



Gujarat Council of Vocational Training Gandhinagar



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1. Name of Course & Location:

Stone Carving
Location: Jagannath Cultural Academy & Research Centre, Adalaj, Gandhinagar

N.C.O. No. for Skills Covered:

Division - 7

Sub Division-71, Group-711

(Please refer National Classification of Occupations -2004 available on www.dget.nic.in)

2. Engineering OR Non-engineering: Non-Engineering

3. No. of students per batch: 25

4. Duration in Hours. : 525

5. Duration in Month: 3 @ 42 hours/Week. (7 hrs. per day)

6. Examination Scheme:

No.	Name of Subject	Teaching Hours during full course.	Maximum Marks. (Excluding Sessional)	Minimum Marks required for Passing (Excluding Sessional).	Sessional Marks if any.
Subject-1	Theory	105	100	40	10
Subject-2	Practical	420	300	180	30
Subject-3					
Subject-4					
Subject-5					

7. Entry qualification for Trainee:

Minimum entry qualification (Essential):	5 th Class 18 yrs
Desirable:	Drawing/Sketching/stone carving





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8. Minimum qualification for Trainer:

Minimum qualification (Essential):	<ul style="list-style-type: none"> Experienced sculptors/artisans with minimum 10yrs experience or Diploma in Fine Arts, MFA/BFA with some experience
Desirable:	Drawing, Sketching, Carving, Stone related experience

9. Syllabus Committee Member:

S N	Name	Organization	Designation	Technical Qualification	Experience in Years	Signature
1.	K.Vikram Rastogi	STC(TD) Pvt. Ltd.	President	<ul style="list-style-type: none"> BSC. Engineering (Mech.) M.E. (Heat Power) Dip. (German) 	35 yrs.	
2.	Kishan Verma	STC(TD) Pvt. Ltd.	Manager-Technical	<ul style="list-style-type: none"> B.E. Civil 	25 yrs	
3.	Kartikya Tewari	STC(TD) Pvt. Ltd.	Project Manager	<ul style="list-style-type: none"> MBA, Master of Environment Management M.A. Economics 	21 yrs	
4.	Sunil Kaliha	National Institute Of Fashion Technology Gandhinagar	Guest Faculty	<ul style="list-style-type: none"> Diploma in Jewellery Engineering PG in Mass Communication 	10 yrs.	
5.	Rajesh Mehta	North Gujarat University	Associate Professor HOD, Institute of Architecture	<ul style="list-style-type: none"> B.Arch. Master in Urban Planning 	22 yrs.	
6.	Prof. Alok Ranjan	Malviya National Institute Of Technology, Jaipur	Associate Professor of Architecture	<ul style="list-style-type: none"> B.Arch. MURP (Hons.) 	33 Yrs	
7.	Ashish Sompura	Temple Architect, Ahmedabad	Temple Archt.	<ul style="list-style-type: none"> B.Arch. 	16 Yrs	





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6. Examination Scheme:

No.	Name of Subject	Teaching Hours during full course.	Maximum Marks. (Excluding Sessional)	Minimum Marks required for Passing (Excluding Sessional).	Sessional Marks if any.
Subject-1	Theory	20%	100	40	10
Subject-2	Practical	80%	300	180	30
Subject-3					
Subject-4					
Subject-5					

7. Entry qualification for Trainee:

Minimum entry qualification (Essential):	5 th Class 18 yrs. to 30 yrs.
Desirable:	Drawing/Sketching/stone carving.

5th 21 27 6 211.
5th 5 12 25 211 61
13 97 5
2 5 11 1 6



10. Terminal Skills of trainee: (NCO-2004, skill level 2)

The trainee, after successful completion of training, will have following skills...

1. Be familiar with and identify the properties of local stone materials.
2. Be able to pick up the appropriate tools for the material worked on
3. Be competent in at least one of the following skills: human anatomy/ sculpting / abstract sculpting / reproduction sculpting.
4. Be familiar with the difference between three dimensional and two dimensional sculptures.
5. Be skilled in clay modeling, and identify when best to use this technique.
6. Be able to illustrate various techniques used and materials.
7. Be able to distinguish the various architectural styles.
8. Evaluate, select and exhibit work thoughtfully and professionally.
9. Show an understanding of their work in connection with both contemporary society and contemporary art practice.

11. Approximate cost of Tools
/ Equipments / Machinery for
Starting one batch of the course:

Rs.2.5 lacs (indicative)
Apart from the above, other
tools, equipments and
machinery as required may
be purchased,

Reference Year
2015-2016

12. Area required for practical / Workshop for one batch.

.....50..... Sq. Meter

13. Minimum Power connection required

.....15.....



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14.1 No of items in Standard list of Machinery:

14.1.1. Page No from 5 to 5.

27

14.2 No of items in Standard list of Shop outfit:

14.2.1. Page No from __ to __.

14.3 No of items in Standard list of Trainee Toll-Kit: (TTK) 9 items per kit.

14.1.1. Page No from 5 to 6.

(TTK) 9 items per kit.

***** FOR OFFICIAL USE *****

Approved by GCVT in ~~Governing Body~~ meeting on :

10-4-2015

Syllabus implemented w.e.f. admission session

Next session.

Revision History :

1. Revision No..... Revision Date.
2. Revision No..... Revision Date.
3. Revision No..... Revision Date.



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Standard List of Machinery - Equipment / Shop-outfit / or Trainee Toolkit For Trade of - Stone Sculpting

Sr. No.	Description of Item with detailed specifications	Item type i.e. Machinery / Equipment OR Shop Outfit OR Trainee Toolkit	Quantity Required per one Batch of Students	Quantity Required per one Batch of Students for Instructor	Total Quantity Required (Total of previous two columns)
1.	Blower		5 (mcs)	-	5
2.	Buffing Machine		3		3
3.	Hand Cutter Machine		3		3
4.	Drills and drill bits		5 sets (mcs)		5 sets
5.	Hand Grinders		5 sets (mcs)		5 sets
6.	Pitching tool		5 set (mcs)		5 set
7.	Frosting tool		5 set (mcs)		5 set
9.	Rifflers (files)		5 set (mcs)		5 set
8.	A file cleaning brush.		5 set (mcs)		5 set
10.	Hammer Drill		5 (mcs)	-	5
11.	Polisher		5 (mcs)	-	5
12.	Rubber	1 (TTK)	25	1	26
13.	Hammers	1 (TTK)	25	1	26
14.	Chisels	1 set (TTK)	25 set	1 set	26 set
15.	pencils	1 (TTK)	25	1	26
16.	Rulers	1 (TTK)	25	1	26





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17	Mask	1 (TTK)	25	1	26
18	Safety Glasses	1 (TTK)	25	1	26
19.	Sand Paper	1 set (TTK)	25 set	1 set	26 set
20.	Raw Material and consumables	As per requirement			
21.	Right Angle	1 (TTK)	25	1	26

- Note:**
1. 5-10 pieces will be required extra in TTK as per requirement.
 2. Machines may be purchased as per requirement.

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Name of Syllabus: **Stone Carving**

Terminal Competency:

Theory	Practical
<ul style="list-style-type: none"> • Stone carving by hand is a very precise and delicate skill yet funnily at the same time requires a lot of elbow grease, as essentially students will be hammering solid stone. The carving process can be broken down into three general stages. • Types of stone used for carving The Mohs scale of mineral hardness is the scale used to determine the hardness of various minerals and is ranked from number one, the softest to the hardest at 10, which is diamond. Going up the scale, let's look at some of the stones. Students will be carving with and their strengths and uses. Soapstone has a low Mohs hardness rating of two, meaning it's quite easy to work with and is usually used for carving by beginners. 	<ul style="list-style-type: none"> • The 'roughing out' is the first stage of carving in which the stone block gets large chunks knocked off it to give it a general, rough shape usually with a kind of chisel and mallet. • From then the piece is 'refined'; this uses more precise tools create specific lines and gouge shapes to give it





- Letter-Cutting skills -
 - Stone-Carving skills-
1. This course is aimed at beginners who would like to develop stone-carving skills for use on a range of projects. Students will be introduced to the use of stone moulds, the use and care of key tools, as well as to some of the key techniques which form the foundation for a stonemason's craft.
 2. To introduce the use of various three dimensional drawing and modeling techniques useful in the conceptualization of ideas in stone.
 3. To encourage hands-on learning about fine art stone sculpture and refining of specialized techniques.
 4. To practice accessory skills like lifting and moving stone safely, drilling and pinning and display.
 5. To explore concepts of symmetry, repetition, volume and negative space.

The skilled craftsmen have the necessary skills to produce high end products of exquisite artistry. They have the special skill of drawing the sketch on a piece of stone and doing the initial carving. This is the most crucial stage in the production which determines the overall quality of the product. The less skilled persons can take over from here and deepen the carvings according to requirement.

Students will be taken through the following process for better understanding

1. Planning:

There are two basic approaches to carving. The first is to find a stone with a distinctive shape or color pattern that suggests sculptural forms. This approach frees the carver to follow the natural forms within the material. The qualities of the stone itself become a major influence in determining the direction of the sculpture.

a more ^{કોઈક} detailed and textured look and it's at this stage where things really begin to take shape.

- The final stages will usually involve further refining of details on the piece like the hair or eyes and after that is all done, any unwanted bits of stone or dust are taken off and the stone is then treated and polished.



The second approach is to begin by working out an idea for the sculpture in drawings or by modeling a maquette in clay or other easily worked material. Modeling in clay first, when you can add and subtract material, push and twist the forms around, and try different form combinations, frees the carver to develop the sculptural idea without worrying about taking off a chunk of stone that, as ideas change, he might later wish to have back.

2. Lay Out:

Before students begin carving, they will look at the stone to determine the direction of the bed, or grain (similar to wood). Stone will tend to break more easily when split along these bed lines, like opening the pages of a book. And, like trying to tear a phone book, it is more difficult to break (or tear), and breaks less predictably when the direction is perpendicular to the bed lines.

As in laying out a design for a wood carving, with stone students must also consider the direction of the grain to ensure the structural integrity of the parts of the carving. Try to keep the grain running with the length of the design, and avoid thin projections that protrude parallel to the grain.

Once students have determined the direction of the bed, check to see if there are any hair-line cracks in the stone that could open up and break off later during carving.

Now begin drawing design on all sides of the stone. Make sure to project the same height and width of each form on to the other sides of the stone

3. Roughing out:

The quickest way to remove a lot of stone from a block is with the pitching tool. To use this tool, students will have an idea about stone t having a flat surface and squared corners. They will be taught placing the pitching tool about 1 1/2" from the edge of the stone. Hold it straight up and down, then tilt it back slightly so that the force is directed towards the area you want to break off. With one sharp blow, break off the edge.

- Alabaster is one up from Soapstone on the Mohs scale at three. It's slightly more robust than soapstone but is still good to carve with and is very desirable by carvers because of its translucent nature.

- Limestone and sandstone are really the only sedimentary rocks used for carving among the most popular carving stones used. With a rating of four on the Mohs scale, its durability makes it excellent to carve with.

- Marble is a solid six on the Mohs scale, though it actually isn't an overly difficult to carve despite being harder than others on the scale.

- Granite carving tends to be done by more expert carvers as it's a very tough rock to work with. It's the hardest that's regularly carved, with a rating of eight Mohs.





After removing as much material as possible with the pitching tool, begin to define the shapes with the point chisel.

Hold the chisel with your thumb on the outside. It feels awkward at first, but prevents accidentally striking your thumb with the hammer.

Start carving by cutting parallel rows about an inch apart in the stone, creating ridges and grooves. Hold the chisel at an angle that just bites into the stone, but not so steeply that it will bury the tool. Try not to direct the chisel too deeply into the stone, which will result in pulverizing the stone directly under the point and producing a white blemish, or 'stone bruise.' These white marks require a lot of additional work to remove.

Now go back over the same area with a cross-hatch pattern of cuts to knock off the ridges of the first cuts. Place the point so it catches under the ridge and the force pops the chip off.

Using this technique, begin defining the geometric planes of the large forms. Work all areas of the sculpture simultaneously so that the entire carving is always at the same stage of completion. In this manner you can make more accurate visual judgments about proceeding.

4. Finishing:

On the softer stones, **rasps** and **rifflers** are used for the final smoothing and shaping of the carving. The course teeth of a cabinet maker's rasp or round rasp, when used in long sweeping strokes, produces graceful flowing forms.

On harder stones, a **flat chisel** is used to remove the ridges left by the tooth chisel.

5. Polishing:

Polishing brings out the beautiful color and pattern of a stone. With the softer stones, continue hand sanding with the wet/dry sand paper under running water. Work through the grits (by roughly doubling the number of the last grit) from 150 grit to your desired degree of polish (somewhere between 600 to 3,000 grit).

- In this workshop, students will be introduced to the tools and basic techniques and need to cut classical and contemporary letters in stone. Tools and materials will be provided to complete a small letter-carving project.



On the harder stones, I use a pneumatic grinder with a center water feed and diamond pads in an assortment of grits from 40 to 3,000.

After students are finished thoroughly going over the piece with a particular grit, let the stone dry. Check to see if there are any scratches or other imperfections that were not removed by the last grit. Mark the blemishes with a colored pencil and go over the area again with the last grit until all the blemishes are removed before proceeding to the next finer grit.

Weekly breakup of curriculum

Week 1- Orientation, Terminology, concept, ppts, drawing, sketching

Practical

Week2- Observation of different forms, drawing sketching

Skill Demonstration

Week3- Methodology at studio

Week4- Template making, stone selection, familiarizing with tools and equipments

Practical

Week5- Understanding soapstone, sandstone, marble and thinner marble plates

Skill demonstration

Week6- -do-

Week7- -do-

Week8- -do-

Week9- -do-

Week10- Critiques of job work

Week11- Finishing and submission, Guest Faculty lecture

Week12- Industrial visit/ Project work

Week13- Examination and jury.

Signature:



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Name of Syllabus: **Stone Carving**

Terminal Competency:

S. No.	Week	Theory	Practical
1	1	Orientation, Stones of India, Tradition of Stones	Identifying the Stones
2	2	Introduction, Drawing board, T-square, Set-squares, Drawing instrument box	Learn about various tools and equipments related to drawing and sketching
3	3	Maintenance of tools	Maintenance of tools
4	4	Free-hand Sketching	Physical handling of the tools and their working
5	5	Stones for Carving	Physically knowing the properties of different stones
6	6	Tools for Carving (Hand Tools)	Physically handling the tools by trainees
7	7	Tools for Carving (Power Tools)	Physically handling the tools by trainees
8	8	Tools for Carving (Measuring Tools)	Practical working on taking measurements
9	9	Selection of stone, Drawing and Sketching on stone	Practical working on stones for drawing & sketching
10	10	Basic Safety Guidelines	Safety precautions on using different tools and equipments
11	11	Project	Project & visit to art Galleries
12	12	Examination & Jury	Examination & Jury

Signature:

Dr. [Signature]





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Items which shall be prepared by the students



