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Teaching & Learning Template: Plumbing by Learning Type and Style

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Integration Framework for College of Trades Curriculum and Ministry Standards

Teaching & Learning Template

Plumbing by Learning Type and Style

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level One	Vocational Learning Outcomes
	Skill Category - Defined	S00021.0 Workplace Safety, Rigging and Hoisting	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	21.1 - Codes, Acts & Regulations 21.4 - Control Hazards 21.9 - Read and Interpret Specifications & Shop Drawings 21.18- Communicate through the lift	1--Complete all work in compliance with current legislation, standards, regulations and guidelines. 7--Interpret, prepare & modify mechanical drawings & other related technical documents.
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 	21.6 – Lock out & tagging procedures 21.16 – Plan to perform the lift	2--Apply quality control and quality assurance procedures to meet organizational standards and requirements. 10-Contribute to the planning, implementation & evaluation of projects
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 	21.3 - Recognize & assess hazardous conditions 21.10 - Inspect the job site 21.11 - Determine the required equipment 21.13 – Inspect the rigging	2--Apply quality control and quality assurance procedures to meet organizational standards and requirements. 3--Comply with current health & safety legislation, as well as organizational practices & procedures.
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 	21.2 Personal Protective Equipment	
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 	21.12 - Schedule the lift 21.15 - Secure the hoisting area	2--Apply quality control & quality assurance procedures to meet organizational standards & requirements. 3--Comply with current health & safety legislation, as well as organizational practices & procedures.
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 	21.5 – Work Platforms 21.7 - Operate and maintain tools 21.8 – Perform Housekeeping Duties 21.14 – Connect the equipment to the rigging 21.17 – Position, secure & disconnect the load 21.19 - Remove and store the rigging	8--Perform technical measurements accurately using appropriate instruments & equipment 9--Manufacture, assemble, maintain & repair mechanical components according to required specifications. 11--Select, use & maintain machinery, tools & equipment for the installation, manufacturing & repair of basic mechanical components

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level One	Vocational Learning Outcomes
	Skill Category - Defined	S00022.0 Plumbing Systems – Pipe & Fitting Materials, Pipe Supports and Hangers (1-12)	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	22.1 – Steel Pipe & Fittings 22.2 – Cast Iron Soil Pipe & Fittings 22.3 – ABS Plastic Pipe & Fittings 22.4 – PVC Plastic Pipe & Fittings 22.5 – CPVC Plastic Pipe & Fittings 22.6- Polyethylene Plastic Pipe & Fittings 22.7 – Cross-linked Polyethylene/Aluminium/Cross-linked Polyethylene (PEX/AL/PEX) Composite Pipe & Cross-linked Polyethylene Plastic Pipe and Fittings 22.8 – Polyethylene/Aluminium/Polyethylene (PE/AL/PE) Composite Pipe & Polypropylene (PP-R) Pipe & Fittings 22.9 – Copper Pipe and Fittings 22.10 – Glass Pipe & Fittings 22.11 – Pipe Supports & Hangers 22.12 – Joining Dissimilar Materials	
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
Participative Meta-Cognition	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Supportive Collaborative			
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 		

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level One	Vocational Learning Outcomes
	Skill Category - Defined	S00022.0 Plumbing Systems – Drainage Systems (13-25)	
Directive Cognitive Structure	<p>Communication</p> <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	<p>22.13 – Drainage Terms and Definitions</p> <p>22.14 – Cleanouts and Locations</p> <p>22.15 – Prohibited Fittings and Connections</p> <p>22.16 – Purpose of a Drain Plan</p> <p>22.17 – How to Draw a Drain Plan</p> <p>22.18 – Foundation Drains</p> <p>22.19 – Floor Drains</p> <p>22.20 – Hub Drains and Funnel Floor Drains</p> <p>22.21 – Trap Seal Primers</p> <p>22.22 – Drain System Design</p> <p>22.23 – Building Traps</p> <p>22.24 – Purpose of a Stack Elevation</p> <p>22.25 – How to Draw a Stack Elevation</p>	
	<p>Numeracy</p> <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data <p>Conceptualizing</p>		
	<p>Information Management</p> <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	<p>Critical Thinking & Problem Solving</p> <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
	<p>Personal</p> <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	<p>Interpersonal</p> <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	<p>Physical Literacy</p> <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 		

	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
Leadership in Learning	Essential Employability Skills	Plumber Level One	Vocational Learning Outcomes
	Skill Category - Defined	S00022.0 Plumbing Systems – Waste Pipe Systems (26-31)	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	22.26 – Traps and Types 22.27 – Trap Sizing 22.28 – Trap Seal Loss 22.29 – Fixture Drain Requirements	
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 	22.30 – Sanitary Drain System Sizing	2--Apply quality control and quality assurance procedures to meet organizational standards and requirements. 10--Contribute to the planning, implementation & evaluation of projects
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 	22.31 – Grading Waste Pipes	8--Perform technical measurements accurately using appropriate instruments & equipment 9--Manufacture, assemble, maintain & repair mechanical components according to required specifications.

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level One	Vocational Learning Outcomes
	Skill Category - Defined	S00022.0 Plumbing Systems – Venting Systems (32-39)	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	22.32 – Purpose of Venting 22.33 – Types of Individual Vents 22.34 – Sizing Individual Vents 22.35 – Branch Vents 22.36 – Dual Vents 22.37 – Wet Venting 22.38 – Roof Flashings 22.39 – Stack & Vent Terminals	
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
Participative Meta-Cognition	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 		

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level One	Vocational Learning Outcomes
	Skill Category - Defined	S00022.0 Plumbing Systems – Codes, Regulations & Standards (40)	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	22.40 Code, Regulations & Standards	1--Complete all work in compliance with current legislation, standards, regulations and guidelines.
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 		

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level One	Vocational Learning Outcomes
	Skill Category - Defined	S00023.0 Tools & Piping Methods	
Directive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 		
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing	23.1 – Measuring Tools & Instruments 23.7 – Build Piping Projects Incorporating Different Offsets	6--Analyze & solve mechanical problems by applying mathematics & fundamentals of mechanics.
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 	23.2 – Identify & Use Various Hand Tools 23.3 – Identify & Use Various Power Tools 23.4 – Steel Pipe Joining Methods 23.5 – Cast Iron Pipe Joining Methods 23.6 – Copper Pipe Joining Methods	8--Perform technical measurements accurately using appropriate instruments & equipment 9--Manufacture, assemble, maintain & repair mechanical components according to required specifications. 11--Select, use & maintain machinery, tools & equipment for the installation, manufacturing & repair of basic mechanical components

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level One	Vocational Learning Outcomes
	Skill Category - Defined	S00024.0 Trade Calculations	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 		
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing	24.1 – Basic Math 24.2 – Conversions of SI to Imperial and U.S. Values 24.3 – Linear Measurements 24.4 – Calculation of Various Offsets 24.5 – Square Roots	2--Apply quality control and quality assurance procedures to meet organizational standards and requirements. 6--Analyze & solve mechanical problems by applying mathematics & fundamentals of mechanics.
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 		

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level One	Vocational Learning Outcomes
	Skill Category - Defined	S00025.0 Trade Documentation	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	25.1 – Identify and Use Various Drafting Instruments 25.2 – Identify and Draw Various Projection Drawings 25.3 – Identify and Interpret Construction Drawings	2--Apply quality control and quality assurance procedures to meet organizational standards and requirements. 7--Interpret, prepare & modify mechanical drawings & other related technical documents 8--Perform technical measurements accurately using appropriate instruments & equipment
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 	25.4 – Demonstrate Effective Interpersonal Relations 25.5 – Receive & React to Instructions	1--Complete all work in compliance with current legislation, standards, regulations and guidelines.
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 		

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level One	Vocational Learning Outcomes
	Skill Category - Defined	S00026.0 Welding	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	26.3 – Oxy-Acetylene Welding Principles	
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 	26.1 – Oxy-Acetylene Cutting and Welding Equipment and Accessories 26.2 – Oxy-Acetylene Cutting Theory, Cutting and Welding Safety Requirements 26.4 – Lay Down Beads, Prepare, Tack & Weld a Butt Joint	8--Perform technical measurements accurately using appropriate instruments & equipment 9--Manufacture, assemble, maintain & repair mechanical components according to required specifications. 11--Select, use & maintain machinery, tools & equipment for the installation, manufacturing & repair of basic mechanical components

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level Two	Vocational Learning Outcomes
	Skill Category - Defined	S00027.0 Plumbing Systems – Pipe & Fitting Materials, Pipe Supports and Hangers (1-2)	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	27.1 – Drilling & Notching 27.2 – Sleeving	
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 		

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard	
	Essential Employability Skills	Plumber Level Two	Vocational Learning Outcomes	
	Skill Category - Defined	S00027.0 Plumbing Systems – Drainage Systems (3-5)		
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	27.3 – Drainage Terms & Definitions 27.4 – Sanitary & Storm System Design		
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing	27.5 – Datum Line and Instrument Reading		6--Analyze & solve mechanical problems by applying mathematics & fundamentals of mechanics.
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 			
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 			
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 			
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 			
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 			

	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
Leadership in Learning	Essential Employability Skills	Plumber Level Two	Vocational Learning Outcomes
	Skill Category - Defined	S00027.0 Plumbing Systems – Waste Pipe Systems (6-11)	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	27.7 – Grease Interceptors 27.8 – Oil Interceptors 27.9 – Sediment Interceptors 27.10 – Blow Down & Blow Off Tanks 27.11 – Ejectors & Sumps	
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 	27.6 – Commercial Sanitary Drain System Sizing	2--Apply quality control and quality assurance procedures to meet organizational standards and requirements. 10--Contribute to the planning, implementation & evaluation of projects
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 		

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level Two	Vocational Learning Outcomes
	Skill Category - Defined	S00027.0 Plumbing Systems – Venting Systems (12-16)	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	27.13 – Wet Venting 27.14 – Vent Stacks 27.15 – Circuit Vent	
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition Structures	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 	27.12 – Branch Vents 27.16 – Yoke, Auxiliary Stacks, & Offset Relief Vents	2--Apply quality control and quality assurance procedures to meet organizational standards and requirements. 10--Contribute to the planning, implementation & evaluation of projects
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 		

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level Two	Vocational Learning Outcomes
	Skill Category - Defined	S00027.0 Plumbing Systems – Water Distribution Systems (17-23)	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	27.17 – Types of Valves 27.18 – Location of Valves 27.19 – Water Distribution Terms & Definitions 27.21 – Hot Water Thermostatic Mixing Valves 27.22 – Temperature & Pressure relief Valves 27.23 – Water Meters	
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 		

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level Two	Vocational Learning Outcomes
	Skill Category - Defined	S00027.0 Plumbing Systems – Plumbing Fixtures, Appliances & Equipment (24- 26)	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	27.24 – Plumbing Fixtures 27.25 – Faucets & Shower Control Valves 27.26 – Water Closets, Urinals, Flush Tanks, & Flushometers	
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 		

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level Two	Vocational Learning Outcomes
	Skill Category - Defined	S00027.0 Plumbing Systems – Codes (27-28)	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	27.27 – Testing Requirements 27.28 – Required Inspection	
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 		

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard	
	Essential Employability Skills	Plumber Level Two	Vocational Learning Outcomes	
	Skill Category - Defined	S00027.0 Plumbing Systems – Properties of Water (29-32)		
Directive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	27.29 – Heat Transfer 27.30 – Latent & Sensible Heat		
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing	27.31 – British Thermal Units 27.32 – Properties of Water		6--Analyze & solve mechanical problems by applying mathematics & fundamentals of mechanics.
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 			
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 			
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 			
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 			
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 			

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level Two	Vocational Learning Outcomes
	Skill Category - Defined	S00028.0 Drain Waste & Vent (DWV) Piping Systems	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 		
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 	28.1 – Design, Draw, Install & Test Various Drain, Waste, Vent, Storm, & Fixture Installations 28.2 – Perform Various Services, Maintenance and Repairs Labs	8--Perform technical measurements accurately using appropriate instruments & equipment 9--Manufacture, assemble, maintain & repair mechanical components according to required specifications. 11--Select, use & maintain machinery, tools & equipment for the installation, manufacturing & repair of basic mechanical components

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level Two	Vocational Learning Outcomes
	Skill Category - Defined	S00029.0 Trade Calculations	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 		
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing	29.1 – Area Calculations 29.2 – Surface Area Calculations 29.3 – Volume Calculations 29.4 – Percentages and Ratios	6--Analyze & solve mechanical problems by applying mathematics & fundamentals of mechanics.
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 		

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level Two	Vocational Learning Outcomes
	Skill Category - Defined	S00030.0 Trade Documentation	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	30.1 – Read & Apply Information from Construction Drawings 30.2 – Read & Interpret Job Specifications 30.3 – Produce Various Plumbing Drawings 30.6 – Write Job-Related Documents	1--Complete all work in compliance with current legislation, standards, regulations and guidelines. 2--Apply quality control and quality assurance procedures to meet organizational standards and requirements. 6--Analyze & solve mechanical problems by applying mathematics & fundamentals of mechanics. 7--Interpret, prepare & modify mechanical drawings & other related technical documents. 10-Contribute to the planning, implementation & evaluation of projects
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 	30.4 – Demonstrate Effective Interpersonal Relations 30.5. – Receive and React to Instructions	1--Complete all work in compliance with current legislation, standards, regulations and guidelines.
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 		

Leadership in Learning	Mechanical Technician Program Standard	Apprenticeship Curriculum Standard	Mechanical Technician Program Standard
	Essential Employability Skills	Plumber Level Two	Vocational Learning Outcomes
	Skill Category - Defined	S00031.0 Welding	
Directive Cognitive Structure	Communication <ul style="list-style-type: none"> ● Reading ● Writing ● Speaking ● Listening ● Presenting ● Visual literacy 	31.1 – Arc Welding Theory, Terminology, Equipment, Procedures & Safety Precautions	
	Numeracy <ul style="list-style-type: none"> ● Understanding & applying math concepts & reasoning ● Analyzing & using numerical data Conceptualizing		
	Information Management <ul style="list-style-type: none"> ● Gathering & managing information ● Selecting & using appropriate tools & technology for a task or a project ● Computer literacy ● Internet skills 		
Participative Meta-Cognition	Critical Thinking & Problem Solving <ul style="list-style-type: none"> ● Analyzing ● Synthesizing ● Evaluating ● Decision making ● Creative & innovative thinking 		
	Personal <ul style="list-style-type: none"> ● Managing self ● Managing change & being flexible & adaptable ● Engaging in reflective practices ● Demonstrating personal responsibility 		
Supportive Collaborative	Interpersonal <ul style="list-style-type: none"> ● Teamwork ● Relationship management ● Conflict resolution ● Leadership ● Networking 		
Achievement Role-Play	Physical Literacy <ul style="list-style-type: none"> ● Performance activity or task ● Knowledge utilization ● Tactic and kinetic 	31.2 – Arc Welding Procedures	8--Perform technical measurements accurately using appropriate instruments & equipment 9--Manufacture, assemble, maintain & repair mechanical components according to required specifications. 11--Select, use & maintain machinery, tools & equipment for the installation, manufacturing & repair of basic mechanical components