



Republic of Rwanda
Ministry of Education



RTB | RWANDA
TVET BOARD

BASIC DOMESTIC PLUMBING

RENDP301

Apply Basic Domestic Plumbing Skills

Competence

RQF Level: 3

Learning Hours



Credits: 5

Sector: Energy

Trade: Renewable energy

Module Type: General

Curriculum: ENGREN3001- TVET Level 3 in Renewable Energy

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Purpose statement	This module describes the skills, knowledge and attitude required to install basic domestic plumbing. At the end of this module, learners will be able to use tools and equipment of plumbing work, assemble pipes, clean workplace tools and equipment used. Qualified learners deemed competent to this competency may work alone or with others on routine tasks under minimum supervision.				
Delivery modality	Training delivery	100%	Assessment	Total 100%	
	Theoretical content	30%	Formative assessment	30%	
	Practical work:	70%		70%	50%
	<ul style="list-style-type: none"> Group project and presentation 20% Individual project /Work 50% 				
		Summative Assessment		50%	

Elements of Competency and Performance Criteria

Elements of competency	Performance criteria
1. Use tools and equipment of plumbing	1.1. Workshop hazards are properly controlled according to safety measures
	1.2. Tool and equipment are properly identified based on the work to be done
	1.3. Tools and equipment are properly used as per manufacturer instructions
2. Install plumbing pipes	2.1. Pipes and joints are properly identified based on their types
	2.2. Pipes are adequately joined based on drawing requirements
	2.3. Pipes are correctly assembled according to the standard
3. Clean the workplace, tools and equipment	3.1. Tools and Equipment are appropriately collected according to safety requirements
	3.2. Safety requirements of tools and equipment's before, during and after use are appropriately kept according to the user manual
	3.3. The working area is appropriately cleaned according to the standard

Learning outcomes	At the end of the module the learner will be able to: 1. Use tools and equipment of plumbing 2. Assemble plumbing pipes 3. Clean the workplace, tools and equipments
Learning outcome 1: Use tools and equipment of plumbing	Learning hours: 20
Indicative content	
<ul style="list-style-type: none"> • Controlling workshop hazards <ul style="list-style-type: none"> ✓ Types of workshop hazards ✓ Warning signs ✓ Workshop hazard precautions • Identification of tools and equipment <ul style="list-style-type: none"> ✓ Identification of tools ✓ Identification of equipments • Use of tools and equipment <ul style="list-style-type: none"> ✓ Use of tools ✓ Use of equipments 	
Resources required for the learning outcome	
Equipment	<ul style="list-style-type: none"> ▪ Drilling machine (fixed and hand), pipe bender machine, First aid kit , water boost pump, Heat gun
Materials	<ul style="list-style-type: none"> ▪ Union joints, PVC pipes, Steel pipes, T-Joint, Plug, Valve, Bolt, Nuts Pipe elbows, pressure relief valve , non-return valve, galvanized pipes , PPR pipes, insulators
Tools	<ul style="list-style-type: none"> ▪ Pipe wrench, Adjustable spanner, Water pliers, Hydraulic crimping pliers, hacksaw, chisel, tape measure, hammer
Facilitation techniques	<ul style="list-style-type: none"> ▪ Demonstration ▪ Individualized ▪ Trainer guided ▪ Group discussion
Formative assessment methods	<ul style="list-style-type: none"> ▪ Written assessment ▪ Oral presentation ▪ Performance assessment

Learning outcome 2: Assemble plumbing pipes		Learning hours: 20
Indicative content		
<ul style="list-style-type: none"> • Identification of pipes and joints <ul style="list-style-type: none"> ✓ Types of pipes ✓ Types of joints • Joining pipes <ul style="list-style-type: none"> ✓ Different methods of joining • Assembling pipes <ul style="list-style-type: none"> ✓ Different methods of pipes installation 		
Resources required for the indicative content		
Equipment	<ul style="list-style-type: none"> ▪ Drilling machine (fixed and hand), pipe bender machine, First aid kit, water boost pump, Heat gun 	
Materials	<ul style="list-style-type: none"> ▪ Union joints, PVC pipes, Steel pipes, T-Joint, Plug, Valve, Bolt, Nuts, Pipe elbows, , non-return valve, galvanized pipes , PPR pipes, Clips, Screws 	
Tools	<ul style="list-style-type: none"> ▪ Pipe wrench, Adjustable spanner, Water pliers, Hydraulic crimping pliers, hacksaw, chisel, hammer 	
Facilitation techniques	<ul style="list-style-type: none"> ▪ Lectures ▪ Demonstration ▪ Individual and group work ▪ Practical exercise ▪ Trainer guided 	
Formative assessment methods	<ul style="list-style-type: none"> ▪ Oral presentation ▪ Performance assessment 	

Learning outcome 3: Clean the workplace, tools and equipment		Learning hours: 10
Indicative content		
<ul style="list-style-type: none"> • Collecting tools and equipments <ul style="list-style-type: none"> ✓ Method of collecting tools and equipment • Keeping tools and equipment before, during and after use <ul style="list-style-type: none"> ✓ Different methods of cleaning tools and equipment ✓ Arrangement of tools/equipment according to their use • Cleaning the working area <ul style="list-style-type: none"> ✓ Different methods of cleaning the working area ✓ Disposal of waste materials according to their nature 		
Resources required for the indicative content		

Equipments	<ul style="list-style-type: none"> ▪ Blower machine, Recycle bin, Overcoat and overall, Gloves, Safety shoes, Helmet, Earmuff, Nose protection mask, Brushes, Goggles, hose
Materials	<ul style="list-style-type: none"> ▪ water/ coolant
Tools	<ul style="list-style-type: none"> ▪ Plumber tool kit, Cleaning cloth, Sponge
Facilitation techniques	<ul style="list-style-type: none"> ▪ Demonstration ▪ Practical exercise ▪ Trainer guided
Formative assessment methods	<ul style="list-style-type: none"> ▪ Oral presentation ▪ Performance assessment

References:

1. <https://ncert.nic.in/textbook/pdf/iepg105.pdf>
2. American Water Works Association, American Water Works Association. Standards Committee A21 on Ductile-Iron Pipe, & Fittings. (2003). *Ductile-iron pipe and fittings* (Vol. 41). American Water Works Association.
3. <https://theconstructor.org/building/types-of-pipe-fittings-in-plumbing/12541/>
4. Willoughby, D. A. (2002). *Plastic piping handbook*. McGraw-Hill Education.
5. Guidelines for Drinking-water Quality by WHO, 2008. Third edition - volume 1, WHO Library - Cataloguing Geneva- Suisse.
6. *The complete guide to plumbing, Expanded 4th Edition*, Black & Daker
7. *Plumbing Engineer's Guide to System Design and Specifications, Volume 2*
8. *Water transmission and distribution (Principles and Practices of Water Supply Operations)* by American water works association, 2010. Congress Cataloging-in-Publication Data, USA
9. Domestic plumbing and Heating (Scotland) LTD (www.domesticplumbingheating.co.uk) – Domestic plumbing Services Ltd (domesticplumbingservices.com)