

**WORK PROCESS SCHEDULE**  
**INDUSTRIAL MANUFACTURING TECHNICIAN**  
**O\*NET-SOC CODE: 17-3029.09 RAPIDS CODE: 2031HY**

**JOB DESCRIPTION:** Entry level Industrial Manufacturing Technicians operate industrial production related equipment, work with manufacturing related tools, and perform work processes related to a wide variety of manufacturing settings. Apprentices will learn to set up, operate, monitor, and control production equipment. They will also help improve manufacturing processes and schedules to meet customer requirements.

**TERM OF APPRENTICESHIP:** The term of apprenticeship shall be Hybrid, which has been established to be 3,000 hours. In addition to the specified hours, the apprentice must successfully attain the competencies described in these program provisions. Hours of labor shall be the same as established for other skilled employees in the occupation.

**WORK PROCESS SCHEDULE:** In order to obtain well-rounded training and thereby qualify as a skilled worker in the occupation, the apprentice shall have experience and training in the following areas and shall demonstrate competency, as specified herein. This instruction and experience shall include the following operations, but not necessarily in the sequence given. Time spent on specific operations need not be continuous.

| <u>Work Process Description</u>  | <u>Approximate Hours</u> |
|--|--------------------------|
| <b>Protect self and other workers from accidents and injuries</b>  | 100                      |
| <ol style="list-style-type: none"> <li>1. follow industry-specific safety procedures around electricity, machines, equipment &amp; manufacturing processes</li> <li>2. minimize potential hazards</li> <li>3. work following OSHA industrial safety standards</li> <li>4. maintain clean work areas and follow Six Sigma practices</li> <li>5. demonstrate awareness of first aid, CPR, and blood borne pathogens</li> <li>6. inspect, maintain, and report and replace hand tools and power equipment</li> </ol>  |                          |
| <b>Operate production equipment</b>  | 1000                     |
| <ol style="list-style-type: none"> <li>1. works according to production schedules to meet job specifications</li> <li>2. operates equipment safely and efficiently</li> <li>3. monitor and inspect products and processes</li> <li>4. monitor and adjust equipment during operations as needed</li> <li>5. documents work, work processes and adjustments</li> <li>6. shuts down equipment properly</li> <li>7. disassembles equipment and components, if appropriate</li> <li>8. cleans up tooling, equipment, and work spaces</li> <li>9. sanitizes equipment according to applicable standards</li> </ol> |                          |
| <b>Produce quality product</b>   | 500                      |
| <ol style="list-style-type: none"> <li>1. verifies product quality following quality work instructions</li> <li>2. report completed work accurately</li> <li>3. perform quality checks</li> <li>4. demonstrate awareness of defects and causes of rework</li> <li>5. monitors the cost of poor quality (including scrap and rework)</li> <li>6. apply cost of quality principles to jobs and manufacturing processes</li> </ol>  |                          |

7. apply quality training to job duties and work processes
8. document all quality tests & understand implications and consequences of documentation
9. adhere to customer specific quality requirements
10. follow company specific quality guidelines

**Interpret technical information**

200

1. use blueprints, formulas and process control sheets efficiently
2. reference project plans and documents by completing an apprenticeship Job Book or checklist of competency completion
3. apply job specifications to work processes accurately
4. interprets production orders properly
5. follows quality specifications accurately

**Measure and inspect work using mechanical tools and testing equipment**

200

1. measure and visually inspect materials, products or parts, and finished goods accurately in accordance with job specifications
2. apply math to measuring and inspection of work
3. interpret tolerances using blue prints and job specifications
4. use gauges and measuring devices accurately
5. verify workmanship and compliance with job specifications
6. identify and report non-compliant stock, material, parts, or finished goods
7. inspects materials, parts, products, or finished goods in accordance with quality
8. select and use hand and mechanical tools appropriately
9. use applicable systems to report results and document work

**Demonstrate knowledge of routine equipment maintenance**

100

1. inspect equipment
2. demonstrate mechanical problem-solving abilities
3. identify when a machine is not working properly
4. apply preventative maintenance practices effectively
5. follow general lubrication guidelines
6. maintain machine components following manufacturer specifications (if applicable)
7. follow basic troubleshooting guides
8. assist and communicate with maintenance personnel on equipment malfunctions
9. demonstrate awareness of basic maintenance concepts

**Demonstrate knowledge of inventory and material processes**

100

1. apply lean manufacturing principles to work processes
2. compare inventory flow to roles and responsibilities
3. demonstrate aware of process flows in a manufacturing plant
4. identify material management processes
5. demonstrate awareness of logistics related to raw materials and customer deliveries
6. work with production materials according to work schedules
7. apply basic manufacturing equipment operations

**Demonstrate knowledge of trends and the current state of the business**

100

1. identify the competition and potential opportunities (Ex. Strengths,

Weaknesses, Opportunities and Threats or related analysis)

2. explain the competition and potential opportunities between internal businesses
3. describe the importance of department and plant goals (Ex. Key Performance Indicators)
4. apply basic business terms to manufacturing related work processes
5. demonstrate awareness of both upstream and downstream
6. participate in company leadership briefings
7. relate the job role and trade to keeping jobs

**Demonstrate continuous improvement**

100

1. suggests improvements to business and manufacturing processes
2. uses tools for continuous improvement effectively
3. minimizes and removes process wastes (associated with water, energy, manufacturing processes, and other resources)
4. participates in continuous improvement for professional growth
5. identifies potential defects
6. follows standard work instructions properly
7. maintains records regarding machine faults
8. applies visual management/visual controls through Six Sigma
9. applies root cause analysis to continuous improvement of manufacturing work processes
10. applies autonomous maintenance principles
11. practices quick change overs (Ex. Six-Minute Exchange of Die)
12. identifies equipment abnormalities
13. adapts to process changes including cycle times, set-ups, and tooling
14. participates in cross-training opportunities
15. understands the business strategies and motives for continuous improvement
16. applies profitable sustainability concepts to continuous improvement

**Set-up production equipment**

200

1. plans for and identifies set-up requirements
2. selects tools and materials
3. verifies safety
4. assembles equipment
5. performs mechanical set-up according to employer's Standard Operating Procedure manual, and equipment manufacturer's specifications
6. tests and verifies set-up
7. adjusts set-up as needed to meet product and production specifications
8. interprets visual controls accurately
9. inspects equipment and components

**Local Options**

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The employer will establish additional training in the form of competencies not otherwise stated in this Exhibit, to be demonstrated by the apprentice and performed for some or all of the required minimum hours for Local Options, and/or the employer may distribute some or all of the required minimum hours to one or more work processes stated in this Exhibit.

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**TOTAL**

**2,736**

**RELATED INSTRUCTION**  
**INDUSTRIAL MANUFACTURING TECHNICIAN**  
**O\*NET-SOC CODE: 17-3029.09    RAPIDS CODE: 2030HY**

**Overview**

Related instruction teaches apprentices the science and theory behind their daily duties. It comprises **264 hours** of the apprenticeship program, the equivalent of four hours per week when school is in session. The apprentice is paid by the employer to attend.

**Course Descriptions**

**Industrial Manufacturing 1 (First Semester)**

The first semester includes an orientation to the occupation and manufacturing, then followed by the Manufacturing Skills Standards Council (MSSC) safety module, MSSC quality module, OSHA 10 certification, blueprint reading, visual inspection, measurement, and first aid & CPR training. Manufacturing concepts will be introduced and applied in a variety of industrial settings.

**Industrial Math for the Occupation (First Semester)**

This course provides applied mathematics instruction from a review of: basic arithmetic; basic algebra; applications, based on geometry; right triangle trigonometry, oblique angle trigonometry and compound angles. U.S. and metric measurement systems will be introduced.

**Industrial Manufacturing 2 (Second Semester)**

The second semester includes the MSSC manufacturing processes and production and maintenance awareness modules, along with communication, lean manufacturing, problem solving, and frontline leadership. Manufacturing related concepts will be applied to a variety of industrial settings. The course concludes with an examination of emerging trends and technologies, and future directions for manufacturing.

**Communication for Apprentices (Second Semester)**

Introduces the apprentice to basic communication concepts relating to the workplace. It is designed specifically for the apprentice to acquire the necessary skills of giving instructions, writing a technical memo, and explaining a technical process. Throughout the course the apprentice will brainstorm, write, edit, revise, and use one-on-one communication delivery in a small group. The course combines lecture and hands-on activities utilizing information which the apprentice brings from the workplace.

**Transition to Trainer (Final Semester)**

This 8 hour course teaches soon-to-be journeyworkers how to serve as a mentor and job coach, how to provide hands-on skill training, and how to give positive and effective performance feedback. Course is offered at multiple times each year. Course meets for 8 hours.