

Apprenticeship Manitoba

Tool and Die Maker NOA (2010) Subtask to Unit Comparison

NOA Subtask		Manitoba Unit(s)
Task 1 – Performs safety-related functions.		
1.01	Maintains safe work environment.	A1 Trade Safety Awareness (ACB Standard) A2 Safety
1.02	Uses personal protective equipment (PPE) and safety equipment.	A1 Trade Safety Awareness (ACB Standard) A2 Safety
Task 2 – Uses and maintains machine-tools and tooling.		
2.01	Uses hoisting and lifting equipment.	A5 Hoisting, Lifting and Rigging
2.02	Maintains machine-tools and tooling.	A1 Trade Safety Awareness (ACB Standard) A2 Safety D1 Introduction to Conventional Lathes E1 Introduction to Milling Machines F1 Introduction to Grinding Machines
Task 3 – Organizes work.		
3.01	Interprets drawings, specifications and applications.	A6 Basic Drawings A7 Advanced Drawings
3.02	Plans project activities.	A6 Basic Drawings A7 Advanced Drawings B6 Basic Tool Design B7 Geometric Dimensioning and Tolerancing (GD & T) C1 Precision Measurement I C2 Precision Measurement II C3 Basic Layout C4 Trade Math IV
Task 4 – Performs benchwork.		
4.01	Performs layout.	A6 Basic Drawings A7 Advanced Drawings C3 Basic Layout
4.02	Marks material for identification.	B1 Hand and Power Tools
4.03	Inspects workpiece.	B1 Hand and Power Tools
4.04	Finishes workpiece.	B1 Hand and Power Tools
Task 5 – Plans and prepares for machine-tool operations.		
5.01	Plans machining sequence.	D7 Trade Science IV D1 Introduction to Conventional Lathes D2 Basic Conventional Lathe Operation D6 Advanced Lathe, Drilling, Boring, Reaming, Tapping and Die Threading.
5.02	Establishes workpiece datum.	D7 Trade Science IV D1 Introduction to Conventional Lathes D2 Basic Conventional Lathe Operation

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		D6 Advanced Lathe, Drilling, Boring, Reaming, Tapping and Die Threading.
5.03	Sets up work holding devices in machine-tools.	C1 Precision Measurement I
		C2 Precision Measurement II
		C3 Basic Layout
		C4 Trade Math IV
		D1 Introduction to Conventional Lathes
		D2 Basic Conventional Lathe Operation
		D6 Advanced Lathe, Drilling, Boring, Reaming, Tapping and Die Threading.
		E1 Introduction to Milling Machines
		E2 Conventional Milling Machine Operation
5.04	Sets up machine tooling and accessories.	C1 Precision Measurement I
		C2 Precision Measurement II
		C3 Basic Layout
		C4 Trade Math IV
		D1 Introduction to Conventional Lathes
		D2 Basic Conventional Lathe Operation
		D6 Advanced Lathe, Drilling, Boring, Reaming, Tapping and Die Threading.
		D7 Trade Science IV
		E1 Introduction to Milling Machines
		E2 Conventional Milling Machine Operation
5.05	Sets up workpiece in machine tool.	C1 Precision Measurement I
		C2 Precision Measurement II
		C3 Basic Layout
		C4 Trade Math IV
		D1 Introduction to Conventional Lathes
		D2 Basic Conventional Lathe Operation
		D6 Advanced Lathe, Drilling, Boring, Reaming, Tapping and Die Threading.
		D7 Trade Science IV
		E1 Introduction to Milling Machines
		E2 Conventional Milling Machine Operation
5.06	Select speeds and feeds of machine-tools.	C4 Trade Math IV
		D1 Introduction to Conventional Lathes
		D2 Basic Conventional Lathe Operation
		D6 Advanced Lathe, Drilling, Boring, Reaming, Tapping and Die Threading
		D7 Trade Science IV
		E1 Introduction to Milling Machines
		E2 Conventional Milling Machine Operation
Task 6 – Operates conventional drill presses, lathes and milling machines.		
6.01	Performs hole making and finishing operations.	B4 Drills and Drill Presses
6.02	Turns surfaces using lathe.	D1 Introduction to Conventional Lathes
		D2 Basic Conventional Lathe Operation
		D4 Advanced Conventional Lathe Operation
		D6 Advanced Lathe, Drilling, Boring, Reaming, Tapping and Die Threading

NOA Subtask		Manitoba Unit(s)
6.03	Faces surfaces using milling machine.	E1 Introduction to Milling Machines. E2 Conventional Milling Machine Operation
6.04	Performs parting, grooving and knurling using lathe.	D1 Introduction to Conventional Lathes D2 Basic Conventional Lathe Operation 6 Advanced Lathe, Drilling, Boring, Reaming, Tapping and Die Threading. D4 Advanced Conventional Lathe Operation
6.05	Cuts internal and external threads using lathe.	C3 Basic Layout C4 Trade Math IV D1 Introduction to Conventional Lathes D2 Basic Conventional Lathe Operation D6 Advanced Lathe, Drilling, Boring, Reaming, Tapping and Die Threading. D4 Advanced Conventional Lathe Operation
6.06	Performs profiling, pocketing and slotting using milling machine.	E1 Introduction to Milling Machines E2 Conventional Milling Machine Operation
Task 7 – Operates power saws.		
7.01	Saws straight and angle cuts.	B2 Power Saws B6 Contour Bandsaws
7.02	Cuts irregular shapes.	B2 Power Saws B6 Contour Bandsaws
Task 8 – Operates grinders.		
8.01	Mounts grinding wheel.	F1 Introduction to Grinding Machines F2 Grinding Operations I F3 Grinding Operations II
8.02	Grinds flat surfaces.	F1 Introduction to Grinding Machines F2 Grinding Operations I F3 Grinding Operations II
8.03	Grinds profiles and tapered surfaces.	F1 Introduction to Grinding Machines F2 Grinding Operations I F3 Grinding Operations II
Task 9 – Operates computer numerical control (CNC) machines.		
9.01	Performs basic CNC programming.	C4 Trade Math IV F4 Computer Numerical Control
9.02	Inputs program data into control memory.	C4 Trade Math IV F4 Computer Numerical Control
9.03	Sets up workpiece datum.	C4 Trade Math IV F4 Computer Numerical Control
9.04	Verifies programs.	C4 Trade Math IV F4 Computer Numerical Control
9.05	Monitors machining processes.	C4 Trade Math IV F4 Computer Numerical Control
Task 10 – Operates Electrical Discharge Machine (EDM).		
10.01	Determines flushing methods.	F4 Computer Numerical Control
10.02	Sets cutting conditions.	F4 Computer Numerical Control
Task 11 – Develops prototype.		

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11.01	Selects prototyping technique and materials.	F4 Computer Numerical Control
11.02	Fabricates prototype components.	F4 Computer Numerical Control
11.03	Assembles prototype components.	F4 Computer Numerical Control
Task 12 – Proves out prototypes.		
12.01	Inspects prototypes.	F4 Computer Numerical Control
12.02	Evaluates function of prototype.	F4 Computer Numerical Control
12.03	Resolves malfunction of prototype.	F4 Computer Numerical Control
Task 13 – Heat treat materials.		
13.01	Selects heat treating process.	A11 Heat Treatment
13.02	Hardens materials.	A11 Heat Treatment
13.03	Tempers materials.	A11 Heat Treatment
13.04	Anneals materials.	A11 Heat Treatment
13.05	Normalizes materials.	A11 Heat Treatment
13.06	Carburizes materials.	A11 Heat Treatment
Task 14 – Tests heat treated materials.		
14.01	Performs visual inspection.	A11 Heat Treatment
14.02	Performs hardness test.	A11 Heat Treatment
Task 15 – Performs basic production tool design.		
15.01	Identifies production tool requirements.	C4 Trade Math IV
		C5 Jigs and Fixtures (Theory)
		C6 Jigs and Fixtures (Practical)
		G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
		G3 Advanced Die Making (Theory)
		G4 Advanced Die Making (Practical)
15.02	Prepares shop sketches.	A6 Basic Drawings
		A7 Advanced Drawings
		C5 Jigs and Fixtures (Theory)
		C6 Jigs and Fixtures (Practical)
		G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
		G3 Advanced Die Making (Theory)
		G4 Advanced Die Making (Practical)
15.03	Determines production tool material specifications and engineered components.	C4 Trade Math IV
		C5 Jigs and Fixtures (Theory)
		C6 Jigs and Fixtures (Practical)
		G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
		G3 Advanced Die Making (Theory)
		G4 Advanced Die Making (Practical)
Task 16 – Fits and assembles production tools.		
16.01	Verifies dimensions of production tool components.	C4 Trade Math IV
		C5 Jigs and Fixtures (Theory)
		C6 Jigs and Fixtures (Practical)
		G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)

NOA Subtask		Manitoba Unit(s)
		G3 Advanced Die Making (Theory)
		G4 Advanced Die Making (Practical)
16.02	Positions production tool components.	C4 Trade Math IV
		C5 Jigs and Fixtures (Theory)
		C6 Jigs and Fixtures (Practical)
		G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
		G3 Advanced Die Making (Theory)
		G4 Advanced Die Making (Practical)
16.03	Performs final assembly.	C4 Trade Math IV
		C5 Jigs and Fixtures (Theory)
		C6 Jigs and Fixtures (Practical)
		G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
		G3 Advanced Die Making (Theory)
		G4 Advanced Die Making (Practical)
16.04	Sets production tool timing.	C4 Trade Math IV
		G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
		G3 Advanced Die Making (Theory)
		G4 Advanced Die Making (Practical)
Task 17 – Proves out production tools.		
17.01	Sets up production tools.	G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
		G3 Advanced Die Making (Theory)
		G4 Advanced Die Making (Practical)
17.02	Verifies production part material.	G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
		G3 Advanced Die Making (Theory)
		G4 Advanced Die Making (Practical)
17.03	Develops blank.	G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
		G3 Advanced Die Making (Theory)
		G4 Advanced Die Making (Practical)
17.04	Cycles equipment with production tools.	G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
		G3 Advanced Die Making (Theory)
		G4 Advanced Die Making (Practical)
17.05	Evaluates production part.	G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
		G3 Advanced Die Making (Theory)
		G4 Advanced Die Making (Practical)
17.06	Checks production tool for damage.	G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
		G3 Advanced Die Making (Theory)
		G4 Advanced Die Making (Practical)
17.07	Modifies production tools to enhance productivity.	C5 Jigs and Fixtures (Theory)
		C6 Jigs and Fixtures (Practical)
		G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
		G3 Advanced Die Making (Theory)
		G4 Advanced Die Making (Practical)

NOA Subtask		Manitoba Unit(s)
Task 18 – Repairs and maintains production tools.		
18.01	Identifies condition of production tools.	C4 Trade Math IV
		C5 Jigs and Fixtures (Theory)
		C6 Jigs and Fixtures (Practical)
		G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
18.02	Identifies repair procedures	C4 Trade Math IV
		C5 Jigs and Fixtures (Theory)
		C6 Jigs and Fixtures (Practical)
		G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
18.03	Adjusts production tool components.	C4 Trade Math IV
		C5 Jigs and Fixtures (Theory)
		C6 Jigs and Fixtures (Practical)
		G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)
18.04	Reconditions production tool components.	C4 Trade Math IV
		C5 Jigs and Fixtures (Theory)
		C6 Jigs and Fixtures (Practical)
		G1 Basic Die Making (Theory)
		G2 Basic Die Making (Practical)