GENERAL ELECTRICIAN Trainer Guide

National Vocational Certificate Level 2 Version 1 - July 2015















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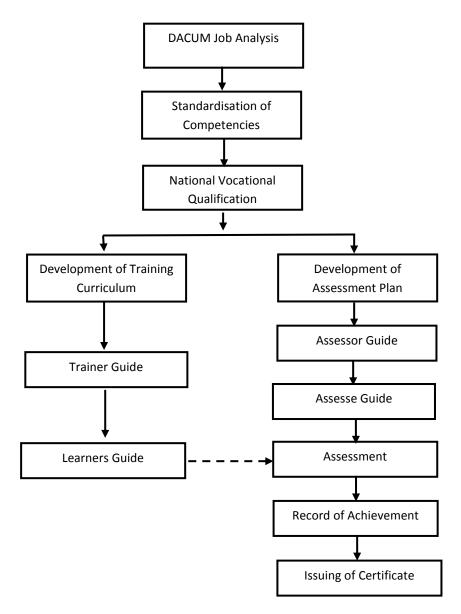
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INTRODUCTION

This Guide supports the Competency-Based Training Curricula that will enable the trainees to achieve the competency standards that have been set by the relevant industry group.

The NVQF Competency-Based Training Curricula along with the associated Training Guides and the Assessment Guides are all developed from the skill competency standards established by the Industry Advisory Group (IAG).

Figure 1 outlines the process of developing the competencies, developing the curriculum and the assessment requirements, and delivering the training program and the assessments necessary to certify achievement of the competencies.



The Trainer Guide provides guidelines and instructions to Trainers on the approaches that are required and on the organisation and delivery of the curriculum training program.

Curriculum

The Curriculum Manual is included in the Training and Learning Materials Package.

The curriculum is organised as a series of modules. Each module is broken down into a series of Learning Units. Each Learning Unit includes Learning Outcomes, Learning Elements, an estimate of the time needed, a list of materials required and the location for the learning to take place.

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials needed	Location

Lesson Plans

The Trainer will need to develop a coherent set of lesson plans for each module of the curriculum. This Guide includes a Lesson Plan Template. The Lesson Plans must be filed for later review if necessary.

Assessment

It is necessary to assess the knowledge and skills of the trainees at the completion of each module. (See the Assessment Guide for further details)

Evaluation of Training Material

Trainers are invited to evaluate the Training Materials based on their experience of delivering the training. A template is provided to assist.

EVALUATION OF TRAINING MATERIAL

The trainers/instructors who implement this training material can inform NAVTTC promptly of any shortcomings in training material on the following format. Please consider it as one of your responsibilities.

Format

Trade:			
	L		
Training Material	Module Title & Module Code	Learning Unit Title & Learning Unit Code	Suggested amendments/ feedback/proposal
Trainer Guide			
Learner Guide			
Trainer Name:		Training Centre:	
framer Name.			
Signature of		Date:	

GUIDELINES FOR WRITING LESSON PLAN

The template for lesson plan has been provided at next page. These guidelines are for trainers for writing their own lesson plans which are as follows:

- 1. Introduce yourself and the Learning Unit, and state the Learning Outcomes of the session clearly to activate attention of learners.
- 2. In **Introduction** part of lesson plan state the Learning Objectives of the lesson. This allows the learners to organize their thoughts on what they will learn and to perform. Also state some questions to recall prior knowledge of learners to arouse their interest and motivation.
- 3. In **Body** part of lesson plan present the new information or material that is to be learned. Demonstration of a skill relevant with the Learning Unit is also stated here. Also mention the teaching and learning methods for each leaning element from *Trainer Guidelines*, the relevant media including handouts, power-point slides, videos, white board and time duration for each activity in the relevant columns.
- 4. In **Conclusion** part list the strategies used for summarizing and reviewing the lesson delivered. Also mention the strategies for formative assessment to ensure that the transfer of knowledge and skill has been achieved.

LESSON PLANS

Dear Instructors,

Model Lesson Plans for one module have been provided in this trainer guide. A format and guidelines for writing Lesson Plans have also been provided in the succeeding pages. You are advised to prepare your own lesson plans for the remaining Learning Units using the suggested format and guidelines.

	LESSON PLAN - 1		
Module A	ENSURE PERSONAL SAFETY		
Learning Unit	A1: WEAR INSULATED GLOVES AND SHOES.		
Learning Outcom	es		
Understand d	fferent types of insulated gloves and shoes.		
 Wear safety g 	oves as per safety instructions.		
Understand B	asic safety instructions at workplace		
Methods	Key Notes	Media	Time
	Introduction		
Illustrative Talk	- Introduce to the Learning unit	Learner's	15 Min
	- Grasp Learner's attention	guidelines,	
	- Create interest among the learners about the	handbook,	
	topic and its importance	Whiteboard	
	Tell them about the following learning objectives:	&	
	- Basic safety instructions at workplace.	multimedia	
	- Importance of Personal Protective Equipment		
	(PPE).		
	- Importance of insulated gloves and shoes at		
	work environment.		
	- Types of safety gloves.		
	Main Body		
Illustrative Talks	 Explain learners about Importance of safety, 	Learner's	2 Hrs.
	safety measurements Importance of OHS	guidelines,	45 Min
	procedure.	handbook,	
	- Basic safety instructions at workplace.	Whiteboard,	
	- Importance of Personal Protective Equipment	multimedia, visuals,	
	(PPE).	notebooks,	
	- Importance of insulated gloves and shoes.	pen/pencils,	
	- Types of safety gloves and safety shoes.	Studio/lab	
	- Limitation of insulation w.r.t current and		
Demonstration/Lab	Voltage.		
Demonstration/Lan	Use visual aid to demonstrate the procedures how to use of different safety gloves and safety shoes for an electrician.		
Lab Demonstration	 Demonstrate the use of safety gloves and 		
	safety shoes at work place.		

Activity	Learners should demonstrate use of safety gloves and safety shoes at work place individually.		2 Hrs. 15 Min
	Conclusion		
Illustrative Talk Question & Answer Session	 Summarize the Illustrative Talk by reviewing important facts. Engage students in Question and answers session to ensure that the learners acquired relevant knowledge. 		15 Min
		Total time:	5.5 Hrs.

	LESSON PLAN - 2		
Module A	ENSURE PERSONAL SAFETY		
Learning Unit	A2: USE OF SAFETY GLOVES.		
Learning Outcom	9S		
 Select the application 	ropriate safety gloves.		
 Wear gloves w 	hile handling different tools & equipment.		
 Place safety gl 	oves at appropriate location after using them.		
Methods	Key Notes	Media	Time
	Introduction	1	
Illustrative Talk	- Introduce to the Learning unit	Learner's	15 Min
	- Grasp Learner's attention	guidelines,	
	- Create interest among the learners about the	handbook,	
	topic and its importance	Whiteboard	
	Tell them about the following learning objectives:	& multimedia	
	- Select the appropriate safety gloves.		
	- Wear gloves while handling different tools &		
	equipment.		
	- Place safety gloves at appropriate location.		
	Main Body		
Illustrative Talks	- Explain the learners about Importance of	Learner's	2 Hrs.
	safety, safety measuring tools Importance of	guidelines,	45 Min
	OHS	handbook,	
	- Difference between un-useable and useable	Whiteboard,	
	safety gloves.	multimedia,	
	 Use of safety gloves for different tasks. 	visuals,	
	 OHS precautions when using safety gloves. 	notebooks,	
	 Issues which may arise when using damaged 	pen/pencils,	
	safety gloves.	Studio/lab	
Activity	- Ask Learners to discuss today topic in		2 Hrs.
	groups.		15 Min
	Conclusion		
Illustrative Talk	- Summarize the Illustrative Talk by reviewing		15 Min
Question & Answer	important facts.Engage students in Question and answers		
Session	session to ensure that the learners acquired		
	relevant knowledge.		
		Total time:	5.5 Hrs.

	LESSON PLAN - 3		
Module A	ENSURE PERSONAL SAFETY		
Learning Unit	A3: USE INSULATED ELECTRICAL TOOLS/KIT.		
Learning Outcom	les		
 Select the approximation 	propriate tools / kit.		
 Use insulated 	tools / kit by handling different tools.		
 Place tools ar 	d kit at appropriate location after use.		
Methods	Key Notes	Media	Time
	Introduction		
Illustrative Talk	 Introduce to the Learning unit Grasp Learner's attention Create interest among the learners about the topic and its importance Tell them about the following learning objectives: OHS precautions when using insulated tools Difference between insulated and conductive tools. Different uses of insulated tools. Hazards of using unsafe tools. First hand treatment of electric shock. 	Learner's guidelines, handbook, Whiteboard & multimedia	15 Min
	Main Body	I	
Illustrative Talks	 Explain learners about Importance of OHS precautions, importance of conducting and insulating materials importance of insulated and conductive tools. Difference between insulated and conductive tools. Different uses of insulated tools. OHS precautions when using insulated tools. Hazards of using unsafe tools. First aid treatment of electric shock. Use visual aid to demonstrate the procedures how to First hand treatment of electric shock performs. 	Learner's guidelines, handbook, Whiteboard, multimedia, visuals, notebooks, pen/pencils, Studio/lab	2 Hrs. 45 Min
Lab Demonstration	 Demonstrate First aid treatment of electric shock 		

Activity	Learners should demonstrate First aid treatment of electric shock in groups.		2 Hrs. 15 Min
	Conclusion		
Illustrative Talk Question & Answer Session	 Summarize the Illustrative Talk by reviewing important facts. Engage students in Question and answers session to ensure that the learners acquired relevant knowledge. 		15 Min
		Total time:	5.5 Hrs.

	LESSON PLAN - 4		
Module A	ENSURE PERSONAL SAFETY		
Learning Unit	44: USE OF SAFETY MAT AT WORKPLACE.		
Learning Outcome	es		
• Identify the a	ppropriate safety mat at workplace.		
 Use safety mat 	while handling different equipment.		
	at at appropriate location after use.		
Methods	Key Notes	Media	Time
Methods	Introduction	Modia	Time
Illustrative Talk	- Introduce to the Learning unit	Learner's	15 Min
	- Grasp Learner's attention	guidelines,	
	- Create interest among the learners about the	handbook,	
	topic and its importance	Whiteboard	
	Tell them about the following learning objectives:	&	
	- Importance of insulated safety mat.	multimedia	
	- Capacity of different insulated safety mats in		
	accordance with workplace.		
	- Procedure for issuance of safety mat from		
	store.		
	Main Body		
Illustrative Talks	- Explain learners about Importance of safety	Learner's	2 Hrs.
	mat, insulated safety mat, types of safety	guidelines,	45 Min
	mats.	handbook,	
		Whiteboard,	
	- Capacity of different insulated safety mats in	multimedia,	
	accordance with workplace.	visuals,	
	- Procedure for issuance of safety mat from	notebooks,	
	store.	pen/pencils,	
		Studio/lab	
Demonstration/Lab	Use visual aid to demonstrate the procedures how to		
	use of use of safety mat at workplace.		
Lab Demonstration	- Demonstrate the use of safety mat at		
	workplace physically in lab.		
			2 Hrs.
Activity			∠ Hrs. 15 Min
ACUVILY	Conduct study visit in any related work industry .		

	Conclusion		
Illustrative Talk	 Summarize the Illustrative Talk by reviewing important facts. 		15 Min
Question & Answer Session	 Engage students in Question and answers session to ensure that the learners acquired relevant knowledge. 		
Total time:			5.5 Hrs.

	LESSON PLAN - 5		
Module A	ENSURE PERSONAL SAFETY		
Learning Unit	A5 SWITCH OFF MAIN POWER SUPPLY WHILE	WORKING	
Learning Outcon	nes		
 Identify locati 	on of main switch.		
 Turn off the n 	nain switch safely.		
 Tag off / Log 	off the main switch.		
 Power off sup 	ply safely when needed.		
Methods	Key Notes	Media	Time
	Introduction		
Illustrative Talk	 Introduce to the Learning unit 	Learner's	15 Min
	- Grasp Learner's attention	guidelines,	
	- Create interest among the learners about the	handbook,	
	topic and its importance	Whiteboard	
	Tell them about the following learning objectives:	&	
	- Basic concept of electrical voltage, current,	multimedia	
	resistance, power, energy and their units.		
	- Laws of resistance.		
	- Types of main switches		
	- OHS precautions when switching off the		
	main supply.		
	- Issues which may arise during work when		
	main supply is powered on.		
	-		
	Main Body		
Illustrative Talks	- Explain learners about Importance of	Learner's	2 Hrs.
	electricity, definition of electricity, basic	guidelines,	45 Min
	electrical concept voltage, current,	handbook,	
	resistance, power, energy and their units.	Whiteboard,	
	- Laws of resistance.	multimedia,	
	- Types of main switches	visuals,	
	- OHS precautions when switching off the	notebooks,	
	main supply.	pen/pencils,	
	- Issues which may arise during work when	Studio/lab	
	main supply is powered on Voltage.		
			2 Hrs.
Activity	Ask Learners to discuss today topic in groups		15 Min
	Conclusion		

Illustrative Talk Question & Answer Session	 Summarize the Illustrative Talk by reviewing important facts. Engage students in Question and answers session to ensure that the learners acquired relevant knowledge. 		15 Min
		Total time:	5.5 Hrs.

TRAINER GUIDELINES Module 01: Ensure Personal Safety			
LU-1 Meet workplace health safety and security requirements for a safe working environment	 Give Illustrative Talk and illustrative talk on the following learning elements: Define electricity. Introduction of voltage, current, resistance, power, energy and their units. Laws of resistance. Types of main switches OHS precautions when switching off the main supply Issues which may arise during work when main supply is powered on. Requirements for a safe working environment. Ergonomics suitable for the work environment. Safe maintenance procedures for machinery, equipment, appliances and tools. Demonstrate the following procedures: Use of tester. Preventive Safety measures for machinery, equipment and appliances. 	Classroom Electrical workshop Electrical workshop	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
LU-2 Follow workplace health, safety and security procedures	 Give Illustrative Talk and illustrative talk on the following learning elements: Hazard Identification processes. Risk assessment and control processes. Precautionary measures and their utilisation to prevent health damages. Importance of insulated gloves and shoes at work environment. Types of safety gloves i.e. High 	Classroom Electrical workshop	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc

LU-3 Maintain safe work area	 line. Use of different safety gloves and safety shoes for an electrician. Arrange Questions/Answers Sessions. Give Illustrative Talk and illustrative talk on the following learning elements: Importance of safe working environment. Work Ethics. Precautions to prevent electrical hazards/shocks Difference between insulated and conductive tools. Different uses of insulated tools. OHS precautions when using insulated tools. Hazards of using unsafe tools. 	Electrical workshop Classroom Electrical workshop	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
LU-4 Deal with emergency situations.	Demonstrate the use and handling of electrical and electronic and equipment and safety precautions Ask Learners to practice the use of electrical and electronic equipment. Arrange Questions/Answers Sessions. Give Illustrative Talk and illustrative talk on the following learning elements: • Rescue in emergency	Electrical workshop Classroom	Learning Guide, Presentations, Videos,
	situations. Suitable location of First Aid box. Identify and locate trained First Aide responder Arrange a role play or an activity to show how to use first aid box and rescuing in emergency situations.		Illustrations Whiteboard etc

Learning Unit	Suggested Teaching/	Delivery	Media
	Learning Activities	Context	
LU1: Collect job documentation (e.g. drawing, map,	Give Illustrative Talk of following learning elements: • Importance of job	Classroom	Learning Guide, Presentations
history)	documents.		Videos, Illustrations
	• Types of job documents		Whiteboard
	(e.g. drawing, map, history).		etc
	OHS precautions when		
	switching off the main		
	supply.		
	Demonstrate the following procedures: • Electrical symbols used in	workshop	
	drawing/ building maps.		
	Procedure for issuance of		
	job document.		
	Ask Learners to practice in small groups. Arrange Questions/Answers Sessions.		
LU2: Locate	Give Illustrative Talk and illustrate	Classroom	Learning
electrical points as per drawing	of following learning elements:		Guide, Presentations
per drawing	Types of electrical		Videos,
	drawings.		Illustrations Whiteboard
	• Symbols used for different		etc
	electrical points.		
	 Tagging techniques. 		
	Locate electric points and		
	tags according to electrical		
	drawing.		
	Ask Learners to practice individually.	workshop	
	Arrange Questions/Answers Sessions		

LU3: Perform measurement of PVC pipe and its cutting.	 Give Illustrative Talk of following learning elements: Types of measuring tools. Types of measuring units. Types of measuring techniques. Observe safety measures while cutting PVC Pipes. Demonstrate the following procedures: Perform measuring of PVC pipes. Selection of appropriate tool for cutting different sizes of PVC pipes. Ask Learners to practice in small 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
	groups. Arrange Questions/Answers Sessions.	workshop	
LU4: Fix joints with PVC solution	 Give Illustrative Talk of following learning elements: Importance of jointing solutions. Types of solutions used for PVC jointing. Health and safety precautions while using jointing solutions. Demonstrate the procedure to apply PVC jointing solution. Demonstrate the techniques of checking the strength of joint Ask Learners to practice in small groups. Arrange Questions/Answers Sessions. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
LU5: Perform fixing of all pipes with mild steel wire	Give Illustrative Talk of following learning elements:	Classroom	Learning Guide, Presentations,

	 Interpretation of drawing/documents. Checking of pipe fixing. Demonstrate the following techniques: Laying and fixing techniques. Jointing techniques by using steel wire. Ask Learners to practice in small groups. Arrange Questions/Answers Sessions. 	Workshop	Videos, Illustrations Whiteboard etc
LU6: Check all fan box and junction box	 Give Illustrative Talk and demonstrate the following procedures: Procedure for laying fan, and junction boxes. Adjustment methods of point joints and junctions. Procedure of clearing blockage in fan and junction boxes. Ask Learners to practice in small groups. Arrange Questions/Answers Sessions. 	Workshop	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc

Module 03: Perform Measurement of Plan Wiring				
	Suggested Teaching/ Learning Activities	Delivery Context	Media	
LU1:Perform measurement of rooms	 Give illustrative talk on the following learning elements: Measuring units. Measuring tools. Basic mathematical calculations 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc	
	Demonstrate the use of measuring tools as mentioned in learner guide.	Workshop		

	Arrange an activity or give assignment to learners on measuring units and mathematical calculations. Arrange Questions/Answers Sessions.		
LU2:Perform measurement of distribution board to switch board	 Give illustrative talk on the following learning elements: Define wiring route. Measuring units. Measuring tools. Basic mathematical calculations. Differentiate between distribution board and switch board Arrange an activity to carry out 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
	measurement from the distribution board to switch board. Arrange Questions/Answers Sessions.	Workshop	
LU3:Perform measurement of power plugs for AC	 Give illustrative talk on the following learning elements: Types of Measuring units. Measuring tools. Basic mathematical calculations. Demonstrate the procedure to record measurement. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
	Give a task to learners to take and record correct measurements. Arrange Questions/Answers Sessions.	Workshop	
LU4:Perform measurement of light plug	 Give illustrative talk on the following learning elements: Measuring units. Measuring tools. Basic mathematical 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc

	calculations.		
	 Switch board, distribution board, light power plug Demonstrate the procedure of 		
	measuring light plug. Arrange an activity for learners so that they carry out measurement of light plug correctly. Arrange Questions/Answers Sessions.	Workshop	
LU5:Perform measurement of main circuit to distribution board	 Give illustrative talk on the following learning elements: Measuring units. Measuring tools. Basic mathematical calculations. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
	Demonstrate the procedures of Connection of energy meter (Single &Three phase) Ask Learners to practice in small groups. Arrange Questions/Answers Sessions.	Workshop	
LU6:Perform measurement of TV, telephone, intercom, internet cable from main to junction board	 Give illustrative talk on the following learning elements: Measuring units. Measuring tools. Basic mathematical calculations. Knowledge of communication wires Demonstrate the procedure of 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
	communication wire & power cable must be separately laying. Give an activity to learners so that they measure cable required for a task. Arrange Questions/Answers Sessions.	Workshop	

LU7:Perform leveling of switch boards (AC light, Light plug, TV)	 Give illustrative talk on the following learning elements: Measuring units. Use of leveling tools. Leveling techniques. Basic mathematical calculations. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
	Demonstrate the use of leveling tools and techniques. Give learners an activity to use leveling tools and techniques. Ask Learners to practice in small groups. Arrange Questions/Answers Sessions.	Workshop	
LU8:Perform leveling of room wall lights	 Give illustrative talk on the following learning elements: Measuring units. Use of leveling tools. Leveling techniques. Basic mathematical calculations 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
	Demonstrate the use of leveling tools and techniques. Give learners an activity to use leveling tools and techniques. Ask Learners to practice in small groups. Arrange Questions/Answers Sessions.	Workshop	
LU9:Perform chiseling with wall cutter	 Give illustrative talk on the following learning elements: Uses of wall cutter. Types of wall cutters. Demonstrate chiseling techniques. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc

	Ask Learners to practice in small groups. Arrange Questions/Answers Sessions.		
LU10:Perform fixing of PVC pipes/switch box	 Give illustrative talk on the following learning elements: Fixing techniques for PVC pipes and switch boxes. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard
	 Types of PVC pipes. Sizes of switch boxes. Demonstrate the procedure of fixing PVC pipes and switch boxes. Give a task of fixing PVC pipes and switch box to each learner. Arrange Questions/Answers Sessions. 	Workshop	etc

Module 04: Calculate all electrical appliances load				
	Suggested Teaching/ Learning Activities	Delivery Context	Media	
LU1: Calculate load of electrical& electronic appliances	 Give illustrative talk on the following learning elements: Power rating of equipment/appliances. Units of current, voltage and power. Basic mathematical calculations. Circuit Tolerance. Ohm's Law. Conversion of different electrical quantities (power, current and voltage). Difference between single and three-phase load. Demonstrate the technique of checking circuit tolerance. Give an activity to learners on calculating load of electrical 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc	

	and electronic appliances		
	and electronic appliances. Arrange Questions/Answers		
	Sessions.		
	50310113.	Workshop	
LU2:Selection of	Give illustrative talk on the	Classroom	Learning
cables according to	following learning elements:		Guide,
room load			Presentations,
	 Read the standard 		Videos,
	specification table for		Illustrations
	cable/wire.		Whiteboard
	 Load calculation. 		etc
	 Use of Standard Wire 		
	gauge (SWG) and		
	Micrometer		
	• Types of Cables/Wires.		
	Trademarks of cable		
	manufacturing		
	companies like ,New		
	AGE Cable, Pakistan		
	Cable, Dawn Cable, GM Cables etc.		
	 Basic mathematical 		
	• Basic mathematical calculations.		
	 Conductor, Insulator 		
	and semi-Conductor.		
	Demonstrate the use of	Workshop	
	Standard Wire gauge (SWG)		
	and Micrometer.		
	Arrange Questions/Answers		
	Sessions.		
LU3:Selection of size	Give illustrative talk on the	Classroom	Learning
of cables according	following learning elements:		Guide,
to appliances			Presentations,
	 Interpret the Standard 		Videos,
	specification table for		Illustrations
	cable/wire.		Whiteboard
	Procedure for Load		etc
	calculation.		
	• Types of Cables/Wire.		
	Trademarks of cable		
	manufacturing		
	companies like, New AGE		
	Cables, Pakistan Cables,		
	Dawn Cables, GM Cables etc.		
	Arrange Questions/Answers		
	Sessions.		
	50310113.		

LU4:Prepare estimates of required electrical items	 Give illustrative talk on the following learning elements: Electrical symbols of Equipment's, Appliances and Accessories used in electrical drawings. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
	 Types and specifications of equipment and appliances. Demonstrate the techniques and procedure for preparing estimate of required material. Give an activity to learners to prepare estimate of required electrical items. Arrange Questions/Answers Sessions. 	Workshop	

	felectrical cables/wires Suggested Teaching/	Delivery Context	Media
	Learning Activities	Delivery context	Ivieula
LU1:Install main distribution board	 Give illustrative talk on the following learning elements: Classification of electrical wiring (Domestic, Commercial and Industrial). Various sizes of distribution board. Concept of voltage drop. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
	Demonstrate the procedure of fitting of distribution board. Ask Learners to practice. Arrange Questions/Answers Sessions.	Workshop	
LU2:Install earthing connections properly	 Give illustrative talk on the following learning elements: Importance of Earthing. Types of Earthing materials and Earthing components. Types of testing (Current leakage teat, Short circuit test, Insulation test, Continuity test) 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
	 Demonstrate the procedures of: Techniques and procedure for digging and installation of earthing system. Techniques and procedure of connecting Earthing system with main distribution box. Procedure for Earthing system. Give an activity to learners to install earthing connections correctly. Arrange Questions/Answers Sessions. 	Workshop	

LU3:Install cables from main circuit to sub circuit	 Give illustrative talk on the following learning elements: Color coding standards. Types of Cables and Trademark. Possible cable damages. Types of electrical wiring joints. Types of Insulating Material. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
	Demonstrate the use of basic wiring tools (steel wire/Fish Wire). Give a task to learners to install cable from main circuit to sub-circuit. Arrange Questions/Answers Sessions.	Workshop	
LU4:Install cables from sub circuit to branch circuit	 Give illustrative talk on the following learning elements: Types of Cables and Trademark. Possible cable damages. Use of basic wiring tools (Steel Wire/Fish Wire). Types of electrical wiring joints. Types of Insulating Material. Give a task to learners to install cables from sub circuit to branch circuit. Arrange Questions/Answers Sessions. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
LU5:Install cables from branch circuit to electrical appliance	 Give illustrative talk on the following learning elements: Types of Cables and Trademark. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard

	Possible cable damages.		etc
			ELL
	 Types of electrical wiring joints. 		
	 Types of Insulating Material. 		
	Arrange Questions/Answers Sessions.		
LU6:Check all wiring joints	Give illustrative talk on the following learning elements:	Classroom	Learning Guide, Presentations,
	• Types of tools/material used for connections.		Videos, Illustrations Whiteboard
	Color codes standard.		etc
	 Technique and procedure for connecting wire with boards. 		
	• Types of joints.		
	 Types of electrical circuits (series, parallel and series- parallel). 		
	Arrange Questions/Answers Sessions.		
LU7:Check wiring and earth testing	Give illustrative talk on the following learning elements:	Classroom	Learning Guide, Presentations,
	• Types of Tools /equipment.		Videos, Illustrations Whiteboard
	 Disadvantages of lose connection 		etc
	 Types and specification of appliances 		
	 Demonstrate the procedure of following: Techniques and procedure for performing Continuity, Insulation, Earthing and appliance test. 	Workshop	

	 Installation Techniques and Procedure of appliances. Use of Meggar and Multi- meter. Ask Learners to practice in small groups. Arrange Questions/Answers Sessions. 		
LU8: Install electrical appliances	 Give illustrative talk on the following learning elements: Types of electrical appliances. Demonstrate the techniques for installation of appliances. Give a task to learners to install electrical appliance. Arrange Questions/Answers Sessions. 	Classroom Workshop	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc

	Suggested Teaching/	Delivery Context	Media
	Learning Activities		
LU1: Trace fault of Wiring/Appliances	 Give illustrative talk on the following learning elements: Types of tools used for identification of faults. Types of possible wiring faults. Types of possible electrical appliances related faults. Techniques to identify faults. Types of Electrical circuits. Types of Power Supply. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
	Arrange Questions/Answers Sessions.		
LU2:Remove Fault (wire cable/switch /circuit breaker)	 Give illustrative talk on the following learning elements: Type of Tools for removing faults. Types of faults. Types of Electrical circuits (series/parallel). Market information about availability and rates of spare parts. Demonstrate the following: Techniques and procedure for tracing faults. Techniques and procedure for rectification of faults. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc

	Sessions.		
LU3:Repair/Replace electrical appliances	 Give illustrative talk on the following learning elements: Types of faults. Types of Electrical circuit. Types of Power Supply. Market information about rates, trade and substitute of electric appliance etc. Reporting of faults. Demonstrate the techniques and procedure for removing faults related to electrical appliances. Arrange Questions/Answers Sessions. 	Classroom Workshop	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc

Module 07: Develop professionalism			
	Suggested Teaching/ Learning Activities	Delivery Context	Media
LU1: Communicate with co-workers	 Give illustrative talk on the following learning elements: Effective communication within and outside the organisation. Clients and Vendors communication strategy. Use of electronic and relevant media when required. Ask Learners to practice in small groups. Arrange Questions/Answers Sessions. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
LU2 : Manage Time	 Give illustrative talk on the following learning elements: Importance of time. Task priorities. Distribution of work among co-workers. Arrange Questions/Answers Sessions. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
LU3: Upgrade Skills	 Give illustrative talk on the following learning elements: Importance of trends and market research to work role Development of skill sets over time by way of seminars, workshops and competitions. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc
LU4: Keep the workplace clean	 Give illustrative talk on the following learning elements: Requirements of a clean and well organised workplace. Effective and efficient organisation of work area. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc

	 Basic work ethics. Ask Learners to practice in small groups. Arrange Questions/Answers Sessions. 	Workshop	
LU5: Work in a team	 Give illustrative talk on the following learning elements: Importance of being a good team player. Basic work ethics at workplace. Arrange Questions/Answers Sessions. 	Classroom	Learning Guide, Presentations, Videos, Illustrations Whiteboard etc

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