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MARBLE TECHNICIAN

CBT Curriculum

National Vocational
Certificate Level 1-4

Version 1 - JULY 2020



Implemented by
giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Published by

National Vocational and Technical Training Commission
Government of Pakistan

Headquarter

Plot 38, Kirthar Road, Sector H-9/4, Islamabad, Pakistan
www.navttc.org

Responsible

Director General Skills Standard and Curricula, National Vocational and Technical Training Commission
National Deputy Head, TVET Sector Support Programme, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Layout & design

SAP Communications

Photo Credits

TVET Sector Support Programme

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This document has been produced with the technical assistance of the TVET Sector Support Programme, which is funded by the European Union, the Federal Republic of Germany and the Royal Norwegian Embassy and has been commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in close collaboration with the National Vocational and Technical Training Commission (NAVTTTC) as well as provincial Technical Education and Vocational Training Authorities (TEVTAs), Punjab Vocational Training Council (PVTC), Qualification Awarding Bodies (QABs) and private sector organizations.

Document Version

July, 2020

Islamabad, Pakistan

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1. Introduction

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 NAVTTC, 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 (JEKMIA) 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.



1.2 Purpose of the training program:

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.

1.3 Overall objectives of training program

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:

1. Maintain workplace Safety
2. Maintain Tools & Equipment.
3. Develop Basic Literacy & Numeracy Skills
4. Identify Machines & Its Attachments
5. Develop Basic Computer operating Skills
6. Construct Geometrical Figures
7. Develop basic communication Skill
8. Prepare Workplace/Housekeeping
9. Carryout Basic Electrical Installation
10. Maintain Marble Machines.
11. Cut Marble
12. Perform Polishing of Marble



13. Perform CAD/CAM Operations
14. Ensure Quality
15. Develop Professionalism
16. Develop Entrepreneurial Skills

1.4 Competencies to be gained after completion of course

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”**
 - Carryout Basic Electrical Installation
 - Maintain Marble Machines.
 - Cut Marble
 - Perform Polishing of Marble
- **National Vocational Certificate level 4, in (Marble Sector) “Marble Technician”**
 - Perform CAD/CAM Operations



- Ensure Quality
- Develop Professionalism
- Develop Entrepreneurial Skills

1.5 Entry level of trainees

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.

1.6 Minimum qualification for teachers

- Should have completed intermediate and equivalent qualifications
- Must be a holder of G - II certificate or Three years DAE in Marble Technology.



- Must be able to communicate effectively both orally and in written form.
- Must have at least two (4) years teaching experience.

1.7 Medium of instruction

Urdu, local language

1.8 Duration of the course:

The proposed curriculum is composed of 16 modules that will be covered in **3000** learning hours. It is proposed that the course may be delivered in **Two Year** period.

The distribution of contact hours is given below:

Total.	3000 hours.
Theory.	600 hours (20 %)
Practical.	2400 hours (80 %)



1.9 Description and structure of the course

Following is the structure of the course:

NVQF Level	Module #	Title	Category	Theory (hours)	Practical (hours)	Total (hour)	Credits hours	Credit Hour /level
1	1.	Maintain Workplace Safety	Functional	37	63	100	10	60
	2.	Maintain Tools & Equipment.	Technical	22	78	100	10	
	3.	Develop Basic Literacy & Numeracy Skills	Functional	60	240	300	30	
	4.	Identify Machines & Its Attachments	Technical	22	78	100	10	
2	5.	Develop Basic Computer operating Skills	Technical	38	162	200	20	60
	6.	Construct Geometrical Figures	Generic	35	165	200	20	
	7.	Develop basic communication Skill	Generic	20	80	100	10	
	8.	Prepare Workplace/Housekeeping	Technical	21	79	100	10	
3	9.	Carryout Basic Electrical Installation	Technical	33	67	100	10	90
	10.	Maintain Marble Machines.	Technical	55	245	300	30	
	11.	Cut Marble	Technical	52	248	300	30	
	12.	Perform Polishing of Marble	Technical	20	180	200	20	
4	13.	Perform CAD/CAM Operations	Technical	51	449	500	50	90
	14.	Ensure Quality	Generic	20	130	150	15	
	15.	Develop Professionalism	Generic	28	72	100	10	
	16.	Develop Entrepreneurial Skills	Generic	86	64	150	15	
TOTAL				600	2400	3000	300	300
Percentage.				20 %	80 %			



2. Overview of the Curriculum for Marble Technician

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
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	22	78	100

¹ Learning hours in training provider premises,

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



	<p>LU4. Identify basic tools and supplies associated with Machines</p> <p>LU5. Maintain Inventory of Machines & attachment</p>			
<p>Module E. Develop Basic Computer operating Skills</p>	<p>LU1. Operate MS word</p> <p>LU2. Operate MS Excel</p> <p>LU3. Operate MS Power Point</p> <p>LU4. Perform Browsing</p> <p>LU5. Print Document</p>	<p>38</p>	<p>162</p>	<p>200</p>
<p>Module F. Construct Geometrical Figures</p>	<p>LU1. Take Measurement</p> <p>LU2. Draw different types of triangles.</p> <p>LU3. Draw all six types of quadrilaterals</p> <p>LU4. Draw Circle and its parts</p> <p>LU5. Draw polygons,</p> <p>LU6. Draw Ellipses (major axis = 10 cm, minor axis = 8 cm with four methods.</p> <p>LU7. Draw Parabola (major axis = 10 cm and minor axis = 8 cm with Three methods.</p>	<p>35</p>	<p>165</p>	<p>200</p>
<p>Module G. Develop basic communication Skill</p>	<p>LU1. Adopt effective Listening</p> <p>LU2. Develop Nonverbal Communication Skill</p> <p>LU3. Develop verbal communication Skill.</p> <p>LU4. Develop Written Communication Skills</p>	<p>20</p>	<p>80</p>	<p>100</p>



<p>Module H. Prepare Workplace/Housekeeping</p>	<p>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</p>	<p>21</p>	<p>79</p>	<p>100</p>
<p>Module I. Carryout Basic Electrical Installation</p>	<p>LU1. Install / Uninstall Electrical Motors LU2. Lay Cables LU3. Perform Basic Electrical Wiring LU4. Conduct Wiring Tests</p>	<p>33</p>	<p>67</p>	<p>100</p>
<p>Module J. Maintain Marble Machines.</p>	<p>LU1. Replace Belts LU2. Replace cutting Blades LU3. Replace bearings and shaft. LU4. Replace Pulleys. LU5. Replace trolley ropes.</p>	<p>55</p>	<p>245</p>	<p>300</p>
<p>Module K. Cut Marble</p>	<p>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.</p>	<p>52</p>	<p>248</p>	<p>300</p>



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



	LU8. Adopt quality of workmanship LU9. Ensure quality at dispatching			
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 LU6. Interpret documentation	28	72	100
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

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Module-A

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3. Details of Competency Standards

Module – A: Maintain Workplace Safety

Objective: This module 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.

Duration: 100 Hours

Theory: 37 Hours

Practice: 63 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Adopt Personal safety	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Arrange PPEs as per requirements • Wear proper PPE as per nature of job • Store PPEs at appropriate place after use 	<ul style="list-style-type: none"> • Define Personal Protective Equipment (PPE.) • List of PPEs • Types and use of PPEs 	<p>Theory-02 Hrs Practical-06 Hrs Total- 08 Hrs</p>		Class Room and workshop
LU2. Adopt workplace safety.	<p>Trainee will be able to:</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 	<p>Types of physical hazards Types of chemical hazards Types of electrical hazards Differentiate between physical, chemical and electrical hazards Reporting risks and hazards</p>	<p>Theory-4 Hrs Practical-16 Hrs Total-20 Hrs</p>		Class Room and workshop



	<ul style="list-style-type: none"> Identify emergency shutdown switch of machines. 				
LU3. Adopt safety of tools and equipment	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Identify insulated tools and equipment Clean tools after use. Store tools and equipment at appropriate place. 	<ul style="list-style-type: none"> Name and Use of insulated equipment Knowledge of Safe storage Knowledge of cleaning tools 	<p>Theory-2 Hrs Practical-6 Hrs Total-8 Hrs</p>		Class Room and workshop
LU4. Maintain First aid Box	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Identify first aid box Check first aid box for Emergency Medicines. Check Expiry date of the Medicines Demonstrate mock first aid treatment against electric shock Demonstrate mock exercise against minor injury. 	<p>Knowledge of Medicine in First Aid Box Understanding of First Aid Treatment Treatments of various hazards</p>	<p>Theory- 5 Hrs Practical- 17 Hrs Total-22 Hrs</p>		Class Room and workshop
LU5. Adopt Machines Safety	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Check belts of Machine Check blades of machines 	<p>Types of belts Types of blades(cutters) Importance of/machines/ tools safety</p>	<p>Theory- 12 Hrs Practical- 10 Hrs Total-22 Hrs</p>		Class Room and workshop



	<ul style="list-style-type: none"> • Check Machine for short circuit • Perform test operation on Machine 				
LU6. Adopt environmental regulation	<i>Trainee will be able to:</i> <ul style="list-style-type: none"> • Interpret environmental regulation • Adopt work friendly environment. 	Types of Risks Risk Management / Assessment Monitor and risk control measures	Theory- 12 Hrs Practical- 8 Hrs Total-20 Hrs		Class Room and workshop

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Module-B

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Module – B: Maintain Tools & Equipment.

Objective: This competency standard covers the skills and knowledge required to Arrange Tools and Equipment, Maintain tool Box, Calibrate measuring tools and Manage Inventory of tools and equipment

Duration: 100 Hours

Theory: 22 Hours

Practice: 78 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Arrange Tools and Equipment	<p><i>Trainee will be able to:</i></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 	<ul style="list-style-type: none"> Uses of different Tools Types and uses of equipment 	<p>Theory- 05 Hrs Practical- 20 Hrs Total- 25 Hrs</p>		Class Room and workshop
LU2. Maintain tool Box	<p><i>Trainee will be able to:</i></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 	<ul style="list-style-type: none"> List of tools in tool box Preventive and corrective measures for tools and equipment 	<p>Theory- 5 Hrs Practical- 20 Hrs Total-25 Hrs</p>		Class Room and workshop



<p>LU3. Calibrate measuring tools</p>	<p><i>Trainee will be able to:</i></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 	<ul style="list-style-type: none"> • Calibration techniques • Importance of calibration 	<p>Theory- 05 Hrs Practical- 20 Hrs Total- 25 Hrs</p>		<p>Class Room and workshop</p>
<p>LU4. Manage Inventory of tools and equipment</p>	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> • Check number of tools and equipment as per record. • Report for faulty tools and equipment. • Generate demand for deficit tools and equipment • Maintain record of all tools and equipment 	<ul style="list-style-type: none"> • Inventory Management 	<p>Theory- 07 Hrs Practical- 18 Hrs Total-25 Hrs</p>		<p>Class Room and workshop</p>

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Module-C

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Module – C: Develop Basic Literacy and Numeracy Skills

Objective: This module covers the skills and knowledge required to apply basic reading, writing, speaking skills. Perform basic mathematical calculations and takes measurements.

Duration: 300 Hours

Theory: 60 Hours

Practice: 240 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU-1: Apply basic Literacy skills	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Apply basic reading skills Apply basic writing skills Apply speaking skills 	<p>Understanding of Alphabets Preparation of words from Alphabets Meanings of words Preparation of sentences from words Writing of simple sentences Basic speaking skills</p>	<p>Theory- 10 Hrs Practical- 40 Hrs Total- 50 Hrs</p>		Class Room and workshop
LU-2: Apply basic Numeracy skills	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Apply basic principles of addition Apply basic principles of subtraction Apply basic principles of multiplication Apply basic principles of division 	<p>Knowledge of basic principles of addition, subtraction, multiplication and division</p>	<p>Theory- 20 Hrs Practical- 80 Hrs Total-100 Hrs</p>		Class Room and workshop
LU-3: Perform Measurement	<p>Trainee will be able to:</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>Knowledge of measuring tools</p>	<p>Theory- 10 Hrs Practical- 40 Hrs Total- 50 Hrs</p>		Class Room and workshop



LU-4: Perform basic mathematical calculations	Trainee will be able to: <ul style="list-style-type: none">• Perform addition• Perform subtraction• Perform multiplication• Perform division• perform inter conversion of Measuring units• Record the results.	Knowledge of Basic measuring units and its inter conversion	Theory- 20 Hrs Practical- 80 Hrs Total- 100 Hrs		Class Room and workshop
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Module-D

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Module – D: Identify Machines & Its Attachments

Objective: This module 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 Machines & attachment

Duration: 100 Hours

Theory: 22 Hours

Practice: 78 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
L1. Identify Machine and its sizes.	<p><i>Trainee will be able to:</i></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 	<ul style="list-style-type: none"> • Identification of Marble cutting machines • Specifications of Marble cutting machines. 	<p>Theory- 05 Hrs Practical- 20 Hrs Total- 25 Hrs</p>		Class Room and workshop



<p>L2. Identify components & Attachments</p>	<p>Trainee will be able to:</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. • Identify components of Table Cutting machine 	<ul style="list-style-type: none"> • Identifications of Components and Attachments of Marble Cutting Machines. 	<p>Theory- 05 Hrs Practical- 20 Hrs Total- 25 Hrs</p>		<p>Class Room and workshop</p>
<p>L3. Identify capacities & capabilities of Machine</p>	<p>Trainee will be able to:</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 	<ul style="list-style-type: none"> • Comparison techniques for capacities and capabilities of Marble cutting machines 	<p>Theory- 05 Hrs Practical- 15 Hrs Total- 20 Hrs</p>		<p>Class Room and workshop</p>
<p>L4. Identify basic tools and supplies associated with Machines</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Check standard tools supplied with machines • Check spares/consumable materials • Follow manufacturers specifications for tools and supplies 	<ul style="list-style-type: none"> • Knowledge about basic tools and supplies associated with Marble cutting Machines 	<p>Theory- 5 Hrs Practical- 15 Hrs Total- 20 Hrs</p>		<p>Class Room and workshop</p>



L5. Maintain Inventory of Machines & attachment	<i>Trainee will be able to:</i> <ul style="list-style-type: none">• Check number of machines as per record• Report for faulty machine• Generate demand for defective parts of machines• Maintain record of all machines.	<ul style="list-style-type: none">• Inventory management of Machines & attachment	Theory- 02 Hrs Practical- 08 Hrs Total- 10 Hrs		
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Module-E

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Module - E: Develop basic computer operating skills

Objective: This module covers the skills and knowledge required to Operate MS word, Operate MS Excel, Operate MS Power Point, Perform Browsing and Print Document.

Duration: 200 Hours

Theory: 38 Hours

Practice: 162 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Operate MS word	<ul style="list-style-type: none"> • Perform Microsoft basic commands in MS word • Open File • Format a file <ul style="list-style-type: none"> i. Font (Type/size/bold/Italic) ii. Header Footer iii. Page number iv. Insert pics / table/hyperlink • Save a File • Save a folder 	<ul style="list-style-type: none"> • Knowledge of Basic parts of computers • Importance and use of MS Word 	<p>Theory- 10 Hrs Practical- 40 Hrs Total- 50 Hrs</p>	<p>Computer Windows CD MS office CD</p>	<p>Class Room and workshop</p>
LU2. Operate MS Excel	<ul style="list-style-type: none"> • Perform basic commands in Microsoft MS Excel • Open a worksheet. • Sum functions • If functions 	<ul style="list-style-type: none"> • Importance and uses of MS Excel 	<p>Theory- 10 Hrs Practical- 50 Hrs Total- 60 Hrs</p>	<p>MS office CD</p>	<p>Class Room and workshop</p>



	<ul style="list-style-type: none"> • Basic calculations • Table and graphs • Save a worksheet/folder 				
LU3. Operate MS Power Point	<ul style="list-style-type: none"> • Prepare Microsoft power point presentation with basic commands • Make a power point file • Insert pics/table/hyperlink • Design a theme for slides • Save a power point file 	<ul style="list-style-type: none"> • Importance and use of MS Power Point 	<p>Theory- 10 Hrs Practical- 40 Hrs Total- 50 Hrs</p>	<ul style="list-style-type: none"> • MS office CD 	Class Room and workshop
LU4. Perform Browsing	<ul style="list-style-type: none"> • Perform browsing on the internet as per needs • Perform search online on new trends in the market with the help of internet 	<ul style="list-style-type: none"> • Importance of Internet. • Use of various search engines like Google, U-tube etc. 	<p>Theory- 04 Hrs Practical- 16 Hrs Total- 20 Hrs</p>	<ul style="list-style-type: none"> • 	Class Room and workshop
LU5. Print Document	<ul style="list-style-type: none"> • Select Printer • Select page setup • Print relevant pages 	<ul style="list-style-type: none"> • Printing Procedure and techniques. 	<p>Theory- 04 Hrs Practical- 16 Hrs Total- 20 Hrs</p>	<ul style="list-style-type: none"> • Printing papers (A4 and Legal size) 	

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Module-F

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Module - F: Construct Geometrical Figures

Objective: This module covers the skills and knowledge required to Take Measurement, Draw different types of triangles, Draw all six types of quadrilaterals, Draw Circle and its parts, Draw polygons, Draw Ellipses and Draw Parabola

Duration: 200 Hours

Theory: 35 Hours

Practice: 165 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
L1. Take Measurement	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Identify measuring Instruments. Perform measurement as per drawing. Mark the job as per drawing 	<ul style="list-style-type: none"> Drawing Instruments/equipment Scales and its interconversion. Types of measuring Instruments 	<p>Theory- 05 Hrs Practical- 15 Hrs Total- 20 Hrs</p>	<p>Computer Windows CD MS office CD</p>	Class Room and workshop
L2. Draw different types of triangles.	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Distribute space in required parts. Draw equilateral triangle of side length 2". Draw isosceles triangle with base 5 cm and height = 6 cm Draw scalene triangle of lengths 2", 1.5", 1". Draw acute angled triangle. Draw right angles triangle. Draw obtuse angled triangle. Draw tile strip & title block on drawing sheet 	<ul style="list-style-type: none"> Procedure for the construction of angles. Types of triangles Construction techniques of different triangles. 	<p>Theory- 05 Hrs Practical- 25 Hrs Total- 30 Hrs</p>	<p>MS office CD</p>	Class Room and workshop
L3. Draw all six types of quadrilaterals	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Distribute space in required parts. Draw square of side length 2". 	<ul style="list-style-type: none"> Types of quadrilaterals. Construction techniques of different quadrilaterals 	<p>Theory- 05 Hrs Practical- 25 Hrs Total- 30 Hrs</p>	<ul style="list-style-type: none"> MS office CD 	Class Room and workshop



	<ul style="list-style-type: none"> • Draw rectangle with length 5 cm and width= 3 cm • Draw rhombus of side length=2 cm & internal angle= 45⁰ • Draw parallelogram of length 6 cm, width= 3 cm & internal angle= 45⁰ • Draw trapezoid of parallel sides' length 4 cm & 6 cm spaced at a distance of 3 cm. • Draw trapezium of side lengths 5 cm, 4 cm, 6 cm & 3 cm. • Draw tile strip & title block for drawing sheet 				
L4. Draw Circle and its parts	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Draw circle of diameter 2 Cm. • Draw semi-circle of diameter 2 Cm, • Draw segment of circle of diameter 2 Cm, • Draw sector of circle. • Draw zone of circle of diameter 2 Cm. • Draw tile strip & title block for drawing sheet 	<ul style="list-style-type: none"> • State the terms used in a circle. • Describe different lines and arcs in a circle. 	<p>Theory- 05 Hrs Practical- 25 Hrs Total- 30 Hrs</p>	<ul style="list-style-type: none"> • 	Class Room and workshop
L5. Draw polygons,	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Draw a regular pentagon of side length = 4 cm. • Draw hexagon inscribes in a circle of 6 Cm diameter. • Draw hexagon circumscribed about a circle of 6 Cm diameter. 	<ul style="list-style-type: none"> • Types of polygons. • Construction techniques of different polygons 	<p>Theory- 05 Hrs Practical- 25 Hrs Total- 30 Hrs</p>	<ul style="list-style-type: none"> • Printing papers (A4 and Legal size) 	



	<ul style="list-style-type: none"> • Draw tile strip & title block for drawing sheet 				
<p>L6. Draw Ellipses major axis = 10 cm minor axis = 8 cm with four methods.</p>	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> • Draw ellipse by four centers method. • Draw ellipse by basic method. • Draw ellipse by parallelogram method. • Draw ellipse by off-set method in concentric circles. 	<ul style="list-style-type: none"> • Define Ellipse. • Construction techniques of different Ellipses 	<p>Theory- 05 Hrs Practical- 25 Hrs Total- 30 Hrs</p>	<ul style="list-style-type: none"> • 	
<p>L7. Draw Parabola major axis = 10 cm minor axis = 8 cm with Three methods.</p>	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> • Draw parabola by basic method. • Draw parabola by tangent method. • Draw parabola by rectangle method 	<ul style="list-style-type: none"> • Define Parabola • Construction techniques of different Parabolas 	<p>Theory- 05 Hrs Practical- 25 Hrs Total- 30 Hrs</p>	<ul style="list-style-type: none"> • 	

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Module-G

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Module - G: Develop basic communication Skills.

Objective: This module covers the skills and knowledge required to Adopt effective Listening, Develop Nonverbal Communication Skill, Develop verbal communication Skill and Develop Written Communication Skills

Duration: 100 Hours

Theory: 20 Hours

Practice: 80 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Adopt effective Listening	<ul style="list-style-type: none"> Practice active listening. Ask clarifying questions. Adopt sympathetic attitude 	<ul style="list-style-type: none"> Importance of active listening. Describe clarity of questioning Importance of sympathetic attitude 	Theory- 05 Hrs Practical- 18 Hrs Total- 23 Hrs	Nil	Class Room and workshop
LU2. Develop Nonverbal Communication Skill	<ul style="list-style-type: none"> Adopt hand gestures if required. Encourage others to speak openly with you. Make eye contact with communicator. Make relaxed, open stance during communication. Perform friendly tone during communication. 	<ul style="list-style-type: none"> Importance of hand gestures Importance of encouraging others to speak openly Importance of eye contact in communication Importance of open stance and relaxed communication Advantages of friendly tone 	Theory- 05 Hrs Practical- 19 Hrs Total- 24 Hrs	Nil	Class Room and workshop



<p>LU3. Develop verbal communication Skill</p>	<ul style="list-style-type: none"> • Adopt face to face conversations • Convey your message clearly and directly. • Adopt phrases as simple as possible • Respect others and their ideas 	<ul style="list-style-type: none"> • Knowledge of face to face conversation • Importance of clarity in direct messaging • Use of simple phrases • Importance of individual respect and their ideas 	<p>Theory- 05 Hrs Practical- 23 Hrs Total- 28 Hrs</p>	<p>Nil</p>	<p>Class Room and workshop</p>
<p>LU4. Develop Written Communication Skills</p>	<ul style="list-style-type: none"> • Convey your message in few words. • Convey message through live phone calls. • Convey text message through cell phone. • Convey message through WhatsApp. • Convey message through email. 	<ul style="list-style-type: none"> • Importance of briefness in messaging • Importance of live phone calls • Importance of text message through cell phone, WhatsApp and email. 	<p>Theory- 05 Hrs Practical- 20 Hrs Total- 25 Hrs</p>	<p>Nil</p>	<p>Class Room</p>

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Module-H

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Module – H: Prepare Workplace/ Housekeeping

Objective: This module covers the skills and knowledge required to arrange stones, Arrange drainage of polluted water, Identify location for dumping marble waste, Prepare log sheet for general maintenance, Treat damaged stone, Maintain Inventory, Ensure clear travel path, Store slabs (size, color, grade), and Load Marble Slabs.

Duration: 100 Hours

Theory: 21 Hours

Practice: 79 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Arrange Stones (Color, Size, Grade)	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Clean work place. • Perform safe Unloading of Marble Stone. • Mark stone as per (color, size and grade 	Cleaning Techniques of stone yard. Types, categories and grade of stones Loading and Unloading techniques of Marbles Stones	Theory- 04 Hrs Practical-08 Hrs Total- 12 Hrs		Class Room and workshop
LU2. Regulate drainage of polluted water	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Check condition of water tanks. • Regulated flow of polluted water to the tank. • Dispose-off of the marble waste from the water tank • Dispose-off the marble waste from work place 	Knowledge of Harm polluted water Recycling of Harm polluted water	Theory- 04 Hrs Practical- 16 Hrs Total- 20 Hrs		Class Room and workshop



<p>LU3. Identify location for dumping marble waste</p>	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> • Estimate quantity of marble waste. • Arrange location for dumping of marble scrape. 	<p>Locations of stocking various items</p>	<p>Theory- 02 Hrs Practical-08 Hrs Total- 10 Hrs</p>		<p>Class Room and workshop</p>
<p>LU4. Prepare log sheet for general maintenance</p>	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> • Prepare schedule of routine maintenance • Identify the activities for conducting routine maintenance • Prepare list of tools for routine maintenance 	<p>Importance of log sheet/Work order</p>	<p>Theory- 02 Hrs Practical- 13 Hrs Total- 15 Hrs</p>		<p>Class Room and workshop</p>
<p>LU5. Maintain Inventory</p>	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> • Estimate weight of raw materials and size of finished stock. • Maintain record of all blades • Maintain stock register. 	<p>Importance of inventory management</p>	<p>Theory- 03 Hrs Practical- 12 Hrs Total- 15 Hrs</p>		<p>Class Room and workshop</p>
<p>LU6. Ensure clear travel path</p>	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> • Mark the width of travel path. • Maintain clear path. 	<p>Importance of clear travel path</p>	<p>Theory- 03 Hrs Practical- 07 Hrs Total- 10 Hrs</p>		<p>Class Room and workshop</p>



<p>LU7. Store slabs (size, color, grade)</p>	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> • Identify store for Slabs. • Arrange space for storage of marble tiles. • Store the marble tiles according to color, size and grade 	<p>Knowledge about slabs storage</p>	<p>Theory- 02 Hrs Practical- 08 Hrs Total- 10 Hrs</p>		<p>Class Room and workshop</p>
<p>LU8. Load Marble Slabs</p>	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> • Identify parking location for vehicle to be loaded. • Load marble Slab/Tiles Safely in vehicle. 	<p>Loading and Unloading techniques of Marbles / Slabs</p>	<p>Theory- 01 Hrs Practical- 07 Hrs Total- 08 Hrs</p>		<p>Class Room and workshop</p>

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Module-I

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Module – I: Perform Basic Electric Installation

Objective: This module 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.

Duration: 100 Hours

Theory: 33 Hours

Practice: 67 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU-1: Install / Uninstall Electric Motors	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Connect Electric Motor • Disconnect Electric Motor • Install Electric Motor • Uninstall Electric Motor 	<ul style="list-style-type: none"> • Uses of PPE • Types of motors • Techniques of installing/ uninstalling of electrical Motors 	<p>Theory- 08 Hrs Practical- 12 Hrs Total- 20 Hrs</p>		Class Room and workshop
LU-2: Lay Cables	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Interpret requirements • Identify Cables • Lay cables • Perform Earthing 	<ul style="list-style-type: none"> • Types of wires • Sizes of wires • Color scheme • Techniques of Earthing 	<p>Theory- 05 Hrs Practical- 15 Hrs Total- 20 Hrs</p>		Class Room and workshop
LU-3: Perform Basic Electrical Wiring	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Measure Gages of cable • Perform joints • Insulate Joints • Connect cables 	<ul style="list-style-type: none"> • Wiring tools and their uses • Types of wiring joints • Types of insulating materials • Safety precautions 	<p>Theory- 10 Hrs Practical- 20 Hrs Total- 30 Hrs</p>		Class Room and workshop
LU-4: Conduct Wiring Tests	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Operate Measuring instruments • Perform continuity test • Perform polarity test • Perform Earthing test • Perform insulation test • Record test results 	<ul style="list-style-type: none"> • Various types of wiring tests • Basic electricity • Basic electronics 	<p>Theory- 10 Hrs Practical-20 Hrs Total- 30 Hrs</p>		Class Room and workshop

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Module-J

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Module – J: Maintain Marble Machines

Objective: This module covers the skills and knowledge required to Replace (Belts, cutting Blades, bearings, shafts, Pulleys, electrical Motor and trolley ropes)

Duration: 300 Hours

Theory: 55 Hours

Practice: 245 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU-1: Replace Belts	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Change the belt. Adjust the belt. 	<ul style="list-style-type: none"> Specifications (shape, types and sizes) of belts 	<p>Theory- 10 Hrs Practical- 40 Hrs Total- 50 Hrs</p>		Class Room and workshop
LU-2: Replace cutting Blades	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Compare shaft diameter with the diameter of central bore of the cutter. Replace the cutting blades. Tightened the nut and flange properly 	<ul style="list-style-type: none"> Sizes and uses of blades Replacement techniques of blades 	<p>Theory- 10 Hrs Practical- 40 Hrs Total- 50 Hrs</p>		Class Room and workshop
LU-3: Replace bearings and shaft.	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Remove the faulty bearing. Mount the new bearing. Remove the faulty shaft. Replace the repaired/new shaft 	<ul style="list-style-type: none"> Replacement techniques of bearings Specifications (Number) of bearings and their uses 	<p>Theory- 15 Hrs Practical- 65 Hrs Total- 80 Hrs</p>		Class Room and workshop
LU-4: Replace Pulleys.	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Remove damaged pulley. Mount new pulley. Perform alignment of pulleys. 	<ul style="list-style-type: none"> Types / shapes of pulleys Alignment/adjustment techniques of pulleys Alignment /adjustment techniques of motors 	<p>Theory- 10 Hrs Practical- 60 Hrs Total- 70 Hrs</p>		Class Room and workshop



LU-5: Replace trolley ropes	<i>Trainee will be able to:</i> <ul style="list-style-type: none">• Dismantle trolley ropes.• Install trolley ropes.• Adjust and Align trolley ropes.	<ul style="list-style-type: none">• Knowledge of steel ropes• Technique of fastening ropes.• Installation, Adjustment and Alignment techniques machine trolley & ropes.	Theory- 10 Hrs Practical- 40 Hrs Total- 50 Hrs		Class Room and workshop
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Module-K

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Module – K: Cut Marble

Objective: This module 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.

Duration: 300 Hours

Theory: 52 Hours

Practice: 248 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU-1: Perform loading/unloading by Crane	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Load stone. • Balance the stone • Unload the stone safely. 	<ul style="list-style-type: none"> • Loading capacity of cranes • Rope tensions capacity. • Weighing techniques • Types of Stones and their properties (Marble/Granite) 	<p>Theory- 06 Hrs Practical- 24 Hrs Total- 30 Hrs</p>		Class Room and workshop
LU-2: Prepare Machine for cutting Marble	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Load Marble stone. • Adjust vertical cutting Machine • Regulate flow of water. • Adopt personal safety (Gloves, Boots, and apron). 	<ul style="list-style-type: none"> • Capacity of trolley/table • Types of Marble cutting machines • Types and uses of cutting materials 	<p>Theory- 06 Hrs Practical- 24 Hrs Total- 30 Hrs</p>		Class Room and workshop
LU-3: Perform vertical cutting	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Perform cutting with vertical cutting machine as per standard. • Transport cut slabs for cross cutting • Remove scrap. 	<ul style="list-style-type: none"> • Operational procedure of cutting machines • Capacity of cutting machines • Measuring tools and techniques • Sizes and uses of cutting blades • Safety precaution 	<p>Theory- 10 Hrs Practical- 40 Hrs Total- 50 Hrs</p>		Class Room and workshop



<p>LU-4: Perform cutting with Gang saw</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Load block/stone on trolley. • Operate Gang saw. • Fasten slabs for safe handling. • Perform punching on the base line of slabs with chisel • Shift slabs to the other trolley. • Remove waste materials. 	<ul style="list-style-type: none"> • Techniques of cutting marbles on Gang saw • Operational Procedure of Gang saw • Specifications as per requirements • Safety precaution 	<p>Theory- 05 Hrs Practical- 40 Hrs Total- 45 Hrs</p>		<p>Class Room and workshop</p>
<p>LU-5: Perform bridge Cutting.</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Adjust stone on trolley. • Perform cutting with Bridge cutter as per standard. • Transport cut slabs to cross cutting/table cutter. • Remove scrap. 	<ul style="list-style-type: none"> • Operational Procedure of Bridge Cutter • Safety precaution • 	<p>Theory- 05 Hrs Practical- 40 Hrs Total- 45 Hrs</p>		<p>Class Room and workshop</p>
<p>LU-6: Perform cross cutting</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Prepare machine for cutting. • Perform cross cutting as per standard. • Transport slabs to the section cutter. 	<ul style="list-style-type: none"> • Operational Procedure of Cross Cutter • Safety precaution 	<p>Theory- 05 Hrs Practical- 20 Hrs Total- 25 Hrs</p>		<p>Class Room and workshop</p>
<p>LU-7: Perform section cutting</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Adjust the guide for standard thickness. • Perform section cutting. 	<ul style="list-style-type: none"> • Operational Procedure of Section Cutter • Safety precaution 	<p>Theory- 05 Hrs Practical- 20 Hrs Total- 25 Hrs</p>		<p>Class Room and workshop</p>
<p>LU-8: Perform cutting with resizing machine</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Adjust both the cutter for the required size of slabs. • Perform cutting to get the slabs in square/rectangle shape. 	<ul style="list-style-type: none"> • Operational Procedure of Resizing Cutter • Safety precaution 	<p>Theory- 05 Hrs Practical- 20 Hrs Total- 25 Hrs</p>		<p>Class Room and workshop</p>



LU-9: Perform Table Cutting	Trainee will be able to: <ul style="list-style-type: none">• Place slabs on Table.• Perform cutting with table cutter to get the slabs in shape as required.	<ul style="list-style-type: none">• Operational Procedure of Table Cutter• Safety precaution	Theory- 05 Hrs Practical- 20 Hrs Total- 25 Hrs		Class Room and workshop
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Module-L

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Module – L: Perform Polishing

Objective: This module covers the skills and knowledge required to identify polishing tools & equipment, Apply polishing pads, Apply sand paper and Apply Buff for Shining.

Duration: 200 Hours

Theory: 20 Hours

Practice: 180 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU-1: Identify polishing tools & equipment	Trainee will be able to: <ul style="list-style-type: none"> Identify polishing tools/materials Ensure safe handling of polishing tools/equipment 	<ul style="list-style-type: none"> List of Polishing tools 	Theory- 03 Hrs Practical- 22 Hrs Total- 25 Hrs		Class Room and workshop
LU-2: Apply polishing pads	Trainee will be able to: <ul style="list-style-type: none"> Segregate tiles for polishing. Place big tiles on machine /Table Fix small tiles on fixture 	<ul style="list-style-type: none"> Polishing materials Polishing techniques Uses of polishing materials Use of Auto Polishing machine 	Theory- 02 Hrs Practical- 23 Hrs Total- 25 Hrs		Class Room and workshop
LU-3: Apply sand paper	Trainee will be able to: <ul style="list-style-type: none"> Perform grinding with grinding disc. Apply polishing materials. Apply sand paper. 	<ul style="list-style-type: none"> Types and sizes of sand paper Applying Techniques of sand paper 	Theory- 05 Hrs Practical- 45 Hrs Total- 50 Hrs		Class Room and workshop
LU-4: Apply chemicals	Trainee will be able to: <ul style="list-style-type: none"> Wear Personal Protective Equipment Select chemicals. Apply chemicals to the surface. 	<ul style="list-style-type: none"> Use of PPEs Identification of Chemicals. Applying Techniques of chemical to the surface 	Theory- 05 Hrs Practical- 45 Hrs Total- 50 Hrs		
LU-5: Apply Buff for Shining.	Trainee will be able to: <ul style="list-style-type: none"> Apply Buff for shining. Assess surface finishing of tiles 	<ul style="list-style-type: none"> Types of Buffs Buffing materials and uses Buffing methods 	Theory- 05 Hrs Practical- 45 Hrs Total- 50 Hrs		Class Room and workshop

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Module-M

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Module – M: Perform CAD/CAM Operations

Objective: This module covers the skills and knowledge 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.

Duration: 500 Hours

Theory: 51 Hours

Practice: 449 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Interpret Drawing & Design using CAD	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> • Interpret the desired drawing & design • Transfer the desired drawing & design to the concerned section/ person • Perform supervision of the job as per drawing 	<ul style="list-style-type: none"> • Knowledge and understanding about drawings 	<p>Theory- 02 Hrs Practical- 08 Hrs Total- 10 Hrs</p>		Class Room and workshop
LU2. Draw & Design the job using CAD	<p><i>Trainee will be able to:</i></p>	<ul style="list-style-type: none"> • Understanding of CAD software • Describe the tools/ Commands for drawing in CAD software. 	<p>Theory- 04 Hrs Practical- 36 Hrs Total-40 Hrs</p>		Class Room and workshop



	<ul style="list-style-type: none"> • Consult catalogue as per client demand • Set Interface in CAD software • Make Multiview drawing & design of the job • Make 3D drawing & design of the job/ part • Render the job as per client's demand • Plot/ print the job 				
LU3. Load the desired Tools	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> • Identify the required tools as per process • Select the tools in the CAD/CAM software • Load the tools in CAD/CAM software 	<ul style="list-style-type: none"> • Knowledge of specific bits/ cutters/ aggregates of CNC machine 	<p>Theory- 10 Hrs Practical- 90 Hrs Total- 100 Hrs</p>		Class Room and workshop
LU4. Perform Simulation	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> • Convert CAD to CAM codes using the software • Run Simulation to check accuracy of process 	<ul style="list-style-type: none"> • Knowledge of various CAM software • Understanding of various CAM operations. 	<p>Theory- 10 Hrs Practical- 90 Hrs Total- 100 Hrs</p>		Class Room and workshop



<p>LU5. Perform Material Loading</p>	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> • Identify required parts of the job • Set the clamping/ vacuum sucking units as per parts of the job • Load the job parts on the machine bed 	<ul style="list-style-type: none"> • Describe the vacuum system. 	<p>Theory- 10 Hrs Practical- 90 Hrs Total- 100 Hrs</p>		
<p>LU6. Perform CAM Operations</p>	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> • Ensure the loading of desired tools/ bits in ATC. • Calibrate the machine. • Execute the machine to complete the process • Take out the completed part 	<ul style="list-style-type: none"> • Describe the automatic tool changer. 	<p>Theory- 15 Hrs Practical- 135 Hrs Total- 150 Hrs</p>		

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Module-N

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Module - N: Ensure Quality

Objective: This module 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

Duration: 150 Hours

Theory: 20 Hours

Practice: 130 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Adopt standard atmosphere at work place	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Assess proper lighting at workplace Assess appropriate ventilation Ensure good housekeeping 	<ul style="list-style-type: none"> Knowing about specification Checking techniques of marble 	<p>Theory- 02 Hrs Practical- 08 Hrs Total- 10 Hrs</p>		Class Room and workshop
LU2. Ensure safe environmental concerns	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Dispose-off waste chemicals as per environmental standards Dispose-off marble waste as per SOP. Follow hazardous instructions 	<ul style="list-style-type: none"> Knowing about Quality standards 	<p>Theory- 03 Hrs Practical- 15 Hrs Total- 18 Hrs</p>		Class Room and workshop
LU3. Check quality of marble on receiving	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Pay visit to the storing place Check physical condition of Marbles Segregate the damaged marbles 	<ul style="list-style-type: none"> Use of polishing materials Techniques of safe handling of marble Buffing materials and uses 	<p>Theory- 03 Hrs Practical- 18 Hrs Total- 21 Hrs</p>		Class Room and workshop
LU4. Adopt accuracy in machining	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Calibrate measuring instruments Ensure precise measuring instruments Check accuracy of machine 	<ul style="list-style-type: none"> Understand Market demand 	<p>Theory- 02 Hrs Practical- 18 Hrs Total- 20 Hrs</p>		Class Room and workshop



<p>LU5. Check quality of cutting</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Enlist specification as per demand • Match length and width of marble with specification • Inspect edges of marble 	<p>Knowledge of precision measurements</p>	<p>Theory- 02 Hrs Practical- 10 Hrs Total- 12 Hrs</p>		
<p>LU6. Ensure Quality of Polishing</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Check smoothness of marbles surface • Check shine of marble • Check quality of polishing materials 	<p>Checking techniques of smooth and shine surface.</p>	<p>Theory- 02 Hrs Practical- 10 Hrs Total- 12 Hrs</p>		
<p>LU7. Implement quality standards</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Interpret national and international standards • Adopt national standard • Adopt international standard 	<p>Knowledge of national and International Marbles standards.</p>	<p>Theory- 02 Hrs Practical- 10 Hrs Total- 12 Hrs</p>		
<p>LU8. Adopt quality of workmanship</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Appoint skilled worker • Appoint right man for the right job • Provide adequate training 	<p>Knowledge of Job Descriptions for different skilled worker. Knowledge of Skill Assessment.</p>	<p>Theory- 02 Hrs Practical- 23 Hrs Total- 25 Hrs</p>		
<p>LU9. Ensure quality at dispatching</p>	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> • Ensure segregation of damaged marbles • Ensure safe handling of marbles during dispatch 	<p>Knowledge of damaged marbles Knowledge of safe handling of Tiles and slab.</p>	<p>Theory- 02 Hrs Practical- 18 Hrs Total- 20 Hrs</p>		

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Module-O

MARBLE TECHNICIAN

CBT Curriculum

National Vocational
Certificate Level 1-4

Version 1 - JULY 2020



Module - O: Develop Professionalism

Objective: This module covers the skills and knowledge required to Resolve problems or disagreements with others, Demonstrate work ethics, Work with others, Work independently, Communicate with signals and Interpret documentation

Duration: 100 Hours

Theory: 28 Hours

Practice: 72 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Resolve problems or disagreements with others	<p><i>Trainee will be able to</i></p> <ul style="list-style-type: none"> • Communicate effectively • Adopt peaceful approach • Determine cause of problem or disagreement • Discuss and resolve issues 	<ul style="list-style-type: none"> • Knowledge of effectively communication • Conflict resolution techniques • Common causes of problem/ disagreement and their solutions • Importance of effective communication 	<p>Theory- 03 Hrs Practical-14 Hrs Total- 17 Hrs</p>	Nil	Class Room and workshop
LU2. Demonstrate work ethics	<p><i>Trainee will be able to</i></p> <ul style="list-style-type: none"> • Follow principles of work ethics in all situations • Adopt professional behaviour 	<ul style="list-style-type: none"> • Principles of work ethics and expectations, such as be truthful, punctual, prepared for work, cooperative, honest, productive and respectful • Professional knowledge, skills and attitude and how to practice 	<p>Theory- 10 Hrs Practical-03 Hrs Total- 13 Hrs</p>	Nil	Class Room and workshop



<p>LU3. Work with others</p>	<p>Trainee will be able to</p> <ul style="list-style-type: none"> • Work as a team member to achieve common goals • Keep open mind • Participate in work place meetings • Communicate accurately and clearly • Co-ordinate job related activities • Cooperate with others 	<ul style="list-style-type: none"> • Importance of team work to achieve common goals • Roles of individuals on job site, such as supervisor, inspector, other trades people • Importance of work place meetings, coordination and accurate communication 	<p>Theory- 05 Hrs Practical-15 Hrs Total- 20 Hrs</p>	<p>Nil</p>	<p>Class Room and workshop</p>
<p>LU4. Work independently</p>	<p>Trainee will be able to</p> <ul style="list-style-type: none"> • Confirm and clarify assignment • Take initiative, anticipate and prepare for next steps in job • Identify and resolve potential and actual problems • Communicate with other site personnel • Complete assignment 	<ul style="list-style-type: none"> • Clear assignment and responsibilities of each individual • Importance of initiative, anticipate and prepare for next steps in job • Work place problems and how to resolve them • Clarity in communication 	<p>Theory- 05 Hrs Practical-15 Hrs Total- 20 Hrs</p>	<p>Nil</p>	<p>Class Room</p>
<p>LU5. Communicate with signals</p>	<p>Trainee will be able to:</p>	<ul style="list-style-type: none"> • Role and responsibilities of signaller 	<p>Theory- 03 Hrs Practical-17 Hrs</p>		



	<ul style="list-style-type: none"> Identify and work with signals Communicate with audible signals, such as back-up alarm, and site emergency horn Communicate with hand signals 		Total- 20 Hrs		
LU6. Interpret documentation	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Access and maintain documents Provide complete, legible and accurate information in documents Interpret equipment inspection documentation from previous shifts before conducting pre-operational inspection 	<ul style="list-style-type: none"> Types of documentation required, such as log books, safety reports, maintenance reports, inspection reports, time cards Importance of complete, legible, and accurate documentation 	<p>Theory- 02 Hrs Practical-08 Hrs Total- 10 Hrs</p>	Nil	Class Room

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Module-P

MARBLE TECHNICIAN

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National Vocational
Certificate Level 1-4

Version 1 - JULY 2020



Module - P: Develop Entrepreneurial skills

Objective: This module 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.

Duration: 150 Hours

Theory: 86 Hours

Practice: 64 Hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Conduct Market survey	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> • Collect information regarding market size and potential from appropriate sources • Investigate market trends and developments to identify market needs relative to business ideas • Gather market information from primary and secondary sources to identify possible market needs in relation to business ideas • Identify ethical and cultural requirements of the market and their impact on business ideas • Identify new and emerging markets and document their features 	<ul style="list-style-type: none"> • Knowledge of Entrepreneurship • Market & marketing • Procedure for assessing the market size and demand • Knowledge of Market survey • Market survey and its tools e.g: questionnaire, interview, observation etc 	<p>Theory- 10 Hrs Practical-10 Hrs Total- 20 Hrs</p>		Class Room and workshop



	<ul style="list-style-type: none"> Identify and organise information on expected market growth or decline and associated risk factors 				
LU2. Develop basic marketing skills	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Present a design to the client as per requirement Finalize the business deal Purchase the equipment/tools and consumables as per agreed design Adopt correct means of transportation Select promotional means, according to target needs of clients 	<ul style="list-style-type: none"> Knowledge of Business opportunities. Transport requirements for the enterprise <ul style="list-style-type: none"> 	Theory- 10 Hrs Practical- 08 Hrs Total- 18 Hrs	Nil	Class Room and workshop
LU3. Identify needs of the market.	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Analyse upcoming market trends. Develop Professional network. Demonstrate behavioural skills. Develop sound interpersonal skills Develop new designs. 	<ul style="list-style-type: none"> Financial analysis techniques <ul style="list-style-type: none"> 	Theory- 10 Hrs Practical- 02 Hrs Total- 12 Hrs	Nil	Class Room and workshop
LU4. Prepare Business plan	<p>Trainee will be able to:</p> <ul style="list-style-type: none"> Develop operational goals and targets to meet the enterprise strategic plan. Identify and incorporate supply chains into the business plan. 	<ul style="list-style-type: none"> Feasibility for a business idea Knowledge of Business plan 	Theory- 10 Hrs Practical- 10 Hrs Total- 20 Hrs	Nil	Class Room and workshop



	<ul style="list-style-type: none"> Identify risk management needs are within the business plan. Incorporate trial systems in order to test budgetary impact and operational potential prior to full implementation of the business plan. Set clear and measureable indicators of operational performance to allow for realistic analysis of performance. 				
<p>LU5. Implement marketing activities</p>	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> Schedule planned marketing activities within appropriate timeframes Develop measurable performance targets that meet business plan objectives Organize distribution channels and ensure product and service information is accurate and readily available to clients Implement marketing activities within budgetary constraints to meet legal, ethical and enterprise requirements 	<ul style="list-style-type: none"> life cycle of product various ways of selecting suppliers inventory management of stock, raw material and finished goods etc. 	<p>Theory- 16 Hrs Practical- 04 Hrs Total- 20 Hrs</p>	<p>Nil</p>	<p>Class Room</p>



<p>LU6. Evaluate marketing performance.</p>	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> Review the established marketing objectives to ensure they remain viable Assess product, pricing and distribution policies in relation to market changes, marketing objectives and enterprise requirements Identify areas of positive marketing performance and take corrective action to remedy poor marketing performance areas 	<ul style="list-style-type: none"> Importance of financial record keeping in a small business. Balance sheet for a small enterprise 	<p>Theory- 10 Hrs Practical- 10 Hrs Total- 20 Hrs</p>	<p>Nil</p>	<p>Class Room</p>
<p>LU7. Develop Business promotion technique</p>	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> Establish marketing objectives based on current and potential product specifications Select appropriate production processes to ensure product specifications are met Select selling strategies to ensure required prices are achieved Select appropriate distribution channel options to ensure access to target markets is achieved efficiently and appropriately 	<ul style="list-style-type: none"> Business promotion technique operating cycle concept 	<p>Theory- 10 Hrs Practical- 10 Hrs Total- 20 Hrs</p>	<p>Nil</p>	<p>Class Room</p>



	<ul style="list-style-type: none"> Establish time-frames for distribution and selling activities Develop a gross margin budget to demonstrate the cost effectiveness of the marketing plan Develop partial gross margin budgets to account for market variability 				
<p>LU8. Develop Business competition Skills</p>	<p><i>Trainee will be able to:</i></p> <ul style="list-style-type: none"> Prepare and record detailed plans for promotional activities Outline objectives, level of exposure and available markets Ensure strategies take account of time management and scheduling issues, and resource constraints Create promotional materials that enhance the product and commercial presentation Record and communicate priorities, responsibilities, timelines and budgets for promotional activities. 	<ul style="list-style-type: none"> Essential financial reports. Techniques of detailed plans for promotional activities 	<p>Theory- 10 Hrs Practical-10 Hrs Total- 20 Hrs</p>	<p>Nil</p>	<p>Class Room</p>



4. List of Tools and Equipment

(FOR A CLASS OF 25 STUDENTS)

Name of Trade		Marble Technician	
Duration of Course		Months	
Sr. #	Description	Quantity	
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		



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



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)	



5. Lists of Consumable, Personal Protective Equipment and Stationary

List of Consumables				List of Personal Protective Equipment		List of Stationary	
Sr. #	Description	Sr. #	Description	Sr. #	Description	Sr. #	Description
1	Box board sheet	12	Pulleys	1	First AID Box	1	Handbooks
2	Polishing Pads	13	Belts	2	Fire Extinguisher Cylinder	2	Design books
3	Lubricating oil	14	Grease	3	Fire Blanket	3	Pencils
4	Plastic Pipe	15	Kerosene oil	4	Fire Bucket	4	Rubber
5	PVC Pipe	16	Sand Paper	5	Safety Gloves	5	Sharpeners
6	Paper tape 1 inch.	17	Steal Ropes	6	Ear Protector	6	Paper Cutter
7	Marble stones	18	Cotton Ropes	7	safety googles	7	Seizers
8	Polish	19	Brushes	8	Safety Helmet	8	Colours
9	Water	20	Nuts	9	Safety mask	9	White charts
10	Cloths	21	Bolts	10	Formal Uniform For Work	10	Brown sheets
11	Bearings			11	Safety Shoes	11	White board markers
				12	Safety Belt	12	Permanent markers
						13	File cover and files



6. Members of the Curriculum Development Committee.

S#	Name	Designation	Organization
1	Mian Fazilat Shah	Managing Director	Ittefaq Marble Factory, Jahangira
2	Mr. Ibad Ali	Managing Director	Al-Hadi Marble and Granite
3	Mr. Muhammad Arslan	Managing Director	Mehran Marbles, Karachi
4	Mr. Masood Gillani	General Secretary,	All Pakistan Marble Industries Association, Islamabad
5	Mr. Qamar Shafiq	Factory Manager	Roshan Marble, Lahore
7	Mr. Rizwan Ali Shah	Manager	Kokhan Engineering Services
8	Mr. Hazrat Younas	Managing Director	Fazal e Qadir Marble, Jahangira
9	Mr. Shoukat Saeed	Managing Director	Shoukat Marble Factory, Jahangira
10	Mr. Sartaj Ghani	Managing Director	Essa Khan Marble, Jahangira
11	Mr. Wahid Mahmood	Marble cutting expert	Shahbaz Marble, Jahangira
12	Mr. Muhammad Imran	Foreman	Al-Hadi Marble Granite, Jahangira
13	Mr. Muhammad Iqbal	Managing Director	Sheheryar and Awais marble, Khairabad
14	Mr. Nasir Azeem	Marble polish expert	Fazal e Qadir Marble, Khairabad
15	Mr. Khalid Shah	Foreman	Khan Marble, Jahangira
16	Mr. Arshad Ali	Ex. Principal	KP- TEVTA
17	Engr. Abdul Maqsood	DACUM Recorder	KP- TEVTA
18	Engr. Inayat ur Rehman	DACUM Facilitator	KP-TEVTA
19	Mr. M. Naeem Akhtar	DACUM Coordinator.	GIZ – TSSP Pakistan
20	Mr. Sohaib Fida Khan Tanoli	Technical Advisor	GIZ TSSP Pakistan
21	Mr. Asmat Ullah Khan	Director	NAVTTC ISLAMABAD
22	Mr. Israr Ahmed	Deputy Director	KP-TEVTA

National Vocational and Technical Training Commission (NAVTTTC)

 Plot 38, Kirthar Road, Sector H-9/4, Islamabad, Pakistan

 +92 51 9044 322

 +92 51 9044 322

 info@navttc.org

 www.navttc.org