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# MARBLE TECHNICIAN

## Competency Standards

### National Vocational Certificate Level 1-4

Version 1 - July 2020



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## 1. Title of Qualification

National Vocational Certificate level 2 to 4, in Marble Sector “(Marble Technician)”

## 2. Introduction

Marble and onyx mines of Pakistan are mainly located in Baluchistan (Chaghi, Lasblea, Loralai, Mastong, and Naal), Khyber Pakhtunkhwa (Bunair, Mardan, Mohamand, Swat), Chitral, and Sindh (Dadu, johi range). The major marble processing clusters are concentrated in specific areas of Gujranwala, Islamabad/Rawalpindi, Karachi, Lasbela, Lahore, Peshawar, and Nowshehra/Risalpur. About 50% to 60% of the marble processors of Baluchistan and Khyber Pakhtunkhwa prefer to produce Gutka/Sheet and Slabs for which they need blocks from quarries. Slabs and Gutka is sold to the small scale Tile Manufacturing Units of distant locations, as these small units don't have blocks cutting machines. They only need resize the slabs as per end user requirement. Large scale processing units located at Islamabad, Buner, Peshawar, Karachi and quetta need blocks from quarries for primary cutting, hence the project may sale blocks to these processing units.

Marble is key natural resource of Pakistan, although Pakistan has huge number of young peoples in the country but marble sector is facing acute shortage of skilled and trained human resources, there are very limited training institute who are providing skills to the youth regarding different aspects of the marble sector. Value addition in marble sector has great potential such as marble cutting and polishing.

In order to build the capacity of technical and vocational training institutes in Pakistan through provision of demand driven competencies based trainings in Marble Sector the NAVTTTC, KP-TEVTA and GIZ have joined hands together to develop qualifications for Marble sector. These qualifications will not only build the capacity of existing workers of this sector but also support the youth to acquire skills best fit for this sector. The benefits and impact of development of these qualifications will be on both demand and supply side. Under this the demand arose from All Pakistan Marble Industries Association (APMIA) and Local Jahangira Khairabad Marble Industries Association (JEK Mia) for the development of Marble Cutting and Polishing Trainings under Marble Technician.

Based upon this demand of industry these competency-based qualifications for Marble Technician are developed under National Vocational Qualification Framework (Level 1 to 4). The qualifications mainly cover competencies along with related knowledge and professional attitude which is essential for getting a job or self-employed.

The qualifications are also in line with the vision of Pakistan's National Skills Strategy (NSS), National TVET Policy and National Vocational Qualification Framework (NVQF). This provides policy directions, support and an enabling environment to the public and private sectors to impart training for skills development to enhance social and economic profile. The National Vocational & Technical Training Commission (NAVTTTC) has approved the Qualification Development Committee (QDC). The QDC consists experts from the relevant industries from different





geographical locations across Pakistan and academicians who were consulted during the development process to ensure input and ownership of all the stakeholders. The National Competency Standards could be used as a referral document for the development of curricula to be used by training institutions.

Under CBT the traditional role of a trainer changes and shifts towards the facilitation of training. A trainer encourages and assists trainees to learn for themselves. Trainees are likely to work in groups (pairs) and all doing something different. Some are doing practical tasks in the workshop, some writing, some not even in the classroom or workshop but in another part of the building using specialist equipment, working on computers doing research on the Internet or the library. As trainees learn at different pace they might well be at different stages in their learning, thus learning must be tailored to suit individual needs. The following facilitation methods (teaching strategies) are generally employed:

- **Direct Instruction Method:** This might be effective when introducing a new topic to a larger group of trainees in a relative short span of time. In most of the cases this method relies on one-way communication, hence there are limited opportunities to get feedback on the trainee's understanding.
- **Discussion Method:** This allows trainees to actively participate in sharing knowledge and ideas. It will help the trainer to determine whether trainees understand the content of the topic. On the other hand, there is a possibility of straying off topic under discussion and some trainees dominating others on their views.
- **Small Group Method:** Pairing trainees to help and learn from each other often results in faster knowledge/skill transfer than with the whole class. The physical arrangement of the classroom/workshop and individual assessment may be challenging. Analogy method should be in corporate.
- **Problem Solving Method:** This is a very popular teaching strategy for the training. Trainees are challenged and are usually highly motivated when they gain new knowledge and skills by solving problems (Contingency skills). Trainees develop critical thinking skills and the ability to adapt to new learning situations (Transfer skills). It might be time consuming and because trainees sometimes work individually, they may not learn all the things that they are expected to learn.
- **Research Method:** This is used for workshops and laboratory tasks, field experiments, and case studies. It encourages trainees to investigate and find answers for themselves and to critically evaluate information. It however requires a lot of time and careful planning of research projects for the trainee.

The detail of the competency standards included in this qualifications given below:

- **National Vocational Certificate level 1, in (Marble Sector) “Marble Technician”**
  - Maintain workplace Safety
  - Maintain Tools & Equipment.
  - Develop Basic Literacy & Numeracy Skills
  - Identify Machines & Its Attachments



- **National Vocational Certificate level 2, in (Marble Sector) “Marble Technician”**
  - Develop Basic Computer operating Skills
  - Construct Geometrical Figures
  - Develop basic communication Skill
  - Prepare Workplace/Housekeeping
- **National Vocational Certificate level 3, in (Marble Sector) “Marble Technician”**
  - Cut Marble
  - Maintain Marble Machines.
  - Carryout Basic Electrical Installation
  - Perform Polishing of Marble
- **National Vocational Certificate level 4, in (Marble Sector) “Marble Technician”**
  - Ensure Quality
  - Perform CAD/CAM Operations
  - Develop Professionalism
  - Develop Entrepreneurial Skills

### 3. Purpose of the Qualification

The purpose of the training is to provide skilled manpower to improve the existing Marble Sector. This training will provide the basic skills to the trainees in the field of Marble handling, cutting and then value addition to it in the shape of polishing. It will enable the participants to meet the challenges in the field of marble industry. Further, to improve the skill level of the workers and prepare them for the marble industry to meet the market competition.

The core purpose of this qualification is to produce employable Marble technicians who could perform marble cutting and polishing according to national standards. In addition this qualification will prepare unemployable youth to employee in marble sector or as an entrepreneur.

### 4. Main Objectives of the Qualification

The Marble Technician qualifications level 1- 4 consists of theoretical and practical details required for the marble cutting and polishing techniques. The main objectives of the qualification are as follows:

- Maintain workplace Safety
- Maintain Tools & Equipment.
- Develop Basic Literacy & Numeracy Skills
- Identify Machines & Its Attachments
- Develop Basic Computer operating Skills
- Construct Geometrical Figures
- Develop basic communication Skill
- Prepare Workplace/Housekeeping
- Carryout Basic Electrical Installation
- Maintain Marble Machines.



- Cut Marble
- Perform Polishing of Marble
- Perform CAD/CAM Operations
- Ensure Quality
- Develop Professionalism
- Develop Entrepreneurial Skills

## 5. Date of Validation

The level 1- 4 of national vocational qualification on Marble Technician has been validated by the Qualifications Development Committee (QDC) members on July 19-20, 2018 and will remain in currency until June 2021

## 6. Codes of Qualifications

The International Standard Classification of Education (ISCED) is a framework for assembling, compiling and analyzing cross-nationally comparable statistics on education and training. ISCED codes for these qualifications are assigned as follows:

ISCED Classification for Marble Technician level 1- 4	
Code	Description
0724MRT00	National Vocational Certificate level 1, in (Marble Sector) "Marble Technician"
0724MRT01	National Vocational Certificate level 2, in (Marble Sector) "Marble Technician"
0724MRT02	National Vocational Certificate level 3, in (Marble Sector) "Marble Technician"
0724MRT03	National Vocational Certificate level 4, in (Marble Sector) "Marble Technician"

## 7. Members of Qualifications Development Committee

The following members participated in the qualifications development and validation of these qualifications:

Name	Designation	Organization
Mian Fazilat Shah	Managing Director	Ittefaq Marble Factory, Jahangira
Mr. Ibad Ali	Managing Director	Al-Hadi Marble and Granite
Mr. Muhammad Arslan	Managing Director	Mehran Marbles, Karachi
Mr. Masood Gillani	General Secretary,	All Pakistan Marble Industries Association, Islamabad
Mr. Qamar Shafiq	Factory Manager	Roshan Marble, Lahore





National Vocational Qualifications Level 1- 4 for Marble Sector -  
Marble Technician



Name	Designation	Organization
Mr. Rizwan Ali Shah	Manager	Kokhan Engineering Services
Mr. Hazrat Younas	Managing Director	Fazal e Qadir Marble, Jahangira
Mr. Shoukat Saeed	Managing Director	Shoukat Marble Factory, Jahangira
Mr. Sartaj Ghani	Managing Director	Essa Khan Marble, Jahangira
Mr. Wahid Mahmood	Marble cutting expert	Shahbaz Marble, Jahangira
Mr. Muhammad Imran	Foreman	Al-Hadi Marble Granite, Jahangira
Mr. Muhammad Iqbal	Managing Director	Sheheryar and Awais marble, Khairabad
Mr. Nasir Azeem	Marble polish expert	Fazal e Qadir Marble, Khairabad
Mr. Khalid Shah	Foreman	Khan Marble, Jahangira
Mr. Arshad Ali	Ex. Principal	KP- TEVTA
Engr. Abdul Maqsood	DACUM Recorder	KP- TEVTA
Engr. Inayat ur Rehman	DACUM Facilitator	KP-TEVTA
Mr. M. Naeem Akhtar	DACUM Coordinator.	GIZ – TSSP Pakistan
Mr. Sohaib Fida Khan Tanoli	Technical Advisor	GIZ TSSP Pakistan
Mr. Asmat Ullah Khan	Director	NAVTTTC ISLAMABAD
Mr. Israr Ahmed	Deputy Director	KP-TEVTA
Mr. Sharafat Ali	Chief Coordinator	STVET

## 8. Entry Requirements

The entry for National Vocational Certificate level 1-4, in (Marble Sector) “Marble Technician” are given below:

Title	Entry requirements
National Vocational Certificate level 1, in (Marble Sector) “Marble Technician”	Entry for assessment for this qualification is open. However, entry into formal training institutes, based on this qualification may require skills and knowledge equivalent to middle (Grade 8) with some working knowledge of this field.
National Vocational Certificate level 2, in (Marble Sector) “Marble Technician”	Entry for assessment for this qualification is open. However entry into formal training institute for this qualification is person having National Vocational Certificate level 1, in (Marble Sector) “Marble Technician”.
National Vocational Certificate level 3, in (Marble Sector) “Marble Technician”	Entry for assessment for this qualification is open. However entry into formal training institute for this qualification is person having National Vocational Certificate level 2, in (Marble Sector) “Marble Technician”.
National Vocational Certificate level 4, in (Marble Sector) “Marble Technician”	Entry for assessment for this qualification is open. However entry into formal training institute for this qualification is person having National Vocational Certificate level 3, in (Marble Sector) “Marble Technician”. In addition to this he/she must be computer literate and have knowledge of basic concepts of marketing and sales.



## 9. Important Links

- Prime Minister's Office [www.pmo.gov.pk](http://www.pmo.gov.pk)
- Pakistan Stone Development Company [www.pasdec.org.pk](http://www.pasdec.org.pk)
- Small & Medium Enterprises Development Authority
- National Bank of Pakistan (NBP) [www.nbp.com.pk](http://www.nbp.com.pk)
- First Women Bank Limited (FWBL) [www.fwbl.com.pk](http://www.fwbl.com.pk)
- Government of Pakistan [www.pakistan.gov.pk](http://www.pakistan.gov.pk)
- Ministry of Industries & Production [www.moip.gov.pk](http://www.moip.gov.pk)
- Government of Punjab [www.punjab.gov.pk](http://www.punjab.gov.pk)
- Government of Sindh [www.sindh.gov.pk](http://www.sindh.gov.pk)
- Government of Khyber Pakhtoonkhwa [www.khyberpakhtunkhwa.gov.pk](http://www.khyberpakhtunkhwa.gov.pk)
- Government of Balochistan [www.balochistan.gov.pk](http://www.balochistan.gov.pk)
- Government of Gilgit Baltistan [www.gilgitbaltistan.gov.pk](http://www.gilgitbaltistan.gov.pk)
- Government of Azad Jamu Kashmir [www.ajk.gov.pk](http://www.ajk.gov.pk)
- Trade Development Authority of Pakistan (TDAP) [www.tdap.gov.pk](http://www.tdap.gov.pk)
- Security Commission of Pakistan (SECP) [www.secp.gov.pk](http://www.secp.gov.pk)
- Federation of Pakistan Chambers of Commerce and Industry (FPCCI) [www.fpcci.com.pk](http://www.fpcci.com.pk)
- State Bank of Pakistan (SBP) [www.sbp.org.pk](http://www.sbp.org.pk)



## 10. Summary of Competency Standards

Code	Competency Standards	Category	Credits	Level
102200843	Maintain Workplace Safety	Functional	15	1
0724MRT00A	Maintain Tools & Equipment.	Technical	10	
002100828	Develop Basic Literacy & Numeracy Skills	Functional	20	
0724MRT00B	Identify Machines & Its Attachments	Technical	15	
061100856	Develop Basic Computer Operating Skills	Generic	20	2
0724MRT01A	Construct Geometrical Figures	Technical	20	
001100851	Develop basic communication Skill	Generic	10	
0724MRT01B	Prepare Workplace/Housekeeping	Technical	10	
0724MRT02A	Carryout Basic Electrical Installation	Technical	15	3
0724MRT02B	Maintain Marble Machines.	Technical	25	
0724MRT02C	Cut Marble	Technical	30	
0724MRT02D	Perform Polishing of Marble	Technical	20	
0724MRT03A	Perform CAD/CAM Operations	Technical	50	4
0724MRT03B	Ensure Quality	Generic	15	
041600460	Develop Professionalism	Generic	10	
041300860	Develop Entrepreneurial Skills	Generic	15	
<b>TOTAL</b>			<b>300</b>	<b>2 Year</b>



## Competency Standard A: Maintain Workplace Safety

**Overview:** This competency standard covers the skills and knowledge required to protect from all security threats by ensuring personal safety, workplace safety Machines/tools and equipment safety, interpret environmental regulation preparation and safety of all tools and equipment.

Competency Units	Performance Criteria
<b>CU1. Adopt Personal safety</b>	<b><i>Trainee will be able to:</i></b> P1. Arrange PPEs as per requirements P2. Wear proper PPE as per nature of job P3. Store PPEs at appropriate place after use
<b>CU2. Adopt workplace safety.</b>	<b><i>Trainee will be able to:</i></b> P1. Perform cleaning of workplace. P2. Avoid hazardous (electric / chemical) by adopting safety precautions P3. Identify emergency exit P4. Operate Firefighting equipment P5. Identify emergency shutdown switch of machines.
<b>CU3. Adopt safety of tools and equipment</b>	<b><i>Trainee will be able to:</i></b> P1. Identify insulated tools and equipment P2. Clean tools after use. P3. Store tools and equipment at appropriate place.
<b>CU4. Maintain First aid Box</b>	<b><i>Trainee will be able to:</i></b> P1. Identify first aid box P2. Check first aid box for Emergency Medicines. P3. Check Expiry date of the Medicines P4. Demonstrate mock first aid treatment against electric shock P5. Demonstrate mock exercise against minor injury.
<b>CU5. Adopt Machines Safety</b>	<b><i>Trainee will be able to:</i></b> P1. Check belts of Machine P2. Check blades of machines P3. Check Machine for short circuit P4. Perform test operation on Machine
<b>CU6. Adopt environmental regulation</b>	<b><i>Trainee will be able to:</i></b> P1. Interpret environmental regulation



**P2. Adopt work friendly environment.**

**Knowledge & Understanding**

The candidate must be able to demonstrate the underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1. Types of physical hazards
- K2. Types of chemical hazards
- K3. Types of electrical hazards
- K4. Differentiate between physical, chemical and electrical hazards
- K5. Treatments of various hazards
- K6. Types and use of PPEs
- K7. Types of Risks
- K8. Risk Management
- K9. Risk assessment
- K10. Monitor and risk control measures
- K11. Understanding of First Aid Treatment
- K12. Use of safety equipment
- K13. Importance of/machines/ tools safety
- K14. Reporting risks and hazards

**Critical Evidence(s) Required**

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Prepare a list of PPEs
- Demonstrate the use of at least one of the PPEs in front of assessor as per assessors directions
- Perform first aid treatment against electric shock/minor injury.
- Explain safety procedure at workplace
- Differentiate between safe and unsafe tools

**Important points**

- Focus on personal tasks



- Personal Safety first
- Ensure safety of co-workers
- Health of PPEs must be ensured



Physical Hazards				
Flammable	Compressed Gas	Oxidizing	Corrosive	Explosive

Health Hazards			
Health Hazard	Corrosive	Skin Irritant	Toxic





## Competency Standard B: Maintain Tools & Equipment.

**Overview:** This competency standard covers the skills and knowledge required to Arrange Tools and Equipment, Maintain tool Box and Calibrate measuring tools.

Competency Units	Performance Criteria
<b>CU1. Arrange Tools and Equipment</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Identify Tools and Equipment <b>P2.</b> Interpret job card <b>P3.</b> Prepare list of tools and equipment as per demand <b>P4.</b> Collect tools and equipment from store
<b>CU2. Maintain tool Box</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Check Physical Condition of Tools & Equipment before use <b>P2.</b> Perform preventive maintenance as per standards <b>P3.</b> Perform corrective maintenance (If required) <b>P4.</b> Place tools and equipment at appropriate place
<b>CU3. Calibrate measuring tools</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Check calibration status of the measuring tools <b>P2.</b> Perform calibration of measuring tools as per standards <b>P3.</b> Record Calibration test results
<b>CU4. Manage Inventory of tools and equipment</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Check number of tools and equipment as per record. <b>P2.</b> Report for faulty tools and equipment. <b>P3.</b> Generate demand for deficit tools and equipment <b>P4.</b> Maintain record of all tools and equipment

## Knowledge & Understanding

The candidate must be able to demonstrate the underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1. Uses of different Tools
- K2. Types and uses of equipment
- K3. Calibration techniques
- K4. Importance of calibration
- K5. Inventory Management
- K6. Preventive and corrective measures for tools and equipment



### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Identify Tools and Equipment
- Check Physical Condition of Tools & Equipment before use
- Perform preventive maintenance as per standards
- Perform corrective maintenance (If required)

### Important points

- Prepare list of the required tools
- Uses of different Tools
- Storing of tools and equipment at appropriate place
- Interpret job card



### Competency Standard C: Develop Basic Literacy and Numeracy Skills

**Overview:** This competency standard covers the skills and knowledge required to apply basic Literacy skills, apply basic Numeracy skills, Perform Measurement and perform basic mathematical calculations

Competency Units	Performance Criteria
<b>CU1. Apply basic Literacy skills</b>	<b>Trainee will be able to:</b> <b>P1.</b> Apply basic reading skills <b>P2.</b> Apply basic writing skills <b>P3.</b> Apply speaking skills
<b>CU2. Apply basic Numeracy skills</b>	<b>Trainee will be able to:</b> <b>P1.</b> Apply basic principles of addition <b>P2.</b> Apply basic principles of subtraction <b>P3.</b> Apply basic principles of multiplication <b>P4.</b> Apply basic principles of division
<b>CU3. Perform Measurement</b>	<b>Trainee will be able to:</b> <b>P1.</b> Collect appropriate measuring tools. <b>P2.</b> Estimate the required length of stone/slab. <b>P3.</b> Measure slab/Tile vertically <b>P4.</b> Measure slab/Tile horizontally
<b>CU4. Perform basic mathematical calculations</b>	<b>Trainee will be able to:</b> <b>P1.</b> Perform addition <b>P2.</b> Perform subtraction <b>P3.</b> Perform multiplication <b>P4.</b> Perform division <b>P5.</b> perform inter conversion of Measuring units <b>P6.</b> Record the results.

### Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1. Understanding of Alphabets
- K2. Preparation of words from Alphabets
- K3. Meanings of words
- K4. Preparation of sentences from words



- K5. Writing of simple sentences
- K6. Basic speaking skills
- K7. Knowledge of basic principles of addition, subtraction, multiplication and division
- K8. Knowledge of measuring tools
- K9. Knowledge of Basic measuring units and its inter conversion

### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Read a text
- Write a text
- Speak
- Perform addition
- Perform subtraction
- Perform multiplication
- Perform division
- Record the results
- Inter convert measuring units.

### Important points

- The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:
  - Apply basic reading skills
  - Apply basic writing skills
  - Apply speaking skills
  - Knowledge of basic principles of addition, subtraction , multiplication and division



### Competency Standard D: Identify Machines & Its Attachments

**Overview:** This competency standard covers the skills and knowledge required to Identify Machine and its sizes, Identify components & Attachments, Identify capacities & capabilities of Machine, Identify basic tools and supplies associated with Machines and Maintain Inventory of tools and equipment.

Competency Units	Performance Criteria
<b>CU1. Identify Machine and its sizes.</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Identify marble cutting machines <b>P2.</b> Check specifications of Vertical cutting machine. <b>P3.</b> Check specifications of Gang Saw machine. <b>P4.</b> Check specifications of Bridge Cutting machine. <b>P5.</b> Check specifications of Cross cutting machine. <b>P6.</b> Check specifications of Section cutting machine. <b>P7.</b> Check specifications of Resizing machine. <b>P8.</b> Check specifications of Table Cutting machine
<b>CU2. Identify components &amp; Attachments</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Identify components of Vertical cutting machine. <b>P2.</b> Identify components Gang Saw machine. <b>P3.</b> Identify Components Bridge Cutting machine. <b>P4.</b> Identify components Cross cutting machine. <b>P5.</b> Identify components Section cutting machine. <b>P6.</b> Identify components resizing machine. <b>P7.</b> Identify components Table Cutting machine
<b>CU3. Identify capacities &amp; capabilities of Machine</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Check capacity as per manufacturers specifications <b>P2.</b> Check capability as per manufacturers specifications <b>P3.</b> Interpret proper capacity of machine <b>P4.</b> Interpret proper capability of machine
<b>CU4. Identify basic tools and supplies associated with Machines</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Check standard tools supplied with machines <b>P2.</b> Check spares/consumable materials <b>P3.</b> Follow manufacturers specifications for tools and supplies
<b>CU5. Maintain Inventory of Machines &amp;</b>	<b><i>Trainee will be able to:</i></b>



**attachment**

- P1.** Check number of machines as per record
- P2.** Report for faulty machine
- P3.** Generate demand for defective parts of machines
- P4.** Maintain record of all machines.

### Knowledge & Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore he/she must be able to:

K1. Describe functions of the following machines.

- Vertical cutting machine.
- Gang Saw machine.
- Bridge Cutting machine.
- Cross cutting machine.
- Section cutting machine.
- Resizing machine.
- Table Cutting machine

K2. Describe marble cutting machines Attachments, their Purpose and Capabilities.

K3. Describe basic Tools, Supplies & Lubricants associated with Marble cutting machines

### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Identify Machines and its related Attachments
- Identify Capacity of machine before use
- Ensure Capability of attachments as per standards





### Competency Standard E: Develop basic computer operating skills

**Overview:** This competency standard covers the skills and knowledge required to Operate MS word, Operate MS Excel, Operate MS Power Point, Perform Browsing and Print Document.

Competency Units	Performance Criteria
<b>CU1. Operate MS word</b>	<b>P1.</b> Perform Microsoft basic commands in MS word <b>P2.</b> Open File <b>P3.</b> Format a file <ul style="list-style-type: none"><li>i. Font (Type/size/bold/Italic)</li><li>ii. Header Footer</li><li>iii. Page number</li><li>iv. Insert pics / table/hyperlink</li></ul> <b>P4.</b> Save a File <b>P5.</b> Save a folder
<b>CU2. Operate MS Excel</b>	<b>P1.</b> Perform basic commands in Microsoft MS Excel <b>P2.</b> Open a worksheet <b>P3.</b> Sum functions <b>P4.</b> If functions <b>P5.</b> Basic calculations <b>P6.</b> Table and graphs <b>P7.</b> Save a worksheet/folder
<b>CU3. Operate MS Power Point</b>	<b>P1.</b> Prepare Microsoft power point presentation with basic commands <b>P2.</b> Make a power point file <b>P3.</b> Insert pics/table/hyperlink <b>P4.</b> Design a theme for slides <b>P5.</b> Save a power point file
<b>CU4. Perform Browsing</b>	<b>P1.</b> Perform browsing on the internet as per needs <b>P2.</b> Perform search online on new trends in the market with the help of internet
<b>CU5. Print Document</b>	<b>P1.</b> Select Printer <b>P2.</b> Select page setup <b>P3.</b> Print relevant pages



## Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- Define Basic parts of computers
- Describe the Importance and uses of MS Word
- Describe the Importance and uses of MS Excel
- Describe the Importance and uses of MS Power Point
- Describe the importance of Internet.
- Use of various search engines like Google, U-tube etc.
- Describe Printing Procedure.

## Critical Evidence(s)

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- ✓ Operate MS word
- ✓ Operate MS Excel
- ✓ Operate MS Power Point



## Competency Standard F: Construct Geometrical Figures

**Overview:** This competency standard covers the skills and knowledge required to Take Measurement, Draw triangles, quadrilaterals, Circle and its parts, polygons, Ellipses, and Parabola

Competency Units	Performance Criteria
<b>CU1. Take Measurement</b>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Identify measuring Instruments</p> <p><b>P2.</b> Perform measurement as per drawing.</p> <p><b>P3.</b> Mark the job as per drawing</p>
<b>CU2. Draw different types of triangles.</b>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Distribute space in required parts.</p> <p><b>P2.</b> Draw equilateral triangle of side length 2".</p> <p><b>P3.</b> Draw isosceles triangle with base 5 cm and height = 6 cm</p> <p><b>P4.</b> Draw scalene triangle of lengths 2", 1.5", 1".</p> <p><b>P5.</b> Draw acute angled triangle.</p> <p><b>P6.</b> Draw right angles triangle.</p> <p><b>P7.</b> Draw obtuse angled triangle.</p> <p><b>P8.</b> Draw tile strip &amp; title block on drawing sheet</p>
<b>CU3. Draw all six types of quadrilaterals</b>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Distribute space in required parts.</p> <p><b>P2.</b> Draw square of side length 2".</p> <p><b>P3.</b> Draw rectangle with length 5 cm and width= 3 cm</p> <p><b>P4.</b> Draw rhombus of side length=2 cm &amp; internal angle= 45<sup>0</sup></p> <p><b>P5.</b> Draw parallelogram of length 6 cm, width= 3 cm &amp; internal angle= 45<sup>0</sup></p> <p><b>P6.</b> Draw trapezoid of parallel sides' length 4 cm &amp; 6 cm spaced at a distance of 3 cm.</p> <p><b>P7.</b> Draw trapezium of side lengths 5 cm, 4 cm, 6 cm &amp; 3 cm.</p> <p><b>P8.</b> Draw tile strip &amp; title block for drawing sheet</p>
<b>CU4. Draw Circle and its parts</b>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Draw circle of diameter 2 Cm.</p> <p><b>P2.</b> Draw semi-circle of diameter 2 Cm,</p> <p><b>P3.</b> Draw segment of circle of diameter 2 Cm,</p> <p><b>P4.</b> Draw sector of circle.</p> <p><b>P5.</b> Draw zone of circle of diameter 2 Cm.</p>



	<b>P6.</b> Draw tile strip & title block for drawing sheet
<b>CU5. Draw polygons,</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Draw a regular pentagon of side length = 4 cm. <b>P2.</b> Draw hexagon inscribes in a circle of 6 Cm diameter. <b>P3.</b> Draw hexagon circumscribed about a circle of 6 Cm diameter. <b>P4.</b> Draw tile strip & title block for drawing sheet
<b>CU6. Draw Ellipses</b> major axis = 10 cm minor axis = 8 cm with four methods.	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Draw ellipse by four centers method. <b>P2.</b> Draw ellipse by basic method. <b>P3.</b> Draw ellipse by parallelogram method. <b>P4.</b> Draw ellipse by off-set method in concentric circles.
<b>CU7. Draw Parabola</b> major axis = 10 cm and minor axis = 8 cm with Three methods.	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Draw parabola by basic method. <b>P2.</b> Draw parabola by tangent method. <b>P3.</b> Draw parabola by rectangle method

### Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- K-1.** Define drawing tools/equipment
- K-2.** Describe Scales and its interconversion.
- K-3.** Types of measurement Instruments
- K-4.** Describe the procedure for the construction of angles.
- K-5.** Describe different types of triangles, quadrilaterals and polygons.
- K-6.** State difference between inscribed and circumscribed figures.
- K-7.** State the terms used in a circle.
- K-8.** Describe different lines and arcs in a circle.
- K-9.** Define ellipse and parabola
- K-10.** State circle, parabola and ellipse.
- K-11.** Construction procedure of ellipses & parabolas by different methods

### Critical Evidence(s) Required

The candidate needs to produce following critical evidences in order to competent in this competency standard.

- Construction of triangles, quadrilaterals, polygons- inscribed & circumscribed
- Drawings for circle, ellipse, and parabola figures.



## Competency Standard G: Develop basic communication Skills.

**Overview:** This competency standard covers the skills and knowledge required to adopt effective Listening, Develop Nonverbal Communication, Develop verbal communication, and Develop Written Communication Skills.

Competency Units	Performance Criteria
<b>CU1. Adopt effective Listening</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Practice active listening. <b>P2.</b> Ask clarifying questions. <b>P3.</b> Adopt sympathize attitude.
<b>CU2. Develop Nonverbal Communication Skill</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Adopt hand gestures if required. <b>P2.</b> Encourage others to speak openly with you. <b>P3.</b> Make eye contact with communicator. <b>P4.</b> Make relaxed, open stance during communication. <b>P5.</b> Perform friendly tone during communication.
<b>CU3. Develop verbal communication Skill</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Adopt face to face conversations <b>P2.</b> Convey your message clearly and directly. <b>P3.</b> Adopt phrases as simple as demonstrate <b>P4.</b> Respect others and their ideas
<b>CU4. Develop Written Communication Skills</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Convey your message in few words. <b>P2.</b> Convey message through live phone calls. <b>P3.</b> Convey message through WhatsApp. <b>P4.</b> Convey message through email. <b>P5.</b> Convey message through writing.

## Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- Define effective Listening.



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- Describe various types of effective listening.
- Define Nonverbal Communication
- Define types of Nonverbal Communication.
- Enlist various communication Medium.

### Critical Evidence(s)

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Adopt effective Listening
- Develop Nonverbal Communication
- Develop verbal communication.
- Develop Written Communication Skills





## Competency Standard H: Prepare Workplace / Housekeeping

**Overview:** This competency standard covers the skills and knowledge required to Arrange Stones (Colour, Size, Grade), Regulate drainage of polluted water, Identify location for dumping marble waste, Prepare log sheet for general maintenance, Maintain Inventory, Ensure clear travel path, Store slabs (size, colour, grade ) and Load Marble Slabs

Competency Units	Performance Criteria
<b>CU1. Arrange Stones (Color, Size, Grade)</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Clean work place. <b>P2.</b> Perform safe Unloading of Marble Stone. <b>P3.</b> Mark stone as per <ul style="list-style-type: none"><li>➤ color,</li><li>➤ size and</li><li>➤ grade</li></ul>
<b>CU2. Regulate drainage of polluted water</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Check condition of water tanks. <b>P2.</b> Regulated flow of polluted water to the tank. <b>P3.</b> Dispose-off of the marble waste from the water tank <b>P4.</b> Dispose-off the marble waste from work place
<b>CU3. Identify location for dumping marble waste</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Estimate quantity of marble waste. <b>P2.</b> Arrange location for dumping of marble scrape.
<b>CU4. Prepare log sheet for general maintenance</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Prepare schedule of routine maintenance <b>P2.</b> Identify the activities for conducting routine maintenance <b>P3.</b> Prepare list of tools for routine maintenance
<b>CU5. Maintain Inventory</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Estimate weight of raw materials and size of finished stock. <b>P2.</b> Maintain record of all blades <b>P3.</b> Maintain stock register.
<b>CU6. Ensure clear travel path</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Mark the width of travel path.



	<b>P2.</b> Maintain clear path.
<b>CU7. Store slabs (size, color, grade )</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Identify store for Slabs. <b>P2.</b> Arrange space for storage of marble tiles. <b>P3.</b> Store the marble tiles according to color, size and grade
<b>CU8. Load Marble Slabs</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Identify parking location for vehicle to be loaded. <b>P2.</b> Load marble Slab/Tiles Safely in vehicle.

### Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1. Locations of stocking various items
- K2. Cleaning Techniques
- K3. Types and categories of stones
- K4. Harms of polluted water
- K5. Importance of inventory management
- K6. Loading and Unloading techniques of Marbles / Slabs
- K7. Importance of clear travel path

### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Estimate quantity of marble waste.
- Maintain clear travel path
- Check condition of water tanks.
- Regulate flow of polluted water to the tank

### Important points

- Techniques of safe loading/unloading of marble stones, slabs and Tiles
- Mark the width of travel path
- Dispose-off of the marble waste from the water tank



## Competency Standard I: Perform Basic Electrical Installation

**Overview:** This competency standard covers the skills and knowledge required to install/uninstall electric motor, lay cables, perform various joints and conduct electrical tests for smooth and safe electrical operations.

Competency Units	Performance Criteria
<b>CU1. Install / Uninstall Electrical Motors</b>	<b>Trainee will be able to:</b> <b>P1.</b> Connect Electric Motor <b>P2.</b> Disconnect Electric Motor <b>P3.</b> Install Electric Motor <b>P4.</b> Uninstall Electric Motor
<b>CU2. Lay Cables</b>	<b>Trainee will be able to:</b> <b>P1.</b> Interpret requirements <b>P2.</b> Identify Cables <b>P3.</b> Lay cables <b>P4.</b> Perform Earthing
<b>CU3. Perform Basic Electrical Wiring</b>	<b>Trainee will be able to:</b> <b>P1.</b> Measure Gages of cable <b>P2.</b> Perform joints <b>P3.</b> Insulate Joints <b>P4.</b> Connect cables
<b>CU4. Conduct Wiring Tests</b>	<b>Trainee will be able to:</b> <b>P1.</b> Operate Measuring instruments <b>P2.</b> Perform continuity test <b>P3.</b> Perform polarity test <b>P4.</b> Perform Earthing test <b>P5.</b> Perform insulation test <b>P6.</b> Record test results

## Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1. Types of motors
- K2. Types of wires



- K3. Sizes of wires
- K4. Color scheme
- K5. Types of wiring joints
- K6. Types of insulating materials
- K7. Wiring tools and their uses
- K8. Techniques of Earthing
- K9. Safety precautions
- K10. Uses of PPE
- K11. Various types of wiring tests
- K12. Basic electricity
- K13. Basic electronics

### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

Install Electric Motor

- install Electric Motor
- Uninstall Electric Motor
- Identify Cables
- Lay cables
- Perform Earthing
- Measure Gages of cable
- Perform joints
- Insulate Joints
- Connect cables
- Insulate Joints
- Connect cables
- Perform continuity test
- Perform polarity test
- Perform Earthing test
- Perform insulation test

### Important points

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:



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- Differentiate between various sizes of cables
- Prepare a list of wiring materials, for a given circuit diagram
- Use of Multi meter
- Make any one of the following joint as decided by assessor
  - “Tee – joint” and insolate it as per standard
  - “Married – joint” and insolate it as per standard
  - “Britannia – joint” and insolate it as per standard
  - Western Union – Joint and insolate it as per standard
  - Straight Joint and insolate it as per standard
  - Colour scheme
  - Record test results



## Competency Standard J: Maintain Marble Machines

**Overview:** This competency standard covers the skills and knowledge required to Replace Belts, Replace cutting Blades, Replace bearings and shaft, Replace Pulleys, Replace electrical Motor and Replace trolley ropes.

Competency Units	Performance Criteria
<b>CU1. Replace Belts</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Change the belt. <b>P2.</b> Adjust the belt.
<b>CU2. Replace cutting Blades</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Compare shaft diameter with the diameter of central bore of the cutter. <b>P2.</b> Replace the cutting blades. <b>P3.</b> Tightened the nut and flange properly.
<b>CU3. Replace bearings and shaft.</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Remove the faulty bearing with fuller. <b>P2.</b> Mount the new bearing with press. <b>P3.</b> Remove the faulty shaft. <b>P4.</b> Replace the repaired/new shaft
<b>CU4. Replace Pulleys.</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Remove damaged pulley. <b>P2.</b> Mount new pulley. <b>P3.</b> Perform alignment of pulleys.
<b>CU5. Replace trolley ropes.</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Dismantle trolley ropes. <b>P2.</b> Install trolley ropes. <b>P3.</b> Adjust and Align trolley ropes.

## Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1. Specifications (shape, types and sizes) of belts
- K2. Replacement techniques of bearings



- K3. Specifications (Number) of bearings and their uses
- K4. Sizes and uses of blades
- K5. Replacement techniques of blades
- K6. Nature of cutting materials
- K7. Types / shapes of pulleys
- K8. Alignment/adjustment techniques of pulleys
- K9. Alignment /adjustment techniques of motors

### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Change the belt.
- Adjust the belt
- Replace the cutting blades
- Remove the faulty bearing.
- Mount the new bearing.
- Remove the faulty shaft.
- Replace the repaired/new shaft
- Remove damaged pulley.
- Mount new pulley.
- Perform alignment of pulleys
- Dismantle trolley ropes.
- Install trolley ropes.
- Adjust and Align trolley ropes

### Important points

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- Specifications of belts, bearings, blades, pulleys and shafts
- Replacement techniques of cutting blades belts, bearings, pulleys and shafts
- Alignment/adjustment techniques of pulleys and trolley ropes.





## Competency Standard K: Cut Marble

**Overview:** This competency standard covers the skills and knowledge required to perform load/unload by crane, prepare machine for cutting marble, perform vertical cutting, perform cutting with Gang saw, Perform bridge, cutting, perform cross cutting, perform section cutting, perform cutting with resizing machine and to perform table cutting.

Competency Units	Performance Criteria
<b>CU1. Perform load/unload by Crane</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Load stone. <b>P2.</b> Balance the stone <b>P3.</b> Unload the stone safely.
<b>CU2. Prepare Machine for cutting Marble</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Load Marble stone. <b>P2.</b> Adjust vertical cutting Machine <b>P3.</b> Regulate flow of water. <b>P4.</b> Adopt personal safety (Gloves, Boots, and apron).
<b>CU3. Perform vertical cutting</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Perform cutting with vertical cutting machine as per standard. <b>P2.</b> Transport cut slabs for cross cutting <b>P3.</b> Remove scrap.
<b>CU4. Perform cutting with Gang saw</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Load block/stone on trolley. <b>P2.</b> Operate Gang saw. <b>P3.</b> Fasten slabs for safe handling. <b>P4.</b> Perform punching on the base line of slabs with chisel <b>P5.</b> Shift slabs to the other trolley. <b>P6.</b> Remove waste materials.
<b>CU5. Perform bridge Cutting.</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Adjust stone on trolley. <b>P2.</b> Perform cutting with Bridge cutter as per standard. <b>P3.</b> Transport cut slabs to cross cutting/table cutter. <b>P4.</b> Remove scrap.
<b>CU6. Perform cross cutting</b>	<b><i>Trainee will be able to:</i></b>



	<p><b>P1.</b> Prepare machine for cutting.</p> <p><b>P2.</b> Perform cross cutting as per standard.</p> <p><b>P3.</b> Transport slabs to the section cutter.</p>
<b>CU7. Perform section cutting</b>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Adjust the guide for standard thickness.</p> <p><b>P2.</b> Perform section cutting.</p>
<b>CU8. Perform cutting with resizing machine.</b>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Adjust both the cutter for the required size of slabs.</p> <p><b>P2.</b> Perform cutting to get the slabs in square/rectangle shape.</p>
<b>CU9. Perform Table Cutting</b>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Place slabs on Table.</p> <p><b>P2.</b> Perform cutting with table cutter to get the slabs in shape as required.</p>

### Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1.** Types of Marble cutting machines
- K2.** Operations of cutting machines
- K3.** Types and uses of cutting materials
- K4.** Techniques of cutting marbles
- K5.** Types of Stones and their properties (Marble/Granite)
- K6.** Capacity of cutting machines
- K7.** Measuring tools and techniques
- K8.** Sizes and uses of cutting blades
- K9.** Capacity of trolley/table
- K10.** Weighing techniques
- K11.** Specifications as per requirements
- K12.** Loading capacity of cranes
- K13.** Rope tensions capacity.



### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Load stone.
- Balance the stone
- Unload the stone safely
- Adjust vertical cutting Machine
- Operate Gang saw.
- Adjust stone on trolley
- Adjust the guide for standard thickness
- Fasten slabs for safe handling
- Perform Marble cutting on various types of Machines
- Fasten slabs for safe handling.
- Perform punching on the base line of slabs with chisel

### Important points

- Operate various types of Marble Cutting Machines.
- Ensure personal, co-workers and machine safety.
- Understand Capacity of trolley/table.
- Understand Loading capacity of cranes
- Understand Rope tensions capacity
- Understand Operations of Marble cutting machines
- Techniques of Marble cutting
- Balancing of slabs during Gang saw operation for safe handling



## Competency Standard L: Perform Polishing

**Overview:** This competency standard covers the skills and knowledge required to identify polishing tools & equipment, Apply polishing pads, Apply sand paper and Apply Buff for Shining.

Competency Units	Performance Criteria
<b>CU1. Identify polishing tools &amp; equipment</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Identify polishing tools/materials <b>P2.</b> Ensure safe handling of polishing tools/equipment
<b>CU2. Apply polishing pads</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Segregate tiles for polishing. <b>P2.</b> Place big tiles on machine /Table <b>P3.</b> Fix small tiles on fixture
<b>CU3. Apply sand paper</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Perform grinding with grinding disc. <b>P2.</b> Apply polishing materials. <b>P3.</b> Apply sand paper.
<b>CU4. Apply chemicals</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Wear Personal Protective Equipment <b>P2.</b> Select chemicals. <b>P3.</b> Apply chemicals to the surface.
<b>CU5. Apply Buff for Shining.</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Apply Buff for shining. <b>P2.</b> Assess surface finishing of tiles

## Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1. Polishing tools
- K2. Polishing materials
- K3. Polishing techniques
- K4. Uses of polishing materials
- K5. Buffing methods
- K6. Use of Auto Polishing machine



K7. Types of Buffs

K8. Buffing materials and uses

### Critical Evidence(s)

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Segregate tiles for polishing
- Place big tiles on machine /Table
- Fix small tiles on fixture
- Perform grinding with grinding disc.
- Apply polishing materials.
- Apply sand paper
- Apply Buff for shining.

### Important points

- Identification of polishing tools/materials
- Polishing techniques
- Buffing methods
- Assess surface finishing of tiles
- Ensure safe handling of polishing tools/equipment



## Competency Standard M: Perform CAD/CAM Operations

**Overview:** This competency standard covers the skills, knowledge and attitude required to Interpret Drawing & Design using CAD, Draw & Design the job using CAD, Load the desired Tools, Perform Simulation, Perform Material Loading and Perform CAM Operations.

Competency Units	Performance Criteria
<b>CU1. Interpret Drawing &amp; Design using CAD</b>	<p><b>Trainee will be able to:</b></p> <p><b>P1.</b> Collect the desired drawing &amp; design</p> <p><b>P2.</b> Transfer the desired drawing &amp; design to the concerned section/ person</p> <p><b>P3.</b> Perform supervision of the job as per drawing</p>
<b>CU2. Draw &amp; Design the job using CAD</b>	<p><b>Trainee will be able to:</b></p> <p><b>P1.</b> Consult catalogue as per client demand</p> <p><b>P2.</b> Set Interface in CAD software</p> <p><b>P3.</b> Make Multiview drawing &amp; design of the job</p> <p><b>P4.</b> Make 3D drawing &amp; design of the job/ part</p> <p><b>P5.</b> Render the job as per client's demand</p> <p><b>P6.</b> Plot/ print the job</p>
<b>CU3. Load the desired Tools</b>	<p><b>Trainee will be able to:</b></p> <p><b>P1.</b> Identify the required tools as per process</p> <p><b>P2.</b> Select the tools in the CAD/CAM software</p> <p><b>P3.</b> Load the tools in CAD/CAM software</p>
<b>CU4. Perform Simulation</b>	<p><b>Trainee will be able to:</b></p> <p><b>P1.</b> Convert CAD to CAM codes using the software</p> <p><b>P2.</b> Run Simulation to check accuracy of process</p>
<b>CU5. Perform Material Loading</b>	<p><b>Trainee will be able to:</b></p> <p><b>P1.</b> Identify required parts of the job</p> <p><b>P2.</b> Set the clamping/ vacuum sucking units as per parts of the job</p> <p><b>P3.</b> Load the job parts on the machine bed</p>
<b>CU6. Perform CAM Operations</b>	<p><b>Trainee will be able to:</b></p> <p><b>P1.</b> Ensure the loading of desired tools/ bits in ATC.</p> <p><b>P2.</b> Calibrate the machine.</p> <p><b>P3.</b> Execute the machine to complete the process</p>



**P4. Take out the completed part**

**Knowledge & Understanding**

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1.** Knowledge and understanding about drawings
- K2.** Understanding of CAD software
- K3.** Describe the tools/ Commands for drawing in CAD software
- K4.** Knowledge of specific bits/ cutters/ aggregates of CNC machine
- K5.** Knowledge of various CAM software
- K6.** Understanding of various CAM operations
- K7.** Describe the vacuum system.
- K8.** Describe the automatic tool changer

**Critical Evidence(s) Required**

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Set Interface in CAD software
- Make 3D drawing & design of the job/ part
- Select the tools in the CAD/ CAM software
- Set the clamping/ vacuum sucking units as per parts of the job

**Important points**

- Making of Multiview drawing & design of the job
- Selection of the tools in the CAD/ CAM software
- Loading the job parts on the machine bed





## Competency Standard N: Ensure Quality

**Overview:** This competency standard covers the skills and knowledge required to Adopt standard atmosphere at work place, Ensure safe environmental concerns, Check quality of marble on receiving, Adopt accuracy in machining, Check quality of cutting, Ensure Quality of Polishing, Implement quality standards, Adopt quality of workmanship and Ensure quality at dispatching

Competency Units	Performance Criteria
<b>CU1. Adopt standard atmosphere at work place</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Ensure proper lighting at workplace <b>P2.</b> Ensure appropriate ventilation <b>P3.</b> Ensure good housekeeping
<b>CU2. Ensure safe environmental concerns</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Dispose-off waste chemicals as per environmental standards <b>P2.</b> Dispose-off marble waste as per SOP. <b>P3.</b> Follow hazardous instructions
<b>CU3. Check quality of marble on receiving</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Pay visit to the storing place <b>P2.</b> Check physical condition of Marbles <b>P3.</b> Segregate the damaged marbles
<b>CU4. Adopt accuracy in machining</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Calibrate measuring instruments <b>P2.</b> Ensure precise measuring instruments <b>P3.</b> Check accuracy of machine
<b>CU5. Check quality of cutting</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Enlist specification as per demand <b>P2.</b> Match length and width of marble with specification <b>P3.</b> Inspect edges of marble
<b>CU6. Ensure Quality of Polishing</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Check smoothness of marbles surface <b>P2.</b> Check shine of marble <b>P3.</b> Check quality of polishing materials
<b>CU7. Implement quality standards</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Interpret national and international standards



	<b>P2.</b> Adopt national standard <b>P3.</b> Adopt international standard
<b>CU8. Adopt quality of workmanship</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Appoint skilled worker <b>P2.</b> Appoint right man for the right job <b>P3.</b> Provide adequate training
<b>CU9. Ensure quality at dispatching</b>	<b><i>Trainee will be able to:</i></b> <b>P1.</b> Ensure segregation of damaged marbles <b>P2.</b> Ensure safe handling of marbles during dispatch

### Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- K1.** Define standard conditions at work place.
- K2.** Describe safe environment concerns.
- K3.** Define accuracy of Machines.
- K4.** Knowing about specification
- K5.** Checking techniques of marble
- K6.** Use of polishing materials
- K7.** Techniques of safe handling of marble
- K8.** Knowing about Quality standards
- K9.** Understand Market demand
- K10.** Buffing materials and uses

### Critical Evidence(s)

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Check physical condition of Marbles
- Segregate the damaged marbles
- Match length and width of marble with specification
- Adopt quality of workmanship
- Check shine of marble
- Check quality of polishing materials



### Important points

- Quality standards
- Quality Assurance techniques
- Understanding specification of marble



**Competency Standard O: Develop Professionalism**

**Overview:** This competency standard covers the skills and knowledge required to demonstrate work ethic, Identify factors affecting personal health negatively, Resolve problems or disagreements with others, Participate in professional development programs, Work with others, Work independently, Speak and listen effectively, Interpret documentation, Communicate with signals and Communicate with electronic equipment.

Competency Units	Performance Criteria
<b>CU1. Resolve problems or disagreements with others</b>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Communicate effectively</p> <p><b>P2.</b> Adopt peaceful approach</p> <p><b>P3.</b> Determine cause of problem or disagreement</p> <p><b>P4.</b> Discuss and resolve issues</p>
<b>CU2. Demonstrate work ethic</b>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Follow principles of work ethics in all situations</p> <p><b>P2.</b> Demonstrate professional behaviour</p>
<b>CU3. Work with others</b>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Work as a team member to achieve common goals</p> <p><b>P2.</b> Keep open mind</p> <p><b>P3.</b> Participate in work place meetings</p> <p><b>P4.</b> Communicate accurately and clearly</p> <p><b>P5.</b> Co-ordinate job related activities</p> <p><b>P6.</b> Cooperate with others</p>
<b>CU4. Work independently</b>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Confirm and clarify assignment</p> <p><b>P2.</b> Take initiative, anticipate and prepare for next steps in job</p> <p><b>P3.</b> Identify and resolve potential and actual problems</p> <p><b>P4.</b> Communicate with other site personnel</p> <p><b>P5.</b> Complete assignments</p>
<b>CU5. Communicate with signals</b>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Identify and work with signals</p> <p><b>P2.</b> Communicate with audible signals, such as back-up alarm, and site emergency horn</p> <p><b>P3.</b> Communicate with hand signals</p>



### CU6. Interpret documentation

#### *Trainee will be able to:*

- P1.** Access and maintain documents
- P2.** Provide complete, legible and accurate information in documents
- P3.** Interpret equipment inspection documentation from previous shifts before conducting pre-operational inspection

### Knowledge & Understanding

The candidate must possess underpinning knowledge and understanding required to carry out tasks covered in this competency standard. Therefore he/she must be able to:

- Define principles of work ethic and expectations, such as be punctual, prepared for work, cooperative, honest, productive and respectful
- Define Own current mental, emotional, and physical state
- Read Applicable legislation, such as harassment
- Define Conflict resolution techniques.
- Explain own role and responsibilities
- Describe Roles and responsibilities of others in industry.
- Explain work assignment, location, and working conditions
- Define Roles of individuals on job site, such as supervisor, inspector, other trades people
- Describe types of documentation required, such as safety reports, maintenance reports, inspection reports, time cards
- Describe Importance of complete, legible, and accurate documentation
- Describe the role and responsibilities of signaller

### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Own current mental, emotional, and physical state.
- Maintain safety reports, maintenance reports, inspection reports, time cards
- Signallers on job site



## Competency Standard P: Develop Entrepreneurial Skills

**Overview:** This competency standard covers the skills and knowledge required to Conduct Market survey, Develop basic marketing skills, Identify needs of the market, Prepare Business plan, Implement marketing activities, Evaluate marketing performance, Develop Business promotion technique and Develop Business competition Skills

Competency Units	Performance Criteria
<b>CU1. Conduct Market survey</b>	<p><b><i>Trainee will be able to:</i></b></p> <ul style="list-style-type: none"><li><b>P1.</b> Collect information regarding market size and potential from appropriate sources</li><li><b>P2.</b> Investigate market trends and developments to identify market needs relative to business ideas</li><li><b>P3.</b> Gather market information from primary and secondary sources to identify possible market needs in relation to business ideas</li><li><b>P4.</b> Identify ethical and cultural requirements of the market and their impact on business ideas</li><li><b>P5.</b> Identify new and emerging markets and document their features</li><li><b>P6.</b> Identify and organise information on expected market growth or decline and associated risk factors</li></ul>
<b>CU2. Develop basic marketing skills</b>	<p><b><i>Trainee will be able to:</i></b></p> <ul style="list-style-type: none"><li><b>P1.</b> Present a design to the client as per requirement</li><li><b>P2.</b> Finalize the business deal</li><li><b>P3.</b> Purchase the equipment/tools and consumables as per agreed design</li><li><b>P4.</b> Adopt correct means of transportation</li><li><b>P5.</b> Select promotional means, according to target needs of clients</li></ul>
<b>CU3. Identify needs of the market.</b>	<p><b><i>Trainee will be able to:</i></b></p> <ul style="list-style-type: none"><li><b>P1.</b> Analyse upcoming market trends.</li><li><b>P2.</b> Develop Professional network.</li><li><b>P3.</b> Demonstrate behavioural skills.</li></ul>



	<p><b>P4.</b> Develop sound interpersonal skills</p> <p><b>P5.</b> Develop new designs.</p>
<p><b>CU4. Prepare Business plan</b></p>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Develop operational goals and targets to meet the enterprise strategic plan.</p> <p><b>P2.</b> Identify and incorporate supply chains into the business plan.</p> <p><b>P3.</b> Identify risk management needs are within the business plan.</p> <p><b>P4.</b> Incorporate trial systems in order to test budgetary impact and operational potential prior to full implementation of the business plan.</p> <p><b>P5.</b> Set clear and measureable indicators of operational performance to allow for realistic analysis of performance.</p>
<p><b>CU5. Implement marketing activities</b></p>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Schedule planned marketing activities within appropriate timeframes</p> <p><b>P2.</b> Develop measurable performance targets that meet business plan objectives</p> <p><b>P3.</b> Organize distribution channels and ensure product and service information is accurate and readily available to clients</p> <p><b>P4.</b> Implement marketing activities within budgetary constraints to meet legal, ethical and enterprise requirements</p>
<p><b>CU6. Evaluate marketing performance.</b></p>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Review the established marketing objectives to ensure they remain viable</p> <p><b>P2.</b> Assess product, pricing and distribution policies in relation to market changes, marketing objectives and enterprise requirements</p> <p><b>P3.</b> Identify areas of positive marketing performance and take corrective action to remedy poor marketing performance areas</p>
<p><b>CU7. Develop Business</b></p>	<p><b><i>Trainee will be able to:</i></b></p>





<b>promotion technique</b>	<p><b>P1.</b> Establish marketing objectives based on current and potential product specifications</p> <p><b>P2.</b> Select appropriate production processes to ensure product specifications are met</p> <p><b>P3.</b> Select selling strategies to ensure required prices are achieved</p> <p><b>P4.</b> Select appropriate distribution channel options to ensure access to target markets is achieved efficiently and appropriately</p> <p><b>P5.</b> Establish time-frames for distribution and selling activities</p> <p><b>P6.</b> Develop a gross margin budget to demonstrate the cost effectiveness of the marketing plan</p> <p><b>P7.</b> Develop partial gross margin budgets to account for market variability</p>
<b>CU8. Develop Business competition Skills</b>	<p><b><i>Trainee will be able to:</i></b></p> <p><b>P1.</b> Prepare and record detailed plans for promotional activities</p> <p><b>P2.</b> Outline objectives, level of exposure and available markets</p> <p><b>P3.</b> Ensure strategies take account of time management and scheduling issues, and resource constraints</p> <p><b>P4.</b> Create promotional materials that enhance the product and commercial presentation</p> <p><b>P5.</b> Record and communicate priorities, responsibilities, timelines and budgets for promotional activities.</p>

### Knowledge and Understanding

- ❖ Define Entrepreneurship
- ❖ Describe Business opportunities
- ❖ Define Business plan
- ❖ What is Business promotion technique
- ❖ What is Market survey
- ❖ What is Essential financial reports

### Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:



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Marble Technician



- ✓ Prepare Business plan
- ✓ Evaluate marketing performance.
- ✓ Develop Business competition Skills



### 11. List of Machines Tools and Equipment

Sr. No	Description
1.	Bridge Cutter
2.	Buff pad
3.	Cross cutting machine
4.	Cutting tools, blades
5.	Drill Machine with Diamond bits
6.	Gang Saw cutting machine
7.	Grinder (Handy / Pedestal)
8.	Hand Trolley
9.	Spade
10.	Marble block / slab
11.	Grinding machine
12.	Measurement tape
13.	Overhead Crane
14.	Auto Polish machine
15.	File set
16.	Section Cutting machine
17.	Sizing Machine
18.	Tester
19.	Tripod stand with pulley
20.	Vertical cutting machine
21.	Volt meter / Ampere meter
22.	Water pump
23.	Wrench set
24.	Grip pliers
25.	Hack saw
26.	Hammer set
27.	Screw driver set
28.	Hand electrical drill Machine
29.	Hand electrical grinder
30.	Hydraulic Jack
31.	Puller
32.	Socket set (T-Type)
33.	Spinner set
34.	Torque Wrench
35.	Pipe Wrench
36.	Adjustable Wrench
37.	Tri Squair
38.	L-in Keys
39.	Lever (Steel Rod)



### List of Consumables

Sr. No	Description
1.	Box board sheet
2.	Polishing Pads
3.	Lubricating oil
4.	Plastic Pipe
5.	PVC Pipe
6.	Paper tape 1 inch.
7.	Marble stones
8.	Polish
9.	Water
10.	Cloths
11.	Bearings
12.	Pulleys
13.	Belts
14.	Grease
15.	Kerosene oil
16.	Sand Paper
17.	Steal Ropes
18.	Cotton Ropes
19.	Brushes
20.	Nuts
21.	Bolts

### List of Personal Protective Equipment

Sr. No	Description
1.	First AID Box
2.	Fire Extinguisher Cylinder
3.	Fire Blanket
4.	Fire Bucket
5.	Safety Gloves
6.	Ear Protector
7.	safety googles
8.	Safety Helmet
9.	Safety mask
10.	Formal Uniform For Work
11.	Safety Shoes
12.	Safety Belt




### List of Stationary

Sr. No	Description
1.	Handbooks
2.	Design books
3.	Pencils
4.	Rubber
5.	Sharpeners
6.	Paper Cutter
7.	Seizers
8.	Colours
9.	White charts
10.	Brown sheets
11.	White board markers
12.	Permanent markers
13.	File cover and files

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