled Machine Tool Operators, Metal and Plastic

Specific Competencies and Skills Tested in this Assessment

Safety
- Identify and appropriately use Personal Protective Equipment (PPE)
- Identify environmental and safety considerations established by the EPA, OSHA, and listed in SDS

Blueprints
- Describe basic print layout
- Identify blueprint lines
- Demonstrate knowledge of dimensioning
- Describe first and third angle projections
- Identify Geometric Dimensioning and Tolerancing (GD&T) symbols
- Develop an order of operations (process plan) based on blueprint specifications

Shop Math
- Calculate math related to blueprint dimensions and tolerances
- Calculate basic math (e.g., adding, subtracting, fractions, decimals)
- Calculate shop formulas (e.g., speeds, feeds, conversions)

Precision Measuring
- Describe applications and interpret readings of micrometers and calipers
- Demonstrate knowledge of Vernier scale/height gage
- Identify and interpret dial indicator readings
- Describe surface plates/gage blocks and know application

Hand Tools
- Identify deburring tools and their applications
- Describe basic tools used for machining (e.g., wrenches, ratchet)

Basic Tooling
- Identify types of machining tools
- Describe cutting geometry (angles) and insert tools
- Identify types of tool materials (e.g., high speed steel, carbide)

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Specific Competencies and Skills (continued)

Materials
- Describe ferrous and non-ferrous materials
- Identify characteristics of stainless steel
- Describe material properties of carbon steel and alloys

Vertical Mill Setup and Operation
- Explain safe principles of mill operation
- Identify parts and mill operation
- Select and maintain appropriate tools
- Explain various workholding methods (e.g., mill vise, table set-ups, angle plates)
- Set up milling machines (e.g., head alignment, vise alignment, tool holder selection)
- Perform milling operations (e.g., pocketing, slotting, hole-making, peripheral and face milling)

Band Saw and Bench Grinder
- Describe saw and grinder safety practices
- Determine blade selection and cutting speed
- Describe proper grinder wheel selection

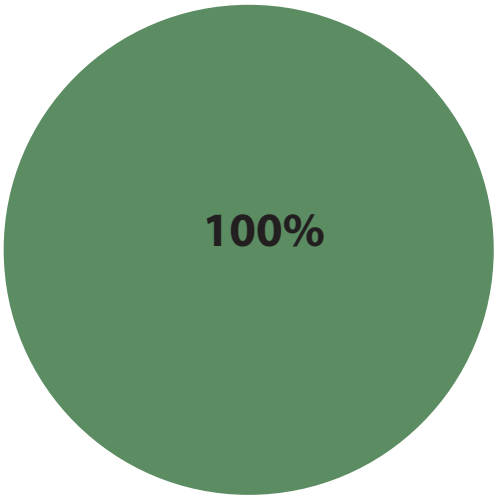
Lathe
- Explain safe principles of lathe operation
- Identify parts and lathe operation
- Select and maintain appropriate lathe tools
- Set up lathe machines (e.g., tail stock, rest, and chuck selection)
- Perform lathe operations (e.g., turning, facing, threading, boring, grooving)

Surface Grinder
- Describe surface grinder operation
- Identify wheel selection and dressing (surface finish)
- Determine proper use of magnetic chuck and workholding

Performance Assessment

NOCTI performance assessments allow individuals to demonstrate their acquired skills by completing actual jobs using the tools, materials, machines, and equipment related to the technical area.

Administration Time: 1 hour and 30 minutes
Number of Jobs: 1



Areas Covered:

100% Milling Operations
The participant will machine a part on the milling machine according to specifications. Deburr, clean up area, and use safety.

Sample Job

Milling Operations

Maximum Time: 1 hour and 30 minutes

Participant Activity: The participant will use the stock provided to machine a part on the milling machine according to specifications. Deburr the part for all sharp edges. Clean up work area and follow safety procedures.