CNC SAWYER
(Time-Based)

APPENDIX A

O*NET CODE 51-9032.00

This training outline represents a minimum standard in terms of work processes and related instruction which are required to achieve skilled worker status. It is recognized that rapid technological and regulatory changes will frequently result in the need for additional on-the-job or classroom instruction.

WORK PROCESSES

	Approximate Hours
A. Safety and Workplace Orientation	100

1. Demonstrate knowledge of workplace policies, procedures, etc.
2. Describe workplace structure and workflow.
3. Practice working safely around machines and throughout workspace.
4. Demonstrate knowledge of workplace safety plans.
5. Learn proper body mechanics for work tasks.

B. Material Fundamentals	600

1. Develop familiarity with materials, e.g., stone, plastic, wood, and their properties/characteristics.
2. Ready material for use: transport to appropriate shopfloor locations; prep material prior to work operation(s); place materials on work “tables” utilizing appropriate manual and/or mechanical methods.
3. Read and interpret job orders.

C. Computer Numerical Control (CNC) Fundamentals	400

1. Demonstrate an understanding of spec sheets and blueprints (if applicable).
2. Learn basics/use Cartesian/rectangular coordinate system.

3. Learn and understand polar coordinate system (if applicable).
4. Learn and understand positioning systems.
5. Learn and understand CNC Codes: g-codes and m-codes.
6. Demonstrate knowledge of CNC program elements: a. program Safe-start; material removal; and c. program ending.

D. CNC Saw Operation 1000

1. Become familiar with basic components of CNC saws, such as: Machine Control Unit (MCU), or CNC Control Pendant; work table, or "bench"; head or spindle(s); bridge; axis(-es); saw blades.
2. Enter/input CNC program on MCU; identify parts of program.
3. Make production runs, including material setup, machine setup, and material removal.
4. Complete all necessary documentation.
5. Troubleshoot production issues.
6. Perform Quality Control (if applicable).
7. Perform preventive maintenance.

E. CNC Water Jet Machining (Optional*) 400

1. Become familiar with water jet components, including abrasive grit(s).
2. Enter/input CNC program on MCU; identify parts of program.
3. Make production runs, including material setup, machine setup, and material removal.
4. Complete all necessary documentation.
5. Troubleshoot production issues.
6. Perform Quality Control (if applicable).
7. Perform preventive maintenance.

Total Hours 2500

*If Optional Work Processes are not selected, the hours should be devoted to further mastery of required Work Processes.

Apprenticeship work processes are applicable only to training curricula for apprentices in approved programs. Apprenticeship work processes have no impact on classification determinations under Article 8 or 9 of the Labor Law. For guidance regarding classification for purposes of Article 8 or 9 of the Labor Law, please refer to https://www.labor.ny.gov/workerprotection/publicwork/PW_faq1.shtm

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APPENDIX B

RELATED INSTRUCTION

Safety & Health

General Workplace Safety
Personal Protective Equipment (PPE)
Right-to-Know/Safety Data Sheets (SDS)
Sexual Harassment Prevention – MUST comply with Section 201-g of the Labor Law
Lock-Out/Tag-Out (LO/TO)
First Aid and CPR

Trade Theory and Skills

Trade math, including speeds and feeds
Geometry
Engineering Drawings
Computer-Aided Design (CAD)/Computer-Aided Manufacturing (CAM)
Materials and Their Properties
Basic Machining: Concepts, Materials, and Machinery
Geometric Dimensioning & Tolerancing (GD&T) (if applicable)
Abrasives (if applicable)
CNC Saws
CNC Programming and Program Writing
Quality Control Basics
Metrology & Measuring Instruments (if applicable)
Recordkeeping

Other Topics as Necessary

A Minimum of 180 hours of Related Instruction is Required for Each Apprentice, 144 Of Which Must be Provided in First Year.