



COMPETENCY BASED CURRICULUM (PLUMBING)

CERTIFICATE-3



Technical Trainers Training and Resource Center
Department of Workforce Planning and Skills Development
Ministry of Education and Skills Development



Competency Based Curriculum Plumbing Certificate-3

**Technical Trainers Training and Resource Center
Department of Workforce Planning and Skills Development
Ministry of Education and Skills Development
Thimphu**

Published by Technical Trainers Training and Resource Center
Department of Workforce Planning and Skills Development
Ministry of Education and Skills Development
Royal Government of Bhutan
Thimphu, Bhutan

Copyright © 2025 Technical Trainers Training and Resource Center
Department of Workforce Planning and Skills Development

All rights reserved. No part of this book may be reproduced in any form without the permission from Technical Trainers Training and Resource Center (TTTRC)

This book remains the property of the Technical Trainers Training and Resource Center (TTTRC).



First Edition: 2017

Revised: June, 2025

FOREWORD

Bhutan has seen a gradual increase in the requirement of high quality skilled workers in recent years due to growth of industries. However, supply of skilled workforce that are responsive to the needs of the industry has not been able to keep in pace with the industry demand. Since the skilled workers are crucial ingredient for socio-economic development of the country, it is important to have adequate number of trained and certified workers. With advancement in technology in plumbing industries, the “Plumber” is not only the most significant occupation but also have high demand in the labour market. In an effort to meet the skilled human resources requirement in the area of power sector, it is imperative to deliver training based on Competency Based Training system in Plumbing BQF Certificate-3 to ensure relevancy to evolving technology with high quality and adequate number of work force in this sector.

To this end, the Department of Workforce Planning and Skills Development (DWPSD) is pleased to present revised Competency Based Curriculum for Plumbing BQF Certificate-3 course developed based on national competency standard. Since it is an outcome of a more participatory process of curriculum development, it is expected to provide training delivery with reformed approaches having its content being directly related to labour market needs, focusing on imparting of skills and assessment based on industry relevant standards. We believe that the Competency Based Curriculum will help in bridging the skill gap between industry’s needs and training institutes thereby enhance the employability of the technical graduates.

The Department acknowledges the valuable contributions made by institutes, officials, and experts from relevant industries who were involved in the design and development of this curriculum. As it is a dynamic document which may require revision based on the needs of the changing labour market, the Department look forward to receiving valuable feedbacks from the institutes and the industries to further improve and refine the curriculum

The Department hope that this document will help advance Competency Based Learning in most of the TVET Institutions.



(Sangay Dorji)

Offtg. Director

Department of Workforce Planning and Skills Development

ACKNOWLEDGEMENT

Technical Trainers Training and Resource Center, Department of Workforce Planning and Skills Development under MoESD would like to express our appreciation to the following subject experts and facilitators who have participated in the revision and validation of Plumbing BQF Certificate-3 curriculum:

Experts involved in the revision of plumbing BQF Certificate 3:

1. Mr. Aita Singh Rai, Plumber, Punakha
2. Mr. Ramesh Biswa, Plumber, Wangdue Phordang
3. Mr. Bala Ram Ramdam, Plumber, Wangdue Phordang
4. Mr. Man Bir Singer, Sr. Technician, Punakha Dzongkhag
5. Ms. Dechen Yuden, Sr. Technician, Punakha Dzongkhag
6. Mr. Ugyen Samdrup, Sr. Instructor, JWPTI, Sarpang
7. Ms. Sonam Choden, Sr. Instructor, TTI-Chumey, Bumthang

Experts involved in the validation of Plumbing BQF Certificate-3 curriculum:

1. Mr. Pema Wangdi, Supervisor, Punakha Dzongkhag (Chair Person)
2. Mr. Karma Dorji, Officiating Chief Program Officer, TTTRC (Member Secretary)
3. Mr. Dilli Ram Sharma, Supervisor, Thimphu
4. Mr. Sonam Phuntsho, Manager, Lian Tsho Specilized Firm
5. Mr. Ganesh Pradhan, Technician, Punakha Dzongkhag
6. Mr. Ugyen Samdrup, Sr. Instructor, JWPTI, Sarpang
7. Ms. Sonam Choden, Sr. Instructor, TTI-Chumey, Bumthang

Facilitators and editors for revision and validation of plumbing BQF Certificate-3 curriculum

1. Ms. Karma Dema, Program Officer, TTTRC, DWPSD
2. Ms. Tenzin Dema, Asst. Program Officer, TTTRC, DWPSD

Chief editor

1. Mr. Karma Dorji, Offtg. Chief Program Officer, TTTRC

Table of Contents

FOREWORD	I
ACKNOWLEDGEMENT.....	II
COMPETENCY PROFILE	III
COURSE INFORMATION.....	V
COURSE OUTLINE.....	VI
COURSE STRUCTURE FOR CORE COMPETENCIES.....	VII
ASSESSMENT AND CERTIFICATION SYSTEM	VIII
MODULE INFORMATION:	1
MODULE 1	2
PERFORM INSTALLATION OF SEWER NETWORK.....	4
PERFORM INSTALLATION OF CHAMBER AND MANHOLE	9
PERFORM OPERATION AND MAINTENANCE OF SEWERAGE TREATMENT PLANT	13
MODULE 2	21
CARRYING OUT INSTALLATION OF ADVANCED SANIATRY FIXTURES	21
INSTALL ADVANCED SANITARY FIXTURES	23
INSTALL ADVANCED SANITARY FIXTURES WITH SENSOR.....	27
INSTALL CUBICLE SHOWER	32
PERFORM REPAIR AND MAINTENANCE	35
MODULE 3	38
PERFORM INSTALLATION OF GUTTER.....	40
PERFORM INSTALLATION OF DOWNPIPE.....	43
PERFORM INSTALLATION OF PIPELINE FOR STORMWATER DRAINAGE SYSTEM	46
PERFORM INSTALLATION OF FILTRATION	49
PERFORM REPAIR AND MAINTENANCE	52
ANNEXURE	55
ANNEX I: TIME DISTRIBUTION	55
ANNEX II: ASSESSMENT SAMPLE.....	57
ANNEX III: MODULE RECOGNITION	61
ANNEX IV: LESSON PLAN	62
ANNEX V: COURSE PLAN	67

Competency Profile
Trade: Plumbing BQF Certificate 3

Competency Area	Sub-Competency Area	Competencies/Tasks 			
A Carry out construction/installation of sewerage system	A1 Perform installation of sewer network	A1.01 Inspect site	A1.02 Prepare estimate	A1.03 Perform trenching and bedding	A1.04 Lay pipes
		A1.05 Conduct leak test	A1.06 Backfill trenches		
	A2 Perform installation of chamber and manhole	A2.01 Install precast chamber	A2.02 Install prefab chamber	A2.03 Construct concrete inspection chamber	A2.04 Perform benching
	A3 Perform operation and maintenance of sewerage treatment plant	A3.01 Inspect sewerage treatment plant	A3.02 Clean screen bar	A3.03 Measure flow rate	A3.04 Clean treatment plant
		A3.05 Perform Potential of Hydrogen (pH) test	A3.06 Perform coliform test	A3.07 Perform total suspended solid test	A3.08 Perform Biological Oxygen Demand (BOD) test
		A3.09 Perform Chemical Oxygen Demand (COD) test	A3.10 Clear blockage	A3.11 Service leaking pipes	
B Carry out installation of advanced sanitary fixtures	B1 Install advanced sanitary fixtures	B1.01 Install wall-hung Water Closet (WC)	B1.02 Install wash basin on mounting board	B1.03 Install jacuzzi bathtub	
	B2 Install advanced sanitary fixtures with sensors	B2.01 Install sensor urinal	B2.02 Install sensor wash basin	B2.03 Install sensor Water Closet (WC)	B2.04 Install automatic bidet
		B2.05 Install Automatic dispenser			

	B3 Install cubicle shower	B3.01 Identify location	B3.02 Prepare layout plan	B3.03 Fix cubicle shower	
	B4 Perform repair and maintenance	B4.01 Diagnose the fault	B4.02 Service sensor	B4.03 Replace battery	
C Carry out rainwater harvest and storm water drainage system	C1 Perform installation of gutter	C1.01 Prepare layout	C1.02 Fix gutter	C1.03 Conduct leakage test	
	C2 Perform installation of downpipe	C2.01 Prepare layout	C2.02 Lay pipes and fittings	C2.03 Conduct leakage test	
	C3 Perform installation of pipelines for storm water drainage system	C3.01 Prepare layout	C3.02 Perform trenching and bedding	C3.03 Lay pipes	C3.04 Backfill trenches
	C4 Perform installation of filtration	C4.01 Install intake tank	C4.02 Install filtration tank	C4.03 Install reservoir tank	
	C5 Perform repair and maintenance	C5.01 Diagnose fault	C5.02 Service gutters and pipeline	C5.03 Service filtration tank	

COURSE INFORMATION

COURSE TITLE	Plumbing
LEVEL	BQF Certificate 3
COURSE OBJECTIVE	Upon completion of this training program, the trainees will be able to: • Carry out construction/installation of sewerage system • Carry out installation of advance sanitary fixtures • Carry out rainwater harvest and storm water drainage system
COURSE DESCRIPTION	This course is designed to provide trainees with the advance knowledge, skills and attitudes required to be competent Plumber. This course will prepare the trainees to exhibit professionalism, teamwork, adaptability, and safety practices as per the requirement of workplace. To obtain certification of this course, all learning outcomes prescribed must be achieved.
COURSE DURATION	903 Hours
TRAINER AND TRAINEE RATIO	1:15 (Practical) 1:20 (Theory)
ENTRY REQUIREMENT	Completed plumbing BQF Certificate 2
TVET TRAINER REQUIREMENTS	• Must have a minimum qualification of Diploma in Civil Engineering (OR) Plumbing Certificate 3 with minimum of five years of working experience in relevant field; • Must have undergone Training of Trainers-Technical Instruction and Pedagogy.

COURSE OUTLINE

Sl. No	Subject /Module	Duration (Hours)	Content Competencies (Mapped)
1.	Core modules	359	Core Competencies
2.	OJT	280 (2 Months)	Core Competencies
3.	Applied Dzongkha	42	Soft Skills
4.	ICT	48	Soft Skills
5.	Applied Mathematics	53	Soft Skills
6.	Technical English	51	Soft Skills
7.	Assessment	70	
Total Course Duration		903	

Note:

- The expected contact hours are calculated based on 35 Hours per week and 7 hours per day
- This curriculum contains core modules which cover main competencies of Plumbing BQF Certificate level-3 and OJT component. There are separate curricula for subjects/modules for delivery of soft skills, professional development & values and environmental concern & safety. In order to achieve the qualification of Plumbing BQF Certificate level-3, the subjects and modules listed must be accomplished as per the credit hours provided.

COURSE STRUCTURE FOR CORE COMPETENCIES

Training Modality	Module Title	Learning outcomes	Nominal Duration (Hour)
1. Institute Training	A. Carrying out construction/installation of sewerage system	A1. Perform installation of sewer network A2. Perform installation of chamber and manhole A3. Perform operation and maintenance of sewerage treatment plant	131
	B. Carrying out installation of advanced sanitary fixtures	B1. Install advanced sanitary fixtures B2. Install advanced sanitary fixtures with sensors B3. Install cubical shower B4. Perform repair and maintenance	135
	C. Carrying out rainwater harvest and storm water drainage system	C1. Perform installation of gutter C2. Perform installation of downpipe C3. Perform installation of pipelines for storm water drainage system C4. Perform installation of filtration C5. Perform repair and maintenance	93
2. On the Job Training	A. Carrying out construction/installation of sewerage system	A1. Perform installation of sewer network A2. Perform installation of chamber and manhole A3. Perform operation and maintenance of sewerage treatment plant	420 (3 months)
	B. Carrying out installation of advanced sanitary fixtures	B1. Install advanced sanitary fixtures B2. Install advanced sanitary fixtures with sensors B3. Install cubical shower B4. Perform repair and maintenance	
	C. Carrying out rainwater harvest and storm water drainage system	C1. Perform installation of gutter C2. Perform installation of downpipe C3. Perform installation of pipelines for storm water drainage system C4. Perform installation of filtration C5. Perform repair and maintenance	
Total CC Duration:			779

ASSESSMENT AND CERTIFICATION SYSTEM

ASSESSMENT

Formative assessment for every module and learning outcome will be conducted through assignments, project works, continuous assessment, demonstration of practical skills/observations, oral questioning and written test.

Summative assessment after completion of each national certificate level will be conducted by TVET Quality Council, Bhutan Qualifications and professional certification authority, MoESD as per the National Competency Standards and Guidelines for National Assessment and Certification System, provided the course is accredited with TVET Quality Council, Bhutan Qualifications and professional certification authority, MoESD.

CERTIFICATION

On successful completion of every module, the institute will award a certificate of achievement to the trainees. The TVET Quality Council, Bhutan Qualifications and professional certification authority, MoESD will award a National Certificate to the trainees upon the successful completion of NC level assessment.

COURSE DELIVERY

1. Modular
2. Demonstration
3. Lecture
4. Industrial training/attachment
5. Project work
6. Problem-based learning
7. Project-based learning

RESOURCES

Materials

Pen, paper, eraser, pencil, drawing, BSR, mason thread, nails, pegs, fine sand, hacksaw blade, metal cutting blade, thermo-chrome chalk, rag, plug/cap, washer, solvent glue, cement, aggregate, bucket, water, marker, precast rings, sealant, polysheet (polythene sheet), binding wire, planks, batten, plyboard, pipes & fittings, checklist, screen bar, graph paper, discharge logbook, rod, flexible pipe, litmus paper, Durham tube, tissue paper, disinfectant, distilled water, reagent, filter paper, alum, test tube, beaker, KCl, lithium tube, jug, COD reagent, wastewater sample, catalogue, screw, WC (water closet), crystallized glass, mounting structure, connector, dowels, bracket, wash basin, waste coupling, basin mixer, pillar cock, bottle trap, drill bit, expansion nut & bolt, fully threaded nuts & bolts, connection pipe, angle valve, Teflon tape, Jacuzzi bathtub, manufacturer manual, urinal, sensor valve set, wire, insulation tape, pipe casing, tiles, automatic bidet, automatic dispenser, sensor water closet, cistern, chalk, chalk line, CP (Chrome-Plated) fittings, cubicle shower, sensor battery, marking clothes, cleaning spray (Sprayway), lubricant, plastic dowels, clamps, fine aggregate, soil, storage tank, tank components, filter media, filtration tank, tank nipple, gutter & fittings, fascia brackets and adhesive.

Tools

Measuring tape, magnetic try square, calculator, spirit level, laser level, water level, crow bar, pick axe, spade, shovel, hammer, sieve, earth rammer, hacksaw, file, pipe cutter, chain wrench, pipe wrench, adjustable wrench, heating plate, burner, pipe vice, mortar pan, plumb bob, stopwatch, float, bucket, jute bag, rope, binding hook, scraper,

wheel barrow, fork, metal hook, ruler, screwdriver set, beaker, micropipette (1 ml), pipette tube, mechanical stirrer, Allen key, hole saw, sealant gun, pliers, chisel, tongue-and-groove plier, scissors, knife, glue gun, wrench set, wire cutter, wire stripper, cleaning brushes, scaffold/ladder, nail gun, flexible pipe, reamer and fish wire

Instruments

Flow meter, pH test kit, coliform test kit, weighing machine, multimeter and turbidity meter

Equipment

Computer, printer, angle grinder, compactor, HDPE butt-fusion welding machine (manual heating plate), mixer machine, concrete vibrator, circular saw, de-sludging pump, incubator, sterilizer, COD reactor/digestor, high-pressure cleaning machine, spectrophotometer, drilling machine, cordless drill, cable drum, tile cutter and blower.

PPE

Safety gloves, safety helmet, safety goggles, dust mask, safety boots, workshop dress, Surgical gloves, apron and respiratory mask

Learning Materials

- Competency Based Learning Materials (CBLM)
- Reference books
- Hand-outs
- Audio visuals

Infrastructure and training facilities

- Theory classroom size: Minimum of 1 m² per trainee;
- Practical Workshop size: Minimum of 2.25 m² per trainee. Variables must be considered depending upon type of skills being taught and the number of trainees participating at a time.

MODULE INFORMATION:
PLUMBING BQF CERTIFICATE-III

MODULE 1
ON
CARRYING OUT CONSTRUCTION/INSTALLATION OF SEWERAGE
SYSTEM

MODULE INFORMATION

Occupation	Plumber
Competency Area	Carry out construction/installation of sewerage system
Module Title	Carrying out construction/installation of sewerage system
Module Code	7126-L3-M1
Module Description	This module is structured to provide learners with the knowledge, skills and right attitude required to construct/install sewer network & chamber and perform operation & maintenance of sewerage system.
Nominal Duration	131 Hours
Certificate Level	BQF Certificate Level 3
Pre-requisite	Completed Plumbing Certificate Level 2
Learning Outcome	1. Perform installation of sewer network 2. Perform installation of chamber and manhole 3. Perform operation and maintenance of treatment plant

Module Title	Carrying out construction/installation of sewerage system		
Module Code	7126-L3-M1		
Learning Outcome 1	Perform installation of sewer network		
Duration	Theory: 12 hours	Practical:38 hours	Total: 50 hours
Assessment Criteria	• Site is inspected as per the job requirement following standard procedure • Estimate is prepared as per the job requirement following standard procedure • Trenching and bedding is performed as per the job requirement following standard procedure • Pipes are laid as per the job requirement following standard procedure • Leak test is performed as per the job requirement following standard procedure • Trench is backfilled as per the job requirement following standard procedure		
Content	A1.00 Introductory knowledge • Scope and market trends of plumber • Roles and responsibilities of plumber A1.01 Inspecting site Knowledge • Purpose of site visit • Types of sewer network • Importance of preparing checklist • Importance to follow Environmental rules and regulation Skills • Negotiation skills • Observation skills • Planning skills • Communication skills • ICT skills • Analytical skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste A1.02 Preparing estimate Knowledge • Definition of estimation		

	● Importance of estimation ● Method of estimation ● Data required for estimation Skills ● Interpreting drawing ● Numeracy skills ● Observation skills ● Communication skills ● ICT skills (Basic MS Excel) Attitude, safety and environmental concern ● Being a team player ● Effective time management ● Being vigilant ● Efficient use of materials ● Having work ethics and integrity ● Proper handling of tools, materials and equipment ● Ensuring to follow OHS rules and regulations ● Ensuring appropriate use of PPE ● Ensuring proper disposal of waste A1.03 Performing trenching and bedding Knowledge ● Definition of trench and bedding ● Types of trenching ● Purpose of trenching ● Importance of maintaining gradient ● Types of bedding ● Importance of preparing bedding ● Types of ramming tools ● Environment rules and regulations for trenching Skills ● Interpreting drawing ● Using ramming tools ● Using water pipe level ● Communication skills ● Observation skills ● Analytical skills ● Planning skills Attitude, safety and environmental concern ● Being a team player ● Effective time management ● Being vigilant ● Efficient use of materials ● Having work ethics and integrity ● Proper handling of tools, materials and equipment ● Ensuring to follow OHS rules and regulations ● Ensuring appropriate use of PPE
--	--

	• Ensuring proper disposal of waste A1.04 Laying pipes Knowledge • Classification of pipes and fittings • Importance of aligning pipe • Types of pipe joints • Types of drainage system ✓ Separate system ✓ Combined system ✓ Partially separate system Skills • Interpreting drawing • Using HDPE butt fusion welding machine • Communication skills • Observation skills • Analytical skills • Planning skills • Problem solving skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste A1.05 Performing leak test Knowledge • Importance of performing leak test • Methods of testing leakage in sewer line Skills • Interpreting drawing • Observation skills • Analytical skills • Communication skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment
--	---

	• Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste A1.06 Backfilling trench Knowledge • Purpose of backfilling • Materials used for backfilling trench • Process of backfilling Skills • Communication skills • Observation skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste
Learning Conditions	Learning Materials • Competency Based Learning Materials (CBLM)/ Learning materials • Hand-outs • Audio Visuals • Reference books • Manuals Learning facilities and infrastructure • Classroom with adequate facilities • Information Technology (IT) lab • Library • Workshop Materials • Pen, paper, eraser, pencil, drawing, BSR, Mason thread, nails, pegs, fine sand, hacksaw blade, metal cutting blade, thermo-chrome chalk, rag, Plug/cap, washer, solvent glue, cement, aggregate, bucket, water, marker and Pipes & fittings Tools • Measuring tape, magnetic try square, calculator, spirit level, laser level, water level, crow bar, pick axe, spade, shovel, hammer, sieve, earth rammer, hacksaw, file, pipe cutter, chain wrench, pipe wrench, adjustable wrench, heating plate, burner, pipe vice, motor pan, trowel, plum bob and stopwatch

	Equipment • Computer, printer, angle grinder, compactor and HDPE butt fusion welding machine/manual heating plate PPE • Safety gloves, safety helmet, safety goggles, dust mask, safety boots, apron, workshop dress and ear muffs
Instructional Methodologies	The trainer shall use <i>inter alia</i>, the following instructional methods: • Lecture • Interactive discussion • Demonstration • Industrial visit/training • Guided practice • Group practice with project-based learning • Individual practice with problem-based learning
Method of Assessment	The trainer shall use <i>inter alia</i>, the following assessment methods: • Practical observation • Oral/viva-voce • Written test • Assignment • Project work

Module Title	Carrying out construction/ installation of sewerage network		
Module Code	7126-L3-M1		
Learning Outcome 2	Perform installation of chamber and manhole		
Duration	Theory: 5 hours	Practical: 30 hours	Total: 35 hours
Assessment Criteria	• Precast chamber is installed as per the job requirement following standard procedure • Prefab chamber is installed as per the job requirement following standard procedure • procedure • Concrete inspection chamber is constructed as per the job requirement following standard procedure • Benching is performed as per the job requirement following standard procedure		
Content	A2.01 Installing precast chamber Knowledge • Introduction to chamber and manhole • Functions of chamber and manhole • Standard sizes of chamber and manhole • Difference between inspection chamber and manhole chamber • Definition of precast chamber • Type of precast chamber • Types of sealants • Advantages and disadvantages of precast chamber • Application of precast chamber Skills • Interpreting drawing • Basic masonry skills • Communication skills • Observation skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste A2.02 Installing prefab chamber Knowledge • Definition of prefab chamber • Type of prefab chamber • Advantages and disadvantages of prefab chamber		

	• Application of prefab chamber Skills • Basic masonry skills • Interpreting drawing • Communication skills • Observation skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste A2.03 Constructing concrete inspection chamber Knowledge • Definition of inspection chamber • Type of concrete inspection chamber • Purpose of inspection chamber • Importance of curing • Importance to identify location of inspection chamber • Importance to apply bitumen coating in the internal part of chamber • Types of cover for inspection chamber • Purpose of inspection chamber cover Skills • Basic masonry skills • Interpreting drawing • Communication skills • Observation skills • Analytical skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste • Ensuring to provide appropriate chamber cover
--	---

	A2.04 Performing benching Knowledge • Definition of benching • Purpose of benching • Size of benching • Importance of maintaining gradient Skills • Basic masonry skills • Interpreting drawing • Communication skills • Observation skills • Analytical skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste
Learning Conditions	Learning Materials • CBLM/Learning materials • Hand-outs • Audio Visuals • Reference books • Manuals Learning Facilities and infrastructure • Classroom with adequate facilities • Information Technology (IT) lab • Library • Workshop Materials • Cement, sand, precast rings, mason thread, sealant, water, pen, paper, eraser, pencil, bricks, stone, chamber cover, prefab chamber, MS rod, drawing, aggregate, polythene sheet, binding wire, planks, batten, nails and plyboard Tools • Measuring tape, shovel, crowbar, spade, trowel, pick axe, spirit level, plumb bob, float, earth rammer, mortar pan, try square, bucket, jute bag, rope, wrench, binding hook and hammer

	Equipment • Mixer machine, concrete vibrator, angle grinder and circular saw PPE • Safety gloves, safety helmet, safety goggles, dust mask, safety boots, apron and workshop dress
Instructional Methodologies	The trainer shall use <i>inter alia</i>, the following instructional methods: • Lecture • Interactive discussion • Demonstration • Industrial visit/training • Guided practice • Group practice with project-based learning • Individual practice with problem-based learning
Method of Assessment	The trainer shall use <i>inter alia</i>, the following assessment methods: • Practical observation • Oral/viva-voce • Written test • Assignment • Project work

Module Title	Carrying out construction/installation of sewerage treatment plant		
Module Code	7126-L3-M1		
Learning Outcome 3	Perform operation and maintenance of sewerage treatment plant		
Duration	Theory: 12 hours	Practical:34 hours	Total: 46 hours
Assessment Criteria	• Sewerage system is inspected as per the job requirement following standard procedure • Screen bar is cleaned per the job requirement following standard procedure • Flow rate is measured as per the job requirement following standard procedure • Treatment plant is cleaned as per the job requirement following standard procedure • pH test is performed as per the job requirement following the standard procedure • Coliform test is performed as per the job requirement following the standard procedure • Total suspended solid test is performed as per the job requirement following standard procedure • BOD test is performed as per the job requirement following standard procedure • Chemical Oxygen Demand (COD) test is performed as per the job requirement following standard procedure • Blockage is cleared as per the job requirement following standard procedure • Leakage is repaired as per the job requirement following standard procedure		
Content	A3.01 Inspecting sewerage treatment plant Knowledge • Purposes of sewerage treatment plant • Working principle of sewerage treatment plant • Purpose of inspecting sewerage treatment plant • Common problems in sewerage treatment plant and its remedies • Types of maintenance Skills • Interpreting drawing • Observation skills • Communication skills • Analytical skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials		

	• Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste A3.02 Cleaning screen bar Knowledge • Difference between sewage and sewerage • Importance to clean screen bar on periodical basis • Types of screen bar • Types of solid waste/debris Skills • Observation skills • Communication skills • Analytical skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste A3.03 Measuring flow rate Knowledge • Definition of flow rate • Definition of coefficient of discharge • Types of flow meter • Purpose of measuring flow rate • Definition of notch • Types of notches • Method of flow rate calculation for different notches Skills • Using flow meter • Numeracy skills • Communication skills • Observation skills • Analytical skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management
--	---

	• Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste A3.04 Cleaning treatment plant Knowledge • Definition of sludge and scum • Purpose of de-sludging • Methods of de-sludging • Methods of sludge depth measurement • Stages of cleaning sewage treatment plant • Function of septic tank • Types of septic tank • Function of soak pit Skills • Using de-sludging pump • Communication skills • Observation skills • Analytical skills • Planning skills Attitude, safety and environment concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste • Ensuring to follow environment rules and regulations. A3.05 Performing potential of Hydrogen test (pH test) Knowledge • Definition of pH • Purpose of pH testing • Importance to collect sample from inlet/outlet • Importance of pH adjustment • Methods of checking pH • Types of chemicals used for pH adjustment Skills • Using pH test kit • Communication skills
--	--

	• Observation skills • Analytical skills • Planning skills <i>Attitude, safety and environment concern</i> • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste • Ensuring to follow environment rules and regulations A3.06 Performing coliform test <i>Knowledge</i> • Definition of coliform test • Purpose of performing coliform test • Methods of performing coliform test • Types of disinfectant • Importance to identify the location of sample collection <i>Skills</i> • Using coliform test kit • Using incubator • Using sterilizer • Using thermometer • Observation skills • Communication skills • Analytical skills • Numeracy skills • Planning skills <i>Attitude, safety and environment concern</i> • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste A3.07 Performing total suspended solid test <i>Knowledge</i> • Definition of total suspended solid • Purpose of performing total suspended solid test
--	---

	• Computation of total suspended solid Skills • Using turbidity meter • Using incubator • Using sterilizer • Using weighing machine • Communication skills • ICT skills • Observation skills • Analytical skills • Numeracy skills • Planning skills Attitude, safety and environment concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste • Ensuring to follow latest NEC environmental standards for waste water discharge A3.08 Performing Biological Oxygen Demand (BOD) test Knowledge • Definition of BOD • Purpose of performing BOD test • Types of tests ✓ Physio chemical test ✓ Micro biological test • Types of reagents • Computation of BOD • Importance of sample holding time Skills • Using incubator • Observation skills • Communication skills • ICT skills • Analytical skills • Numeracy skills • Planning skills Attitude, safety and environment concern • Being a team player • Effective time management • Being vigilant
--	---

	• Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste • Ensuring to follow latest NEC environmental standards for waste water discharge A3.09 Performing Chemical Oxygen Demand (COD) test Knowledge • Definition of COD • Purpose of performing COD test • Difference between COD and BOD • Types of reagents • Method of reducing COD value Skills • Using COD digester/reactor • Using spectrophotometer • Communication skills • ICT skills • Observation skills • Analytical skills • Numeracy skills • Planning skills Attitude, safety and environment concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste A3.10 Clearing blockage Knowledge • Purpose of clearing blockage • Common causes of blockage and its remedies • Types of tools and equipment used for clearing blockage Skills • Using high pressure welding machine • Communication skills • Observation skills • Analytical skills • Planning skills
--	--

	<i>Attitude, safety and environment concern</i> ● Being a team player ● Effective time management ● Being vigilant ● Efficient use of materials ● Having work ethics and integrity ● Proper handling of tools, materials and equipment ● Ensuring to follow OHS rules and regulations ● Ensuring appropriate use of PPE ● Ensuring proper disposal of waste A3.11 Service leaking pipe <i>Knowledge</i> ● Purpose of servicing leaking pipe ● Types of leaking pipe ● Common causes of leaking pipes and its remedies <i>Skills</i> ● Using GI threading machine ● Using HDPE butt fusion welding machine ● Communication skills ● Observation skills ● Analytical skills ● Planning skills <i>Attitude, safety and environment concern</i> ● Being a team player ● Effective time management ● Being vigilant ● Efficient use of materials ● Having work ethics and integrity ● Proper handling of tools, materials and equipment ● Ensuring to follow OHS rules and regulations ● Ensuring appropriate use of PPE ● Ensuring proper disposal of waste
Learning Conditions	Learning Materials ● CBLM/Learning materials ● Hand-outs ● Audio Visuals ● Reference books ● Manuals Learning Facilities and infrastructure ● Classroom with adequate facilities ● Information Technology (IT) lab ● Library ● Workshop

	Materials - Pen, paper, eraser, checklist and pencil, Screen bar, bucket, water, rags, graph paper, discharge logbook, rod, flexible pipe, litmus paper, durham tube, tissue paper, disinfectant, distilled water, reagent, filter, alum, hacksaw blade, test tube, beaker, KCl, lithium, tube, jug, COD reagent, metal cutting blade and wastewater sample Tools - Measuring tape, scrapper, spade, hacksaw, wheel barrow, fork, metal hook, ruler, calculator, shovel, wrench, screwdriver set, beaker, micropipette(1ml), pipette tube and mechanical stirrer Instruments - Flow meter, pH test kit, coliform test kit, weighing machine and turbidity meter Equipment - Computer, printer, De-sludging pump, incubator, sterilizer, COD reactor/digestor, HDPE butt fusion welding machine, high pressure cleaning machine, angle grinder and spectrophotometer PPE - Safety gloves, safety helmet, safety goggles, dust mask, safety boots, workshop dress, Surgical gloves, apron and respiratory mask
Instructional Methodologies	The trainer shall use <i>inter alia</i>, the following instructional methods: - Lecture - Interactive discussion - Demonstration - Industrial visit/training - Guided practice - Group practice with project-based learning - Individual practice with problem-based learning
Method of Assessment	The trainer shall use <i>inter alia</i>, the following assessment methods: - Practical observation - Oral/viva-voce - Written test - Assignment - Project work

MODULE 2
ON
CARRYING OUT INSTALLATION OF ADVANCED SANITARY FIXTURES

MODULE INFORMATION

Occupation	Plumber
Competency Area	Carry out installation of advanced sanitary fixtures
Module Title	Carrying out installation of advanced sanitary fixtures
Module Code	7126-L3-M2
Module Description	This module is structured to provide the learners with knowledge, skills and right attitude required to install advanced sanitary fixtures, advanced sanitary fixtures with sensors and cubical shower
Nominal Duration	135 Hours
Qualification Level	BQF Certificate Level 3
Pre-requisite	Completed Module: 7126-L3-M1
Learning Outcome	1. Install advanced sanitary fixtures 2. Install advanced sanitary fixtures with sensors 3. Install advanced shower

Module Title	Carrying out installation of advanced sanitary fixtures		
Module Code	7127-L3-M2		
Learning Outcome 1	Install advanced sanitary fixtures		
Duration	Theory: 8 hours	Practical: 41 hours	Total: 49 hours
Assessment Criteria	- Wall-hung Water Closet (WC) is installed as per the job requirement following standard procedure - Wash basin on mounting board is installed as per the job requirement following standard procedure - Jacuzzi bath tub is installed as per the job requirement following standard procedure		
Content	B1.01 Installing wall hung Water Closet (WC) Knowledge - Introduction to advanced sanitary fixtures - Components of wall-hung WC - Types of cistern - Standard dimensions of wall hung water closet - Advantages and disadvantages of using wall-hung water closet - Types of brackets and nuts & bolt - Types of sealant - Importance of applying sealant - Importance of using foam in between wall and WC - Difference between wall-mount (floor) and wall-hung (wall) Skills - Interpreting drawing - Interpreting manual - Using drilling machine - Using angle grinder - Using spirit level - Communication skills - ICT skills - Observation skills - Analytical skills - Planning skills Attitude, safety and environmental concern - Being a team player - Effective time management - Being vigilant - Efficient use of materials - Having work ethics and integrity - Proper handling of tools, materials and equipment - Ensuring to follow OHS rules and regulations - Ensuring appropriate use of PPE - Ensuring proper disposal of waste B1.02 Installing wash basin on mounting board Knowledge - Types of wash basin on mounting board		

	• Components of wash basin • Standard height for installing wash basin on mounting board • Advantages and disadvantages of mounted wash basin Skills • Interpreting manual • Interpreting drawing • Using silicon gun • Using drilling machine • Using angle grinder • Using spirit level • Communication skills • ICT skills • Observation skills • Analytical skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste B1.03 Installing jacuzzi bathtub Knowledge • Definition of jacuzzi • Types of jacuzzi • Purpose of Jacuzzi • Components of jacuzzi • Operation of jacuzzi • Advantage and disadvantages of jacuzzi • Difference between jacuzzi and bathtub Skills • Interpreting manual • Using drilling machine • Interpreting drawing • Communication skills • ICT skills • Observation skills • Analytical skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant
--	--

	• Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste
Learning Conditions	Learning Materials • CBLM/Learning materials • Hand-outs • Audio Visuals • Reference books • Manuals Learning Facilities and infrastructure • Classroom with adequate facilities • Information Technology (IT) lab • Library • Workshop Materials • Marker, pencil, eraser, drawing, catalogue, rag, screw, WC, crystallized glass, mounting structure, sealant, connector, dowels, bracket, wash basin, waste coupling, basin mixer, pillar cock, bottle trap, drill bit, expansion nut & bolt, full threaded nuts & bolts, connection pipe, angle valve, Teflon tape and Jacuzzi bathtub Tools • Measuring tape, spirit level, Allen key, screw driver, hole saw, wrenches, sealant gun, Pliers, hacksaw, hammer, chisel, file, try square, screwdriver set, wire cutter, spirit level, laser level, tongue groove plier and scissors Equipment • Drilling machine, cordless drill machine and angle grinder PPE • Safety gloves, safety helmet, apron, safety goggles, dust mask, safety boots and workshop dress
Instructional Methodologies	The trainer shall use <i>inter alia</i>, the following instructional methods: • Lecture • Interactive discussion • Demonstration • Industrial visit/training • Guided practice • Group practice with project-based learning • Individual practice with problem-based learning

Method of Assessment	The trainer shall use <i>inter alia</i>, the following assessment methods: ● Practical observation ● Oral/viva-voce ● Written test ● Assignment ● Project work
-----------------------------	---

Module Title	Carrying out installation of advanced sanitary fixtures		
Module Code	7126-L3-M2		
Learning Outcome 2	Install advanced sanitary fixtures with sensor		
Duration	Theory: 6 hours	Practical: 33 hours	Total:39 hours
Assessment Criteria	• Urinal with sensor is installed as per the job requirement following standard procedure • Wash basin with sensor is installed as per the job requirement following standard procedure • Water closet with sensor is installed as per the job requirement following standard procedure • Automatic Bidet is installed as per the job requirement following standard procedure • Automatic dispenser is installed as per the job requirement following standard procedure		
Contents	B2.01 Installing sensor urinal Knowledge • Definition of sensor • Types of sensors • Components of sensor valve • Types of sensor battery • Function of solenoid valve • Standard height of installing sensor urinal • Working principle of sensor in urinal • Advantages and disadvantages of using sensor urinal Skills • Interpreting manual • Interpreting drawing • Basic masonry skills • Using drilling machine • Communication skills • Observation skills • Analytical skills • Numeracy skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste		

	B2.02 Installing sensor wash basin Knowledge • Definition of sensor wash basin • Standard height of installing wash basin • Working principle of sensor in wash basin • Advantages and disadvantages of sensor wash basin • Purpose of applying adhesive Skills • Interpreting manual • Interpreting drawing • Using drilling machine • Using silicon gun • Communication skills • Observation skills • Analytical skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste B2.03 Installing sensor Water Closet (WC) Knowledge • Types of sensor water closet • Standard dimension for WC • Installation requirement for accessible washroom • Advantages and disadvantages of sensor water closet Skills • Interpreting manual • Interpreting drawing • Using drilling machine • Using cordless drill machine • Communication skills • Observation skills • Analytical skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials
--	---

	• Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste B2.04 Installing automatic bidet Knowledge • Introduction to automatic bidet • Standard dimension for automatic bidet • Types of automatic bidet • Purpose of automatic bidet • Advantage and disadvantages of automatic bidet Skills • Interpreting manual • Interpreting drawing • Using drilling machine • Communication skills • Observation skills • Analytical skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste B2.05 Installing automatic dispenser Knowledge • Introduction to automatic dispenser • Standard dimension for automatic dispenser • Types of automatic dispenser • Purpose of automatic dispenser • Advantage and disadvantages of automatic dispenser Skills • Interpreting manual • Interpreting drawing • Using drilling machine • Communication skills • Observation skills • Analytical skills • Planning skills Attitude, safety and environmental concern • Being a team player
--	---

	• Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste
Learning Conditions	Learning Materials • CBLM/Learning materials • Hand outs • Audio-visuals • Reference books • Manuals Learning Facilities and Infrastructure • Classroom with adequate facilities • Library • IT lab • Workshop Materials • Marker, pencil, drawing, manufacturer manual, rag, pipes & fittings, nuts & bolts, screw, urinal, sensor valve set, wire, drill bit, sealant, insulation tape, Teflon tape, cement, sand, pipe casing, tiles, dowels, bracket, Wash basin, automatic bidet, automatic dispenser, sensor water closet, connection pipe and cistern Tools • Measuring tape, spirit level, Allen key, screw driver set, knife, wrench, glue gun, laser level and plier Equipment • Drilling machine, cordless drill machine, cable drum, tile cutter and angle grinder PPE • Safety gloves, safety helmet, safety goggles, dust mask, safety boots, ear muff and workshop dress
Instructional Methodologies	The trainer shall use <i>inter alia</i>, the following instructional methods: • Lecture • Interactive discussion • Demonstration • Industrial visit/training • Guided practice • Group practice with project-based learning • Individual practice with problem-based learning

Method of Assessment	The trainer shall use <i>inter alia</i>, the following assessment methods: ● Practical observation ● Oral/viva-voce ● Written test ● Assignment ● Project work ● Rubrics
-----------------------------	---

Module Title	Carrying out installation of advanced sanitary fixtures		
Module Code	7126-L3-M2		
Learning Outcome 3	Install cubicle shower		
Duration	Theory: 5 hours	Practical: 30 hours	Total: 35 hours
Assessment Criteria	- Location is identified as per the job requirement following standard procedure - Layout plan is prepared as per the job requirement following standard procedure - Cubicle shower is fixed as per the job requirement following the standard procedure		
Contents	B3.01 Identifying location Knowledge - Introduction to cubical shower - Purpose of identifying location Skills - Interpreting manual - Communication skills - Observation skills - Analytical skills Attitude, safety and environmental concern - Being a team player - Effective time management - Being vigilant - Efficient use of materials - Having work ethics and integrity - Proper handling of tools, materials and equipment - Ensuring to follow OHS rules and regulations - Ensuring appropriate use of PPE - Ensuring proper disposal of waste B3.02 Preparing layout plan Knowledge - Definition of layout plan - Importance of preparing layout - Standard dimension for cubical shower Skills - Interpreting drawing - Interpreting manual - Communication skills - ICT skills - Observation skills - Analytical skills - Planning skills Attitude, safety and environmental concern - Being a team player - Effective time management - Being vigilant		

	• Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste B3.03 Fixing cubicle shower Knowledge • Types of bathroom cubicle • Purpose of bathroom cubicle • Types of shower curtains • Types of shower head • Advantages and disadvantages of cubical shower Skills • Interpreting manual • Interpreting drawing • Using drilling machine • Using angle grinder • Using cordless drill machine • Using tile cutter • Communication skills • Observation skills • Analytical skills • Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste
Learning Conditions	Learning Materials • CBLM/Learning materials • Hand outs • Audio-visuals • Reference books • Manuals Learning Facilities and Infrastructure • Classroom with adequate facilities • Library • IT lab • Workshop

	Materials ● Marker, pencil, eraser, paper, chalk, nails, mason thread, catalogue, sealant, Teflon tape, chalk line, pipe & fittings, binding wire, Chrome Plated (CP) fittings and cubicle shower Tools ● Measuring tape, water level, spirit level, wrench set, Allen key, hack saw, screw driver set, pipe cutter, chisel, laser level and hammer Equipment ● Drilling machine, cable drum, angle grinder, tile cutter and cordless drill machine PPE ● Safety gloves, safety boots, apron, safety goggles, ear muff and workshop dress
Instructional Methodologies	The trainer shall use <i>inter alia</i>, the following instructional methods: ● Lecture ● Interactive discussion ● Demonstration ● Industrial visit/training ● Guided practice ● Group practice with project-based learning ● Individual practice with problem-based learning
Method of Assessment	The trainer shall use <i>inter alia</i>, the following assessment methods: ● Practical observation ● Oral/viva-voce ● Written test ● Assignment ● Project work

Module Title	Carrying out installation of advance sanitary fixtures		
Module Code	7126-L3-M2		
Learning Outcome 4	Perform repair and maintenance		
Duration	Theory: 3 hours	Practical: 9 hours	Total: 12 hours
Assessment Criteria	• Sensor fault is diagnosed as per the job requirement following standard procedure • Sensor is serviced as per the job requirement following standard procedure • Battery is replaced as per the job requirement following the standard procedure		
Contents	B4.01 Diagnose sensor fault Knowledge • Causes and remedies of sensor fault Skills • Using multimeter • Communication skills • Observation skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste B4.02 Servicing sensor Knowledge • Purpose of servicing sensor Skills • Using multimeter • Observation skills • Communication skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste		

	B4.03 Replacing sensor battery Knowledge • Introduction to sensor battery • Types of sensor battery • Purpose of replacing sensor battery Skills • Interpreting manual • Observation skills • Communication skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste
Learning Conditions	Learning Materials • CBLM/Learning materials • Hand outs • Audio-visuals • Reference books • Manuals Learning Facilities and Infrastructure • Classroom with adequate facilities • Library • IT lab • Workshop Materials • Pen, paper, sensor, sensor battery, markin clothes, insulation tape and cleaning spray (Spray way) Tools • Screwdriver set, adjustable wrenches, plier, wire stripper and cleaning brushes Instrument • Multimeter PPE • Safety gloves, safety boots, workshop dress and mask
Instructional Methodologies	The trainer shall use <i>inter alia</i>, the following instructional methods: • Lecture • Interactive discussion • Demonstration • Industrial visit/training

	• Guided practice • Group practice with project-based learning • Individual practice with problem-based learning
Method of Assessment	The trainer shall use <i>inter alia</i>, the following assessment methods: • Practical observation • Oral/viva-voce • Written test • Assignment • Project work

MODULE 3
ON
CARRYING OUT RAINWATER HARVEST AND STORMWATER DRAINAGE
SYSTEM

MODULE INFORMATION	
Competency Area	Carry out rainwater harvest and stormwater drainage system
Module Title	Carrying out rainwater harvest and stormwater drainage system
Module Code	7126-L3-M3
Module Description	This module is structured to provide the learners with knowledge, skills and right attitude required to perform installation of gutter, downpipe, pipelines, filtration and perform repair & maintenance.
Nominal Duration	93 Hours
Qualification Level	BQF Certificate Level 3
Pre-requisite	Completed Module: 7126-L3-M2
Learning Outcome	1. Perform installation of gutter 2. Perform installation of downpipe 3. Perform installation of pipelines for storm water drainage system 4. Perform installation of filtration 5. Perform repair and maintenance

Module Title	Carrying out rainwater harvest and stormwater drainage system		
Module Code	7412- L3-M3		
Learning Outcome 1	Perform installation of gutter		
Duration	Theory: 3 hours	Practical:11 hours	Total: 14 hours
Assessment Criteria	- Layout is prepared as per the job requirement following standard procedure - Gutter is fixed as per the job requirement following standard procedure - Leak test is conducted as per the job requirement following standard procedure		
Content	C1.01 Preparing layout Knowledge - Introduction to rain water harvest and storm water drainage system - Methods of rain water harvest - Benefit of rainwater harvest and storm drainage system - Application of rainwater harvest - Calculations related to rainwater harvest - Methods of preparing layout - Importance of checking alignment Skills - Using spirit level/water level - Using cordless drill machine - Observation skills - Analytical skills - Communication skills Attitude, safety and environmental concern - Being a team player - Effective time management - Being vigilant - Efficient use of materials - Having work ethics and integrity - Proper handling of tools, materials and equipment - Ensuring to follow OHS rules and regulations - Ensuring appropriate use of PPE - Ensuring proper disposal of waste C1.02 Fixing gutter Knowledge - Types of gutter fittings - Purpose of gutter - Importance of maintaining gradient - Types of gutter materials - Sizes of gutter - Difference between PVC and MS gutter - Purpose of applying lubricant to the seal of gutter joints Skills - Interpreting drawing - Using water level		

	• Using drilling machine • Using scaffold/ladder • Using cordless drill machine • Observation skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste C1.03 Conducting leakage test Knowledge • Purpose of leakage test • Methods of testing leakage Skills • Observation skills • Communication skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste
Learning Conditions	Learning Materials • CBLM/Learning materials • Hand-outs • Audio Visuals • Reference books • Manuals Learning Facilities and infrastructure • Classroom with adequate facilities • Information Technology (IT) lab • Library • Workshop Materials • Pen, pencil, mason thread, lubricant, sealant, screw, hacksaw blade, plastic dowels, nail and water

	Tools • Scaffold/ladder, hack saw, measuring tape, spirit level, water level, screw driver set, wrench, flexible pipe, nail gun and bucket Equipment • Cordless drill machine and drilling machine PPE • Workshop dress, safety belt, safety goggles, gloves, helmet and safety boot
Instructional Methodologies	The trainer shall use <i>inter alia</i>, the following instructional methods: • Lecture • Interactive discussion • Demonstration • Industrial visit/training • Guided practice • Group practice with project-based learning • Individual practice with problem-based learning
Method of Assessment	The trainer shall use <i>inter alia</i>, the following assessment methods: • Practical observation • Oral/viva-voce • Written test • Assignment • Project work

Module Title	Carrying out rainwater harvest and stormwater drainage system		
Module Code	7412- L3-M3		
Learning Outcome 2	Perform installation of downpipe		
Duration	Theory: 3 hours	Practical:8 hours	Total: 11 hours
Assessment Criteria	- Layout is prepared as per the job requirement following standard procedure - Pipe and fittings are laid as per the job requirement following standard procedure - Leak test is conducted as per the job requirement following standard procedure		
Content	C2.01 Preparing layout Knowledge - Importance of layout - Importance of checking alignment - Types of marking tools and materials Skills - Interpreting drawing - Using plumb bob - Analytical skills - Communication skills - Observation skills Attitude, safety and environmental concern - Being a team player - Effective time management - Being vigilant - Efficient use of materials - Having work ethics and integrity - Proper handling of tools, materials and equipment - Ensuring to follow OHS rules and regulations - Ensuring appropriate use of PPE - Ensuring proper disposal of waste C2.02 Laying pipes and fittings Knowledge - Importance of trail fittings - Importance of applying sealant - Definition of clamp and dowel - Types of clamps and dowels - Purpose of fixing clamp - Standard spacing between clamps Skills - Using spirit level - Using drilling machine - Using Cordless drill machine - Analytical skills - Communication skills - Observation skills		

	• Planning skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste C2.03 Conducting leakage test Knowledge • Methods of testing leakage Skills • Observation skills • Communication skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste
Learning Conditions	Learning Materials • CBLM/Learning materials • Hand-outs • Audio Visuals • Reference books • Manuals Learning Facilities and infrastructure • Classroom with adequate facilities • Information Technology (IT) lab • Library • Workshop Materials • Pen, pencil, mason thread, chalk line, drawing, markin clothes, sealant, pipes & fittings, binding wire, dowel, screw, nail, water and clamps Tools • Scaffold/ladder, measuring tape, plumb bob, spirit level, laser level, cutting tools, hammer and flexible pipes

	Equipment • Drilling machine and cordless drill machine PPE • Workshop dress, safety belt, safety goggles, gloves, helmet and safety boot
Instructional Methodologies	The trainer shall use <i>inter alia</i>, the following instructional methods: • Lecture • Interactive discussion • Demonstration • Industrial visit/training • Guided practice • Group practice with project-based learning • Individual practice with problem-based learning
Method of Assessment	The trainer shall use <i>inter alia</i>, the following assessment methods: • Practical observation • Oral/viva-voce • Written test • Assignment • Project work

Module Title	Carrying out rainwater harvest and stormwater drainage system		
Module Code	7412- L3-M3		
Learning Outcome 3	Perform installation of pipeline for Stormwater Drainage system		
Duration	Theory: 4 hours	Practical:14 hours	Total: 18 hours
Assessment Criteria	- Layout is prepared as per the job requirement following standard procedure - Trenching and bedding is performed as per the job requirement following standard procedure - Pipe is laid as per the job requirement following standard procedure - Trenches is backfilled as per the job requirement following standard procedure		
Content	C3.01 Preparing layout Knowledge - Importance of checking power cable and other service lines before preparing layout - Methods of preparing layout Skills - Interpreting drawing - Using water level - Analytical skills - Communication skills - Observation skills Attitude, safety and environmental concern - Being a team player - Effective time management - Being vigilant - Efficient use of materials - Having work ethics and integrity - Proper handling of tools, materials and equipment - Ensuring to follow OHS rules and regulations - Ensuring appropriate use of PPE - Ensuring proper disposal of waste C3.02 Performing trenching and bedding Knowledge - Purpose of trenching - Method of trenching - Method of dewatering and sheeting of trench - Requirement of trench depth - Importance of maintaining gradient - Definition of bedding - Purpose of bedding - Types of bedding Skills - Interpreting drawing - Using spirit level/ water level - Using ramming tools		

	• Measurement skills • Communication skills • Observation skills <i>Attitude, safety and environmental concern</i> • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste C3.03 Laying pipe <i>Knowledge</i> • Purpose of using net at the pipe inlet • Purpose of supporting the pipelines • Purpose of “Thrust Block” <i>Skills</i> • Using water level • Using HDPE butt fusion welding machine • Observation skills • Communication skills <i>Attitude, safety and environmental concern</i> • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste C3.04 Backfilling trenches <i>Knowledge</i> • Importance of selecting a right material for backfilling • Purpose of backfilling • Importance of compaction <i>Skills</i> • Using ramming tools • Observation skills • Communication skills <i>Attitude, safety and environmental concern</i> • Being a team player • Effective time management • Being vigilant • Efficient use of materials
--	--

	• Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste
Learning Conditions	Learning Materials • CBLM • Hand-outs • Audio Visuals • Reference books • Manuals Learning Facilities and infrastructure • Classroom with adequate facilities • Information Technology (IT) lab • Library • Workshop Materials • Pen, paper, pegs, mason thread, nails/screw, fine aggregate, sand, soil, cement, water, sealant, planks and hacksaw blade Tools • Measuring tape, hammer, spade, knife, shovel, spirit level, ramming tools, crow bar, pick axe, trowel, mortar pan, heating plate and pipe cutter Equipment • Drilling machine and HDPE butt fusion welding machine PPE • Workshop dress, safety belt, safety goggles, gloves, helmet and safety boot
Instructional Methodologies	The trainer shall use <i>inter alia</i>, the following instructional methods: • Lecture • Interactive discussion • Demonstration • Industrial visit/training • Guided practice • Group practice with project-based learning • Individual practice with problem-based learning
Method of Assessment	The trainer shall use <i>inter alia</i>, the following assessment methods: • Practical observation • Oral/viva-voce • Written test • Assignment • Project work

Module Title	Carrying out rainwater harvest and stormwater drainage system		
Module Code	7412- L3-M3		
Learning Outcome 4	Perform installation of filtration		
Duration	Theory: 5 hours	Practical:23 hours	Total: 28 hours
Assessment Criteria	- Intake tank is installed as per the job requirement following standard procedure - Filtration tank is installed as per the job requirement following standard procedure - Reservoir tank is installed as per the job requirement following standard procedure		
Content	C4.01 Installing intake tank <i>Knowledge</i> - Introduction to filtration - Purpose of tank - Types of tank and sizes of tank - Importance of Break Pressure Tank (BPT) - Purpose of checking leakage - Purpose of air vent <i>Skills</i> - Using drilling machine - Using cordless drill machine - Using hole saw - Observation skills - Communication skills <i>Attitude, safety and environmental concern</i> - Being a team player - Effective time management - Being vigilant - Efficient use of materials - Having work ethics and integrity - Proper handling of tools, materials and equipment - Ensuring to follow OHS rules and regulations - Ensuring appropriate use of PPE - Ensuring proper disposal of waste C4.02 Installing filtration tank <i>Knowledge</i> - Working principle of filtration - Purpose of water filtration - Different methods of filtration - Types of filter media used and their purposes - Process of filtration - Importance of functionality test - Importance of backwash <i>Skills</i> - Using drilling machine		

	• Using cordless drill machine • Using hole saw • Observation skills • Communication skills <i>Attitude, safety and environmental concern</i> • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste C4.03 Installing reservoir tank <i>Knowledge</i> • Function of air vent, drain out and float valve • Purpose of water treatment • Methods of water treatment <i>Skills</i> • Using drilling machine • Using cordless drill machine • Using hole saw • Using pipe cutter • Observation skills • Communication skills <i>Attitude, safety and environmental concern</i> • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste
Learning Conditions	Learning Materials • CBLM/ Learning materials • Hand-outs • Audio Visuals • Reference books • Manuals Learning Facilities and infrastructure • Classroom with adequate facilities • Information Technology (IT) lab • Library

	• Workshop Materials • Pen, paper, drill bit, storage tank, Teflon tape, hacksaw blade, marker, tank components, filter media, filtration tank, tank nipple and pipes & fittings Tools • Wrench, measuring tape, hole saw, hacksaw, pipe cutter, hammer, reamer and file Equipment • Drilling machine, butt fusion welding machine and cordless drill machine PPE • Workshop dress, safety belt, safety goggles, gloves, helmet and safety boot
Instructional Methodologies	The trainer shall use <i>inter alia</i>, the following instructional methods: • Lecture • Interactive discussion • Demonstration • Industrial visit/training • Guided practice • Group practice with project-based learning • Individual practice with problem-based learning
Method of Assessment	The trainer shall use <i>inter alia</i>, the following assessment methods: • Practical observation • Oral/viva-voce • Written test • Assignment • Project work

Module Title	Carrying out rainwater harvest and stormwater drainage system		
Module Code	7412- L3-M3		
Learning Outcome 5	Perform repair and maintenance		
Duration	Theory: 4 hours	Practical:18 hours	Total: 22 hours
Assessment Criteria	- Fault is diagnosed as per the job requirement following standard procedure - Gutter and pipeline are serviced as per the job requirement following standard procedure - Filtration tank is serviced as per the job requirement following standard procedure		
Content	C5.01 Diagnosing fault <i>Knowledge</i> - Importance of preparing observation checklist - Common fault in rainwater harvesting system <i>Skills</i> - Observation skills - Communication skills <i>Attitude, safety and environmental concern</i> - Being a team player - Effective time management - Being vigilant - Efficient use of materials - Having work ethics and integrity - Proper handling of tools, materials and equipment - Ensuring to follow OHS rules and regulations - Ensuring appropriate use of PPE - Ensuring proper disposal of waste C5.02 Servicing gutter and pipelines <i>Knowledge</i> - Causes of gutter and pipeline faults - Remedies of gutter and pipeline faults - Methods of servicing gutter and pipelines <i>Skills</i> - Using cordless drill machine - Using high pressure cleaning machine - Using blower - Observation skills - Communication skills <i>Attitude, safety and environmental concern</i> - Being a team player - Effective time management - Being vigilant - Efficient use of materials - Having work ethics and integrity - Proper handling of tools, materials and equipment		

	• Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste C5.03 Servicing filtration tank Knowledge • Importance of servicing filtration system • Time interval for servicing filtration system • Causes and remedies of filtration system fault Skills • Observation skills • Analytical skills • Communication skills • Problem solving skills Attitude, safety and environmental concern • Being a team player • Effective time management • Being vigilant • Efficient use of materials • Having work ethics and integrity • Proper handling of tools, materials and equipment • Ensuring to follow OHS rules and regulations • Ensuring appropriate use of PPE • Ensuring proper disposal of waste
Learning Conditions	Learning Materials • CBLM/Learning Materials • Hand-outs • Audio Visuals • Reference books • Manuals Learning Facilities and infrastructure • Classroom with adequate facilities • Information Technology (IT) lab • Library • Workshop Materials • Pen, notebook, Markin clothes, screw, adhesive, gutter & fittings, clamps, washers, facia brackets, metal cutting blade, hacksaw blade, drill bit, Teflon tape, marker, filter media, filtration tank and pipes & fittings Tools • Wrench, ladder, knife, cleaning brush, fish wire, screw driver set, hammer, measuring tape, spirit level, hack saw, hole saw, file and reamer

	Equipment • Angle grinder, drilling machine, high pressure cleaning machine, blower and cordless drill machine PPE • Workshop dress, safety belt, safety goggles, gloves, helmet and safety boot
Instructional Methodologies	The trainer shall use <i>inter alia</i>, the following instructional methods: • Lecture • Interactive discussion • Demonstration • Industrial visit/training • Guided practice • Group practice with project-based learning • Individual practice with problem-based learning
Method of Assessment	The trainer shall use <i>inter alia</i>, the following assessment methods: • Practical observation • Oral/viva-voce • Written test • Assignment • Project work

ANNEXURE

Annex I: Time Distribution

Plumbing BQF C3					
Module	Learning outcomes	Tasks	Theory (hours)	Practical (hours)	Total (hours)
A Carrying out construction/ installation of sewerage system	A1 Construct/Install sewer network	A1.00 Introductory knowledge	1	0	1
		A1.01 Inspect site	1	2	3
		A1.02 Prepare estimate	4	10	14
		A1.03 Perform trenching and bedding	2	14	16
		A1.04 Lay pipes	2	7	9
		A1.05 Perform leak test	1	2	3
		A1.06 Backfill trenches	1	3	4
	Sub Total Duration		12	38	50
	A2 Construct/Install chamber	A2.01 Install precast chamber	1	6	7
		A2.02 Install prefab chamber	1	6	7
		A2.03 Construct concrete inspection chamber	2	12	14
		A2.04 Perform benching	1	6	7
	Sub Total Duration		5	30	35
	A3 Carryout operation and maintenance of sewerage system	A3.01 Inspect sewerage treatment plant	1	2	3
		A3.02 Clean screen bar	1	2	3
		A3.03 Measure flow rate	1	2	3
		A3.04 Clean treatment plant	2	5	7
		A3.05 Perform pH test	1	2	3
		A3.06 Perform coliform test	1	2	3
		A3.07 Perform total suspended solid test	1	2	3
		A3.08 Perform BOD test	1	3	4
		A3.09 Perform COD test	1	2	3
		A3.10 Clear blockage	1	6	7
		A3.11 Service leaking pipes	1	6	7
	Sub Total Duration		12	34	46
	Total Duration (A)		29	102	131
B Carrying out installation of modern sanitary fixtures	B1 Install modern sanitary fixtures	B1.01 Install wall-hung Water Closet (WC)	3	18	21
		B1.02 Install wash basin on mounting board	2	5	7
		B1.03 Install jacuzzi bathtub	3	18	21
	Sub Total Duration		8	41	49
	B2 Install modern sanitary fixtures with sensors	B2.01 Install sensor urinal	2	12	14
		B2.02 Install sensor wash basin	1	6	7
		B2.03 Install sensor Water Closet (WC)	1	6	7
		B2.04 Install automatic bidet	1	6	7

		B2.05 Install automatic water dispenser	1	3	4
	Sub Total Duration		6	33	39
	B3 Install cubicle shower	B3.01 Identify location	1	1	2
		B3.02 Prepare layout plan	1	3	4
		B3.03 Fix cubicle shower	3	26	29
	Sub Total Duration		5	30	35
	B4 Perform Repair and maintenance	B4.01 Diagnose fault	1	4	5
		B4.02 Service sensor	1	4	5
		B4.03 Replace battery	1	1	2
	Sub Total Duration		3	9	12
	Total Duration (B)		22	113	135
C Carry out rainwater harvest and storm water drainage system	C1 Perform installation of gutter	C1.01 Prepare layout	1	5	6
		C1.02 Fix gutter	1	5	6
		C1.03 Conduct leakage test	1	1	2
	Sub Total Duration		3	11	14
	C2 Perform installation of downpipe	C2.01 Prepare layout	1	3	4
		C2.02 Lay pipes and fittings	1	4	5
		C2.03 Conduct leakage test	1	1	2
	Sub Total Duration		3	8	11
	C3 Perform installation of pipelines for strom water drainage system	C3.01 Prepare layout	1	3	4
		C3.02 Perform trenching and bedding	1	6	7
		C3.03 Lay pipes	1	3	4
		C3.04 Backfill trenaches	1	2	3
	Sub Total Duration		4	14	18
	C4 Perform installation of filtration	C4.01 Install intake tank	1	6	7
		C4.02 Install filtration tank	3	11	14
		C4.03 Install reservoir tank	1	6	7
	Sub Total Duration		5	23	28
	C5 Perform repair and maintenance	C5.01 Diagnose fault	1	3	4
		C5.02 Service gutters and pipeline	1	3	4
		C5.03 Service filtration tank	2	12	14
	Sub Total Duration		4	18	22
	Total Duration (C)		19	74	93
Grand Total			70	289	359

Annex II: Assessment Sample

Unit of competency	Drive Light Vehicle
Unit Code	8322-U4-L2
Module Title	Driving Light Vehicle
Module Code	8322-U4-L2-M1
Time Duration	45 min *
Problem or Project: Drive Light Vehicle	
Introduction: Perform pre-operating procedures before starting the vehicle. Drive light vehicle under different environment conditions following standard traffic rules and defensive driving techniques. Perform post operating procedures after parking the vehicle.	
Observation: (How will you be assessed as Competent?) Your performance will be assessed based on the following criteria: • Performance of pre and post operating procedures as per standard practices; • Application of standard procedures while starting the LMV; • Demonstrating the driving skills in different road condition using the system of vehicle control (SOVC); • Demonstrating your adherence to RSTA Rules, Defensive Driving; • The final outcome of your driving skills	
Note: For Assessor/Institute for preparation for assessment. Materials and Equipment for 1 candidate • LMV in good running condition with all necessary vehicle documents Roles and responsibilities of assessors (before/during and after assessment) • Identify in advance the different road environment (rough road, town, simulated night and poor light condition, highway) • During assessment let the candidate demonstrate moving off, reversing, overtaking, and parking.	

Assessor/ Observation Check List

Unit of competency	Drive Light Vehicle		
Unit Code	8322-U4-L2		
Module Title	Driving Light Vehicle		
Module Code	8322-U4-L2-M1		
Problem/Project: Drive Light Vehicle	Psychomotor (Practical) domain level: P2		
Candidate's Name:			
Place of Assessment:		Date of Assessment:	
A. During the demonstration of skills did the candidate do following:	Marks allocated	Marks received	Remarks
1. Check mirror settings, fluid level, tire pressure and required documents.	4		
2. Start LMV according to the procedure of standard starting procedure (Cockpit Drill)	2		
3. Move off and steer LMV wearing seat belts and without stalling the engine*	3		
4. Reverse LMV safely without stalling the engine*	3		
5. Park LMV safely in the centre of given parking area following standard parking procedure	2		
6. Drive LMV on the highway according to the road conditions following the road safety signs.	2		
7. Drive LMV in towns according to the traffic signs and signals.	2		
8. Drive LMV on 4WD safely (if necessary and available)	1		
9. Giving pass and overtake the vehicle safely according to the road and weather condition *	3		
10. Stop LMV safely in a given area according to standard stopping procedure	1		
B. Is the job outcome correct in the following areas?			
Caused no accidents and damages to the vehicle.*	5		
Total marks obtained	28		
The Candidate's performance	Satisfactory:		
	Not Satisfactory:		

Note: The questions marked with * are the critical questions which the trainees must be able to answer. Otherwise, they will be rated unsuccessful even if they perform well in the practical exam. The mark P is for the psychomotor domain level (P1- Simple Routine Assignment; P2- Questions related to Simple Routine Assignment and P3- Questions not related to Simple Routine Assignment)

Oral Questions checklist:

Unit of competency		Drive Light Vehicle		
Unit Code		8322-U4-L2		
Module Title		Driving Light Vehicle		
Module Code		8322-U4-L2-M1		
Problem/Project: Drive Light Vehicle				
Candidate's Name:				
Place of Assessment:		Date of Assessment:		
Questions (and its domain level) to be answered by the trainee / candidate:	Key Answer	Marks allocated	Marks obtained	Remarks
Why do you keep the vehicle in start mode for a few minutes before moving? (Verifying observations) (C1)				
In case of accidents who will you contact first? (contingency questions) (C2)				
While entering intersection, before how many seconds do you have to give signal? (verifying observations) (C3)				
Total Marks Obtained				
The candidate's performance was:		Satisfactory:		
		Not Satisfactory:		
Assessor's Name:		Signature:		

Note: The questions marked with C describes the cognitive level of the questions. C1- Remembering; C2- Functional Understanding and C3- Problem Solving.

Written questions checklist:

Unit of competency		Drive Light Vehicle	
Unit Code		8322-U4-L2	
Module Title		Driving Light Vehicle	
Module Code		8322-U4-L2-M1	
Problem/Project: Drive Light Vehicle			
Candidate's Name:			
Place of Assessment:		Date of Assessment:	
Questions (and its domain level) to be answered by the trainee/ candidate:	Key Answer	Marks Allocated	Marks Obtained
1. List down three types of parking. (Short Answer Question) (C1)	Angle, Straight and	1	

Annex III: Module Recognition

This is to verify that

Mr/Ms.....

has completed module on

.....

Covering following learning outcomes:

1.
2.
3.

Instructor:

Head of the Department:

.....

.....

Signature:

Signature:

Date: / / (dd/mm/yyyy)
.....(dd/mm/yyyy)

Date: / /

Head of the Institute:

Trained Assessor (Institute)/Exam OC:

.....

.....

Signature:

Signature:

Date: / ... / (dd/mm/yyyy)

Date: / /(dd/mm/yyyy)

Annex IV: Lesson Plan

Lesson Plan

Course Title:		NC Level:		
Module Code:		Duration:		
Module Title:				
Learning Outcome:				
Skill/Task/Topic:				
Terminal Performance Objective:				
(Note: Write narrative statement extracted from TPO of Task Sheet)				
Enabling Objectives (Related knowledge):				
By the end of the lesson learners will be able to:				
i) ii) iii)				
What (Content/Activity)	Who (T/L)	How (Methods/ Media)	Duration (Min.)	Questions
Introduction: Main body Conclusion				
Projects/Problems:				

Instructional Resources Plan				
Skills/Task/Topic:				
No. of Trainees:				
Sl. No.:	Instructional materials/resources	Specifications	Qty.	Remarks
Prepared by :		Signature	Date:	
Revised by:		Signature	Date:	
Approved by:		Signature	Date:	

Task sheet

TS-1/4: Practical Plan			
Course Title:		N C Level:	
Module code:		Duration:	
Module Title			
Learning outcome			
Skills/Task Title:		Task no:	
Terminal Performance Objective: <i>Given:</i> <i>Cue:</i> <i>Who:</i> <i>What:</i> <i>Within:</i> <i>How well:</i> - - -			
Enabling Objectives (Related Skills): <i>By the end of a lesson, the learners will be able to:</i> i) ii) iii) iv)			
Activities	Who (T/L)	How (methods/ media)	Duration
Project/Assignment: 			

TS-2/4: Tool and Equipment required:						
<i>Sl no.</i>	<i>Particulars</i>	<i>Specifications</i>	<i>Qty.</i>	<i>Remarks</i>		
Training Materials required:						
<i>Sl no.</i>	<i>Particulars</i>	<i>Specifications</i>	<i>Qty.</i>	<i>Rate</i>	<i>Amount</i>	<i>Remarks</i>
TS-3/4: Performance Guide						
Skill/Task:					Date:	
Directions: Use the following performances criteria to rate the learner. Check YES/NO to indicate whether the learner performed each step as indicated or not?						
Sl. No:	Steps				Yes	No
Note: <i>Critical steps: All * marked steps should be carried out very carefully. For a quality performance guide, all items should be checked "YES"</i>						

TS-4/4: Instruction and Drawing

General Instructions for Trainees

- i)
- ii)
- iii)
- iv)

Drawing (if any)

Safety Precaution

- i)
- ii)
- iii)

Prepared by:	Signature	Date:
Revised By:	Signature	Date:
Approved by:	Signature	Date:

Annex V: Course Plan
Institutes letter head and Logo

(Trade)YEAR PLAN- _____ Semester_____ (Year)

Trade: NC Level:			Schedule																																								Total Hours																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
Module Code	Module Title	Learning Outcome	Feb.				March				April				May				June				July				Aug.				Sept				Oct.				Nov.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

Prepared by:

Verified & Approved by:

Date:

Monthly/Weekly Plan

Month:

Trade:

Trainer:

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Week 01							
Week 02							
Week 03							
Week 04							
Week 05							

Developed by:

Approved by:

Date



For more information please contact:

Technical Trainers Training and Resource Center (TTTRC), DWPSD

Official Email: tttrd@moesd.gov.bt/dwpsd@moesd.gov.bt

Cover designed by: Karma Dorji, TTTRC, DWPSD, MoESD