

Program Guide

for

Assistant Plumber

*A short term Apprenticeship Curriculum
for
International Labour Organisation/ Time Bound Program
and
World Education/Brighter Future Project*



Council for Technical Education and Vocational Training
CURRICULUM DEVELOPMENT DIVISION

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Introduction

The International Programme on the Elimination of Child Labour (IPEC) of the International Labour Organisation (ILO) has promoted a variety of measures to progressively eliminate child labour, giving priority to the eradication of the worst forms of child labour in Nepal. IPEC's interventions are implemented in partnership with the government, trade unions, employer's associations and non-governmental organizations. One of the innovative programmes promoted by IPEC include the Time Bound Programme (TPB), which aims to prevent and eliminate selected worst forms of child labour, as defined in ILO Convention No. 182, within a defined period of time.

The objective of the Time-Bound Programme (TBP) is to contribute to the Master Plan of His Majesty's Government of Nepal for the Elimination of Child Labour. The Time-Bound Programme is going to take various steps in eliminating the identified seven worst forms of child labour in Nepal: child porters, child domestics, children in trafficking, child raggickers, children in carpet factories, children in mine/stone quarries and child bonded labour.

The educational interventions of the TBP in Nepal have been among the most effective instruments for the prevention of child labour and the rehabilitation of former child workers. The TBP & Brighter Future Programme (BFP) of World Education (WEI) measures promote access to free education and appropriate vocational training and apprenticeship opportunities for all children and youth removed from the identified worst forms of child labour. In this context, ILO and World Education (WEI) have taken the initiative to design apprenticeship-training programs in various trade areas for the older children working in the worst forms of child labour.

Rational of the programme

The vocational trainings in Nepal have resulted mixed outcomes. Although, there is a rapid proliferation of the technical and vocational training providers and the youth enrolment has been in increasing trend, there are some fundamental problems. Basically, the training programmes are much structured and the training delivery is made in institution-based environment. Similarly, there are minimum standard that needs to be maintained for enrolment. Considering the low literacy background of children engaged in the identified worst forms of child labour, the standard for admission to vocational training institutes is too high. Furthermore, many vocational training institutes have a very high cost. Therefore, ILO and WEI have taken the initiative to look more carefully into apprenticeship models as an alternative to vocational training for older working children.

According to IPEC Nepal and WEI, the term apprenticeship for TBP refers to supervised on-the-job training that provides practical skills and theoretical knowledge and also the experience of a work environment. It is a learning method that prepares a young person at least 14 years of age for a real job by giving him/her a set of well-defined occupational abilities through close supervision and guidance from a potential employer, or from a mentor. Apprenticeship can build confidence in young people, and remind them that they have a positive role to play in their community, and in their country.

Overall objectives

The overall objective of the programme is to eliminate exploitative and hazardous child labour by providing them with skills and knowledge to attain better employment and economic opportunities and linking them to national development efforts including economic, educational and labour market policies of Nepal.

Terminal objectives

After the completion of this course an apprentice will be able:

- to develop layout plans for installations and apparatus fitting,
- to install pipe and related accessories for water supply and sanitary works,
- to repair and maintain water supply and sanitation installations and apparatus,
- to make polythene pipe fittings for water supply and sewage disposal, and
- to assist in managerial works associated to prescribed job.

Course description

This course is designed to help the apprentices to provide basic knowledge and skills about plumbing. The apprentices will develop their competencies working in the plumbing related industries in unstructured way. This course especially provides skills focusing on domestic and industrial installations and apparatus fittings. This course also provides skills about repairing and maintaining various installations and sanitary wares.

Target group

This programme is targeted to the older children engaged in the worst forms of child labour who are above 14 years old. In Nepal, the worst form of child labour include;

1. Domestic child labourers,
2. Child porters,
3. Child bonded labourers,
4. Children involved in trafficking,
5. Rag picking children,
6. Child labourers in carpet industry, and
7. Child labourers in stone quarries and mines.

Group size

The number of apprentice can vary depending upon the facilities available with the apprenticeship-training providers. **Ideally, this should not exceed five in numbers.**

Entry criteria

An apprentice must be or have

1. Engaged in the worst form of child labour.
2. Between 14 to 18 years old.
3. Interest and commitment in apprenticeship training.
4. Current employer's/guardian's consent.
5. Basic literacy.

Duration

Three to five months (2 to 3 hours per day and 5 to 6 days a week) OR as per the agreement between apprenticeship provider and TBP implementing organisation. However, the theory and practical time should be arranged in the ratio of 20:80.

Medium of instruction Nepali.

Pattern of attendance

The apprentice should secure 90% attendance during the training period.

Certificate requirements

National Skill Testing Board (The Skill Testing Division of the Council for Technical Education and Vocational Training, CTEVT) according to its requirement administers skill tests and provides certificate to apprentice.

Apprenticeship provider's qualification

An apprenticeship provider must have:

1. Enthusiasm and motivation to train the older children in the worst form of child labour
2. Qualification and experience in training.
3. Proper tools, equipment and space for training.
4. Safe working environment.
5. Possibility of employment opportunity.

Trainees evaluation

The apprenticeship-training providers will continuously evaluate the apprentice based on their performance.

Equipment, tools and materials

Depending upon the frequency of uses and the number of apprentice the number/quantity of tools/equipment/material varies.

S. No.	Name of the tools/equipment	Units
1.	Cutting tools	
	Hacksaw Mitre saw Wooden saw Chisel Pocket knife Pipe cutter Reamer Scissor Pad saw	
2.	Hammering tools	
	Motion Hammer Spin hammer Ball hammer Pin hammer	
3.	Vice and Wrenches	
	Pipe vice Chain vice Bench vice Pipe wrench Adjustable wrench Spanner Set Screw driver	

S. No.	Name of the tools/equipment	Units
4.	File set	
	Triangle file Half run file Square file Needle file set Pe file Wooden file	
5.	Measuring tools	
	Hook tape Measuring tape Spirit level Plumb bob Marking tool Folding tape Bottom square Comb of different sizes Blade Razor Saving brush Hair thinning brush Looking glass Hair Dryer Dry brush Hard brush Water bowl Sprayer Threading tools	
6.	Heating tools	
	Heating plate Blow lamp	
7.	Other Tools	
	Hand drill Combination pliers Vice pliers Nose pliers	
8.	Equipment	
	Vernier Calliper G.F. machine Tapping machine Water pressure Air pressure Grinder Pillar drill machine Align key set Circlip pliers set Die sets	

Summary of Duties and Competencies

S. No	Duties and Competencies/Tasks/Skills	Time (in hours)		
		Th.	Prac.	Total
A.	Manage Works			
	A.1. Familiarize with contract paper	1		1
	A.2. Familiarize with work plan	1		1
	A.3. Manage tools / equipments/materials (Local/foreign)	1		1
	A.4. Manage helpers	1		1
	A.5. Manage transportation	1		1
	A.6. Manage financial matter	1		1
B.	Develop layout plans			
	B. 1. Layout pipeline.	1	2	4
	B. 2. Locate tap point (for mixture, low height etc.).	2		2
	B. 3. Locate water tank position.	1		1
	B. 4. Plan floor pan location.	2		2
	B. 5. Plan washbasin location.	1	1	2
	B. 6. Plan bathtub location.	1	1	2
	B. 7. Plan shower location.	1	1	2
	B. 8. Plan kitchen sink location.	1	1	2
	B. 9. Plan commode/ W.C. pan location.	2		2
	B. 10. Plan water pump location.	1	1	2
	B. 11. Plan urinal location.	1		1
	B. 12. Plan bidet location.	1		1
	B. 13. Plan geyser location.	1		1
	B. 14. Plan solar water heater location.	2		2
C.	Estimate works			
	C.1. Estimate G.I. fitting materials.	1	1	2
	C.2. Estimate PVC fittings	1	2	3
	C.3. Estimate G.I. pipe		3	3
	C.4. Estimate roof tank system	1	3	4
	C.5. Estimate water pump system	1	2	3
	C.6. Estimate apparatus fittings	2	3	5
	C.7. Estimate geyser solar	2	3	5
	C.8. Estimate rower pump system	1	5	6
	C.9. Calculate labour /material cost	1	2	3
	C.10. Estimate C.P. fittings	1	3	4
D.	Perform Installations			
	D.1. Interpret working drawing	1	4	5
	D.2. Identify layout location	2		2
	D.3. Cut threads on G.I. pipe	1	1	2
	D.4. Install pipe line	1	1	2
	D.5. Install roof tank	1	2	3
	D.6. Install water pump	1	2	3
	D.7. Install simple tap	1	2	3
	D.8. Perform ground tank installation	1	1	2
	D.9. Install bathroom appliances	1	2	3
	D.10. Install geyser	1	2	3

S. No	Duties and Competencies/Tasks/Skills	Time (in hours)		
		Th.	Prac.	Total
	D.11. Install solar system	1	3	4
	D.12. Install washing machine	1	3	4
E.	Install apparatus / sanitary wares			
	E. 1. Install bathtub.	1	1	2
	E. 2. Install shower.	1	1	2
	E. 3. Install washbasin.	1	2	3
	E. 4. Install floor pan.	1	2	3
	E. 5. Install kitchen sink.	1	2	3
	E. 6. Install commode / W.C. pan	1	2	3
	E. 7. Install sink trough.	1	1	2
	E. 8. Install urinal.	1	2	3
	E. 9. Install bedet.	1	2	3
	E. 10. Install C.P. fittings.	1	1	2
F.	Repair / Maintain Installations / Apparatus			
	F.1. Repair / replace simple tap spindle	1	1	2
	F.2. Repair pipe line leakage	1	1	2
	F.3. Repair / replace float valve	1	1	2
	F.4. Repair / replace fittings	1	1	2
	F.5. Repair / maintain water pump	1	2	3
	F.6. Repair / maintain wash basin	1	2	3
	F.7. Repair / maintain shower	1	2	3
	F.8. Repair / maintain urinal	1	2	3
	F.9. Repair / maintain kitchen sink	1	2	3
	F.10. Repair / replace ball cock of flushing system	1	1	2
	F.11. Repair / maintain / replace bath tub	1	1	2
	F.12. Repair / Replace check valve	1	1	2
	F.13. Repair / Replace Air Valve	1	1	2
	F.14. Repair / Replace safety valve	1	1	2
	F.15. Repair / Replace gate valve / glove valve	1	2	3
G.	Repair / maintain tools / equipments			
	G.1. Maintain adjustable wrench	1	1	2
	G.2. Maintain repair pipe wrench	1	1	2
	G.3. Maintain die set	1	1	2
	G.4. Maintain chain vice	1	1	2
	G.5. Repair / maintain pipe cutter	1	1	2
	G.6. Maintain drill machine	1	1	2
H.	Make Polythene pipe fittings			
	H.1. Make butt joint	1	3	4
	H.2. Make Elbow	1	4	5
	H.3. Make cross "T"	1	4	5
	H.4. Make Y-branch	1	4	5
	H.5. Make R socket	1	4	5
	H.6. Make T-branch	1	4	5
	H.7. Make 45 ⁰ bend	1	4	5
	H.8. Make siphon	1	4	5
	H.9. Make vent cowl	1	4	5

S. No	Duties and Competencies/Tasks/Skills	Time (in hours)		
		Th.	Prac.	Total
I.	Communicate with other			
	I.1. Communicate with plumbers.	1	2	3
	I.2. Communicate with client.	1	2	3
	I.3. Communicate with employer.	1	2	3
	I.4. Communicate with colleagues.	1	2	3
	I.5. Communicate with supervisor.	1	2	3
	I.6. Communicate with supplier.	1	2	3
	I.7. Communicate with visitor.	1	2	3
	I.8. Communicate with junior.	1	2	3
	I.9. Communicate with hardware shops.	1	2	3
	I.10. Receive telephone call.	1	2	3
J.	Grow professionalism			
	J.1. Consult plumber.	1	2	3
	J.2. Visit other's working place/ sight.	1	3	4
	J.3. Read related materials (Documents, manuals, brochures)	1	3	4
	J.4. Attend training/ seminar/workshops	1	4	5
	J.5. Watch Audio/Visual.	1	2	3
	J.6. Browse World Wide Web.	1	2	3
	J.7. Seek trainings places / programs	1	2	3
	Total	105	179	284

Duty 1: Manage Works.

S. No	Competencies	Related Technical Knowledge	Time (in hours)		
			Th.	Prac.	Total
1.	Familiarize with contract paper.	<ul style="list-style-type: none"> ☒ Definition of contract paper. ☒ Components of the contract paper. ☒ Contract period/duration (concept only). 	1		1
2.	Familiarize with work plan.	<ul style="list-style-type: none"> ☒ Definition of work plan. ☒ Overview of tools, equipment, materials, and labour requirement (fundamental idea only). 	1		1
3.	Manage tools / equipments/materials.	<ul style="list-style-type: none"> ☒ Lists of tools/equipment. ☒ Availability of tools/equipment/material in the workshop (for regular and occasional works). 	1		1
4.	Manage helpers.	<ul style="list-style-type: none"> ☒ Types of workers (skilled, semi-skilled and unskilled). ☒ Working hours. ☒ Holidays. ☒ Rules and regulations. 	1		1
5.	Manage transportation.	<ul style="list-style-type: none"> ☒ Location of necessary destinations. ☒ Modes of transport (porter, push cart, <i>Riksa</i> or vehicular). 	1		1
6.	Manage financial matter.	<ul style="list-style-type: none"> ☒ Petty cash handling. ☒ Receipt and bills (invoice). ☒ Banking procedure (simple concept). 	1		1

Duty 2: Develop layout plans.

S. No	Competencies	Related Technical Knowledge	Time (in hours)		
			Th.	Prac.	Total
1.	Layout pipeline.	<ul style="list-style-type: none"> ☒ Standard measurement (FPS and MKS/SI) system. ☒ Reading and interpretation of drawings. ☒ Pipe laying procedure. 	1	2	4
2.	Locate tap point (for mixture, low height etc.).	<ul style="list-style-type: none"> ☒ Size of room, benchmark (BM). ☒ Types of tap (mixture or separate or wall hanger or pillar). ☒ Location procedure. 	2		2

S. No	Competencies	Related Technical Knowledge	Time (in hours)		
			Th.	Prac.	Total
3.	Locate water tank position.	<ul style="list-style-type: none"> ☒ Size of tank (liter/m³). ☒ Height of the tank position and its effect. 	1		1
4.	Plan floor pan location.	<ul style="list-style-type: none"> ☒ Standard room size of lavatory. ☒ Exit door and window location. ☒ Water supply input and waste water output. 	2		2
5.	Plan washbasin location.	<ul style="list-style-type: none"> ☒ Standard height of washbasin. ☒ Size of wash basin ☒ Water inlet and water outlet positions. 	1	1	2
6.	Plan bathtub location.	<ul style="list-style-type: none"> ☒ Type of bathtub. ☒ Standard size of bathtub. ☒ Required area. 	1	1	2
7.	Plan shower location.	<ul style="list-style-type: none"> ☒ Type of shower (telephonic / fixed/ lose) ☒ Standard height of tap and shower. ☒ Required area (including clearance requirement). 	1	1	2
8.	Plan kitchen sink location.	<ul style="list-style-type: none"> ☒ Standard height of sink. ☒ Required area (including clearance requirement). 	1	1	2
9.	Plan commode/ W.C. pan location.	<ul style="list-style-type: none"> ☒ Standard size of bathroom. ☒ Size of W/C. ☒ Types of flush system (cistern or flush valve). ☒ Area requirement (length breath) ☒ Water inlet pipeline and wastewater outlet. 	2		2
10.	Plan water pump location.	<ul style="list-style-type: none"> ☒ Pump size, water head, water suction and friction loss. 	1	1	2
11.	Plan urinal location.	<ul style="list-style-type: none"> ☒ Standard size of urinal. ☒ Standard height installation of the appliances 	1		1
12.	Plan bidet location.	<ul style="list-style-type: none"> ☒ Standard size of bidet ☒ Standard height of installation of the appliances. 	1		1
13.	Plan geyser location.	<ul style="list-style-type: none"> ☒ Standard size of geyser ☒ Standard height of installation of the appliances. 	1		1

S. No	Competencies	Related Technical Knowledge	Time (in hours)		
			Th.	Prac.	Total
14.	Plan solar water heater location.	<input type="checkbox"/> Function of solar water heater. <input type="checkbox"/> Component of a solar water heating system. <input type="checkbox"/> Head of supply line. <input type="checkbox"/> Properties of hot and cold water. <input type="checkbox"/> Simple concept on sun radiation.	2		2

Duty 3: Estimate works.

S. No	Competencies	Related Technical Knowledge	Time (in hours)		
			Th.	Prac.	Total
1.	Estimate G.I. fitting materials.	<input type="checkbox"/> Interpretation of layout drawings. <input type="checkbox"/> Type of fittings. <input type="checkbox"/> Measurement (size / length/ number).	1	1	2
2.	Estimate PVC fittings.	<input type="checkbox"/> Interpretation of layout drawings. <input type="checkbox"/> Type and size of PVC pipe fitting for water supply and wastewater disposal.	1	2	3
3.	Estimate G.I. pipe.	<input type="checkbox"/> Interpretation of layout drawings. <input type="checkbox"/> Pipe size (diameter, length) and quality (heavy, medium and low including colour code).		3	3
4.	Estimate roof tank system.	<input type="checkbox"/> Interpretation of layout drawings. <input type="checkbox"/> Components of roof tank systems.	1	3	4
5.	Estimate water pump system.	<input type="checkbox"/> Interpretation of layout drawings. <input type="checkbox"/> Pump suction, water head and head loss.	1	2	3
6.	Estimate apparatus fittings (nipple, socket, elbow, T, cross, Union).	<input type="checkbox"/> Interpretation of layout drawings.	2	3	5
7.	Estimate geyser/ solar.	<input type="checkbox"/> Interpretation of layout drawings.	2	3	5
8.	Estimate rower pump system.	<input type="checkbox"/> Interpretation of layout drawings. <input type="checkbox"/> Soil structure and depth of installation.	1	5	6

S. No	Competencies	Related Technical Knowledge	Time (in hours)		
			Th.	Prac.	Total
9.	Calculate labour /material cost.	<input type="checkbox"/> Material cost according to district rate and market price. <input type="checkbox"/> Labour (skilled, semi-skilled and unskilled) requirement according to the HMG norms.	1	2	3
10.	Estimate C.P. fittings.	<input type="checkbox"/> Interpretation of layout drawings. <input type="checkbox"/> Types CP material <input type="checkbox"/> Units of CP materials.	1	3	4

Duty 4: Perform installations.

S. No	Competencies	Related Technical Knowledge	Time (in hours)		
			Th.	Prac.	Total
1.	Interpret working drawing.	<input type="checkbox"/> Symbol (S), Dimension (D), <input type="checkbox"/> Measuring scale 1:4, 2:1, 1:2 <input type="checkbox"/> Section and views.	1	4	5
2.	Identify layout location.	<input type="checkbox"/> Identification on the basis of symbols and dimensions.	2		2
3.	Cut threads on G.I. pipe.	<input type="checkbox"/> Function of Threads. <input type="checkbox"/> Types (no. of thread per inch) of thread. <input type="checkbox"/> Handling of diestock. <input type="checkbox"/> Identification of teeth size. <input type="checkbox"/> Safety precaution.	1	1	2
4.	Install pipeline.	<input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precaution.	1	1	2
5.	Install roof tank.	<input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precaution.	1	2	3
6.	Install water pump.	<input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precaution.	1	2	3
7.	Install simple tap.	<input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precaution.	1	2	3
8.	Perform ground tank installation.	<input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precaution.	1	1	2
9.	Install bathroom appliances.	<input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precaution.	1	2	3
10.	Install geyser.	<input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precaution.	1	2	3
11.	Install solar system.	<input type="checkbox"/> Hot and cold water distribution system. <input type="checkbox"/> Installation of safety devices. <input type="checkbox"/> Prevention of heat loss (insulation system)	1	3	4

S. No	Competencies	Related Technical Knowledge	Time (in hours)		
			Th.	Prac.	Total
		<input type="checkbox"/> Pressure and thermo-siphon system. <input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precaution.			
12.	Install washing machine.	<input type="checkbox"/> Water inlet and outlet. <input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precaution.	1	3	4

Duty 5: Install apparatus / sanitary wares.

S. No	Competencies	Related Technical Knowledge	Time (in hours)		
			Th.	Prac.	Total
1.	Install bathtub.	<input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precautions.	1	1	2
2.	Install shower.	<input type="checkbox"/> Cold and hot water supply. <input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precautions.	1	1	2
3.	Install washbasin.	<input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precautions.	1	2	3
4.	Install floor pan.	<input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precautions. <input type="checkbox"/> Conceal or surface flushing system. <input type="checkbox"/> Waste outlet sealing.	1	2	3
5.	Install kitchen sink.	<input type="checkbox"/> Supporting brackets. <input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precautions.	1	2	3
6.	Install commode / W.C. pan	<input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precautions.	1	2	3
7.	Install sink trough.	<input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precautions.	1	1	2
8.	Install urinal.	<input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precautions.	1	2	3
9.	Install bedet.	<input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precautions.	1	2	3
10.	Install C.P. fittings.	<input type="checkbox"/> Installation procedure. <input type="checkbox"/> Safety precautions.	1	1	2

Duty 6: Repair / Maintain Installations / Apparatus

S. No	Competencies	Related Technical Knowledge	Time (in hours)		
			Th.	Prac.	Total
1.	Repair / replace simple tap spindle.	<input type="checkbox"/> Repair/replacement procedure. <input type="checkbox"/> Safety precautions.	1	1	2
2.	Repair pipeline leakage.	<input type="checkbox"/> Repair/replacement	1	1	2

S. No	Competencies	Related Technical Knowledge	Time (in hours)		
			Th.	Prac.	Total
		procedure. ☒ Safety precautions.			
3.	Repair / replace float valve.	☒ Function of float value ☒ Water pressure. ☒ Repair/replacement procedure. ☒ Safety precautions.	1	1	2
4.	Repair / replace fittings.	☒ Identification of faulty fittings. ☒ Water pressure / water heat in pipe line, ☒ Repair/replacement procedure. ☒ Safety precautions.	1	1	2
5.	Repair / maintain water pump.	☒ Identification of faults. ☒ Basic electrical functions. ☒ Repair/maintenance procedure. ☒ Safety precautions.	1	2	3
6.	Repair / maintain washbasin.	☒ Repair/maintenance procedure. ☒ Safety precautions.	1	2	3
7.	Repair / maintain shower.	☒ Repair/maintenance procedure. ☒ Safety precautions.	1	2	3
8.	Repair / maintain urinal.	☒ Repair/maintenance procedure. ☒ Safety precautions.	1	2	3
9.	Repair / maintain kitchen sink.	☒ Repair/maintenance procedure. ☒ Safety precautions.	1	2	3
10.	Repair / replace ball cock of flushing system.	☒ Repair/maintenance procedure. ☒ Safety precautions.	1	1	2
11.	Repair / maintain / replace bathtub.	☒ Repair/maintenance procedure. ☒ Safety precautions.	1	1	2
12.	Repair / Replace check valve.	☒ Function of check valve. ☒ Size of valves. ☒ Repair/replacement procedure. ☒ Safety precautions.	1	1	2
13.	Repair / Replace Air Valve.	☒ Repair/maintenance procedure. ☒ Safety precautions.	1	1	2
14.	Repair / Replace safety valve.	☒ Function of safety valve. ☒ Size of valves. ☒ Repair/replacement	1	1	2

S. No	Competencies	Related Technical Knowledge	Time (in hours)		
			Th.	Prac.	Total
		procedure. ☒ Safety precautions.			
15.	Repair / Replace gate valve / glove valve.	☒ Function of Flange or union ☒ Sealing materials. ☒ Repair/replacement procedure. ☒ Safety precautions.	1	2	3

Duty 7: Repair / maintain tools / equipment.

S. No	Competencies	Related Technical Knowledge	Time (in hours)		
			Th.	Prac.	Total
1.	Maintain adjustable wrench.	☒ Protection from rusting (cleaning, oiling, greasing). ☒ Proper placement and store. ☒ Tightening of loose part. ☒ Safety precautions.	1	1	2
2.	Maintain repair pipe wrench.	☒ Protection from rusting (cleaning, oiling, greasing). ☒ Proper placement and store. ☒ Tightening of loose part. ☒ Safety precautions.	1	1	2
3.	Maintain die set.	☒ Protection from rusting (cleaning, oiling, greasing). ☒ Proper placement and store. ☒ Tightening of loose part. ☒ Safety precautions.	1	1	2
4.	Maintain chain vice.	☒ Protection from rusting (cleaning, oiling, greasing). ☒ Proper placement and store. ☒ Tightening of loose part. ☒ Safety precautions.	1	1	2
5.	Repair / maintain pipe cutter.	☒ Protection from rusting (cleaning, oiling, greasing). ☒ Proper placement and store. ☒ Tightening of loose part. ☒ Safety precautions.	1	1	2
6.	Maintain drill machine.	☒ Protection from rusting (cleaning, oiling, greasing). ☒ Proper placement and store. ☒ Tightening of loose part. ☒ Safety precautions.	1	1	2

Duty 8: Make polythene pipefittings.

S. No	Competencies	Related Technical Knowledge	Time (in hours)		
			Th.	Prac.	Total
1.	Make butt joint.	<input type="checkbox"/> Properties of polyethylene material. <input type="checkbox"/> Welding tools and material <input type="checkbox"/> Welding temperature. <input type="checkbox"/> Procedure. <input type="checkbox"/> Safety precautions.	1	3	4
2.	Make Elbow.	<input type="checkbox"/> Angle cutting devices and their functions. <input type="checkbox"/> Angle cutting and joining procedure. <input type="checkbox"/> Safety precautions.	1	4	5
3.	Make cross "T".	<input type="checkbox"/> Angle cutting devices and their functions. <input type="checkbox"/> Angle cutting and joining procedure. <input type="checkbox"/> Safety precautions.	1	4	5
4.	Make Y-branch.	<input type="checkbox"/> Angle cutting devices and their functions. <input type="checkbox"/> Angle cutting and joining procedure. <input type="checkbox"/> Safety precautions.	1	4	5
5.	Make R socket.	<input type="checkbox"/> Angle cutting devices and function. <input type="checkbox"/> Angle cutting and joining procedure. <input type="checkbox"/> Safety precautions.	1	4	5
6.	Make T-branch.	<input type="checkbox"/> Angle cutting devices and function. <input type="checkbox"/> Angle cutting and joining procedure. <input type="checkbox"/> Safety precautions.	1	4	5
7.	Make 45 ⁰ bend.	<input type="checkbox"/> Angle cutting devices and function. <input type="checkbox"/> Angle cutting and joining procedure. <input type="checkbox"/> Safety precautions.	1	4	5
8.	Make siphon.	<input type="checkbox"/> Angle cutting devices and function. <input type="checkbox"/> Angle cutting and joining procedure. <input type="checkbox"/> Safety precautions.	1	4	5
9.	Make vent cowl.	<input type="checkbox"/> Angle cutting devices and function. <input type="checkbox"/> Angle cutting and joining procedure. <input type="checkbox"/> Safety precautions.	1	4	5

Duty 9: Communicate with others.

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
1.	Communicate with plumbers.	<input checked="" type="checkbox"/> Meaning and importance of communication. <input checked="" type="checkbox"/> Type of communication (oral, sign/gesture and written). <input checked="" type="checkbox"/> Oral communication techniques. <input checked="" type="checkbox"/> Communication for cooperative/collaborative tasks. <input checked="" type="checkbox"/> Learning and information sharing. <input checked="" type="checkbox"/> Prior consultation on assigned work with the seniors. <input checked="" type="checkbox"/> Uses of appropriate communication language (with higher and lower position staffs.)	1	2	3
2.	Communicate with client.	<input checked="" type="checkbox"/> Importance of listening and viewing the client's opinions (offering opinions, supporting statement and questions and clarification of the proposed job).	1	2	3
3.	Communicate with employer.	<input checked="" type="checkbox"/> Refer to task 2	1	2	3
4.	Communicate with colleagues.	<input checked="" type="checkbox"/> Importance of interpretation and explanation of the proposed job with friends.	1	2	3
5.	Communicate with supervisor.	<input checked="" type="checkbox"/> Refer to task 1	1	2	3
6.	Communicate with supplier.	<input checked="" type="checkbox"/> Refer to task 2	1	2	3
7.	Communicate with visitor.	<input checked="" type="checkbox"/> Refer to task 2	1	2	3
8.	Communicate with junior.	<input checked="" type="checkbox"/> Refer to task 4	1	2	3
9.	Communicate with hardware shops.	<input checked="" type="checkbox"/> Demand and supply order. <input checked="" type="checkbox"/> Bill / invoice. <input checked="" type="checkbox"/> Material supply and delivery.	1	2	3
10.	Receive telephone call.	<input checked="" type="checkbox"/> Meaning, importance and purpose of telephone	1	2	3

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
		<input type="checkbox"/> Telephone receiving technique <input type="checkbox"/> Etiquette of receiving telephone call. <input type="checkbox"/> Message writing technique			

Duty 10: Grow professionalism.

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
1.	Consult plumber.	<input type="checkbox"/> Importance of participating in career exploration activities with the plumber.	1	2	3
2.	Visit other's working place/ sight.	<input type="checkbox"/> Importance of learning from different workplaces and site visits.	1	3	4
3.	Read related materials (Documents, manuals, brochures).	<input type="checkbox"/> Importance of learning from trade relevant documents, manuals and other job related sheets.	1	3	4
4.	Attend training/ seminar/workshops.	<input type="checkbox"/> Need of growing professionalism. <input type="checkbox"/> Importance of career development opportunities inside and outside the organization.	1	4	5
5.	Watch Audio-Visual.	<input type="checkbox"/> Familiarization of TVs channel/A/V aids. <input type="checkbox"/> Importance of leaning from A/V.	1	2	3
6.	Browse World Wide Web.	<input type="checkbox"/> Familiarization with computer. <input type="checkbox"/> WWW browsing techniques.	1	2	3
7.	Seek trainings places / programs.	<input type="checkbox"/> Importance of trainings in career development. <input type="checkbox"/> Possible training providers/institutes for refresher trainings.	1	2	3