# **Program Guide**

for

# **Metal Work Helper**

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**

Sanothimi, Bhaktapur 2004.

## 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 ragpickers, 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 take measurement and unit conversion,
- to perform bench works,
- to assist in mending grills and making gates,
- to perform finishing works, and
- to assist in managing the workshop.

## **Course description**

This course is designed to help the apprentices to provide basic knowledge and skills on metal works. The apprentices will develop their competencies working in the metal and grill workshop under the supervision of a senior metal worker in an unstructured way. This course especially provides skills focusing on taking measurements, performing bench works and mending grills and making gates. This course also provides skills on performing finishing works and maintaining necessary tools and equipment.

## 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
	Hammer	
	Chisel	
	Plumb bob	
	Bottom	
	Spirit level	
	Measuring tape	
	Hack saw set	
	Wrenches	
	Drill bits	
	Screw driver	
	Pliers	
	Right angle	
	Protector	
	Scissors	
	Welding machine	
	Drilling machine	
	Die set	
	Cutter machine	
	Hand grinder	
	Stand grinder	
	Vices	
	Chain pulley	
	Balance set	
	Anbilhub	
	Verneir calliper	

# **Summary of Duties and Competencies**

Assist A.1. A.2.	Duties and Competencies/Tasks/Skills  to manage workshop	Th.	Prac.	Total
A.1.	to manage workshop			- 5001
A.2.	Assist to maintain workshop	2	4	6
	Assist to collect materials	1	4	5
A.3.	Manage hand tools	2	4	6
A.4.	Assist to procure materials	1	4	5
A.5.	Assist in delivering product	1	5	6
Take	Measurements			
B.1.		2	4	6
B.2.				
				10
				4
				6
	<u> </u>	1	4	5
				6
C.2.	Straighten flat cut piece			4
C.3.	Straighten angle cut piece	1	4	5
	Straighten pipe cut piece	1	3	4
	Bend flat piece	1		4
		1		4
				6
				4
	· · ·			6
				12
	<u> </u>			5
				4
				6
		1	4	5
	<u> </u>	2		
	<u> </u>			8
		<u>l</u>		11
	1 11 5	<u>l</u>		10
				15
				6
			-	8
		_		6
				8
		-		12
				11
				8
D.12.	Assist to ilicita found stall	1	14	15
	B.1. B.2. B.3. B.4. B.5. B.6. Perfor C.1. C.2. C.3. C.4. C.5. C.6. C.7. C.8. C.9. C.10. C.11. C.12. C.13.	B.1. Identify units of measurement (SI & FPS Units) B.2. Measure length (breadth or width or height)/diameter/weight. B.3. Interpret drawing B.4. Count Items B.5. Identify materials B.6. Weigh material  Perform Bench Work C.1. Cut metal as per drawing C.2. Straighten flat cut piece C.3. Straighten angle cut piece C.4. Straighten pipe cut piece C.5. Bend flat piece C.6. Bend angled piece C.7. Bend pipe piece C.8. Identify drill bits C.9. Perform drilling work C.10. Perform chiseling work C.11. Perform chiseling work C.12. Perform grinding work C.13. Fasten nuts and bolts C.14. Cut threads  Assist to mend grills D.1. Assist to mend square rod grill D.2. Assist to mend square pipe grill D.4. Assist to mend stair railing D.5. Assist to mend stair railing D.7. Assist to mend metal bed/ bench/ desk/table D.10. Assist to mend Skipping /swing D.11. Assist to mend Straight stair	B.1. Identify units of measurement (SI & FPS Units)  B.2. Measure length (breadth or width or height)/diameter/weight.  B.3. Interpret drawing  B.4. Count Items  B.5. Identify materials  B.6. Weigh material  B.6. Weigh material  C.1. Cut metal as per drawing  C.2. Straighten flat cut piece  C.3. Straighten angle cut piece  C.4. Straighten pipe cut piece  C.5. Bend flat piece  C.6. Bend angled piece  C.7. Bend pipe piece  C.8. Identify drill bits  C.9. Perform drilling work  C.10. Perform filing work  C.11. Perform chiseling work  C.12. Perform grinding work  C.13. Fasten nuts and bolts  C.14. Cut threads  Assist to mend grills  D.1. Assist to mend square rod grill  D.3. Assist to mend square rod grill  D.4. Assist to mend square pipe grill  D.5. Assist to mend square pipe grill  D.6. Assist to mend stair railing  D.7. Assist to mend stair railing  D.8. Assist to mend metal bed/ bench/ desk/table  D.9. Assist to mend metal bed/ bench/ desk/table  D.10. Assist to mend Skipping /swing  D.11. Assist to mend Skipping /swing  D.11. Assist to mend Skipping /swing  D.11. Assist to mend Skipping /swing	B.1. Identify units of measurement (SI & FPS Units)         2         4           B.2. Measure length (breadth or width or height)/diameter/weight.         8         8           B.3. Interpret drawing         2         8           B.4. Count Items         1         3           B.5. Identify materials         2         4           B.6. Weigh material         1         4           Perform Bench Work           C.1. Cut metal as per drawing         1         5           C.2. Straighten flat cut piece         1         3           C.3. Straighten angle cut piece         1         3           C.4. Straighten pipe cut piece         1         3           C.5. Bend angled piece         1         3           C.6. Bend apile piece         1         3           C.7. Bend pipe piece         1         5           C.8. Identify drill bits         1         3           C.9. Perform drilling work         1         5           C.10. Perform filling work         2         10           C.11. Perform chiseling work         1         3           C.12. Perform grinding work         1         4           C.14. Cut threads         1         4           Ass

C NI	Duties and Competencies/Tesks/Skills		Time (in hrs.)		
S. No	Duties and Competencies/Tasks/Skills		Th.	Prac.	Total
E.	Assist	to make gates			
	E.1.	Assist to make angle frame	2	6	8
	E.2.	Assist to make pipe frame	1	5	6
	E.3.	Assist to make CGI sheet gate	2	8	10
	E.4.	Assist to make plain sheet gate	1	4	5
	E.5.	Assist to make flat /rod/square pipe gate	1	5	6
	E.6.	Assist to perform rebating	1	3	4
	E.7.	Assist to make strips shutter	2	6	8
	E.8.	Assist to make mesh shutter	1	5	6
	E.9.	Assist to make folding gate	2	6	8
	E.10.		1	7	8
	E.11.	Assist to make channel gate	1	7	8
F.	Perfo	rm Finishing Works			
	F.1.	Apply sand paper	1	4	5
	F.2.	Level product surface	1	2	3
	F.3.	Remove iron chips	1	2	3
	F.4.	Apply putting over holes and joints	1	4	5
	F.5.	Apply primer (red oxide) painting	2	6	8
	F.6.	Fit window grills	1	4	5
G.		ain tools and Equipment			
	G.1.	Maintain hand grinder	2	8	10
	G.2.	Maintain hand drill machine	2	6	8
	G.3.	Maintain welding machine	2	8	10
	G.4.	Maintain cutting Machine	1	4	5
	G.5.	Maintain stand drill machine	1	5	6
	G.6.	Maintain bench vice	1	4	5
	G.7.	Maintain die set	2	4	6
	G.8.	Maintain pipe wrenches	1	3	4
H.		nunicate with others			-
	H.1.	Communicate with metal work mechanics.	1	2	3
	H.2.	Communicate with client.	1	2	3
	H.3.	Communicate with employer.	1	2	3
	H.4.	Communicate with colleagues.	1	2	3
	H.5.	Communicate with supervisor.	1	2	3
	H.6.	Communicate with supplier.	1	2	3
		Communicate with visitor.	1	2	3
	H.7			. –	
	H.7.		1	2	3
	H.8.	Communicate with junior.	1	2 2	3
	H.8. H.9.	Communicate with junior. Communicate with hardware shops.	1 1	2	3
<b>T</b> .	H.8. H.9. H.10.	Communicate with junior. Communicate with hardware shops. Receive telephone call.	1		
I.	H.8. H.9. H.10. <b>Grow</b>	Communicate with junior. Communicate with hardware shops. Receive telephone call. professionalism	1 1 1	2 2	3 3
I.	H.8. H.9. H.10. <b>Grow</b> I.1.	Communicate with junior. Communicate with hardware shops. Receive telephone call.  professionalism Consult metal work mechanics.	1 1 1	2 2 2	3 3
I,	H.8. H.9. H.10. <b>Grow</b> I.1. I.2.	Communicate with junior.  Communicate with hardware shops.  Receive telephone call.  professionalism  Consult metal work mechanics.  Visit equipped working places/sights.	1 1 1 1	2 2 2 3	3 3 3 4
I.	H.8. H.9. H.10. <b>Grow</b> I.1.	Communicate with junior. Communicate with hardware shops. Receive telephone call.  professionalism Consult metal work mechanics. Visit equipped working places/sights. Read related materials (Documents, manuals,	1 1 1	2 2 2	3 3
I,	H.8. H.9. H.10. <b>Grow</b> I.1. I.2. I.3.	Communicate with junior.  Communicate with hardware shops.  Receive telephone call.  professionalism  Consult metal work mechanics.  Visit equipped working places/sights.  Read related materials (Documents, manuals, brochures etc.).	1 1 1 1 1 1	2 2 2 3 3	3 3 4 4
I.	H.8. H.9. H.10. <b>Grow</b> I.1. I.2.	Communicate with junior. Communicate with hardware shops. Receive telephone call.  professionalism Consult metal work mechanics. Visit equipped working places/sights. Read related materials (Documents, manuals,	1 1 1 1	2 2 2 3	3 3 3 4

S. No	Duties and Competencies/Tesks/Skills		Time (in hrs.)		
	Duties and Competencies/Tasks/Skills	Th.	Prac.	Total	
	I.7. Browse World Wide Web.	1	2	3	
	Total			367	

**Duty 1: Assist in Workshop Management** 

a	Competencies	Related Technical	Time (in hrs.)		
S. No		Knowledge	Th.	Prac.	Total
1.	Assist to Maintain workshop.	<ul> <li>☑ Workshop layout.</li> <li>☑ Placement of tools and equipment.</li> <li>☑ Safety precaution.</li> </ul>	2	4	6
		<ul><li>☑ Safety precaution.</li><li>☑ Inventory.</li><li>☑ Periodical cleaning.</li></ul>			
2.	Assist to collect materials	<ul><li>Types of materials.</li><li>Identification of hardware shop.</li></ul>	1	4	5
3.	Manage hand tools	<ul> <li>□ Types of hand tools         <ul> <li>(measuring, cutting,</li> <li>hammering, welding).</li> </ul> </li> <li>□ Safety precaution.</li> </ul>	2	4	6
4.	Assist to procure materials	<ul> <li>☑ Identification of required materials, their size &amp; quality.</li> <li>☑ Availability place and route.</li> <li>☑ Procurement process (simple concept only).</li> </ul>	1	4	5
5.	Assist in delivering product	<ul> <li>□ Types of product.</li> <li>□ Handling techniques.</li> <li>□ Client's address,</li> <li>□ Fixing of the product</li> <li>□ Installation &amp; Adjustment</li> </ul>	1	5	6

**Duty 2: Take Measurements.** 

S. No	Competencies	Related Technical	Time (in hrs.)		
5.110	Competencies	Knowledge	Th.	Prac.	Total
1.	Identify units of measurement (MKS/SI & FPS Units).	<ul> <li>☑ Units of measurement         (MKS/SI and FPS system)</li> <li>☑ Conversion of units (from feet to meter and viceversa).</li> </ul>	2	4	6
2.	Measure length (breadth or width or height)/diameter.	<ul><li>☑ Measuring procedure.</li><li>☑ Area and volume calculation.</li></ul>			
3.	Interpret drawing.	<ul> <li>□ Concept of plan, elevation and section.</li> <li>□ Drawing scale and dimension.</li> <li>□ Drawing symbols.</li> </ul>	2	8	10
4.	Count items.	<ul><li>□ Categories of items.</li><li>□ Counting numbers.</li></ul>	1	3	4

S. No	Competencies	Related Technical	Time (in hrs.)		
5. 110	Competencies	Knowledge	Th.	Prac.	Total
5.	Identify materials.		2	4	6
		properties, uses,			
		Identification			
6.	Weigh material	□ Weighing Balance, Spring	1	4	5
		Balance.			
		Units.			
		□ Safety precautions.			

**Duty 3: Perform Bench work** 

S. No	Commeterates	Deleted Technical Vicewiedes	Time (in hrs.)			
5. NO	Competencies	Related Technical Knowledge	Th.	Prac.	Total	
1.	Cut metal.	<ul> <li>□ Identification of cutting tools and their uses.</li> <li>□ Cutting procedure.</li> <li>□ Safety precautions.</li> </ul>	1	5	6	
2.	Straighten flat cut piece	<ul> <li>☑ Identification of hammering tools and their uses.</li> <li>☑ Hammering procedure.</li> <li>☑ Safety precautions.</li> </ul>	1	3	4	
3.	Straighten angle cut piece	△ Refer task 2	1	4	5	
4.	Straighten pipe cut piece	△ Refer task 2	1	3	4	
<u>4.</u> 5.	Bend flat piece	<ul> <li>□ Types of bend (plain, circular and semi-circular).</li> <li>□ Bending procedure.</li> <li>□ Safety precautions.</li> </ul>	1	3	4	
6.	Bend angled piece	△ Refer task 5.	1	3	4	
7.	Bend pipe piece	□ Refer task 5.	1	5	6	
8.	Identify drill bits.	<ul> <li>□ Types of drill bit.</li> <li>□ Size and number identification.</li> <li>□ Safety precautions.</li> </ul>	1	3	4	
9.	Perform drilling.	<ul> <li>□ Drilling machine, its types and parts.</li> <li>□ Drilling procedure.</li> <li>□ Safety precautions.</li> </ul>	1	5	6	
10.	Perform filing.	<ul> <li>□ File types and their uses.</li> <li>□ Purpose of filling.</li> <li>□ Filling procedure.</li> <li>□ Safety precaution.</li> </ul>	2	10	12	
11.	Perform chiselling work	<ul> <li>□ Chisel types and their uses.</li> <li>□ Chiseling procedure.</li> <li>□ Grinding chisel</li> <li>□ Safety precaution.</li> </ul>	1	3	5	
12.	Perform grinding work	☐ Grinding machine and	1	3	4	

S. No	Compotonoios	Dalated Tashnical Knowledge	Time (in hrs.)		
5.110	Competencies	Related Technical Knowledge	Th.	Prac.	Total
		wheels.			
		☐ Grinding procedure.			
		□ Safety precautions.			
13.	Fasten nuts and bolts		2	4	6
		size,			
		□ Fastening procedure.			
		□ Safety precautions.			
14.	Cut threads	□ Types of thread.	1	4	5
		□ Identification of threads			
		cutting tools.			
		□ Threading procedure.			
		□ Safety precaution.			

**Duty 4: Assist to mend grills.** 

S. No	Competencies	Related Technical	Time (in hrs.)		
5. NO	Competencies	Knowledge	Th.	Prac.	Total
1.	Assist to mend flat grill	<ul> <li>☑ Identification of flat grill (Flat strip, grill size and types).</li> <li>☑ Interpretation of drawing/sketch.</li> <li>☑ Orientation on welding machine and accessories.</li> <li>☑ Types of welding.</li> </ul>	2	6	8
		<ul><li>✓ Welding procedure.</li><li>✓ Safety rules.</li></ul>			
2.	Assist to mend square grill	<ul> <li>☑ Identification of square grill (Flat strip, grill size and types).</li> <li>☑ Interpretation of drawing/sketch.</li> <li>☑ Orientation on welding machine and accessories.</li> <li>☑ Types of welding.</li> <li>☑ Welding procedure.</li> <li>☑ Safety rules.</li> </ul>	1	10	11
3.	Assist to mends square pipe grill.	<ul> <li>☑ Identification of square pipe grill (Flat strip, grill size and types).</li> <li>☑ Interpretation of drawing/sketch.</li> <li>☑ Orientation on welding machine and accessories.</li> <li>☑ Types of welding.</li> <li>☑ Welding procedure.</li> </ul>	1	9	10

C Na	Competencies	Related Technical	T	Time (in hrs.)		
S. No	Competencies	Knowledge	Th.	Prac.	Total	
		□ Safety procedure.				
4.	Assist to mend	□ Drawing/sketch	1	14	15	
	compound fencing	interpretation.				
		□ Procedure.				
		□ Safety precautions.				
5.	Assist to mend kennel	□ Drawing/sketch	1	5	6	
		interpretation.				
		□ Procedure.				
		☐ Safety precautions.				
6.	Assist to mend stair	□ Drawing/sketch     □	1	7	8	
	railing.	interpretation.				
	Turring.	□ Procedure.				
		☐ Safety precautions.				
7.	Assist to mend screen.	□ Drawing/sketch	1	5	6	
		interpretation.				
		□ Procedure.				
		✓ Safety precautions.				
8.	Assist to mend tank	□ Drawing/sketch	1	7	8	
	stand.	interpretation.				
		△ Procedure.				
		□ Safety precautions.				
9.	Assist to mend metal	□ Drawing/sketch	2	10	12	
	bed/ bench/ desk/table.	interpretation.				
		□ Procedure.				
		✓ Safety precautions.				
10.	Assist to mend slide	□ Drawing/sketch	1	10	11	
10.	/swing.	interpretation.	1		11	
	/5Wing.	□ Procedure.				
		<ul><li>□ Safety precautions.</li></ul>				
11.	Assist to mend straight	☐ Drawing/sketch	1	7	8	
11.	stair.	interpretation.	1	,		
	suii.	Procedure.				
		✓ Safety precautions.				
12.	Assist to mend round	☐ Drawing/sketch	1	14	15	
12.	stair.	_	1	14	13	
	Stall.	interpretation.				
		□ Procedure.     □ Sofety procedure.				
		□ Safety precautions.				

# **Duty 5:Assist to make gates**

S. No	Tasks	Related Technical	Time (in hrs.)		.)
		Knowledge	Th.	Prac.	Total
1.	Assist to make angle	□ Drawing/sketch interpretation.	2	6	8
	frame	□ Type of frames.			
		□ Procedure.			
		□ Safety precautions.			

S. No	Tasks	Related Technical	Time (in hrs.)		
		Knowledge	Th.	Prac.	Total
2.	Assist to make pipe frame	<ul> <li>□ Drawing/sketch interpretation.</li> <li>□ Type of frames.</li> <li>□ Procedure.</li> <li>□ Sefety presentions</li> </ul>	1	5	6
3.	Assist to make GI sheet gate	<ul> <li>☑ Safety precautions.</li> <li>☑ Drawing/sketch interpretation.</li> <li>☑ Type of frames.</li> <li>☑ Procedure.</li> <li>☑ Safety precautions.</li> </ul>	2	8	10
4.	Assist to make plain sheet gate	<ul> <li>□ Drawing/sketch interpretation.</li> <li>□ Type of frames.</li> <li>□ Procedure.</li> <li>□ Safety precautions.</li> </ul>	1	4	5
5.	Assist to make flat /rod/square pipe gate	<ul> <li>□ Drawing/sketch interpretation.</li> <li>□ Type of frames.</li> <li>□ Procedure.</li> <li>□ Safety precautions.</li> </ul>	1	5	6
6.	Assist to perform Riveting.	<ul> <li>☑ Introduction, types and size of Rivet.</li> <li>☑ Identification of Riveting tools.</li> <li>☑ Drawing/sketch interpretation.</li> <li>☑ Riveting procedure.</li> <li>☑ Safety precautions.</li> </ul>	1	3	4
7.	Assist to make strips shutter	<ul> <li>□ Drawing/sketch interpretation.</li> <li>□ Spring types and function.</li> <li>□ Procedure.</li> <li>□ Safety precautions.</li> </ul>	2	6	8
8.	Assist to make mesh shutter	<ul> <li>□ Drawing/sketch interpretation.</li> <li>□ Spring types and function.</li> <li>□ Procedure.</li> <li>□ Safety precautions.</li> </ul>	1	5	6
9.	Assist to make folding gate	<ul> <li>□ Drawing/sketch interpretation.</li> <li>□ Hinge size, types and function.</li> <li>□ Procedure.</li> <li>□ Safety precautions.</li> </ul>	2	6	8
10.	Assist to make roller gate (track gate)	<ul> <li>□ Drawing/sketch interpretation.</li> <li>□ Roller gate, size, types and function.</li> <li>□ Procedure.</li> <li>□ Safety precautions.</li> </ul>	1	7	8
11.	Assist to make channel gate	<ul> <li>□ Drawing/sketch interpretation.</li> <li>□ Channel gate size, types and function.</li> <li>□ Procedure.</li> <li>□ Safety precautions.</li> </ul>	1	7	8

**Duty 6: Perform Finishing work.** 

S. No	Commetencies	Related Technical	Time ( in		hrs.)	
5. NO	Competencies	Knowledge	Th.	Prac.	Total	
1.	Apply sand/emery	□ Identification of sand and	1	4	5	
	paper.	emery papers.				
		□ Types and size.				
		△ Application procedure.				
		□ Safety precautions.				
2.	Level product's surface.	□ Identification of the product.	1	2	3	
		☐ Grinding procedure.				
		□ Surface finishing procedure.				
		□ Safety precautions.				
3.	Remove iron chips.	□ Identification of chipping	1	2	3	
		tools.				
		☐ Chipping procedure.				
		□ Safety precautions.				
4.	Apply putting over	□ Identification of Putty	1	4	5	
	holes and joints	materials and adhesives.				
		□ Identification of joints for				
		Putty application.				
		□ Safety precaution.				
5.	Apply primer (red	□ Identification of primer and	2	6	8	
	oxide) painting	their types.				
		□ Identification of sprit and				
		thinner.				
		□ Identification of brushes and				
		types				
		procedure.				
		□ Safety precaution				
6.	Fit window grills	□ Sizes of the grills and	1	4	5	
		openings.				
		☐ Fitting procedure.				
		□ Safety precautions.				

Duty 7: Maintain tools and equipment.

S. No	Competencies	Related Technical	Time (in hrs.)		
		Knowledge	Th.	Prac.	Total
1.	Maintain hand grinder	<ul> <li>□ Concept of electricity, current, voltage and resistance.</li> <li>□ Identification of Grinder parts,</li> <li>□ Faultfindings.</li> <li>□ Maintenance procedure.</li> <li>□ Safety precaution.</li> </ul>	2	8	10
2.	Maintain hand drill	☐ Identification of parts of the	2	6	8

C No	Competencies	Related Technical	Time (in hrs.)		
S. No	Competencies	Knowledge	Th.	Prac.	Total
	machine	drill machine.			
		□ Faultfinding.			
3.	Maintain welding	□ Identification of parts of the	2	8	10
	machine	welding machine.			
		□ Faultfinding.			
		□ Safety precaution.			
4.	Maintain cutting	□ Identification of parts of the	1	4	5
	Machine	cutting machine.			
		□ Faultfinding.			
		□ Safety precaution.			
5.	Maintain stand drill	□ Identification of parts (drill)	1	5	6
	machine	bits, job holding device,			
		clamp and vice of the			
		machine.			
		□ Faultfinding.			
		□ Safety precaution.			
6.	Maintain bench vice	☐ Identification of parts of the	1	4	5
		bench vice.			
		□ Faultfinding.			
		☐ Safety precaution.			
7.	Maintain die set	☐ Identification of parts of the	2	4	6
		die set.			
		☐ Faultfinding.			
		☐ Safety precaution.			ļ .
8.	Maintain pipe	□ Identification of parts of the	1	3	4
	wrenches	pipe wrenches.			
		☐ Faultfinding.			
		✓ Maintenance procedure.			
		□ Safety precaution.			

# **Duty 8: Communicate with others.**

C No	Competencies	Related Technical		Time (in hrs.)		
S. No	Competencies		Knowledge	Th.	Prac.	Total
1.	Communicate with metal		Meaning and	1	2	3
	work mechanics.		importance of			
			communication.			
			Type of			
			communication (oral,			
			sign/gesture and			

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

S. No	Competencies	Related Technical		Time (in hrs.)		
5. 10			Knowledge	Th.	Prac.	Total
			technique			
			Etiquette of			
			receiving telephone			
			call.			
			Message writing			
			technique.			

**Duty 9: Grow professionalism.** 

S. No	Competencies	Related Technical	I Time	Time (in hrs.)		
	_	Knowledge	Th.	Prac.	Total	
1.	Consult metal work mechanics.	☐ Importance of participating in cate exploration activity with the metal wormschanics.	ties	2	3	
2.	Visit other's working place/ sight.	☐ Importance of lea from different workplaces and si visits.		3	4	
3.	Read related materials (Documents, manuals, brochures)	☐ Importance of lea from trade relevan documents, manu and other job rela sheets.	nt als	3	4	
4.	Attend training/ seminar/workshops	<ul> <li>Need of growing professionalism.</li> <li>Importance of car development opportunities insi outside the organization.</li> </ul>		4	5	
5.	Watch Audio-Visual.	<ul> <li>□ Familiarization of channel/A/V aids</li> <li>□ Importance of leafrom A/V.</li> </ul>		2	3	
6.	Browse World Wide Web.	<ul><li>☐ Familiarization w computer.</li><li>☐ WWW browsing techniques.</li></ul>	rith 1	2	3	
7.	Seek trainings places / programs	<ul> <li>Importance of train career developed</li> <li>Possible training providers/institute refresher training</li> </ul>	ment.	2	3	