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### Abstract

Through the art of relief sculpture, which assembles and mixes elements within the design, various movement rhythms occur, serving the expressive aspect. Due to its multipurpose, aesthetic, and functional dimensions, relief sculpture has a vital role in enriching the surfaces of sculptural work. It spreads aesthetic taste by creating artistic methods that enhance the ceramic and wooden surface work. The researchers used a variety of formative values by utilising the plant elements—stems, leaves, and flowers—to inscribe and symbolise the sculptural work surfaces.

A contribution of the sculpture program reconstruction of the sculpture technology (i.e., processing of raw materials, forming, and surface treatment methods) for stone paste (ceramic) and wooden bodies are explained. Ceramic and wood pottery are used as case studies. The approaches to determining how pottery vessels (ceramic and wood) were constructed are outlined as decoration through three axes. Finally, future developments in ceramic and wooden art studies are briefly considered.

**Keywords:** Relief Sculpture, Ceramic and Wooden Pottery, Plant Elements.

استخدام النحت البارز كقيمة تكوينية للعناصر النباتية في معالجات الأسطح الخزفية والخشبية  
الملخص

من خلال فن النحت البارز الذي يجمع ويمزج بين العناصر داخل التصميم، تحدث إيقاعات حركية مختلفة تخدم الجانب التعبيري. ونظراً لأبعاده المتعددة الأغراض والجمالية والوظيفية، فإن للنحت البارز دور حيوي في إثراء أسطح العمل النحتي. فهو ينشر الذوق الجمالي من خلال خلق أساليب فنية تعزز من سطح العمل الخزفي والخشبي. وقد استخدم الباحثون مجموعة متنوعة من القيم التكوينية من خلال الاستفادة من العناصر النباتية - السيقان والأوراق والأزهار - لنقش ورمزية أسطح العمل النحتي.

تم شرح مساهمة برنامج النحت في إعادة بناء تكنولوجيا النحت (أي معالجة المواد الخام، وطرق التشكيل والمعالجة السطحية) لخامة الحجر (السيراميك) والأجسام الخشبية. وتم استخدام الفخار الخزفي والخشبي كدراسة حالة. وقد تم تحديد الطرق المستخدمة لتحديد كيفية بناء الأواني الفخارية (السيراميك والخشب) من خلال ثلاثة محاور. وأخيراً، تم النظر بإيجاز في التطورات المستقبلية في دراسات الفن الخزفي والخشبي.

**الكلمات المفتاحية:** النحت البارز، الفخار الخزفي والخشبي، العناصر النباتية.

## Introduction

Pottery typologies have become increasingly sophisticated and specific to time and place. At the same time, pottery from older excavations or museum collections may need to be revisited and considered in the light of new finds. Applying scientific techniques to ceramics is one branch of artefact study in the ancient world that has burgeoned during the last few decades because of the wealth of information it can bring on several levels, including technology, origin, and function. The results of the science-based or art-geometric investigations appeared in different formats in a widely dispersed literature directed at different audiences. Relief carving techniques need not be reserved for ceramic sculpture or ceramic tile. Many ceramic artists use relief-carving techniques to create highly decorative surfaces on their functional pottery.

## The aim of the research

1. To give the students the experience of going through the relief sculpture process from beginning to end,
2. To teach students relief sculpture and design adjustments according to the various design parameters, such as the actual making of the forms and, finally, the inauguration of the construction.
3. For economical and practical reasons, it is possible to give students this experience because it is the only experience that fully opens their eyes to an understanding of the integrity of the relief sculpture process.
4. The students, after the workshop, will be taught the complexity of today's teamwork. Therefore, many design parameters brought into play forced the students to keep the design process open and dynamic.

## Research objective

The research experiment is being conducted with the sculpture course for students in the Department of Art Education—College of Basic Education—State of Kuwait.

### **The importance of the research**

Throughout the sculpture study program, students were consistently updated on the progress and findings of our research initiatives. Additionally, they had the opportunity to engage with the specific concrete industries with which we have established connections. This gave them access to a wealth of knowledge from our experiences. Moreover, educators and instructors must support the practical aspects of learning within the workshop environment. In essence, students have reaped the benefits of our research program and the college's involvement.

### **Methodology**

As explained, relief sculpture techniques and the finished work began by how and why the construction of relief sculpture should be learned. An exercise described through the research was directly taught to the students, and its relevance should be understood only within it. Therefore, the researchers used a particular material to convey the student's volumetric intentions. The focus was not simply on using the student's knowledge of a material and its assembly to express a conceptual intention but mainly on the materials used to explore and convey this intention. The main concern was the relationship between learning materials and the understanding of technique or, more accurately, the understanding of the assembly of Pottery using Ceramic Clay and wooden materials as the materials to use and explore. The materials are easy to work with, allowing the students to sense materiality and establish a close relationship with it.

### **Literature review**

Zhang et al. (2019)[1A&1B] introduce Traditional relief creation, which relies on professional skills and artistic expertise and is extremely time-consuming. Automatic or semi-automatic relief modelling from a 3D object or a 2D image has recently been a subject of interest in computer graphics. Various methods have been proposed to generate relief with few user interactions or minor human efforts while preserving or enhancing the appearance of the input. They provide an overview of relief types and their art characteristics and introduce the key techniques of object-space and image-space methods.

Miao et al. (2018)[2] show an experimental method's effectiveness in generating bas- and high-reliefs for complex 3D forms. They use an energy minimisation function to obtain the surface reliefs containing a geometry preservation term and an edge constraint term. The edge relief measure determined by geometric texture richness and edge z-depth balances these two terms. In the technique of relief generation, the geometry preservation term preserves the local surface detail in the

original shapes. On the other hand, the edge restriction term maintains areas of the original models with substantial geometric texture. Elsewhere, the edge restriction term in high relief also maintains depth discontinuities in the higher parts of the original forms. This technique can be discretised to acquire a sparse linear system. This technique requires the application of non-linear compression to meet the user's artistic needs. Experimental results show the method's effectiveness in generating both bas- and high-reliefs for complex 3D scenes in a unified manner—for example.

Figure. (1&2) shows bas-relief and high relief as examples for different models and various materials.



**Figure (1) Bas-relief**



**Figure (2) high-relief**

Shang et al. (2022)[3] combine deep learning and geometric reconstruction to propose a new framework for bas-reliefs modelling from simple decorative photos. It includes typical prediction, regular transfer and bas-relief modelling. In the article, Shang et al. (2022) proposed a new framework for bas-relief modelling based on 2D decorative images and from the greyscale information extracted from the pictures. The framework adopts a conditional generative adversarial network to infer the regular information of the decorative bas-reliefs. They extract the internal structure information through the saliency detection method for various models. However, scene perception and the transfer process are based on the optimised texture synthesis algorithm to complete the standard editing from the normal source map to the new one. They diversify and control the structure and detailed information of existing normal maps. However, they adopted a bas-relief reconstruction approach based on domain transfer recursive filter and surface from gradient to recover 2.5 D information from predicted and transferred normal maps. Their research findings could demonstrate the proposed method's efficiency and diversity in reconstructing bas-relief models from a single decorative image by Experimenting with various model examples.

Mathur et al.(2022)[4]. It was reported that Relief-sculpting carving is a technique of artwork created on a wooden surface to generate

an impression of projection. The objective is to evolve customised digital relief surfaces (low, medium or high) according to the degree of projection of shape/pattern from the flat surface. A framework that uses a 3D reconstruction approach for CAD modelling of traditional artefacts from scanned data of handcrafted relief carving as input has been developed. Further, this scanned data is filtered for CAD modelling in a Python-programming environment that provides a workspace to generate digital relief surfaces. These rendered relief models are utilised to create GM codes required for machining on a CNC router. The distinctive attribute details of shape/pattern in the machined relief surface are near the scanned handcrafted style, demonstrating the accuracy of the process.

TITE (2008)[5] explained that technology is essential for the technological choices of clay and temper and the forming method, surface treatment, and firing procedure made for pottery production. Material influences, such as the natural environment, technological knowledge, and the economic system, should be considered. The technological choice is influenced firstly by the availability of raw materials, tools, energy sources, and techniques and secondly by their properties and performance characteristics in procuring, processing, forming, surface treatment, and firing.

TITE (2008) reported that very plastic clay is prone to substantial shrinkage and may require the addition of temper, whereas less plastic clay may need to be refined or wet dung added to improve its plasticity. However, these choices are co-dependent on forming and firing methods. Potters forming their vessels on the wheel usually prefer fine plastic pastes, a coarse fabric irritating the potter's hands and less responsive to the forming technique. Moreover, by drying more slowly and shrinking more, finer fabrics tend to be less tolerant of sudden changes in the firing temperature and benefit from the steadier (controlled) firing that a kiln can offer.

Wolf et al. (2003)[6] have reached the results obtained for the Fustat ceramic pottery, giving special importance and prominence to the extent of lead isotope measurements as one component in this type of material. The parts of Fustat pottery have all constituent parts linked and can be referenced to the entire approach, including typological provenance and technological investigations. Thus, through the brief study of further groups of Islamic glazed pottery, it should be practicable to progressively accumulate and increase our understanding of why lead from particular ore sources was utilised in glaze production in specific regions. In these circumstances, it is essential to get more information on the exploitation of this type of materials for the production of silver through the lead isotope analysis of Islamic silver artefacts dating to

different periods. In addition, in lead isotope analysis of metallic lead artefacts produced at the pottery production, potters obtained the lead for their glazes from a shared pool or imported it specifically for glaze production, either as lead metal or as a lead glaze frit.

Bastian et al. (2021)[7] explore the characterisation of clay vase surfaces through tribological analysis of the relationship between surface treatments and water tightness. Different surface treatments were tested before firing the vases, such as smoothing with a wet hand, a wooden tool or a cloth; polishing with a pebble and a combination of pebble and a piece of leather; and organic coatings after firing, such as milk and wool on red-hot surfaces with olive oil and beeswax. The experiment was carried out on clay tablets at room temperature. The surfaces were measured and characterised using a focal dosimeter and a continuous wave transform method. These multiscale analyses allowed the classification of surface treatments into four morphological groups. Furthermore, water and oil droplet deposition tests permitted the characterisation of the surface reaction when exposed to liquid contents. These results have implications for evaluating the storage and cooking performance and specific uses of clay vases concerning organic materials.

Lakhdar et al. (2021)[8] emphasised that the ceramic industry can be disrupted by offering new opportunities to manufacture advanced (AM) ceramic components without expensive tooling, reducing production costs and lead times and increasing design freedom. Developing and implementing technologies in the polymer and metal industries has been faster than in the ceramic industry. On the other hand, there is now considerable interest in producing defect-free, fully dense ceramic components. Various AM technologies can shape ceramics, but variable results have been obtained. Selecting the correct AM process for a given application depends on the requirements of density, surface finish, size, geometrical complexity of the part, and the nature of the particular ceramic to be processed.

### **Terminology**

#### **Sculpture**

An art form involves creating Sculptures, which are three-dimensional works of art made from stone, metal, ceramics, and wood. Sculptors construct them using various methods, including carving, building, modelling, and casting [9].

#### **Ceramic clay**

Bergaya et al.(2013)[10]reported that Ceramic clays are water-based materials composed of clay minerals and various raw ingredients. These clays are fired at high temperatures, transforming them into ceramics such as terracotta, earthenware, stoneware, and porcelain.

Additionally, paper clay, produced by pottery clay manufacturers, contains a small percentage of processed cellulose fibre.

### Types of Relief Sculpture

1. Relief sculpture consists of images carved from a flat surface made of the same material. The process of carving is broken down into different basic categories[11]:

- **High relief** is the images prominently projected above the background. High-relief carving describes undercutting design elements so they appear to detach from the background space. Further, it may also incorporate sculpted material added to particular areas on top of the background to create added depth. Figure(3)
- **Low Relief** describes carving into materials, which leaves the design visually attached to the background area. The material is removed or added to strategic areas. Eventually, play with light and shadows, thus creating an illusion of superficial depth across the clay surface fig(4).
- **The sunken relief** is characterised by images carved into the surface that do not rise above the background. Fig (5)[<https://mertakbal.com/sunken-reliefs>].



Figure (3) High relief      Figure (4) Low relief      Figure (5) sunken relief  
Figure (6) High Relief Wood Carving  
Figure (7&8) Low Relief, Wooden sculpture inlaid with glass art.





Figure (6)



Figure (7)



Figure (8)

- **Bas-relief, where the images are only slightly elevated from the surface.** Low relief describes carving into non-freestanding clay. That leaves the design visually attached to the background area.
- **Clay or wood is removed or added** to strategic areas, which play with light and shadows, thus creating an illusion of superficial depth across the Clay or wood surface Figure(9&10&11).[12]



Figure (9)

Clay Roman relief



Figure (10)

wooden relief



Figure (11)

wooden relief wall art

### The methodology

### The Student-Taught Carving Techniques

#### Clay materials

It outlines the clay surface to achieve a low relief. Keep in mind that the area within the outline is the positive space, and the area outside the outline is the negative space. Carve away the hostile space areas with a loop tool. No worrying about that; the cuts are precisely at the same depth. A variety of different length and depth cuts enhance the illusion of mass. After the negative space is cleared away, examine the design. Decide which objects will be in front and which will need to appear to recede to create the illusion of perspective. as shown in Figure (12&13&14)[13A&13B].



Figure (12)



Figure (13)



Figure (14)

### Timing and Drying

Timing is crucial in this process. If your Clay is very wet when you begin carving, it may not have enough strength to hold its shape, and the Clay or wood around the cuts will sag. If you attempt to make the cuts when the Clay or wood is too dry, the Clay or wood may crack or chip. If you have a large piece that takes considerable time to complete, cover the areas you are not working on to keep them wet and avoid cracking and unusual stresses.

### Woodcarving

This carving style removes small wood chips to create narrow grooves forming geometric patterns like triangles, squares, and circles. These grooves' size, depth, and angle can vary, and each geometric figure has its meaning and symbolism. Woodcarving lacks strict classification as a single workpiece can blend various methods, styles, and techniques based on the tools, materials, and relief height used.

Conventionally, wood carving techniques for beginners are divided into two categories: easy and complicated. The first category includes the following types of woodcarving:

- Whittling
- Spoon Carving

### Whittling

This method uses a whittling knife to create shapes by shaving off slivers of wood, highlighting the wood's natural colour and pattern. Beginners should get a basic whittling kit (15), including essential knives and carving supplies.



Figure (15)



Figure (16)



Figure (17)

### Spoon Carving

Spoon carving is a unique form of woodcarving that provides an excellent opportunity to refine fundamental woodcarving skills. To carve a spoon from wood, you need a whittling, a hook tool, a chisel, a curved gouge, or all of these items in a single carving set. Figure (16&17)

### Relief Wooden Carving

To master the basic skills of relief technique, one must choose the right tools and proper wood. The main tools are chisels and gouges of various shapes (u-shaped, v-shaped), chip carving, and spoon carving knives. Relief carving is one of the most expressive and complex wood carving techniques. Its three-dimensional character and almost no flat surface distinguish it. The relief of different heights reveals the ornament's forms, as shown in Figure (18).



Figure (18) The Relief Carving decorations bird

The difficulty of relief carving lies in maintaining the levels of your carving. It requires accuracy and precision from the beginner carver.

## **The essential Elements of Design.**

### **Creativity**

It is the capacity to create new and valuable connections between things unknown. In contrast, sculpture is an eminently connective discipline that requires a professional attitude to strike the interdependence of knowledge.

### **Rationality.**

Art and technique propose an ethics of the project founded on the capacity to create freedom conditions and listen to human needs and different points of view. Rational thought means the capacity to share (knowledge, results..., etc.) rather than to rationalise.

### **Complexity.**

In the contemporary age, the word has assumed the value of a transdisciplinary paradigm related to a concept of scale and a multi-focus of problems on the same scale.

### **Curiosity.**

The link between different knowledge demands a disposition, free from prejudices, towards new and innovative work; curiosity should become a fundamental attribute of the work (of the teacher and the student). At the same time, curiosity should become a source of risks (like the “globalised” use of digital tools that allow a process of “cut and paste” prefab images, shapes, or sculpture details).

### **Sustainability/ecological approach.**

Sustainability expresses today's worry about safeguarding our planet and future development in a holistic, systemic, and dynamic dimension. From the point of view of educators, sustainability does not only mean saving sources (material and immaterial) but also stressing to the students an ecological approach, the ability to contextualise, and thinking in terms of the impacts and consequences of their actions—Dialectics material/shape.

### **Techniques in sculpting?**

Four sculpture techniques are casting, carving, assembling, and modelling.

- Carving is a subtractive technique in which pieces of the material are Removed.
- Casting requires pouring a hardening liquid into a mold.
- Assembling involves welding together specific materials as shown in Figure (19).
- Modelling involves building up a sculpture, usually with Clay or wood.

### Carved sculpture:

**Carving** is the only sculptural technique that requires the subtraction of material. In contrast, Carving requires tools that chip and cut away at a material, usually wood or a soft stone, such as marble, limestone, alabaster, or soapstone. Hard stone, like granite, can also be used as a sculptural material. The tools used to carve are usually made of steel and include flat and clawed chisels, pitchers, hammers, wood or stone gouges, drills, toothed hammers known as bush hammers, scrapers, and abrasive tools like sandpaper and files as shown in fog (19, 20).

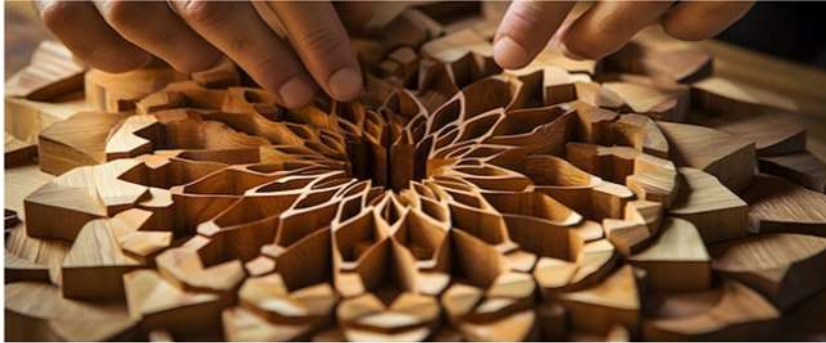


Figure (19) Carved



Figure (20) wooden assembling

1. **Modeling sculpture:** Using an additive process, create modelling sculptures by shaping a soft material like Clay, wood, or wax. Clay or wood sculptures are shown in Figure (21).
2. **Assembled sculpture:** Assembled sculptures use an additive process, with the sculptor combining various materials and objects. They are often held together by glue or welding, as shown in Figures (22&23).



Figure (21)



Figure (22)



Figure (23)

### Cast sculpture:

This method involves pouring liquid into a mould designed for a specific shape. This process allows for multiple copies of the same shape.

### Experiential work

Applied to the **relief sculpture** Technique.

The exercise was conducted within the third-year artwork Studio, a compulsory degree subject in the Department of Art Education College of

Basic Education. The emphasis is placed on sculpture studio buildings. This includes introducing new components of materials, construction and structural methods, and related environmental issues and technologies: Internet and general library reference literature. In the third year, the sculpture technique runs for twelve weeks, each in the first and second semesters. Each week's programme includes a two-hour lecture and a four-hour technology studio session. Bearing in mind and concerning this particular exercise, in the first year, the students were introduced to Clay or wood assembly methods, and in the second year, they were introduced to Clay or wood frame construction. (Figures 24&25&26).



Figure (24)



Figure (25)



Figure (26)

### Relief Sculpture:

In addition, the implications of design intentions and assembly processes are taught. The artwork studio, which is fully integrated with the sculpture design studio, uses some related exercises to facilitate the understanding of the connection between design and making relief sculpture, as shown in Figures ( 27&28&29 ) [14&15A&15B].



Figure (27)



Figure (28)



Figure (29)

### The exercise and its development

The exercise was entitled Construction of Volume Relations in Clay or Wood and required the students to work with the presence of a material (**Clay or wood**), with its natural reality, with volumes, and with texture. Finally, they proposed the composition of volumes that best expressed their intellectual and sensorial relation with the material.

All this had to be achieved with the essential prerequisite of not using any other joining material apart from Clay or wood. The total number of students worked individually using only models as a working tool .

### **Direction the students to carry the intended work**

The contribution of the sculpture program reconstruction of sculpture technology (i.e., processing of raw materials, forming, and surface treatment methods) for stone paste (ceramic) and wooden bodies are explained.

### **Relief Carving Techniques–Layout your Design**

1. If you habitually work from a sketch, use guidelines as a structure to create a three-dimensional sketch directly on the pot.
2. Divide your space equally into quarters (eighths) or thirds (sixths) by segmenting the bottom of your pot.
3. Continue these guidelines up the sides to the pot's rim.
4. From above, check the lines at the rim to ensure each section is close to even.
5. Next, lightly lay out the design with a sharp pencil.

### **Relief Carving Techniques–Define your Edges**

1. Drag the pencil or graffiti tool at a shallow angle for clean, deep, clarifying lines.
2. Use one hand to provide counter pressure on the inside of the pot to gauge the force of your pencil,
3. gain awareness of wall thickness, and
4. Keep track of the moisture content of the Clay.
5. If the carve too deep, score,
6. brush on the slip, and add Clay of a similar moisture content to fill the area.

### **Relief Carving a Leather-Hard Pot**

1. Use a pencil to lop off any 90° corners beside the lines.
2. Try a variety of shallow, intermediate, and deep angles
3. When separating an object from the background, create a gentle slope up and away from the most profound defining line.
4. Many small changes in the angle of your carving strokes create lovely curves and a sense of depth and volume.
5. Try tucking rounded shapes into one another to generate undulating curves and a sense of depth and volume
6. Construct gradual steps that create progressions, tiers, or levels.
7. Overlap abrupt angles to produce surfaces that mimic structures such as shingles and fish scales.

### Clean Up and Rehydrate the Pot

1. Let Clay or wood crumbs dry before sweeping them away with a dry brush.
2. Do not try to remove them when they are still moist; they will clog the carved lines
3. After cleanup, pour water into and out of the hard pot.
4. Pat or spray the surface with water.
5. Remember to repeat this step while carving and wrapping the work in plastic to encourage moisture to return to the clay or wood.(Fig 30&31)

### Relief Carving Techniques–Add Extra Dimension

1. Slip and score to attach small bits of Clay or wood to the high points of your design
2. This technique allows you to break free from your pot's contour, enhance your dimension, and add pizzazz.
3. Score and slip the carved design to attach small bits of Clay to the high Points of the design.
4. Activate the surface with textures. Some textures are static, while others have a distinct grain or directional flow.



Figure (30)



Figure (31)

### Relief Carving Techniques–Add Texture

#### As indicated at figures (32&33&34)

1. Activate your surface with textures.
2. Notice that some textures are static or move around in all directions, while others have a distinct grain or directional flow.
3. Use that awareness and advantage. Compliment the textures by contrasting refined, smooth areas.
4. Is it possible to leave small areas rough and random to check the fundamental nature of Clay?



To create visual interest, include contrasting smooth areas that are easily refined with a graffito tool.



Figure (32)



Figure (33)



Figure (34)

**Finished piece:**

**Experimental work**

The initial phase of exploring the use of specific pottery vessels involves evaluating the archaeological contexts—such as homes, graves, and religious settings like temples and altars—where these vessels were found. Following this, it is essential to examine the dimensions and shapes of the vessels, as they provide insights into their capacity, stability, ease of handling and content removal during use.

**Research axes:**

**First axis**

Plant elements—flowers and leaves are used individually or together in relief sculpture. The student's motives are that the flowers in Figure (35&36) are made of clay, but in Figure (37) are made of wooden work.



Figure (35)



Figure (36)

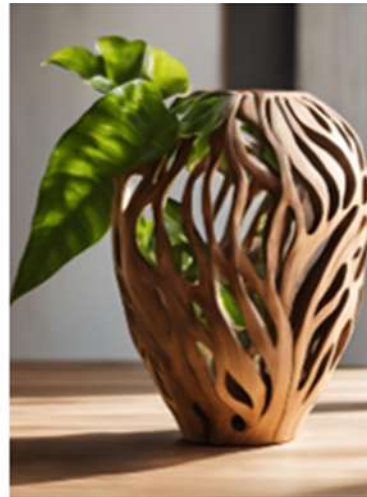


Figure (37)

**Second axis –**

Shaping the ceramic vessel in the form of a plant element with its use as a prominent addition on the surfaces of the same vessel.

The first Figure(38 )made from clay whilst Figure(39)made of wood.



Figure (38)

Figure (39)

Shaping the ceramic vessel into a leaf element and using it as a decoration on the top of the same boat's surfaces.

The first Figure (40&41) is made from clay, while Figure (42) is made of wood, like the lotus flower.



Figure (40)

Figure (41)

Figure (42)

### Third axis –

The importance of linking the formative relationships of plant decoration on the surfaces of the vessel and its overall appearance.



Figure (43)



Figure (44)



Figure (45)

Shaping the ceramic vessel into a leaf and flower element and using it as a surface decoration.as shown in Figure (43&44&45&46&47&48).



Figure (46)



Figure (47)



Figure (48)

### The final project as finished

By using a smooth, hard object, such as a metal spoon or a burnishing tool, to rub the surface of the clay before baking. The friction will create a shiny finish. Oil or Wax: - After baking, the students applied a small amount of mineral oil, baby oil, or a wax (like car wax) to the surface as shown in Figures (49&50&51).



Figure (49)



Figure (50)



Figure (51)

### Discussion and Conclusion

The outcome exposed various issues once the workshop was completed and the student work produced was reviewed. First, look at the results of the pre-workshop. It found differences and similarities between students.

When they were asked to assess their knowledge of the material, the students felt more confident and considered themselves to have a sound understanding

They acknowledged that they were considerably more experienced in making models. They were very experienced and found them useful. On the other hand, students were a bit more experienced with three-dimensional sculptures and found the teaching method that had been introduced to them very beneficial.

### Recommendation

1. The “Sculpture Program” education course is recommended to ensure the student's fundamental knowledge of using introduced materials (performances and uses), the production process, the structural behaviour of materials and simple shapes.
2. The organisation of the sculpture process and the final users are needed and requested. In other words, the course intends to ensure the student learns the basic language of sculptures (utilising materials and not only shapes but different forms), which is extremely necessary to train future students.
3. The student is requested to understand as much as possible about existing sculptures, including their environmental context, structural shape, and behaviour.
4. Alongside this, students should not ignore human needs regarding health, well-being, safety, and saving, all necessary attributes of sculptures.

5. The student is forced, from the beginning, to develop a multidisciplinary attitude that should be developed during their academic years into an interdisciplinary and even transdisciplinary approach to the design process.

### Future Developments

1. A primary requirement for the future is for an increasing proportion of ceramic and wood studies to adopt the holistic approach illustrated above for sculpture artwork, in which production, from the procurement and processing of the raw materials through to the firing of the pottery, is considered together with provenance and use.
2. Such studies must include physical examination of the ceramics and fieldwork to collect samples of potential raw materials. Also crucial to the success of such studies is the examination, at least in visually hand specimens, of complete pottery assemblages from archaeological sites and museums.

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