Appendix A

WORK PROCESS SCHEDULE

AND

RELATED INSTRUCTION OUTLINE

Appendix A

WORK PROCESS SCHEDULE

OCCUPATION TITLE: Woodwork Manufacturing Specialist
O*NET-SOC CODE: 51-7042.00 **RAPIDS CODE: 0321CB**

This schedule is attached to and a part of these Standards for the above identified occupation.

1. APPRENTICESHIP APPROACH

☐ Time-based ☒ Competency-based ☐ Hybrid

2. TERM OF APPRENTICESHIP

The term of the apprenticeship is **Competency-based**, supplemented by the minimum required **832.5** hours of related instruction.

3. RATIO OF APPRENTICES TO JOURNEYWORKERS

The apprentice to journeyworker ratio is: **1** Apprentice to **1** Journeyworker.
The Sponsors employs **3** Journeyworkers.

4. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on either a percentage or a dollar amount of the current hourly journeyworker wage rate, which is: **$20.00**

Wage Schedule:

Starting wage: **$13.00**
Ending wage: **$17.00**

Wages Paid During RTI: ___Yes **X** No

5. PROBATIONARY PERIOD

Every applicant selected for apprenticeship will serve a probationary period of **9 months**.

6. SELECTION PROCEDURES

Step 1: Identification of Need

- Employer determines hiring need.
- Employer develops/adjusts apprenticeship job description and application.

Step 2: Job Posting

- The job opportunity is communicated/posted to using a variety of methods, including but not limited to: contacting local college manufacturing program and other local educational institutions, workforce development agency service centers, local community centers, online job boards.

Step 3: Candidate Selection

- Interested candidates must request and submit a formal employment application.
- Employer will review the applications of all candidates that have applied for the open position.
- Candidates meeting minimum requirements including being able to pass a background check and drug test may be selected for interview.
- Employer will conduct interviews and select the applicant who is the best fit for the open position.

Step 4: Offer of Employment

- Upon selecting a desired apprentice candidate, Employer will compose and make an offer of employment through a "conditional job offer" letter. Conditions of employment include but are not limited to:
    - Candidate eligibility for employment in the United States. The Immigration Reform and Control Act of 1986 requires Employer to verify candidate identity and eligibility for employment in the United States. So that Employer may satisfy those requirements, candidates must provide two forms of proper identification (most common are a driver's license plus a Social Security card or birth certificate) on the first day of employment.
    - Ability to perform the essential job functions of the "DOL Apprentice" position, either with or without accommodation.
    - Passage of drug, background and driver's license checks.
- If the offer is not accepted, Employer will repeat steps 2 and 3 as needed

WORK PROCESS SCHEDULE

O*NET-SOC Code: 51-7042.00

RAPIDS Code: 0321CB

Woodwork Manufacturing Specialist
(Existing Title: Machine Setter (Woodwork))

Anticipated completion of apprenticeship program is three (3) years

Job Function 1: Communicates effectively and professionally with colleagues, both internally and externally			
Competencies	**Core or Optional**	**RTI**	**OJT**
A. Reliably follows others' instructions	Core		
B. Willingly asks questions about things not fully understood	Core		
C. Works with due regard for others' safety	Core		
D. Demonstrates a working knowledge of the company policy manual	Core		
E. Establishes a system of maintaining appropriate notes and reminders and completes any required logs, calibration records, etc.	Core		
F. Ensures proper communications between previous and next shifts, with operations and supervision	Core		
G. Identifies problems and changes that could lead to problems through the exchange of information with operators, supervisors, and others	Core		
H. Establishes trust and rapport with operators, supervisors, and others	Core		

Job Function 2: Demonstrates both effective time and project management			
Competencies	**Core or Optional**	**RTI**	**OJT**
A. Develops a project plan and tracks progress against the plan, flagging issues and delays as they occur	Core		
B. Develops project contingency plans to respond to unexpected delays and costs, and professionally communicates with customers about alternatives as needed	Core		

C. Verifies in-field measurements against architectural drawings to produce accurate shop drawings	Core		
D. Estimates project costs and timelines, identifying project assumptions and resource costs (supplies, labor)	Optional		
E. Computes material quantities, sizes, weights, and costs	Optional		
F. Develops a project budget based on an approved quote and tracks project progress against the budget, flagging issues and unexpected costs as they arise	Optional		
G. Develops a professional quote for a project and shares with a potential customer for review and approval	Optional		
Job Function 3: Protects self and other workers from accidents and injuries			
Competencies	**Core or Optional**	**RTI**	**OJT**
A. Follows employer safety requirements, including the consistent and proper use of protective clothing and personal safety devices	Core		
B. Maintains a clean and orderly workplace, storing chemicals and corrosive or combustible materials properly and disposing of waste products according to company policies and local/federal laws and regulations	Core		
C. Safely uses, stores, and maintains all tools/equipment properly to eliminate injury, electrocution, trip hazards, or damage	Core		
D. Lifts supplies and materials using proper body mechanics and assistive devices, such as hoists, lifts, forklifts, and straps	Core		
E. Reports and responds promptly, safely, and appropriately to emergency or hazard situations and troubleshoots any issues that may arise	Core		
F. Uses lock-out/tag-out procedures when working with appropriate tools and equipment	Core		
Job Function 4: Demonstrates basics of measurement, materials, and safety of products and parts			
Competencies	**Core or Optional**	**RTI**	**OJT**
A. Uses and applies contextual mathematics	Core		
B. Demonstrates layout processes	Core		
C. Uses proper material-processing techniques	Core		

D. Understands material properties	Core		
Job Function 5: Uses print reading and CAD software to develop shop drawings			
Competencies	**Core or Optional**	**RTI**	**OJT**
A. Identifies symbols, notations, and lines to industry standards	Core		
B. Determines dimensions, critical features, and tolerances on architectural/shop drawings	Core		
C. Interprets architectural/shop drawings to industry standards	Core		
D. Uses CAD software to produce and edit architectural/shop drawings	Core		
E. Demonstrates competency in primary drafting procedures	Core		
F. Creates architectural/shop drawings using a variety of CAD software tools and functions	Core		
G. Creates annotative text and dimension styles for use on floor plans, elevations, and construction details	Core		
H. Creates and modifies CAD blocks to use on floor plans, elevations, and construction details	Core		
Job Function 6: Shows competency for millwork techniques and fabrication			
Competencies	**Core or Optional**	**RTI**	**OJT**
A. Processes materials safely and effectively, taking into account material characteristics	Core		
B. Demonstrates the proper selection, identification, and installation of tools	Core		
C. Safely and properly sets up and operates machines/tools	Core		
D. Performs bench operations safely, effectively, and accurately	Core		
E. Installs finished products	Optional		
Job Function 7: Performs operation and maintenance of CNC and mechatronics operations			
Competencies	**Core or Optional**	**RTI**	**OJT**
A. Explains the proper codes and functions	Core		
B. Demonstrates how to write a G code program in order to machine a basic cylindrical part on the CNC lathe	Core		
C. Calculates the tooling, coordinates, and toolpaths necessary to machine the part on a CNC lathe	Core		

D. Identifies different aspects of the machine	Core		
E. Applies the Cartesian coordinate system and polar coordinates for a milling process	Core		
F. Locates and identifies all components of the robotic cell, including all equipment, operator interfaces, tooling, perimeter guarding, safety devices, etc.	Core		
G. Understands and practices all safety considerations related to operating the robotic cell	Core		
H. Demonstrates the proper power-up, shut-down, and lock-out sequence of the robotic cell or other equipment	Core		
Job Function 8: Performs coating/finishing operations			
Competencies	**Core or Optional**	**RTI**	**OJT**
A. Recognizes proper surface preparation	Core		
B. Understands chemical properties of coating and surface materials and their interactions with each other	Core		
C. Performs proper safety and workplace protocols in spray booth	Core		
D. Reads and understands safety data sheets	Core		
E. Demonstrates proper handling, storage, and disposal of finishing materials	Core		
Job Function 9: Performs wood-processing operations			
Competencies	**Core or Optional**	**RTI**	**OJT**
A. Performs machine operations	Core		
B. Selects proper tooling/machinery to safely and accurately perform all required processing operations within the specified tolerances on a part print	Core		
C. Calculates cutting speeds and feeds and applies these calculations while performing required operations	Core		
Job Function 10: Problem solves, diagnoses, and troubleshoots effectively			
Competencies	**Core or Optional**	**RTI**	**OJT**
A. Traces defects to the originating sections of their root causes, such as verifying in-field measurements against architectural drawings	Core		
B. Uses critical and logical thinking on a per project basis to analyze, measure, and record	Core		

	to improve manufacturing/installation process			
C.	Proposes a remedy, having been given the authorization to implement the process improvement	Core		
D.	Conducts a triage level of troubleshooting and communicates findings to appropriate individual	Core		
E.	Performs daily, weekly, and monthly preventative maintenance responsibilities	Core		

RELATED INSTRUCTION OUTLINE

OCCUPATION TITLE: Woodwork Manufacturing Specialist

O*NET-SOC CODE: 51-7042.00 **RAPIDS CODE: 0321CB**

Hours Instruction Provided: ☐During Work Hours ☒During Non-Work Hours ☐Both

Schoolcraft College Credit Courses				
PRE-REQUISITE	**COURSE**	**TITLE**	**Credit Hrs**	**Clock Hrs**
COURSE TO BE ADDED TO RTI UPON INTEGRATION INTO SCHOOLCRAFT COLLEGE CURRICULUM – anticipated approximately Fall 2019				
TBD	**TBD**	***Basic Blueprint Reading***	**TBD**	**TBD**
COMPUTER AIDED DESIGN:				
none	**CAD 103**	Engineering Graphics	3	60
CAD 103	**CAD 106**	Advanced Drawing Views & Descriptive Geometry	4	75
CAD 106	**CAD 107**	Detailing	4	90
ENGINEERING:				
none	**ENGR 100**	Intro to Engineering & Technology	3	45
MANUFACTURING:				
none	**MFG 102**	Basic Machining Processes	3	90
MFG 102	**MFG 103**	Basic CNC	3	90
MFG 102	**MFG 110**	Geometric Dimensioning & Tolerance w/ Inspection	3	45
MATH:				
2.0 in MATH 053	**MATH 113**	Intermediate Algebra	4	60
2.0 in MATH 055 and MATH 113	**MATH 119**	Trigonometry	3	45
OCCUPATIONAL SAFETY & HEALTH:				
none	**OSH 111-OR-OSH 112**	Occupational Safety & Health for General Industry - OR- Occupational Safety & Health for Construction	2	37.5
PHYSICS:				
MATH 113	**PHYS 123**	Applied Physics	5	90
QUALITY MANAGEMENT:				
none	**QM 107**	Quality Planning and Team Building	3	45
WELDING:				
None	**WELD 110**	Introduction to Welding Basics for Fabrication	**3**	**60**
		TOTAL	**43**	**832.5**

** Course leads to completion of the CAD: Drafting-Technical Certificate (Schoolcraft program code #1YC.00119).*

*** Course leads to completion of the CAD: Mechanical AAS Degree (Schoolcraft program code #AAS.00170).*

TOTAL MINIMUM HOURS: 832.5

BULLETIN 2020-97 August 17, 2020

U.S. Department of Labor Employment and Training Administration, Office of Apprenticeship (OA) Washington, D.C. 20210	Distribution: A-541 Hdqtrs A-544 All Field Tech A-547 SD+RD+SAA+; Lab.Com	Subject: Revision to an Existing Apprenticeable Occupation, utilizing the Competency-based Occupational Framework for Woodwork Manufacturing Specialist Code: 200.1
Symbols: DRAP/NSL		Action: Immediate

PURPOSE: To inform the staff of OA, State Apprenticeship Agencies (SAA), Registered Apprenticeship program sponsors, and other Registered Apprenticeship partners of the approval of the new Competency-based Occupational Framework (CBOF) for the occupation of Woodwork Manufacturing Specialist (Existing Title: Machine Setter (Woodwork)).

Woodwork Manufacturing Specialist
(Existing Title: Machine Setter (Woodwork))
O*NET-SOC Code: 51-7042.00
RAPIDS Code: 0321CB
Type of Training: Competency-based

BACKGROUND: The National Office has approved a new Competency-based Occupational Framework (CBOF), developed in partnership with the Urban Institute. This CBOF has met industry standards and approval; it covers job titles and occupational pathways, related functions and performance criteria, as well as academic, workplace and personal competencies for job success. While use of CBOFs in developing standards utilizing the competency-based training approach is voluntary, no additional vetting of a Work Process Schedule (WPS) utilizing the CBOF should be required where a program aligns to the occupational framework described in a CBOF, beyond the basic requirements set forth in 29 CFR Part 29. While on-the-job learning (OJL) is ordinarily outlined in the WPS, sponsors who utilize a CBOF must develop the Related Instruction Outline, which should be included in the standards. The OA Administrator approved this occupation on July 15, 2020.

Woodwork manufacturing specialists:

- Work in the commercial and residential industries of the private sector;
- Operate computer-controlled machines or robots and/or highly-skilled bench operations to perform several machine functions on wood pieces;
- Ensure the smooth operation of the controlled manufacturing equipment at their worksite;
- Help make sure that industrial machinery and equipment and the quality of hardware they produce are maintained at the highest possible level, ensuring the productivity and safety of the entire production team; and

- Oversee quality assurance, verification, and inspection of equipment.

Within certain limits, the sponsors of CBOF apprenticeship programs are permitted to customize the job functions or competencies contained in a CBOF for Woodworking Manufacturing Specialist occupation.

However, OA encourages the use of all core competencies to be included in the approved WPS.

ACTION: OA staff should familiarize themselves with this bulletin and the attached CBOF as a source for developing apprenticeship standards and/or providing technical assistance.

If you have any questions, please contact Natalie Linton, Program Analyst, Division of Registered Apprenticeship and Policy at (202) 693-3592.

NOTE: This bulletin is being sent via electronic mail.

Attachment

Woodworking Manufacturing Specia

Persons/Organizations involved in Woodwork Manufacturing CBOF

Lead Author: Kelly Victor-Burke, Majority Owner/CEO, Burke Architectural Millwork

- Workplace Intelligence Network: Janene Erne- Regional Apprenticeship Administrator; Kinsey Mantay
- Schoolcraft College Manufacturing Program: Amy Jones, Pamela Linton, Gene Keyes
- Michigan Manufacturers Association: Delaney McKinley
- Joe Leugers-Owner, JKL Machinery
- John Gerometta-Owner, Metta Millworks
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- Burt Bilbrey-Designer at ITS
- Mark Smith-Industrial Technology Teacher, Reed-Custer High School, Braidwood, IL
- Richard Ganas-Owner Ganas MFG
- Ezra Drissman-Woodwork Manufacturing Advocate
- Alan Dodkowitz-Research Associate at the Urban Institute in Washington, DC
- Batia Katz-Research Associate at the Urban Institute in Washington DC
- Anthony Vitale-Owner, Probuilt Woodworking
- Logan Bourne-Owner, Bourne Building Co
- Barry Burke-Co-owner, Burke Architectural Millwork
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- Anthony Mauney-Burke Architectural Millwork
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- Christopher Davis-Teacher, Henry Ford II Woodworking Program, Sterling Heights, Michigan

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Source: https://www.dol.gov/agencies/eta/apprenticeship/contact/state-offices#IL

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Draft of courses WMS apprentice might take at a local community college:

Schoolcraft College Apprenticeship Program

REGISTERED APPRENTICESHIP RELATED TECHNICAL INSTRUCTION (RTI) / CURRICULUM

Woodwork Manufacturing Specialist
Competency Based Registered Apprenticeship

Note: The Schoolcraft College Apprenticeship Coordinator will work with the appropriate company representative to establish specific courses which best serve the student's individual needs. The following courses are intended as a draft and an example of a course of study – courses may be deleted, or replaced with other options and in compliance with the Dept. of Labor's Office of Apprenticeship academic requirements.

Credit Courses				
PRE-REQUISITE	**COURSE**	**TITLE**	**Credit Hrs**	**Clock Hrs**
COMPUTER AIDED DESIGN:				
none	**CAD 120**	Mechanical Blueprint Reading with Sketching	3	45
CAD 120 and MATH 102 or 113	**CAD 130**	Geometric Dimensioning and Tolerance	3	45
CAD 120	**CAD 140**	AutoCAD 2D Application	4	60
CHOOSE ONE OF THE FOLLWING (CAD 210, CAD 220 OR CAD 230):				
CAD 120	***CAD 210***	*CATIA – 3D & 2D Applications -or -*	*4*	*60*
CAD 120	***CAD 220***	*Solidworks - 3D & 2D Applications - or -*	*4*	*60*
CAD 120	***CAD 230***	*NX – 3D & 2D Applications*	*4*	*60*
COMPUTER INFORMATION SYSTEMS:				
None	**CIS 251** ***or*** **CEPD**	Information Technology Project Management *or* Continuing Education/Professional Development Project Management Essentials	3 --	45 --
ENGINEERING:				
none	**ENGR 100**	Introduction to Engineering & Technology	3	45
MANUFACTURING:				
none	**MFG 102**	Basic Machining Processes	3	90
MFG 102	**MFG 103**	Basic CNC (Computer Numerical Control)	3	90
MFG 103	**MFG 203**	Advanced CNC (Computer Numerical Control)	3	90
MATH: *NOTE: Students may test out of prerequisite classes but should return to pre-reqs if finding the class too challenging.*				
MATH 047 or test score	**MATH 102**	Technical Mathematics	4	60
OCCUPATIONAL SAFETY & HEALTH:				
none	**OSH 111**	Occupational Safety & Health for General Industry	2	37.5
		TOTAL	**35**	**667.5**

ELECTIVE(S):

QUALITY MANAGEMENT:				
none	**QM 107**	Quality Planning and Team Building	3	45
ROBOTICS:				
MATH 102	**ROBAT 101**	Robotic Tool Handling Operations and Programming	3	60
COMMUNICATION ARTS:				
COMA 103 or instructor consent	**COMA 200**	Interpersonal Communications	3	45
ENGLISH:				
ENG 101 or test score	**ENG 106**	Business English	3	45
ENG 55 or test score	**ENG 116**	Technical Writing	3	45

This workforce solution was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The solution was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warrantees, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership. **Schoolcraft College and AMCAI/AAI is an equal opportunity employer/program provider. Auxiliary aids and services are available upon request to individuals with disabilities. TTY users please call 1-877-878-8464 or visit www.michigan.gov/mdcr.**

05.20.2019