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MARBLE TECHNICIAN

Trainer Guide

National Vocational Certificate Level 2

Version 1 - JULY 2020

1. Introduction

Competence-based training helps to bridge the gap between what is taught in training and what tasks will be performed on the job. Training trainees to perform actual job functions helps to ensure that future front-line workers have the skills, knowledge and abilities required to perform their jobs properly, safely and effectively. In addition to competence-based training, assessment based on the performance of actual work competencies helps to ensure that:

- trainees are performing their work tasks as safely as possible
- performance gaps are recognized prior to serious incidents
- training can be implemented to improve competence.

There are significant benefits to competence-based training:

1.1. Cost effectiveness

Since training activities and assessments in a competence-based approach are goal-oriented, trainers focus on clearly defined areas of skills, knowledge and understanding that their own industry has defined in the competence standards. At the same time, trainees are more motivated to learn when they realize the benefits of improved performance.

1.2. Efficiency

The transfer gap between the training environment and working on the job is reduced substantially in a competence-based approach. This is because training and assessment are relevant to what needs to be done on the job. As a result, it takes less time for trainees to become competent in the required areas. This, in turn, contributes to improved efficiency where training and assessment are concerned.

1.3. Increased productivity

When trainees become competent in the competence standards that their own industry has defined, when they know what the performance expectations are and receive recognition for their abilities through successful assessments, they are likely to be more motivated and experience higher job satisfaction. The result is improved productivity for organizations. The communication and constructive feedback between future employers and employees will improve as a result of a competence-based approach, which can also increase productivity.

1.4. Reduced risk

Using a competence-based approach to training, development, and assessment, employers are able to create project teams of people with complementary skills. A trainee's record of the skills, knowledge and understanding relating to the competence standards they have achieved can be used by a future employer to identify and provide further relevant training and assessment for new skills areas. Competence standards can shape employee development and promotional paths within an organization and give employees the opportunity to learn more competencies beyond their roles. It can also provide organizations with greater ability to scale and flex as needed, thereby reducing the risk they face.

1.5. Increased customer satisfaction

Employees who have been trained and assessed using a competence-based approach are, by the definition of the relevant competence standards, able to perform the required tasks associated with a job. The knock-on effect is that, in service-related industries, they are able to provide high service levels, thereby increasing customer satisfaction. In production or manufacturing industries, they are able to work closely to industry standards in a more effective and efficient way.

2. Lesson plans

This manual provides a series of lesson plans that will guide delivery of each module for the Marble Technician Level 2 qualification. It is important for trainers to be flexible and be ready to adapt lesson plans to suit the context of the subject and the needs of their trainees.

Good teachers acknowledge that CBT means each and every trainee in the class learns at a different speed. The good teacher is prepared to throw aside the day's lesson plan and do something different (and unplanned) for the class even if it means 'writing' a lesson plans for each trainee to match their learning pace for that day or week.

Learning by doing is different from learning theory and then applying it. To learn to do something, trainees need someone looking over their shoulder saying 'it's not quite like that, it's like this', 'you do it like this because ...', or even 'tell me why you chose to do it like this?'.

In this way, trainees learn that theoretical knowledge is meaningless if it is not seen in the context of what they are doing. In other words, if a trainee doesn't know why they do something, they will not do it competently (skills underpinned by knowledge = competent performer).

This is how a *Marble Technician* acquires a practical grasp of the standards expected. It's not by learning it in theory, but because those standards are acquired through correction by people who show what the standards are, and correct the trainee where they do not meet those standards, and where they repeat it correction until they have internalized those standards.

3. Demonstration of skill

Demonstration or modeling a skill is a powerful tool, which is used, in vocational training. The instructions for trainers for demonstration are as under:

- a) Read the procedure mentioned in the Trainer Guide for the relevant Learning Unit before demonstration.
- b) Arrange all tools, equipment and consumable material, which are required for demonstration of a skill.
- c) Practice the skill before demonstration to trainees, if possible.
- d) Introduce the skill to trainees clearly at the commencement of demonstration.
- e) Explain how the skill relates to the skill(s) already acquired and describe the expected results or show the objects to trainees.

- f) Carry out demonstration in a way that can be seen by all trainees.
- g) Use the same tools and materials that the learner will be using.
- h) Go through EACH of the steps involved in performing the skill.
- i) Go SLOWLY describe each step as it is completed.
- j) Encourage the learners to move around and watch what you are doing from a number of different angles.
- k) Identify critical or complex steps, or steps that involve safety precautions to be followed.
- I) Explain theoretical knowledge where applicable and ask questions to trainees to test their understanding.
- m) Try to involve the learners: Ask them questions about why they think the process may work that way.
- n) Repeat critical steps in demonstration, if required.
- o) Summarize the demonstration by asking questions to trainees.

Involvement in the process (actively seeing) is important at this stage. When you work on getting involved, getting people to participate, you make them a part of what is happening. Questions for clarification or explanation are important throughout the demonstration. It is up to the learners to ask questions about things they do not understand, but it is also important for trainers to seek out and elicit questions from learners. A trainer may need to do repeated demonstrations of difficult or complex skills.

4. Overview of the program

Course: Marble Technician Level 2 Total Course Duration: 600 Hours

Course Overview:

In this training program trainee will learn and acquire specialized knowledge and practical skills required to function as a Marble Technician both at domestic and commercial levels. Marble Technician will be responsible to develop Basic Computer Operating skills, Interpret Basic Drawing and Design, Develop Basic Communication skills and Identify Machine and its attachments. Main purpose of developing these qualifications are as under:

- Improve the overall quality of training delivery and setting national benchmarks for training of Marble Technician in the country
- Provide flexible pathways and progressions to learners enabling them to receive relevant, up-to-date and recent skills
- Provide basis for competency-based assessment which is recognized and accepted by employers
- Establish a standardized and sustainable system of training for Marble Technician in the country

Module Title and Aim	Learning Units	Theory ¹ Days/hours	Workplace ² Days/hours	Timeframe of modules
	LU1. Adopt Personal safety			
	LU2. Adopt workplace safety.			
	LU3. Adopt safety of tools and equipment			
Module A. Maintain workplace Safety	LU4. Maintain First Aid Box	37	63	100
	LU5. Adopt Machines Safety			
	LU6. Adopt environmental regulation			

¹ Learning hours in training provider premises,

² Training workshop, laboratory and on-the-job workplace

	LU1. Arrange Tools and Equipment			
Module B. Maintain Tools &	LU2. Maintain tool Box			
Equipment.	LU3. Calibrate measuring tools	22	78	100
	LU4. Manage Inventory of tools and equipment			
	LU1. Apply basic Literacy skills			
Module C. Develop Basic Literacy &	LU2. Apply basic Numeracy skills		0.40	
Numeracy Skills	LU3. Perform Measurement	60	240	300
	LU4. Perform basic mathematical calculations			
	LU1. Identify Machine and its sizes.			
	LU2. Identify components & Attachments			
Module D. Identify Machines & Its Attachments	LU3. Identify capacities & capabilities of Machine	22	78	100
Attachments	LU4. Identify basic tools and supplies associated with Machines			
	LU5. Maintain Inventory of Machines & attachment			
	LU1. Operate MS word			
	LU2. Operate MS Excel			
Module E. Develop Basic Computer Operating Skills	LU3. Operate MS Power Point	38	162	200
Operating Skills	LU4. Perform Browsing			
	LU5. Print Document			
	LU1. Take Measurement			
	LU2. Draw different types of triangles.			
	LU3. Draw all six types of quadrilaterals	35		
Module F. Construct Geometrical	LU4. Draw Circle and its parts			
Figures	LU5. Draw polygons,		165	200
	LU6. Draw Ellipses (major axis = 10 cm, minor axis = 8 cm with			
	four methods.			
	LU7. Draw Parabola (major axis = 10 cm and minor axis = 8 cm with Three methods.			

		LU1. Adopt effective Listening			
Module G.	Develop basic	LU2. Develop Nonverbal Communication Skill			
	communication Skill	LU3. Develop verbal communication Skill.	20	80	100
		LU4. Develop Written Communication Skills			
		LU1. Arrange Stones (Color, Size, Grade)			
		LU2. Regulate drainage of polluted water			
		LU3. Identify location for dumping marble waste			
Module H.	Prepare	LU4. Prepare log sheet for general maintenance			
	Workplace/Housekeeping	LU5. Maintain Inventory	21	79	100
		LU6. Ensure clear travel path			
		LU7. Store slabs (size, color, grade)			
		LU8. Load Marble Slabs			
		LU1. Install / Uninstall Electrical Motors			
Module I.	Carryout Basic Electrical	LU2. Lay Cables			100
	Installation	LU3. Perform Basic Electrical Wiring	33	67	
		LU4. Conduct Wiring Tests			
		LU1. Replace Belts			
		LU2. Replace cutting Blades			
	Maintain Marble Machines.	LU3. Replace bearings and shaft.	55	245	300
	iviaci ili les.	LU4. Replace Pulleys.			
		LU5. Replace trolley ropes.			
		LU1. Perform loading/unloading by Crane			
		LU2. Prepare Machine for cutting Marble			
Module K.	Cut Marble	LU3. Perform vertical cutting	52	248	
		LU4. Perform cutting with Gang saw			
		LU5. Perform bridge Cutting.			

	LU6. Perform cross cutting			
	LU7. Perform section cutting			
	LU8. Perform cutting with resizing machine.			
	LU9. Perform Table Cutting			
	LU1. Identify polishing tools & equipment			
	LU2. Apply polishing pads			
Module L. Perform Polishing of Marble	LU3. Apply sand paper	20	180	200
iviaibie	LU4. Apply chemicals			
	LU5. Apply Buff for Shining.			
	LU1. Interpret Drawing & Design using CAD			
	LU2. Draw & Design the job using CAD			
Module M. Perform CAD/CAM	LU3. Load the desired Tools			
Operations	LU4. Perform Simulation	51	449	500
	LU5. Perform Material Loading			
	LU6. Perform CAM Operations			
	LU1. Adopt standard atmosphere at work place			
	LU2. Ensure safe environmental concerns			
	LU3. Check quality of marble on receiving			
	LU4. Adopt accuracy in machining			
Module N. Ensure Quality	LU5. Check quality of cutting	20	130	150
	LU6. Ensure Quality of Polishing			
	LU7. Implement quality standards			
	LU8. Adopt quality of workmanship			
	LU9. Ensure quality at dispatching			
	LU1. Resolve problems or disagreements with others	28		_
Module O. Develop Professionalism	LU2. Demonstrate work ethic		72	100

	TOTAL	600	2400	3000
	LU8. Develop Business competition Skills			
	LU7. Develop Business promotion technique			
	LU6. Evaluate marketing performance.			
Skills	LU5. Implement marketing activities	86	64	150
Module P. Develop Entrepreneurial	LU4. Prepare Business plan			
	LU3. Identify needs of the market.			
	LU2. Develop basic marketing skills			
	LU1. Conduct Market survey			
	LU6. Interpret documentation			
	LU5. Communicate with signals			
	LU4. Work independently			
	LU3. Work with others			

Lesson Plan of Module – (Sample) 4.1.

Module 05:

Maintain Tools & Equipment

Learning Unit

LU-1: Arrange tools and equipment

LU-2: Maintain Tool Box

LU-3: Calibrate measuring tools

LU-4: Manage Inventory of tools and equipment

Learning Outcomes

Trainee will be able to maintain tools and equipment for Marble Technician. Trainee will be able to understand various tools and equipment and their maintenance. Trainee will be able to Arrange tools and equipment maintain tool box, insulate tools and equipment, calibrate measuring tools and Manage Inventory of tools/Equipment.

Key Notes: Methods:

Media: Time:

Through **Tools and Equipment** Multimedia 50 hrs.

Multimedia Maintaining Tool Box

Presentations Insulation of Tools and Equipment

and Physical Calibration of measuring Tools demonstration

Managing Inventory of Tools/Equipment of machines

Introduction

Introduction to Maintaining Tools and Equipment, Identification of Tools and equipment, Maintaining Tool Box, Insulating Tools and Equipment, Calibrating measuring tools, Managing inventory of tools and equipment.

Main Body

- Define various tools and equipment and their functions
- Describe arrangement of tools/equipment as per job
- Differentiate between corrective and preventive maintenance
- Describe arrangements of tools and equipment in tool box
- Explain storage methods of tools and equipment
- Describe types of calibration
- Describe methods of equipment calibration
- Explain methods of tools and equipment inventory
- Elaborate writing of faulty tools and equipment.

Conclusion

Various tools and equipment and their function, Maintenance of toolbox, Insulation of Tools and equipment, Calibration of measuring tools, Managing inventory of tools and equipment.

Assessment

Ask learners

Name various tools and equipment and their function?

What is the importance of insulating tools and equipment?

What is the importance of calibrating measuring tools?

Total time: 35 Hrs.

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Module-5

5. Trainer's guidelines

Module 5: Develop Basic Computer Operating skills

Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
LU1. Operate MS word	Give an illustrative presentation on how to operate MS Word and demonstrate the following points: Perform Microsoft basic commands in MS word Open File Format a file i. Font (Type/size/bold/Italic) ii. Header Footer iii. Page number iv. Insert pics / table/hyperlink Save a File Save a folder Divide the students into Group to perform the above tasks and observe the students and give feed back to the students. Learners must be able to practice and develop their knowledge and skills relating to Operate MS Word in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.	Classroom/ lab	 Multi media Learner guide Hand outs Windows CD MS office CD

Module 5: Develop basic computer operating skills				
Learning Unit	Suggested Teaching/	Delivery	Media	
	Learning Activities	Context		
LU2:	Give an illustrative presentation on how to operate MS Excel and demonstrate the following points:	Classroom/lab	o Multi media	
Operate MS	 Perform basic commands in Microsoft MS Excel 		 Learner guide 	
Excel	Open a worksheet.		Hand outsWindows CD	
	Sum functions		 MS office CD 	
	If functions			
	Basic calculations			
	Table and graphs			
	Save a worksheet/folder			
	0			
	Ask learners to work in small groups and practice for the above tasks, observe them and provide feedback where necessary to enhance the knowledge and skill.			
	Learners must be able to practice and develop their knowledge and skills relating to Operate MS Excel in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.			

Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
LU3: Operate MS Power Point	Give a presentation on MS. Power Point and demonstrate the following points: Prepare Microsoft power point presentation with basic commands Make a power point file Insert pics/table/hyperlink Design a theme for slides Save a power point file Following the discussion, arrange the trainees in small groups. Provide each group to perform the above, observe them for improvement. Learners must be able to practice and develop their knowledge and skills relating to Operate MS Power Point an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.	Classroom/lab	 Learner guide Multi media Presentation MS. Office CD

Learning Unit	Suggested Teaching/	Delivery	Media
	Learning Activities	Context	
LU 4. Perform Browsing	 Give a presentation on Performing Browsing and demonstrate the following points: Perform browsing on the internet as per needs Perform search online on new trends in the market with the help of internet Divide the students into group of 03 students and ask to do the above, observe the trainees and give feedback to improve the understanding and skill. Learners must be able to practice and develop their knowledge and skills relating to Perform Browsing in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding. 	Classroom /Lab	 Learner guide Multi media Presentation MS. Office CD
LU5. Print Document	The trainer should start the session with a quote, picture or video to attain the attention of the learners. then Describe and Demonstrate the following points: • Select Printer • Select page setup • Print relevant pages Divide the learners into group of 03 students and practice on the above and observe the students for improvement. Learners must be able to practice and develop their knowledge and skills relating to Print a document in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.	Class Room /Lab	 Multi media Presentation Learner guide Hand out Different tools and equipment Sign boards Multi meter or volt Meter variable DC Supply

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Module-6

Module 6: Construct Geometrical Figures

Module 6: Co	Module 6: Construct Geometrical Figures				
Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media		
LU1: Take Measurement	Deliver an illustrated presentation on how to Take Measurement. Ensure you address the importance of the following points: • Identify measuring Instruments. • Perform measurement as per drawing. • Mark the job as per drawing Display a slide or flip chart with a key question relating to Take Measurement. Step 1 – Think Working on their own, each learner thinks about the question and makes notes of their responses or key points which they believe to be important. Step 2 – Pair	Class room with multimedia aid, audio-visual facilities and flip charts	 PPT Presentations. Videos Whiteboard Learning guide Different Drawings Measuring tools 		
	For the next step, each learner pairs up with a partner. The two learners exchange their ideas and make further notes to add clarity to their own ideas. Step 3 – Share The final step is for you to invite different pairs to share the ideas they have discussed in response to the key question relating to Take Measurement Learners must be able to practice and develop their knowledge and skills relating to Take Measurement in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.	Workshop or Workplace			

Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
LU2: Draw different types of triangles 2. Marble Technician TG L	Deliver an illustrated presentation on Draw different types of triangles. Ensure you address the following points: Distribute space in required parts. Draw equilateral triangle of side length 2". Draw isosceles triangle with base 5 cm and height = 6 cm Draw scalene triangle of lengths 2", 1.5", 1". Draw acute angled triangle. Draw right angles triangle. Draw obtuse angled triangle. Draw obtuse angled triangle. Draw tile strip & title block on drawing sheet Prepare either: A flip chart / A PowerPoint slide / A handoutshowing the key topics about Draw different types of triangles. Go through all the key topics briefly and then allocate one key topic to each group. Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record three main points from their discussions that relate to their key topic. After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for Draw different types of triangles. Discuss these main points briefly with the whole group. Learners should make additional notes on the flip chart to record additional points their group had not identified. Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics. End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners. Learners must be able to practice and develop their knowledge and skills relating to Draw different types of triangles in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding	Class room with multimedia aid, audio-visual facilities and flip charts Workshop or Workplace	 PPT Presentations Videos Whiteboard Learning guide Triangles

Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
LU3: Draw all six types of quadrilaterals	Lead a brainstorm on Draw all six types of quadrilaterals. Use ideas from the brainstorm to explain the following key points: Distribute space in required parts. Draw square of side length 2". Draw rectangle with length 5 cm and width= 3 cm Draw rhombus of side length=2 cm & internal angle= 45° Draw parallelogram of length 6 cm, width= 3 cm & internal angle= 45° Draw trapezoid of parallel sides' length 4 cm & 6 cm spaced at a distance of 3 cm. Draw trapezium of side lengths 5 cm, 4 cm, 6 cm & 3 cm. Draw tile strip & title block for drawing sheetPrepare either: A flip chart / A PowerPoint slide / A handoutshowing key topics for Draw all six types of quadrilaterals. Learners need to work in small groups discussing the key topics. Each group should make notes from their discussions that identify three main points that related to each key topic. After the discussion, begin the feedback session. Ask one group to share the main points they have recorded for the first key topic for Draw all six types of quadrilaterals. Discuss these main points briefly with the whole group. Learners should make additional notes to record additional points their group had not identified. Then ask the next group to share the main points they have recorded for the second key topic. Repeat the discussion process. Continue until you have covered all the key topics. End the group discussion activity with a summary. Learners must be able to practice and develop their knowledge and skills relating to Draw all six types of quadrilaterals in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.	Class room with multimedia aid, audio-visual facilities and flip charts Workshop or Workplace	 PPT Presentations Videos Whiteboard Learning guide Drawings

Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
LU4 Draw Circle and its parts	Begin this session with an illustrated presentation on Draw Circle and its parts. Ensure that the presentation addresses the following points: • Draw circle of diameter 2 Cm. • Draw semi-circle of diameter 2 Cm, • Draw segment of circle of diameter 2 Cm, • Draw segment of circle of diameter 2 Cm, • Draw sector of circle. • Draw zone of circle of diameter 2 Cm. • Draw tile strip & title block for drawing sheet Display a flip chart showing the following key question related to Draw Circle and its parts: 'What are the important steps involved in Drawing a Circle and its parts?' Give each learner a sheet of paper and asked them to write their name at the top. Explain to learners that they will be sharing their work with other learners. Ask learners to write silently for 3-5 minutes answering the question displayed on the flip chart. When learners have completed writing, instruct them to pass their paper to the learner on their left. Each learner will read what their partner has passed to them and write a response. This will also be done silently. After another 2-3 minutes, instruct the learners to pass the paper to their left a second time. Repeat the same procedure, also done in silence At the end of the activity, ask the learners to return the paper to the original writer. Allow learners a few moments to read over the responses to their writing. Ask learners to work in pairs to reflect on and discuss the responses to the question on the flip chart. When this activity is concluded, collect the papers and make copies for each learner. Learners must be able to practice and develop their knowledge and skills relating to Draw Circle and its parts in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their	Class room with multimedia aid, audio-visual facilities and flip charts Workshop or Workplace	 PPT Presentations. Videos Whiteboard Learning guide Measurement Tools

earning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
	understanding.		

Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
LU5 Draw Polygons	Lead a discussion about Draw Polygons. Use real examples to support the discussion and ensure the discussion considers: • Interpret section drawing • Identify hatching symbols • select the required materials for hatching as per job requirement Display a flip chart showing the following key question: 'How to Draw Polygons?' Give each learner a sheet of paper and asked them to write their name at the top. Explain to learners that they will be sharing their work with other learners. Ask learners to write silently for 3-5 minutes answering the question displayed on the flip chart. When learners have completed writing, instruct them to pass their paper to the learner on their left. Each learner will read what their partner has passed to them and write a response. This will also be done silently. After another 2-3 minutes, instruct the learners to pass the paper to their left a second time. Repeat the same procedure, also done in silence. At the end of the activity, ask the learners to return the paper to the original writer. Allow learners a few moments to read over the responses to their writing. Ask learners to work in pairs to reflect on and discuss the responses to the question on the flip chart. When this activity is concluded, collect the papers and make copies for each learner. Learners must be able to practice and develop their knowledge and skills relating to Draw Polygons in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.	Class room with multimedia aid, audio-visual facilities and flip charts Workshop or Workplace	 PPT Presentations. Videos Whiteboard Learning guide

Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
LU6: Draw Ellipses major axis = 10 cm minor axis = 8 cm with four methods.	Deliver an illustrated presentation on how to Draw Ellipses. Ensure you address the importance of the following points: • Draw ellipse by four centers method. • Draw ellipse by basic method. • Draw ellipse by parallelogram method. • Draw ellipse by off-set method in concentric circles. Display a slide or flip chart with a key question relating to Draw Ellipses. Step 1 – Think Working on their own, each learner thinks about the question and makes notes of their responses or key points which they believe to be important. Step 2 – Pair For the next step, each learner pairs up with a partner. The two learners exchange their ideas and make further notes to add clarity to their own ideas. Step 3 – Share The final step is for you to invite different pairs to share the ideas they have discussed in response to the key question relating to Draw Ellipses Learners must be able to practice and develop their knowledge and skills relating to Draw Ellipses in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.	Class room with multimedia aid, audio-visual facilities and flip charts Workshop or Workplace	 Videos Whiteboard Learning guide Different Drawings Measuring tools

Module 6: Con	struct Geometrical Figures		
Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
LU7: Draw Parabola major axis = 10 cm minor axis = 8 cm with Three methods	Deliver an illustrated presentation on Draw Parabola. Ensure you address the following points: • Draw parabola by basic method. • Draw parabola by tangent method. • Draw parabola by rectangle method Prepare either: A flip chart / A PowerPoint slide / A handoutshowing the key topics about Draw Parabola. Go through all the key topics briefly and then allocate one key topic to each group. Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record three main points from their discussions that relate to their key topic. After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for Draw Parabola. Discuss these main points briefly with the whole group. Learners should make additional notes on the flip chart to record additional points their group had not identified. Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics. End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners. Learners must be able to practice and develop their knowledge and skills relating to Draw Parabola in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding	Class room with multimedia aid, audio-visual facilities and flip charts Workshop or Workplace	 PPT Presentations . Videos Whiteboard Learning guide Triangles

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Module-7

Module 7: Develop Basic Communication Skills

Module 7: Develop E	Module 7: Develop Basic Communication Skills				
Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media		
LU1: Adopt Effective Listening	Discuss and demonstrate the importance of Adopting Effective Listening and prompt learners to consider, learn and apply the following: Practice active listening Ask clarifying questions Adopt Sympathetic attitude Prepare either: Display a slide or flip chart with a key question relating to Adopt Effective Listening. Step 1 – Think Working on their own, each learner thinks about the question and makes notes of their responses or key points which they believe to be important. Step 2 – Pair For the next step, each learner pairs up with a partner. The two learners exchange their ideas and make further notes to add clarity to their own ideas. Step 3 – Share The final step is for you to invite different pairs to share the ideas they have discussed in response to the key question relating to Adopt Effective Listening. Learners must be able to practice and develop their knowledge and skills relating to Adopting Effective Listening in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.	Class room	Multimedia Stationery Effective Listening Modules		

LU2:

Develop Nonverbal Communication

Discuss and demonstrate the importance of Developing Nonverbal Communication. Prompt learners to consider, learn and apply the following:

- · Adopt hand gestures if required
- Encourage others to speak openly with you
- Make eye contact with communicator
- Make relaxed, open stance during communication
- Perform friendly tone during communication Prepare either:
- . A flip chart / A PowerPoint slide / A handout

...showing the key topics about Develop Nonverbal Communication. Go through all the key topics briefly and then allocate one key topic to each group.

Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record **three main points** from their discussions that relate to **their key topic**.

After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for Develop Nonverbal Communication Discuss these main points briefly with the whole group. Learners should make additional notes **on the flip chart** to record additional points their group had not identified.

Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics.

End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners.

Learners must be able to practice and develop their knowledge and skills relating to Develop Nonverbal Communication in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.

Class room

- Multimedia
- Stationery

Non-Verbal Communication Modules

LU3:

Develop verbal communication

Discuss and demonstrate the importance of how to Develop verbal communication. Prompt learners to consider, learn and apply the following:

- · Adopt face to face conversations
- Convey your message clearly and directly
- Adopt phrases as simple as possible
- · Respect others and their ideas

. Learners need to devise 10 quiz questions with answers based on Developing Verbal Communication. They must make sure their questions cover key topics for Developing Verbal Communication.

Issue each learner with 10 blank cards. Each learner should number the cards and write their name on one side with a question about Develop Verbal Communication. On the reverse of the card, they should write an appropriate answer to their question.

For the quiz, arrange learners in two equal teams. Ask one learner to keep score using a suitable score-card. Player 1 for Team A asks one of their questions to Player 1 of Team B, who needs to answer the question. Discuss the answer with the group and ask the group to determine if the answer is correct. Player 1 of Team A then confirms the answer they had devised. (You need to correct answers if the learner's answer was not wholly correct.)

The scorekeeper records 1 mark for a correct answer under the appropriate team's score column. Play then passes to Player 1 of Team B, who asks their question to Player 1 of Team A, and so on.

Total the scores at the end of the quiz to see which team won.

After the quiz, collect learners' question/answer cards and check that answers provided were correct. Return any incorrect answers to learners and ask them to change their answer to the correct one.

Learners must be able to practice and develop their knowledge and skills relating to Develop verbal communication in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.

Class room

- Multi media
- White Board
- Stationary
- Develop verbal communication Modules

LU4:

Develop Written Communication Skills

Discuss and demonstrate the importance of how to Develop Written Communication Skills.

Prompt learners to consider, learn and apply the following:

- Convey your message in few words.
- Convey message through live phone calls.
- Convey message through Cell Phone.
- Convey message through WhatsApp.
- · Convey message through email.

Display a flip chart showing the following key question related to Develop Written Communication Skills:

'(How to develop written communication skills

What are the mediums for written communication skills?

What is the importance of written communication skills)'?

Give each learner a sheet of paper and asked them to write their name at the top. Explain to learners that they will be sharing their work with other learners.

Ask learners to write silently for 3-5 minutes answering the question displayed on the flip chart. When learners have completed writing, instruct them to pass their paper to the learner on their left. Each learner will read what their partner has passed to them and write a response. This will also be done silently.

After another 2-3 minutes, instruct the learners to pass the paper to their left a second time. Repeat the same procedure, also done in silence.

At the end of the activity, ask the learners to return the paper to the original writer. Allow learners a few moments to read over the responses to their writing.

Ask learners to work in pairs to reflect on and discuss the responses to the question on the flip chart.

When this activity is concluded, collect the papers and make copies for each learner.

Learners must be able to practice and develop their knowledge and skills relating to Develop Written Communication Skills t in an appropriate practical setting. Ensure that learners have the opportunity to ask guestions to support their understanding.

Class room / Lab

- Multi media
- White Board
- Stationary

Develop written communication skills Modules

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MARBLE TECHNICIAN

Trainer Guide

National Vocational Certificate Level 2

Version 1 - JULY 2020

Module-8

Module 8: Prep	Module 8: Prepare Workplace / Housekeeping				
Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media		
LU1: Arrange Stones (Color, Size, Grade)	Deliver an illustrated presentation on how to Arrange Stones (Color, Size, Grade). Ensure you address the importance of the following points: • Clean work place. • Perform safe Unloading of Marble Stone. • Mark stone as per (color, size and grade. Prepare either: • A flip chart / A PowerPoint slide / A handout showing key topic how to Arrange Stones (Color, Size, Grade). Learners need to work in small groups discussing the key topics. Each group should make notes from their discussions that identify three main points that related to each key topic. After the discussion, begin the feedback session. Ask one group to share the main points they have recorded for the first key topic for Arrange Stones (Color, Size, Grade). Discuss these main points briefly with the whole group. Learners should make additional notes to record additional points their group had not identified. Then ask the next group to share the main points they have recorded for the second key topic. Repeat the discussion process. Continue until you have covered all the key topics. End the group discussion activity with a summary. Learners must be able to practice and develop their knowledge and skills relating to Arrange Stones (Color, Size, Grade) in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.	Class room with multimedia aid, audio- visual facilities and flip charts Classroom / Work place/Lab	 PPT Presentations. Videos Whiteboard Multi media Partition tool Cleaning material Different types of stones 		

LU2:	Deliver an illustrated presentation on how to Regulate drainage of polluted water. Ensure you address the importance of the following points:	Class room with	• PPT
Regulate drainage of polluted water	Check condition of water tanks.	multimedia aid,	Present ation
politica water	Regulated flow of polluted water to the tank.	audio-visual	Videos
	Dispose-off of the marble waste from the water tank	facilities	Whitebo
	Dispose-off the marble waste from work place	and	ard
	Display a slide or flip chart with a key question relating to Regulate drainage of polluted water.	flip charts	 Learning guide
	Step 1 – Think		
	Working on their own, each learner thinks about the question and makes notes of their responses or key points which they believe to be important.		
	Step 2 – Pair		
	For the next step, each learner pairs up with a partner. The two learners exchange their ideas and make further notes to add clarity to their own ideas.		
	Step 3 – Share		
	The final step is for you to invite different pairs to share the ideas they have discussed in response to the key question relating to Regulate drainage of polluted water.	Workshop or	
	Observe the students and give feedback to Improve the Knowledge and skill.	Workplace	
	Learners must be able to practice and develop their knowledge and skills relating to Regulate drainage of polluted water in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.		

LU3:		Class room with	PPT Present
Identify location for dumping	Lead a discussion about importance of how to Identify location for dumping marble waste. Use real examples to support the discussion and ensure the discussion considers:	multimedia aid, audio-	ations.
marble waste	Estimate quantity of marble waste.	visual facilities and	Videos
	Arrange location for dumping of marble scrape.	flip charts	Whitebo ard
	Learners need to devise 10 quiz questions with answers based on Identify location for dumping marble waste. They must make sure their questions cover key topics for how to Identify location for dumping marble waste.		 Learning guide
	Issue each learner with 10 blank cards. Each learner should number the cards and write their name on one side with a question about how to Identify location for dumping marble waste. On the reverse of the card, they should write an appropriate answer to their question.		
	For the quiz, arrange learners in two equal teams. Ask one learner to keep score using a suitable score-card. Player 1 for Team A asks one of their questions to Player 1 of Team B, who needs to answer the question. Discuss the answer with the group and ask the group to determine if the answer is correct. Player 1 of Team A then confirms the answer they had devised. (You need to correct answers if the learner's answer was not wholly correct.)		
	 The scorekeeper records 1 mark for a correct answer under the appropriate team's score column. Play then passes to Player 1 of Team B, who asks their question to Player 1 of Team A, and so on. 	Workshop or Workplace	
	Total the scores at the end of the quiz to see which team won.		
	 After the quiz, collect learners' question/answer cards and check that answers provided were correct. Return any incorrect answers to learners and ask them to change their answer to the correct one. 		
	Learners must be able to practice and develop their knowledge and skills relating to Identify location for dumping marble waste in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.		

Lu4: Prepare log sheet for general maintenance examples to support the discussion and ensure the discussion considers: • Prepare schedule of routine maintenance elements to be librarially the activities for conducting routine maintenance. • Prepare list of tools for routine maintenance. • Prepare list of tools for routine maintenance. Divide the Trainees into Group and perform the following about how to Prepare for general maintenance. > Role play. > Group Discussion. > Brain storming. Observe the students and give feedback to Improve the Knowledge and skills related a prepare log sheet for general maintenance in an appropriate practical setting learners have the opportunity to ask questions to support their understanding.	with multimedia aid, audiovisual facilities and flip charts are log sheet Workshop or Workplace II. ating to g. Ensure that	 PPT Present ations. Videos Whitebo ard Learning guide
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Deliver as illustrated propertation on hourte Maintain Inventory. Figure you address the	Class room with	PPT
Deliver an illustrated presentation on how to Maintain Inventory. Ensure you address the importance of the following points: Prepare schedule of routine maintenance Identify the activities for conducting routine maintenance Prepare list of tools for routine maintenance Prepare either: Aflip chart / A PowerPoint slides / A handoutshowing the key topics about Maintain Inventory. Go through all the key topics briefly and then allocate one key topic to each group. Learners need to work in their small groups discussing the key topic that has been allocated to their group. Each group should use a sheet of flip chart paper to record three main points from their discussions that relate to their key topic. After the discussion, begin the feedback session. Ask one group to come to the front of the class with their flipchart. Put up the flipchart where it can be easily seen by other learners. Ask the group to share the main points they have recorded for their key topic for Maintain Inventory. Discuss these main points briefly with the whole group. Learners should make additional notes on the flip chart to record additional points their group had not identified. Then ask the next group to share their flipchart showing the main points they have recorded for the next key topic. Repeat the discussion process. Continue until you have covered all the key topics. End the group discussion activity with a summary. Photograph or scan all the flipcharts and use these to create a handout to distribute to all learners. Learners must be able to practice and develop their knowledge and skills relating to Maintain Inventory in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.	multimedia aid, audio- visual facilities and flip charts Workshop or Workplace	Present ations. Videos Whitebo ard Inventor y Book

LU1: Ensure clear travel path	Deliver an illustrated presentation on how to Ensure clear travel path. Ensure you address the importance of the following points: Clean work place. Perform safe Unloading of Marble Stone. Mark stone as per (color, size and grade. Prepare either: A flip chart / A PowerPoint slide / A handout Showing key topic how to Ensure clear travel path. Learners need to work in small groups discussing the key topics. Each group should make notes from their discussions that identify three main points that related to each key topic. After the discussion, begin the feedback session. Ask one group to share the main points they have recorded for the first key topic for Ensure clear travel path. Discuss these main points briefly with the whole group. Learners should make additional notes to record additional points their group had not identified. Then ask the next group to share the main points they have recorded for the second key topic. Repeat the discussion process. Continue until you have covered all the key topics. End the group discussion activity with a summary. Learners must be able to practice and develop their knowledge and skills relating to Ensure clear travel path in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.	Class room with multimedia aid, audiovisual facilities and flip charts Classroom / Work place/Lab	 PPT Presentatio ns. Videos Whiteboard Multi media Partition tool Cleaning material Different types of stones

Frequently Asked Questions

	1.	What is Competency Based Training (CBT) and how is it different from currently offered trainings in institutes?	Competency-based training (CBT) is an approach to vocational education and training that places emphasis on what a person can do in the workplace as a result of completing a program of training. Compared to conventional programs, the competency-based training is not primarily content based; it rather focuses on the competence requirement of the envisaged job role. The whole qualification refers to certain industry standard criterion and is modularized in nature rather than being course oriented.
	2.	What is the passing criterion for CBT certificate?	You shall be required to be declared "Competent" in the summative assessment to attain the certificate.
	3.	What are the entry requirements for this course?	The entry requirement for this course is 8th Grade or equivalent.
	4.	How can I progress in my educational career after attaining this certificate?	You shall be eligible to take admission in the National Vocational Certificate Level-3 in Marble Technician. You shall be able to progress further to National Vocational Certificate Level-4 in Marble Technician Course; and take admission in a level-5, DAE or equivalent course (if applicable). In certain case, you may be required to attain an equivalence certificate from The Inter Board Committee of Chairmen (IBCC).
	5.	If I have the experience and skills mentioned in the competency standards, do I still need to attend the course to attain this certificate?	You can opt to take part in the Recognition of Prior Learning (RPL) program by contacting the relevant training institute and getting assessed by providing the required evidences.
	6.	What is the entry requirement for Recognition of Prior Learning program (RPL)?	There is no general entry requirement. The institute shall assess you, identify your competence gaps and offer you courses to cover the gaps; after which you can take up the final assessment.
	7.	Is there any age restriction for entry in this course or Recognition of Prior Learning program (RPL)?	There are no age restrictions to enter this course or take up the Recognition of Prior Learning program
	8.	What is the duration of this course?	The duration of the course work is 600 hrs.
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9. What are the class timings?	The classes are normally offered 25 days a month from 08:00am to 01:30pm. These may vary according to the practices of certain institutes.
10. What is equivalence of this certificate with other qualifications?	As per the national vocational qualification's framework, the level-4 certificate is equivalent to Matriculation. The equivalence certificate can be obtained from The Inter Board Committee of Chairmen (IBCC).
11. What is the importance of this certificate in National and International job market?	This certificate is based on the nationally standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTC). These standards are also recognized worldwide as all the standards are coded using international methodology and are accessible to the employers worldwide through NAVTTC website.
12. Which jobs can I get after attaining this certificate? Are there job for this certificate in public sector as well?	You shall be able to take up jobs in the local or overseas construction companies in heavy machinery operator job profile.
13. What are possible career progressions in industry after attaining this certificate?	You shall be able to progress up to the level of supervisor after attaining sufficient experience, knowledge and skills during the job. Attaining additional relevant qualifications may aid your career advancement to even higher levels.
14.Is this certificate recognized by any competent authority in Pakistan?	This certificate is based on the nationally standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTC). The official certificates shall be awarded by the relevant certificate awarding body.
15. Is on-the-job training mandatory for this certificate? If yes, what is the duration of on-the-job training?	On-the-job training is not a requirement for final / summative assessment of this certificate. However, taking up on-the-job training after or during the course work may add your chances to get a job afterwards.
16. How much salary can I get on job after attaining this certificate?	The minimum wages announced by the Government of Pakistan in 2019 are PKR 17,500. This may vary in subsequent years and different regions of the country. Progressive employers may pay more than the mentioned amount. The Marble Technician normally earns 20,000 to 25,000 in the start.
17. Are there any alternative certificates which I can take up?	There are some short courses offered by some training institutes on this subject. Some institutes may still be offering conventional certificate courses in the field.

18. What is the teaching language of this course?	The leaching language of this course is Urdu and English.
19. Is it possible to switch to other certificate programs during the course?	There are some short courses offered by some training institutes on this subject. Some institutes may still be offering conventional certificate courses in the field.
20. What is the examination / assessment system in this program?	Competency based assessments are organized by training institutes during the course which serve the purpose of assessing the progress and preparedness of each student. Final / summative assessments are organized by the relevant qualification awarding bodies at the end of the certificate program. You shall be required to be declared "Competent" in the summative assessment to attain the certificate.
21. Does this certificate enable me to work as freelancer?	You can start your small business by purchasing your own required machine and can start earning 50,000 per month. You may need additional skills on entrepreneurship to support your initiative.

Test Yourself (Multiple Choice Questions)

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