# **Work Process Schedule**

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| Tool and Die Maker |
| **Job Description:** Analyze specification, lay out metal stock, set up and operate machine tools, and fit and assemble parts to make and repair dies, cutting tools, jigs, fixtures, gauges, and machinists’ hand tools |
| **RAPIDS Code:** 0586CB | **O\*NET Code:** 51-4111.00 |
| **Estimated Program Length:** 4 years |
| **Apprenticeship Type:** [x]  Competency-Based [ ]  Time-Based [ ]  Hybrid |

Suggested On-the-Job Learning Outline

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| Inspects materials, die components, features, and details |
| **Competencies** | **Date Completed** | **Initial** |
| 1. Measures size of raw materials
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| 1. Checks surface finish for detects and flaws
 |  |  |
| 1. Identifies material by type
 |  |  |
| 1. Verifies calibration of measurement devices
 |  |  |
| 1. Converts measurements
 |  |  |
| 1. Locates center lines, checks fit and form using gagging, and measures threads
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| Plans job and sets up workstation |
| **Competencies** | **Date Completed** | **Initial** |
| 1. Reviews and verifies prints and drawings
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| 1. Obtains and stages raw materials and verifies bill of materials
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| 1. Prioritizes and schedules workflow/progression
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| 1. Determines availability of materials and equipment
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| 1. Obtains and stages die premanufactured components
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| 1. Determines grinding and heat-treating allowances
 |  |  |
| 1. Sketches/highlights critical processing information and specs
 |  |  |
| 1. Determines machining requirements and processes
 |  |  |
| 1. Verifies/assesses shut height specifications, tonnage requirements, and feedline
 |  |  |
| 1. Checks safety devices for function
 |  |  |
| 1. Identifies and determines availability of perishable tooling
 |  |  |
| 1. Verifies availability of tryout material
 |  |  |
| 1. Determines resources to adhere to die-building and tryout times
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| 1. Determines lubrication requirements and plumbing standards
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| 1. Assesses part and scrap-ejection methods
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| Sets up equipment and machine components and details |
| **Competencies** | **Date Completed** | **Initial** |
| 1. Moves and stages material and parts for machining (CNC/non-CNC) and polishes parts
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| 1. Inspects machined work pieces for quality and compliance and removes burr from machined parts
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| Assembles tools and die |
| **Competencies** | **Date Completed** | **Initial** |
| 1. Ensures punch is at die clearance
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| 1. Mounts and checks details for fit and function, punching tools, and forming tools and components
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| 1. Installs and fits cutting and drawing tools and components
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| 1. Installs and sets pressure devices or systems and stripping and holding devices
 |  |  |
| 1. Establishes and sets die timing and mounts/adjusts CAMs or sliding components
 |  |  |
| 1. Verifies/adjusts slug clearance and grinds/deburrs and mount parallels
 |  |  |
| 1. Mounts/aligns in-die assembly and hardware and tapping heads
 |  |  |
| 1. Installs and sets quick die-change components, scrap removal, and part-ejection devices
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| 1. Installs quality control (QC) sensors and electronics and die-protection sensors and devices
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| 1. Aligns upper and lower die assembly and checks/adjusts material feed and level on the bench
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| 1. Installs/makes guide components and checks for sharp edges on noncutting tools
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| 1. Verifies presence of or installs balances and levelers and sets blocks
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| Conducts tryouts and develops tools and die |
| **Competencies** | **Date Completed** | **Initial** |
| 1. Sets up and conducts press for dry run and/or tryouts
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| 1. Develops blank/trim profiles
 |  |  |
| 1. Checks/adjusts shut height and sets blocks
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| 1. Analyzes, solves, and corrects formability problems and runs at proper rate
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| 1. Inspects and submits tryout parts for quality and conformance
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| Troubleshoots tool and die problems |
| **Competencies** | **Date Completed** | **Initial** |
| 1. Understands how to read strip
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| 1. Isolates the cause of why strip is not feeding straight into or through die
 |  |  |
| 1. Determines why tool steel is chipping or showing premature wear
 |  |  |
| 1. Determines why die components are breaking
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| 1. Finds out why scrap or materials are accumulating in the die
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| 1. Isolates the cause of why a sensor has shut down the press
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| Manages and coordinates projects |
| **Competencies** | **Date Completed** | **Initial** |
| 1. Reliably follows the instructions of others
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| 1. Willingly asks questions about things not fully understood
 |  |  |
| 1. Works with due regard for the safety of others
 |  |  |
| 1. Establishes a system of maintaining appropriate notes and reminders and completes any required logs, calibration records, etc.
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| 1. Ensures proper communications between previous and next shifts, with both operations and supervision
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| 1. Identifies problems and changes that could lead to problems by exchanging information with operators, supervisors, and others
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| 1. Establishes trust and rapport with operators, supervisors, and others
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Suggested Related Instruction Outline

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| Provider |
| **Name:**  |
| **Address:**  |
| **Email:** | **Phone Number:** |
| **Suggested Related Instruction Hours:** 576 |

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| **Course Number** | **Course Title** | **Contact Hours** |
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