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MARBLE TECHNICIAN

Trainer Guide

National Vocational
Certificate Level 1

Version 1 - JULY 2020



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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 1 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.

- l) 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: <i>Marble Technician Level 1</i>	Total Course Duration: 600 Hours
Course Overview: <p>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 maintain personal safety standards and maintain tools and equipment. Marble Technician will be responsible for ensuring PPE's, Maintaining First aid box and Fire extinguisher, attaining health and safety training, preparing and responding for emergencies, arranging tools and equipment, maintaining toolbox, calibrating measuring tools, and managing inventory of tools and equipment. The specific objectives of developing these qualifications are as under:</p> <ul style="list-style-type: none"> • 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
Module A. Maintain workplace Safety	LU1. Adopt Personal safety LU2. Adopt workplace safety. LU3. Adopt safety of tools and equipment LU4. Maintain First Aid Box LU5. Adopt Machines Safety LU6. Adopt environmental regulation	37	63	100

¹ Learning hours in training provider premises,

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

Module B. Maintain Tools & Equipment.	LU1. Arrange Tools and Equipment LU2. Maintain tool Box LU3. Calibrate measuring tools LU4. Manage Inventory of tools and equipment	22	78	100
Module C. Develop Basic Literacy & Numeracy Skills	LU1. Apply basic Literacy skills LU2. Apply basic Numeracy skills LU3. Perform Measurement LU4. Perform basic mathematical calculations	60	240	300
Module D. Identify Machines & Its Attachments	LU1. Identify Machine and its sizes. LU2. Identify components & Attachments LU3. Identify capacities & capabilities of Machine LU4. Identify basic tools and supplies associated with Machines LU5. Maintain Inventory of Machines & attachment	22	78	100
Module E. Develop Basic Computer Operating Skills	LU1. Operate MS word LU2. Operate MS Excel LU3. Operate MS Power Point LU4. Perform Browsing LU5. Print Document	38	162	200
Module F. Construct Geometrical Figures	LU1. Take Measurement LU2. Draw different types of triangles. LU3. Draw all six types of quadrilaterals LU4. Draw Circle and its parts LU5. Draw polygons, 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.	35	165	200
Module G. Develop basic communication Skill	LU1. Adopt effective Listening LU2. Develop Nonverbal Communication Skill	20	80	100

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

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

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

4.1. Lesson Plan of Module – (Sample)

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.

Methods:

**Through
Multimedia
Presentations
and Physical
demonstration
of machines**

Key Notes:

Tools and Equipment
Maintaining Tool Box
Insulation of Tools and Equipment
Calibration of measuring Tools
Managing Inventory of
Tools/Equipment

Media:

Multimedia

Time:

50 hrs.

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-1

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5. Trainer's guidelines

Module 1: Maintain Workplace Safety

Module 1: Maintain Workplace Safety			
Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
LU-1: Adopt Personal Safety	<p>Deliver an illustrated presentation on how to Adopt Personal Safety. Ensure you address the importance of the following points:</p> <ul style="list-style-type: none"> • Arrange personal protective equipment as per requirements • Wear correct personal protective equipment as per nature of job. • Store PPE at appropriate place after use. <p>Display a slide or flip chart with a key question relating to Adopt Personal Safety.</p> <p>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.</p> <p>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.</p> <p>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 Personal Safety</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Adopt Personal Safety in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Workshop or Workplace</p>	<ul style="list-style-type: none"> • PPT Presentations. • Videos • Whiteboard • Learning guide • eyewear, gloves, overalls, Fire extinguishers, • Fire blankets, • Respirators, masks, Fire hoses,

<p>LU-2: Adopt workplace safety.</p>	<p>Deliver an illustrated presentation on Adopt Workplace Safety. Ensure you address the following points:</p> <ul style="list-style-type: none"> • Perform cleaning of workplace. • Avoid hazardous (electric / chemical) by adopting safety precautions • Identify emergency exit • Operate Firefighting equipment • Identify emergency shutdown switch of machines. <p>Prepare either: A flip chart / A PowerPoint slide / A handout</p> <p>...showing the key topics about Adopt Workplace Safety. 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.</p> <p>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 Adopt Workplace Safety. 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.</p> <p>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.</p> <p>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.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Adopt Workplace Safety in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Workshop or Workplace</p>	<ul style="list-style-type: none"> • PPT Presentations • Videos • Whiteboard • Learning guide • First aid box and items
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Module 1: Maintain Workplace Safety			
Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
LU3: Adopt safety of tools and equipment	<p>Lead a brainstorm on Ensure safety of tools and equipment. Use ideas from the brainstorm to explain the following key points:</p> <ul style="list-style-type: none"> Identify insulated tools and equipment Clean tools after use. Store tools and equipment at appropriate place. <p>Prepare either:</p> <ul style="list-style-type: none"> A flip chart / A PowerPoint slide / A handout <p>...showing key topics for Adopt safety of tools and equipment. 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.</p> <p>After the discussion, begin the feedback session. Ask one group to share the main points they have recorded for the first key topic for Adopt safety of tools and equipment. Discuss these main points briefly with the whole group. Learners should make additional notes to record additional points their group had not identified.</p> <p>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.</p> <p>End the group discussion activity with a summary.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Adopt safety of tools and equipment in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Workshop or Workplace</p>	<ul style="list-style-type: none"> PPT Presentations. Videos Whiteboard Learning guide Fire Extinguisher
LU.4 Maintain First aid Box	<p>Begin this session with an illustrated presentation on Maintain First Aid Box. Ensure that the presentation addresses the following points:</p> <ul style="list-style-type: none"> Identify first aid box Check first aid box for Emergency Medicines. 	<p>Class room with multimedia aid, audio-visual</p>	<ul style="list-style-type: none"> PPT Presentations . Videos

Module 1: Maintain Workplace Safety			
Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
	<ul style="list-style-type: none"> • Check Expiry date of the Medicines • Demonstrate mock first aid treatment against electric shock. • Demonstrate mock exercise against minor injury. <p>Display a flip chart showing the following key question related to Maintain First Aid Box:</p> <p><i>‘What are the important steps involved in Maintaining First Aid Box?’</i></p> <p>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.</p> <p>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.</p> <p>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</p> <p>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.</p> <p>Ask learners to work in pairs to reflect on and discuss the responses to the question on the flip chart.</p> <p>When this activity is concluded, collect the papers and make copies for each learner.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Maintain First Aid Box in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>	<p>facilities and flip charts</p> <p>Workshop or Workplace</p>	<ul style="list-style-type: none"> • Whiteboard • Learning guide • First Aid Box

Module 1: Maintain Workplace Safety			
Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
LU.5 Adopt Machines Safety	<p>Lead a discussion about Adopt Machines Safety. Use real examples to support the discussion and ensure the discussion considers:</p> <ul style="list-style-type: none"> • Check belts of Machine • Check Blades of machines • Check Machine for short circuit • Perform test operation on Machine <p>Display a flip chart showing the following key question: <i>‘How do we Adopt Machine Safety?’</i></p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Ask learners to work in pairs to reflect on and discuss the responses to the question on the flip chart.</p> <p>When this activity is concluded, collect the papers and make copies for each learner.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Adopt Machines Safety in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Workshop or Workplace</p>	<ul style="list-style-type: none"> • PPT Presentations. • Videos • Whiteboard • Learning guide • Hard copy of company policy

Module 1: Maintain Workplace Safety			
Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
LU6: Adopt Environmental Regulation	<p>Deliver an illustrated presentation on Interpret Environmental Regulation. Ensure you address the importance of the following points:</p> <ul style="list-style-type: none"> • Interpret environmental regulation. • Adopt work friendly environment. <p>Display a slide or flip chart with a key question relating to Interpret Environmental Regulation.</p> <p>Step 1 – Think</p> <p>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.</p> <p>Step 2 – Pair</p> <p>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.</p> <p>Step 3 – Share</p> <p>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 Interpret Environmental Regulation.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Interpret Environmental Regulation in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Workshop or Workplace</p>	<ul style="list-style-type: none"> • PPT Presentations. • Videos • Whiteboard • Learning guide • Environmental regulations guide

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Module-2

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Module 2: Maintain Tools and Equipment

Module 2: Maintain Tools and Equipment			
Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
LU1: Arrange tool & Equipment	<p>Deliver an illustrated presentation on Arrange tool & Equipment. Ensure you address the importance of the following points:</p> <ul style="list-style-type: none"> Identify Tools and Equipment Interpret job card Prepare list of tools and equipment as per demand. Collect tools and equipment from store <p>Prepare either:</p> <ul style="list-style-type: none"> A flip chart / A PowerPoint slide / A handout <p>...showing the key topics about Arrange tool & Equipment. Go through all the key topics briefly and then allocate one key topic to each group.</p> <p>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.</p> <p>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 Arrange tool & Equipment. 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.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Workshop or Workplace</p>	<ul style="list-style-type: none"> PPT Presentation Videos Whiteboard Learning guide Tools Box

	<p>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.</p> <p>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.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Arrange tool & Equipment in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
LU2: Maintain tool Box	<p>Deliver an illustrated presentation on Maintain Tools Cabinet. Ensure you address the importance of the following points:</p> <ul style="list-style-type: none"> • Check Physical Condition of Tools & Equipment before use • Perform preventive maintenance as per standards • Perform corrective maintenance Place tools and equipment at appropriate place <p>Display a slide or flip chart with a key question relating to Maintain Tools Cabinet.</p> <p>Step 1 – Think</p> <p>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.</p> <p>Step 2 – Pair</p> <p>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.</p> <p>Step 3 – Share</p> <p>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 Maintain Tools Cabinet.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Workshop or Workplace</p>	<ul style="list-style-type: none"> • PPT Presentations. • Videos • Whiteboard • Learning guide • Tools Cabinet

	Learners must be able to practice and develop their knowledge and skills relating to Maintain Tools Cabinet in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.		
LU3: Calibrate measuring tools	<p>Lead a discussion about importance of calibrating measuring tools. Use real examples to support the discussion and ensure the discussion considers the following points:</p> <ul style="list-style-type: none"> • Check calibration status of the measuring tools • Perform calibration of measuring tools as per standards. • Record Calibration test results <p>Prepare either:</p> <ul style="list-style-type: none"> • A flip chart / A PowerPoint slides / A handout <p>...showing key topics for calibrating measuring tools. 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.</p> <p>After the discussion, begin the feedback session. Ask one group to share the main points they have recorded for the first key topic for calibrating measuring tools. Discuss these main points briefly with the whole group. Learners should make additional notes to record additional points their group had not identified.</p> <p>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.</p> <p>End the group discussion activity with a summary.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to calibrating measuring tools in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Workshop or Workplace</p>	<ul style="list-style-type: none"> • PPT Presentations. • Videos • Whiteboard • Learning guide • Calibrating Instrument as per requirement
LU4:	Discuss and demonstrate the importance of Manage Inventory of tools and equipment.to and prompt learners to consider learn and apply the following:	Class room with multimedia	<ul style="list-style-type: none"> • PPT Presentations. • Videos

	Learners must be able to practice and develop their knowledge and skills relating to Manage Inventory of tools and equipment in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.		
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Module 3 : Basic Literacy and Numeracy

Module 3: Basic Literacy and Numeracy

Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
LU1: Apply Basic Literacy Skills	<p>Discuss and demonstrate the importance of Apply basic literacy skills and prompt learners to consider learn and apply the following:</p> <ul style="list-style-type: none"> • Apply basic reading skills • Apply basic writing skills • Apply basic speaking skills <p>Prepare either:</p> <p>. A flip chart / A PowerPoint slide / A handout</p> <p>...showing the key topics about Apply basic literacy skills. Go through all the key topics briefly and then allocate one key topic to each group.</p> <p>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.</p> <p>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 Apply basic literacy skills. 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.</p> <p>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.</p>	Class room with multimedia aid, audio-visual facilities and flip charts	<ul style="list-style-type: none"> • Multi media • White Board • Stationary Basic Literacy Module

	<p>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.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Apply basic literacy skills in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
<p>LU2:</p> <p>Apply Basic Numeracy Skills</p>	<p>Discuss and demonstrate the importance of Basic Numeracy skills and prompt learners to learn and apply the following:</p> <ul style="list-style-type: none"> • Basic principles of addition • Basic principles of subtraction • Basic principles of multiplication • Basic principles of division <p>Prepare either:</p> <p>. A flip chart / A PowerPoint slide / A handout</p> <p>...showing the key topics about basic Numeracy skills. Go through all the key topics briefly and then allocate one key topic to each group.</p> <p>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.</p> <p>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 Basic Numeracy Skills. 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.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p>	<ul style="list-style-type: none"> • Multi media • White Board • Stationary <p>Basic Mathematics Literacy Module</p>

	<p>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.</p> <p>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.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Basic Numeracy Skills in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
LU3: Perform Measurement	<p>Discuss and demonstrate the importance of Perform Measurement and prompt learners to consider learn and apply the following:</p> <ul style="list-style-type: none"> • Collect appropriate measuring tools. • Estimate the required length of stone/slab. • Measure slab/Tile vertically. • Measure slab/Tile horizontally <p>Prepare either:</p> <p>. A flip chart / A PowerPoint slide / A handout</p> <p>...showing the key topics about basic Urdu literacy skills. Go through all the key topics briefly and then allocate one key topic to each group.</p> <p>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.</p> <p>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</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p>	<ul style="list-style-type: none"> • Multi media • White Board • Stationary • Measuring tools /Taps

	<p>their key topic to Perform Measurement. 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.</p> <p>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.</p> <p>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.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Perform Measurement in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
<p>LU4:</p> <p>Perform basic mathematical calculations</p>	<p>Discuss and demonstrate the importance of Perform basic mathematical calculations.to and prompt learners to consider learn and apply the following:</p> <ul style="list-style-type: none"> • Perform addition • Perform subtraction • Perform multiplication • Perform division • perform inter conversion of Measuring units • Record the results. <p>Prepare either:</p> <p>. A flip chart / A PowerPoint slide / A handout</p> <p>...showing the key topics about Perform basic mathematical calculations. Go through all the key topics briefly and then allocate one key topic to each group.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p>	<ul style="list-style-type: none"> • Multi media • White Board • Stationary

	<p>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.</p> <p>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 Perform basic mathematical calculations. 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.</p> <p>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.</p> <p>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.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Perform basic mathematical calculations in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
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Module-4

MARBLE TECHNICIAN

Trainer Guide

National Vocational
Certificate Level 1

Version 1 - JULY 2020

Module 4 : Identify Machines & Its Attachments

Module 4: Identify Machines & Its Attachments			
Learning Unit	Suggested Teaching / Learning Activities	Delivery Context	Media
LU1: Identify Machine and its sizes.	<p>Deliver an illustrated presentation on how to Identify Machine and its sizes. Ensure you address the importance of the following points:</p> <ul style="list-style-type: none"> • Identify marble cutting machines • Check specifications of Vertical cutting machine. • Check specifications of Gang Saw machine. • Check specifications of Bridge Cutting machine. • Check specifications of Cross cutting machine. • Check specifications of Section cutting machine. • Check specifications of Resizing machine. • Check specifications of Table Cutting machine <p>Prepare either:</p> <ul style="list-style-type: none"> • A flip chart / A PowerPoint slide / A handout <p>...showing key topic how to Identify Machine and its sizes. 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.</p> <p>After the discussion, begin the feedback session. Ask one group to share the main points they have recorded for the first key topic for Identify Machine and its attachments. Discuss these main points briefly with the whole group. Learners should make additional notes to record additional points their group had not identified.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Classroom / Work place/Lab</p>	<ul style="list-style-type: none"> • PPT Presentations • Videos • Whiteboard • Multi media • Different Machines

	<p>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.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Identify Machine and its sizes in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
LU2: Identify components & Attachments	<p>Deliver an illustrated presentation on how to Identify components & attachments. Ensure you address the importance of the following points:</p> <ul style="list-style-type: none"> • Identify components of Vertical cutting machine. • Identify components of Gang Saw machine. • Identify Components of Bridge Cutting machine. • Identify components of Cross cutting machine. • Identify components of Section cutting machine. • Identify components of resizing machine. <p>Identify components of Table Cutting machine Display a slide or flip chart with a key question relating to Identify components & attachments.</p> <p>Step 1 – Think</p> <p>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.</p> <p>Step 2 – Pair</p> <p>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.</p> <p>Step 3 – Share</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Workshop or Workplace</p>	<ul style="list-style-type: none"> • PPT • Presentation • Videos • Whiteboard • Learning guide • Different Machine attachments

	<p>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 Identify components & attachments.</p> <p>Observe the students and give feedback to Improve the Knowledge and skill.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Identify components & attachments in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
LU3: Identify capacities & capabilities of Machine	<p>Lead a discussion about importance of how to Identify capacities & capabilities of Machine. Use real examples to support the discussion and ensure the discussion considers:</p> <ul style="list-style-type: none"> • Check capacity as per manufacturers specifications. • Check capability as per manufacturers specifications. • Interpret proper capacity of machine. • Interpret proper capability of machine. <p>Learners need to devise 10 quiz questions with answers based on Identify capacities & capabilities of Machine. They must make sure their questions cover key topics for how to Identify capacities & capabilities of Machine.</p> <p>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 capacities & capabilities of Machine. On the reverse of the card, they should write an appropriate answer to their question.</p> <p>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.)</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Workshop or Workplace</p>	<ul style="list-style-type: none"> • PPT Presentations • Videos • Whiteboard • Learning guide • Machines

	<ul style="list-style-type: none"> • 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. <p>Learners must be able to practice and develop their knowledge and skills relating to Identify capacities & capabilities of Machine in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>		
LU4: Identify basic tools and supplies associated with Machines	<p>Lead a discussion about how to Identify basic tools and supplies associated with Machines. Use real examples to support the discussion and ensure the discussion considers:</p> <ul style="list-style-type: none"> • Check standard tools supplied with machines • Check spares/consumable materials • Follow manufacturers specifications for tools and supplies <p>Divide the Trainees into Group and perform the following about how to Identify basic tools and supplies associated with Machines</p> <ul style="list-style-type: none"> ➤ Role play ➤ Group Discussion ➤ Brain storming <p>Observe the students and give feedback to Improve the Knowledge and skill.</p> <p>Learners must be able to practice and develop their knowledge and skills relating to Identify basic tools and supplies associated with Machines in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Workshop or Workplace</p>	<ul style="list-style-type: none"> • PPT Presentation s. • Videos • Whiteboard • Learning guide • Associated tools

<p>LU5:</p> <p>Maintain Inventory of Machines & attachment</p>	<p>Deliver an illustrated presentation on how to Maintain Inventory of Machines & attachment. Ensure you address the importance of the following points:</p> <ul style="list-style-type: none"> • Check Inventory • Update Inventory <p>Prepare either:</p> <ul style="list-style-type: none"> • A flip chart / A PowerPoint slides / A handout <p>...showing the key topics about Maintain Inventory of Machines & attachment. Go through all the key topics briefly and then allocate one key topic to each group.</p> <p>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.</p> <p>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 of Machines & attachment. 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.</p> <p>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.</p> <p>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.</p>	<p>Class room with multimedia aid, audio-visual facilities and flip charts</p> <p>Workshop or Workplace</p>	<ul style="list-style-type: none"> • PPT Presentation s. • Videos • Whiteboard • Inventory Book
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	Learners must be able to practice and develop their knowledge and skills relating to Maintain Inventory of Machines & attachment in an appropriate practical setting. Ensure that learners have the opportunity to ask questions to support their understanding.		
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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-2 in Marble Technician. You shall be able to progress further to National Vocational Certificate Level- 2-4 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.
9. What are the class timings?	The classes are normally offered 25 days a month from 08:00 am to 01:30 pm. 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 (NAVTTTC). These standards are also recognized worldwide as all the standards are coded using international methodology and are accessible to the employers worldwide through NAVTTTC 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 Marble Technician 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 (NAVTTTC). 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 teaching 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.

<p>20. What is the examination / assessment system in this program?</p>	<p>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.</p>
<p>21. Does this certificate enable me to work as freelancer?</p>	<p>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.</p>

Test Yourself (Multiple Choice Questions)


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