Technical File

Concept Realisation
Technical File
BA (Hons) Cordwainers Fashion
Bags and Accessories
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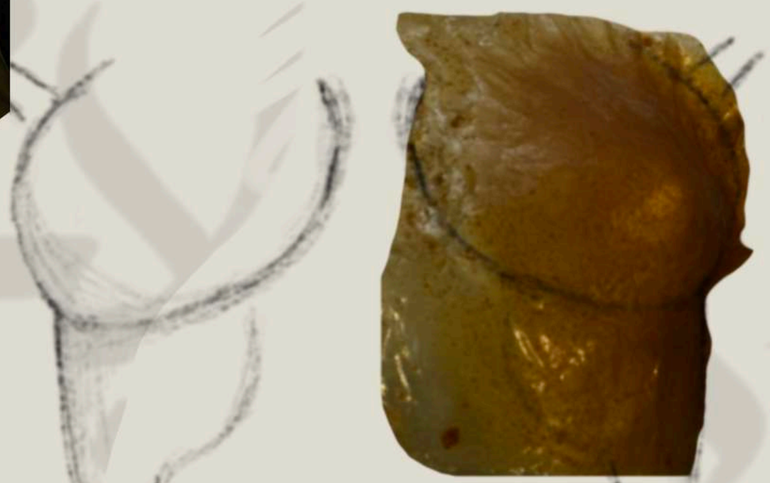
20022002

Contents

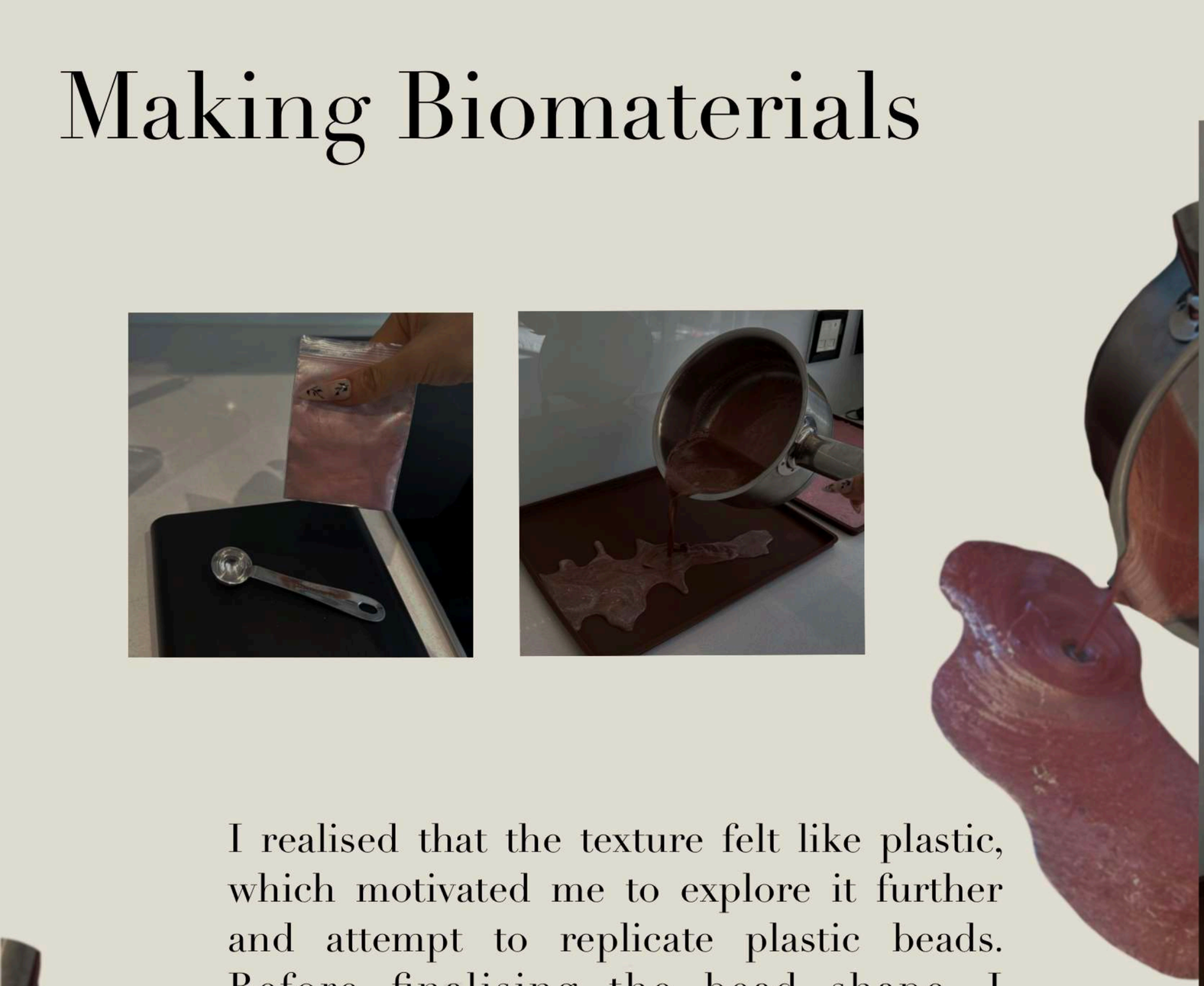
Biomaterials

Biomaterials

I first discovered the concept of biomaterials during a session with Rina Owen, where we were tasked with creating an accessory. Observing the material, I was curious about the possibility of heat moulding it. Through this process, I realised that the texture resembled plastic and could indeed be moulded. This discovery sparked my interest in further experimenting with biomaterials.



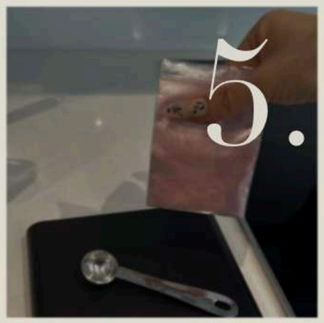
Making Biomaterials

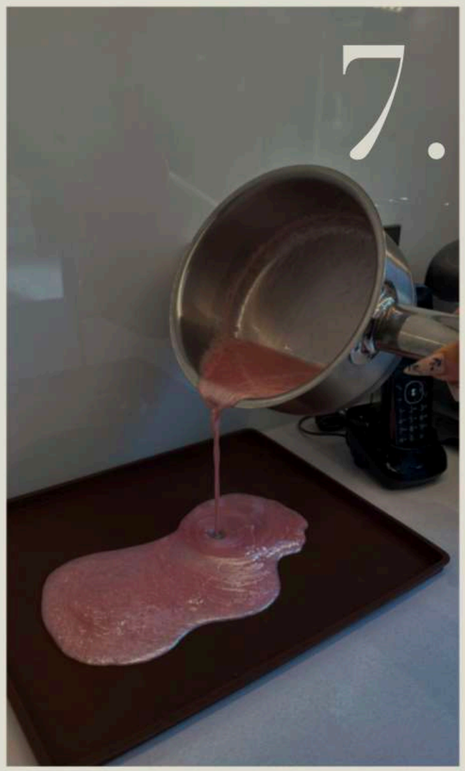


I realised that the texture felt like plastic, which motivated me to explore it further and attempt to replicate plastic beads. Before finalising the bead shape, I experimented with various recipes.

Through discussions with Riina and testing materials in her class, I learnt that increasing the amount of glycerol makes the biomaterial sheet more flexible and bendy. I applied this knowledge in my material testing.

Making gelatin bio plastic





Step by Step process:

1. Pour 240 ml of cold water into your pot
2.Masure 12g of glycerol and add it to the mixture
3. Measure 48g of gelatine to mixture
4. Stir mixed ingredients until there are no clumps and it is dispersed
5.Add mica powder as much as desired
6.keep stirring until temp is 95 C
7.Pour mixture into silicone mould

Evaluation of geltioan based bio plastic

The overall process of making the biomaterial was fairly straightforward. I appreciated that it initially remained liquid, making it easy to pour into the silicone mould. However, I still need to observe how it dries, specifically whether it will shrink, dry solid, or remain bendy.

Making eggshell biomaterial

Eggshells sourced from Deir Ahmar Village, LebanonFarm then cleaned dried and blended

Evaluation of eggshell biomaterial

I found this process smooth and appreciated its ease of adjustment. The colour also picked up well. I'm curious to see how it will dry, as it was very liquid when I poured it into the silicone mould.

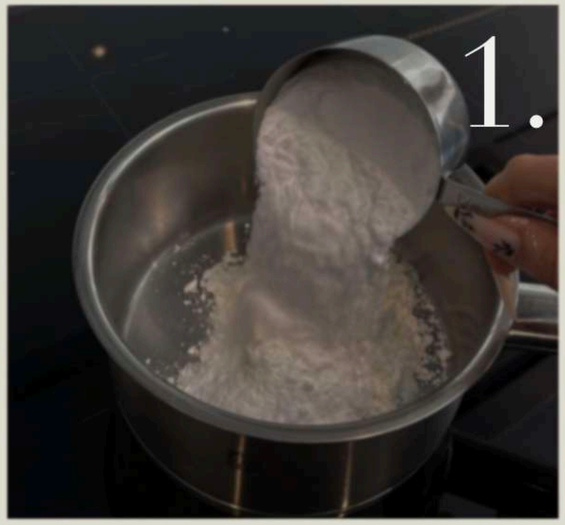
Step by step process:

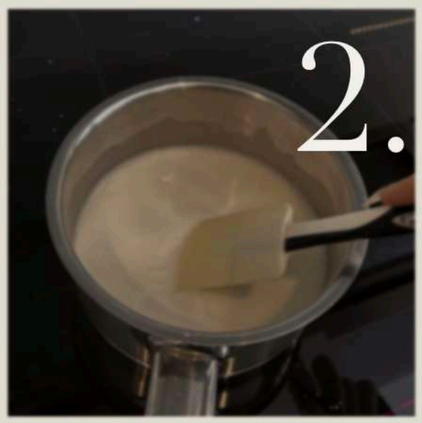
1.Add 2tbsp of gelatine powder to 1cup of water
2.Mix until no visible lumps. Water needs to be cold so it doesn't foam
3.Add tbsp of eggshell powder
4.Add 2tsp salt
5.Add desired mica powder but note that you need to add more since base colour is white
6.Add1tsp of glycol
7. Pour mixture into mould

Making sodium bicarbonate biomaterial

Evaluation of making sodium bicarbonate

Working with bicarbonate was not an easy process. The mixture solidified quickly, and the colour didn't pick up as expected but instead changed due to the whiteness of the ingredients. After 10 minutes in the oven, it was still not dry. I also disliked the texture; it came out lumpy and was almost impossible to smooth into the silicone mould. When removed from the oven, it had many cracks. I can't see how this could be turned into biobeads or anything usable.





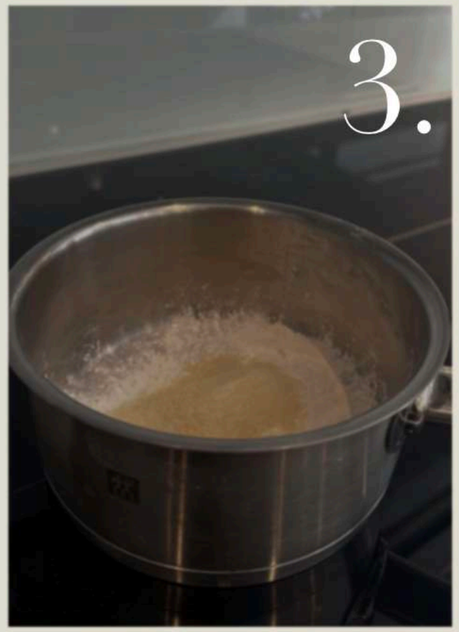
Step by step process:

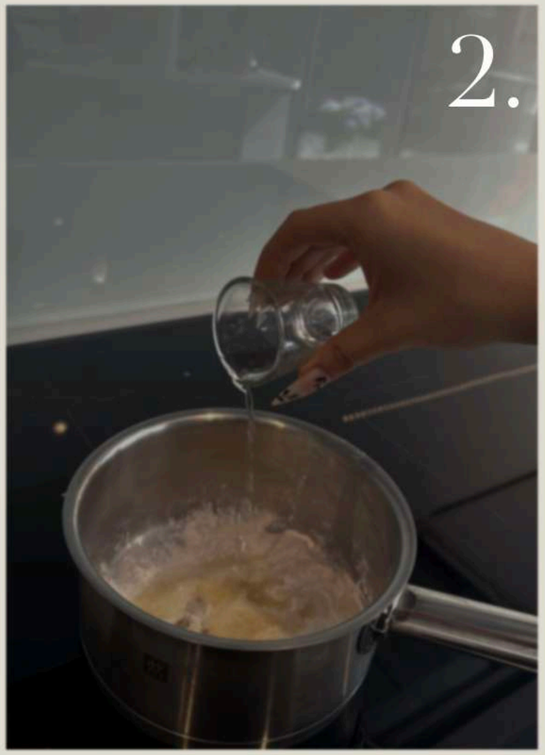
1.Place 1/2 cornstarch and 1 cup bicarbonate soda and mix
2. Mix until dry ingredients become wet
3. Keep mixing and add mica powder until consistency is like mashed potato
4. Place in silicone mould interesting to note colour change
5. Place oven at 150 for 10 mins

Making second eggshell biomaterial

Step by step process:

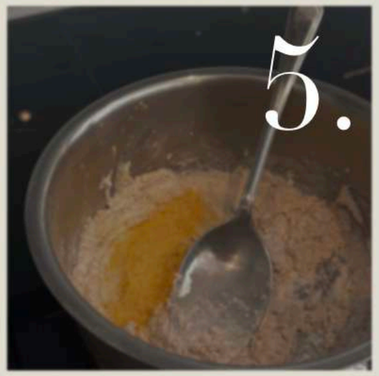
1. Measure eggshells and crush
2. Add 48g eggshell powder to 16g gelatine
3. Add 35ml of water
4. Place on low heat and wait for gelatine to liquify it will become gelatinous, wait till boiling
5. Add colour
6. Mix until boiling point

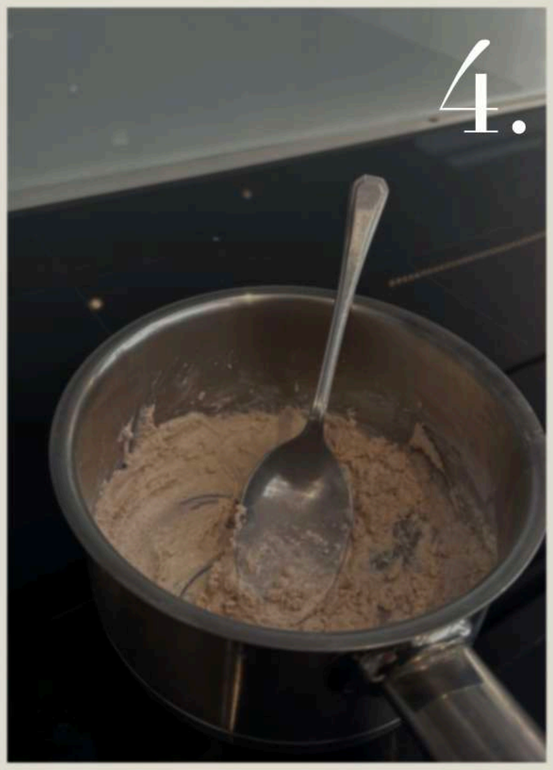




Evaluation of eggshell biomaterial

I was very pleased with the outcome of the eggshell biomaterial. It had a perfect consistency—not too liquid, yet not solidifying too quickly—allowing me ample time to work with it and pour it into different moulds. Once the eggshells were crushed to a very fine consistency, the overall texture was smooth and easy to work with, resulting in a crack-free finish.



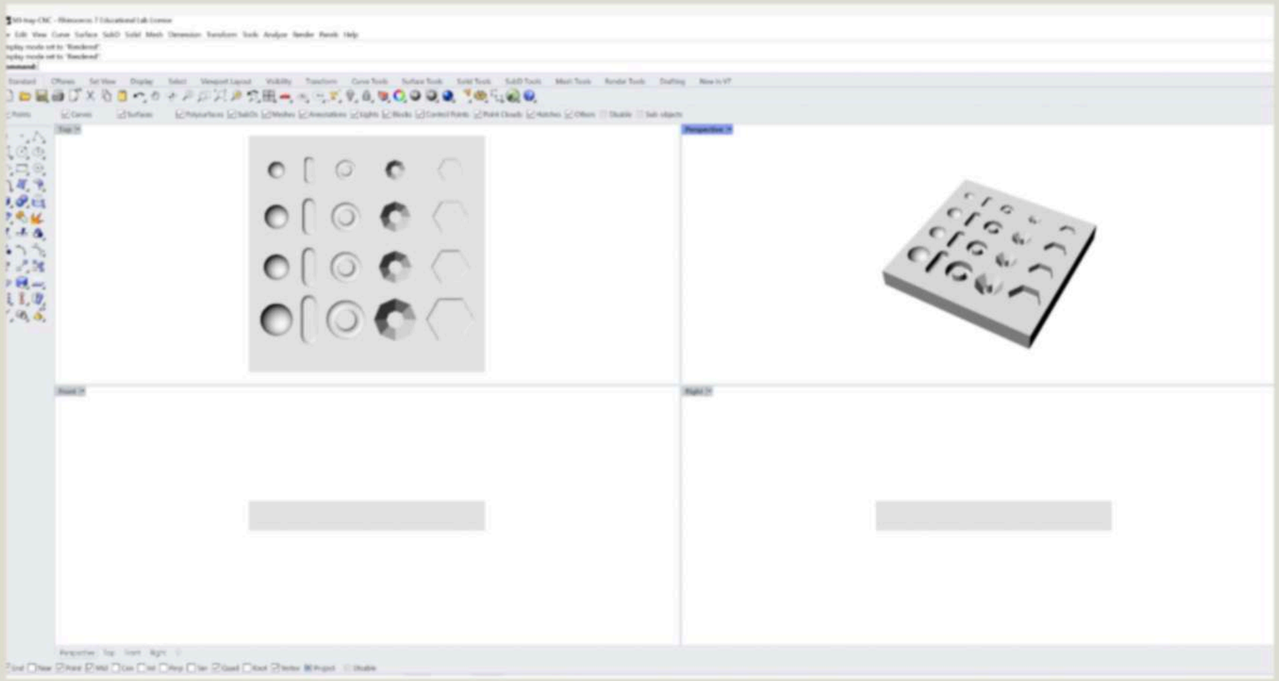


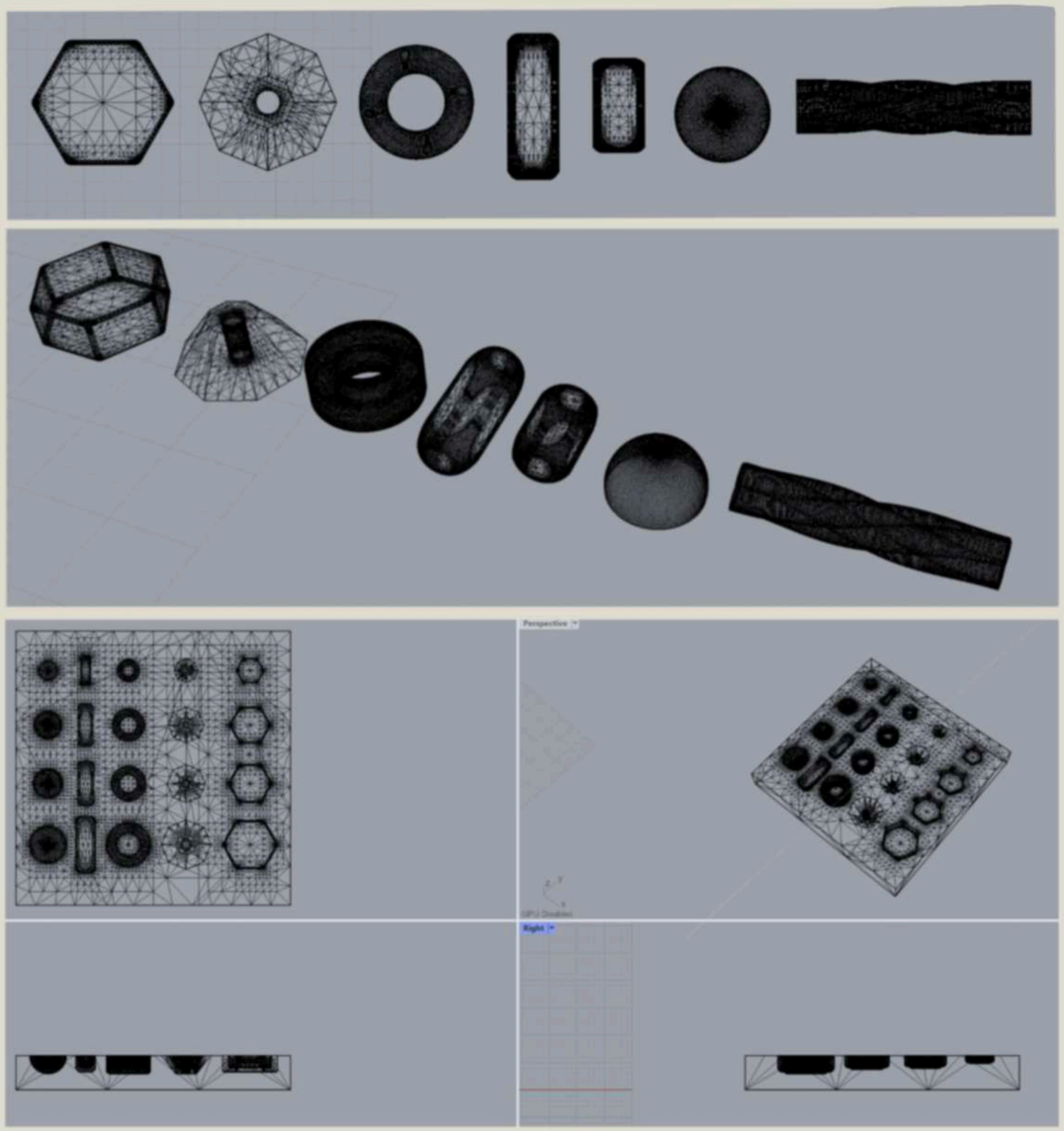
Evaluation of biomaterials

Overall, I found working with biomaterials to be a highly successful experiment. I was very pleased with my ability to create my own recipes based on the knowledge I gained from Riina Owen's class. While not all attempts were successful, the mistakes were beneficial, enhancing my understanding of what works. I can see how this can be applied to my idea of making beads. The sheets are thick enough, making moulds or laser cutting viable options for creating the desired bead shapes.

Transforming biomaterials into beads

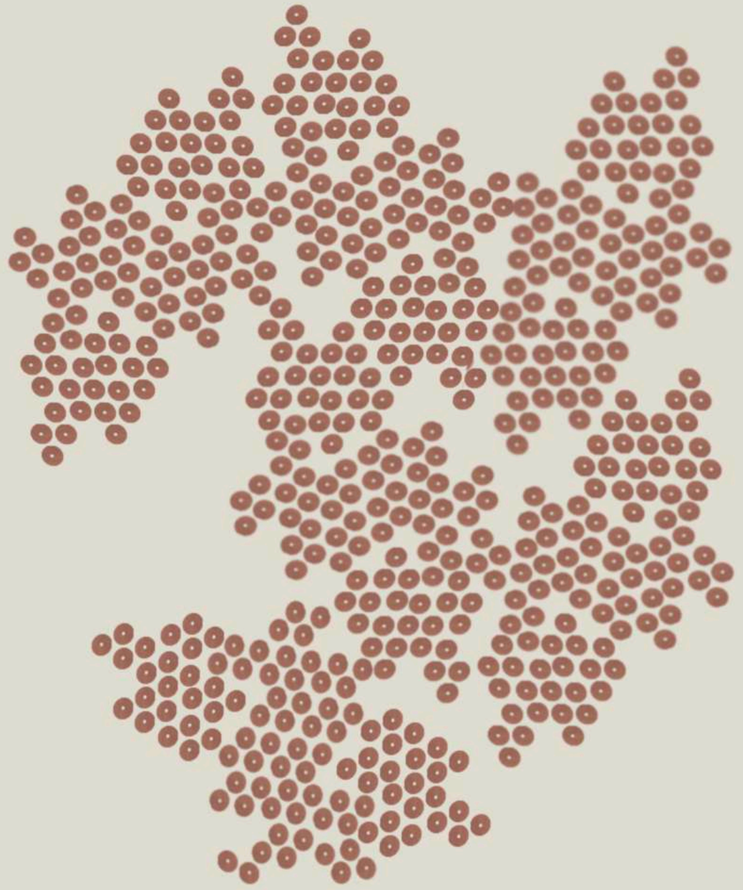
My initial idea for working with the biomaterials was to create a mould. I ordered soft silicone moulds, but upon inspection, I realised they were too large and not rigid enough to hold the shape, as they are typically used for baking. Building on this concept, I created a 3D file of the desired shapes using Rhino 3D design software, and then 3D printed them as hard moulds. This made it easy to pour the mixture into the moulds. However, I encountered an issue with needing a hole in the middle. Given the small size of the mould, creating a cavity for the hole resulted in walls that were too thin.

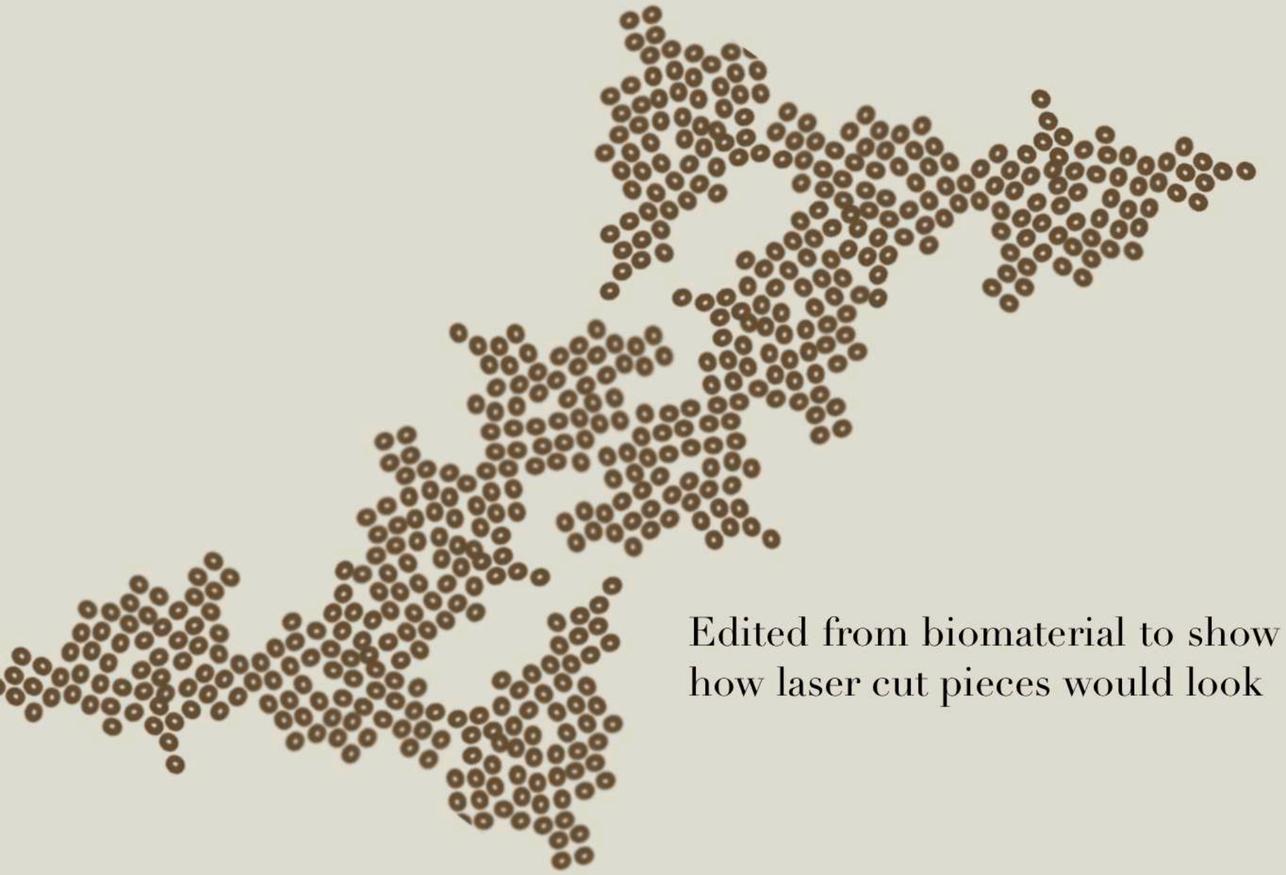




Laser cutting with biomaterials

My second plan was to laser cut the sheets into the beads and sequins I needed. This approach seemed ideal since the biomaterial sheets were thick enough to be easily laser cut, and the bead shapes were not too complex. Unfortunately, the university's laser cutter was not operational, preventing me from pursuing this idea. I reached out to several outsourcing companies, but due to the experimental nature of the material, they were reluctant to allow me to test on their lasers.



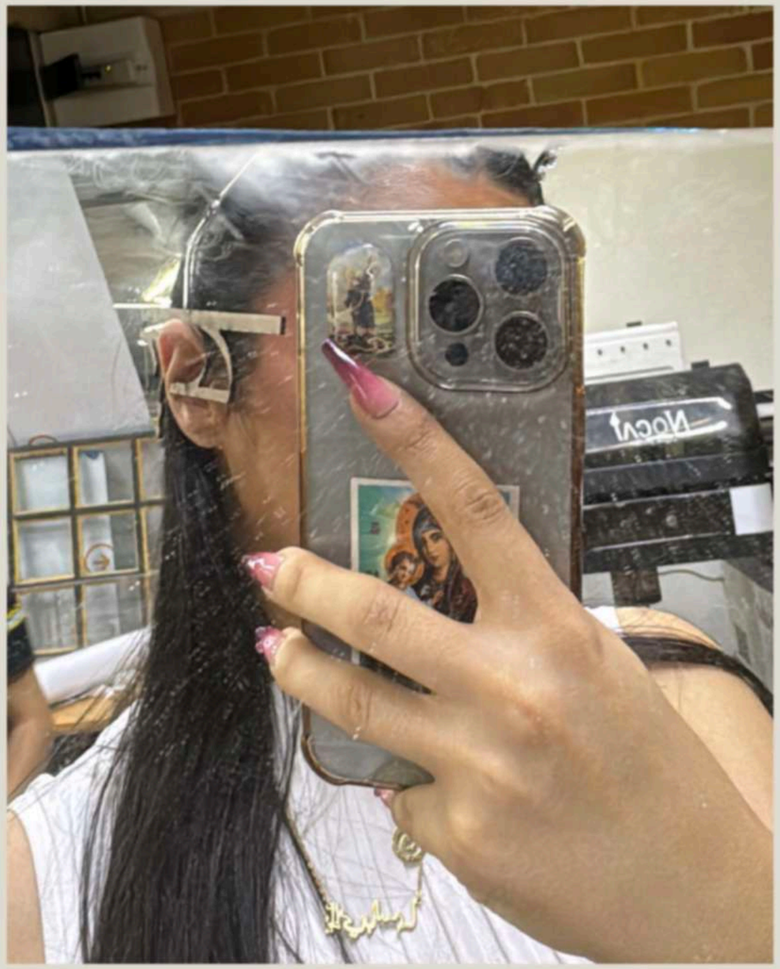


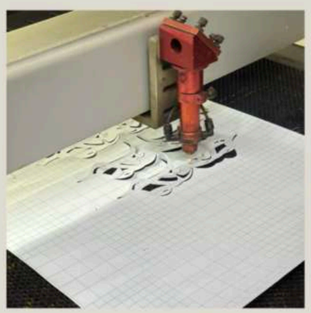
Edited from biomaterial to show how laser cut pieces would look

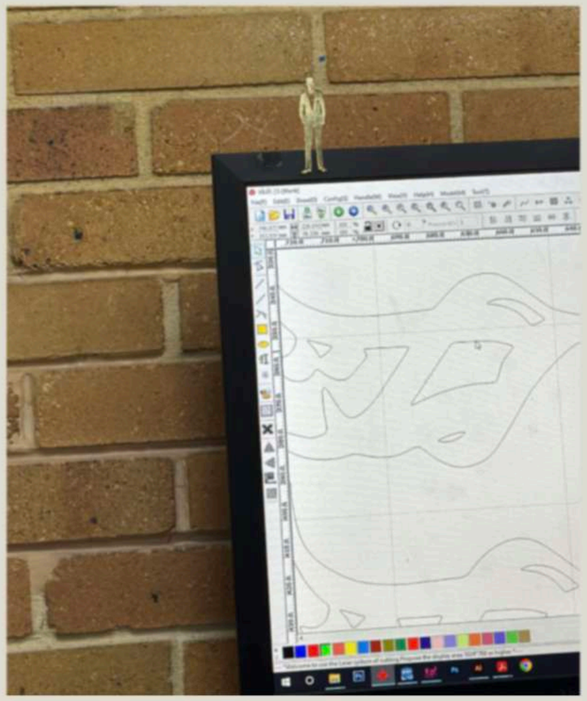
Sunglasses

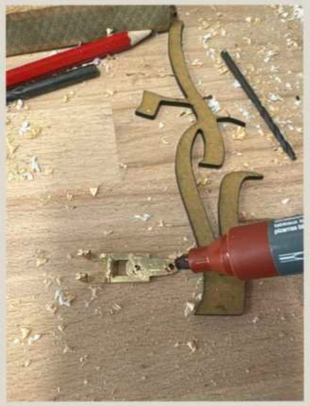
Making sunglasses

I translated my design onto Illustrator, but adjustments were necessary because some areas were too thin for the plexiglass material. Before cutting the plexiglass, I conducted tests on paper to ensure the sizes were correct. Once satisfied, I placed the paper test on top of the precut sunglasses lens to verify the size accuracy. With everything fitting perfectly, I proceeded to cut the plexiglass material.





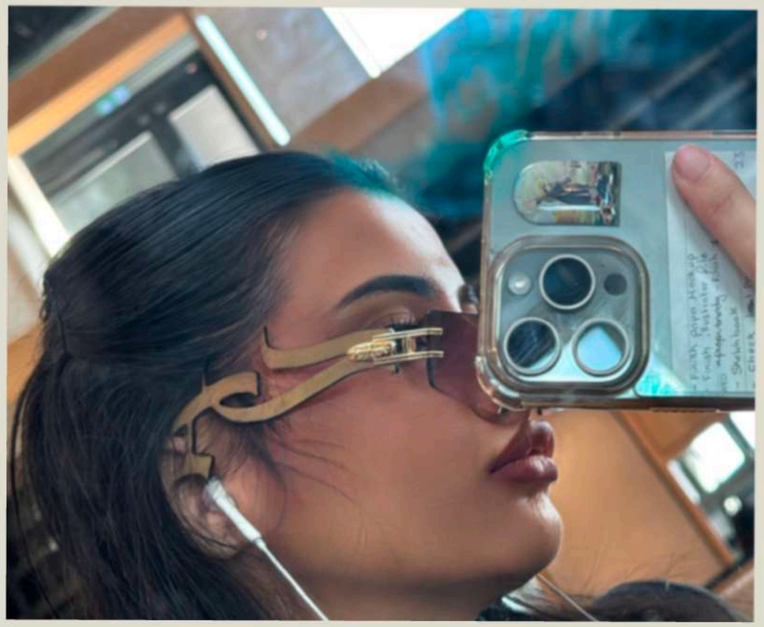




Additionally, I tested the sides of the glasses using paper. When trying the paper mock-up on my face, I noticed some parts were too thin and risked snapping. I made adjustments to strengthen these areas before proceeding with the actual mock-up.

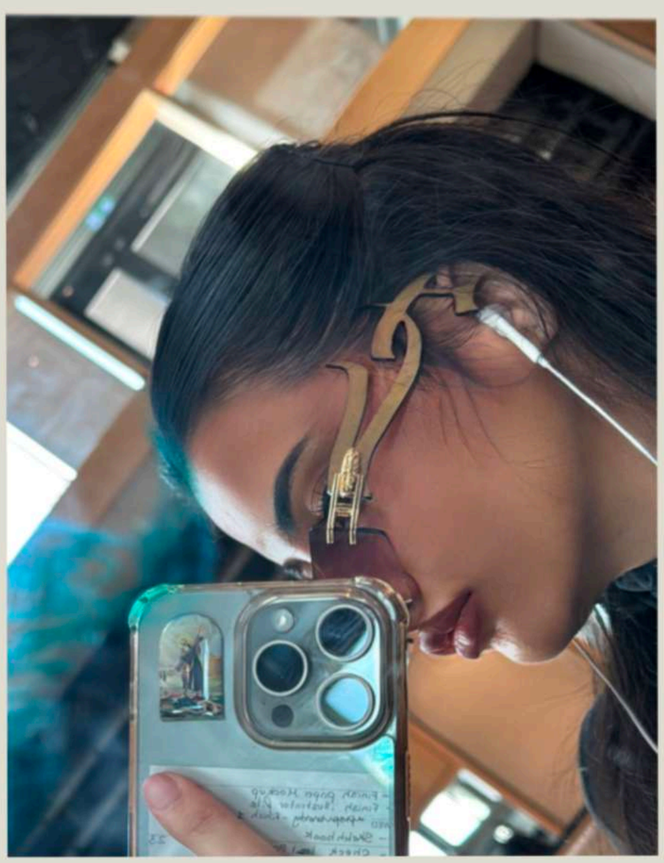
After cutting the plexiglass for the glasses, I marked where I wanted to drill holes and replicated this on all four sides. Once the holes were drilled, I inserted screws into the side parts. Finally, I used epoxy to assemble the front of the glasses.

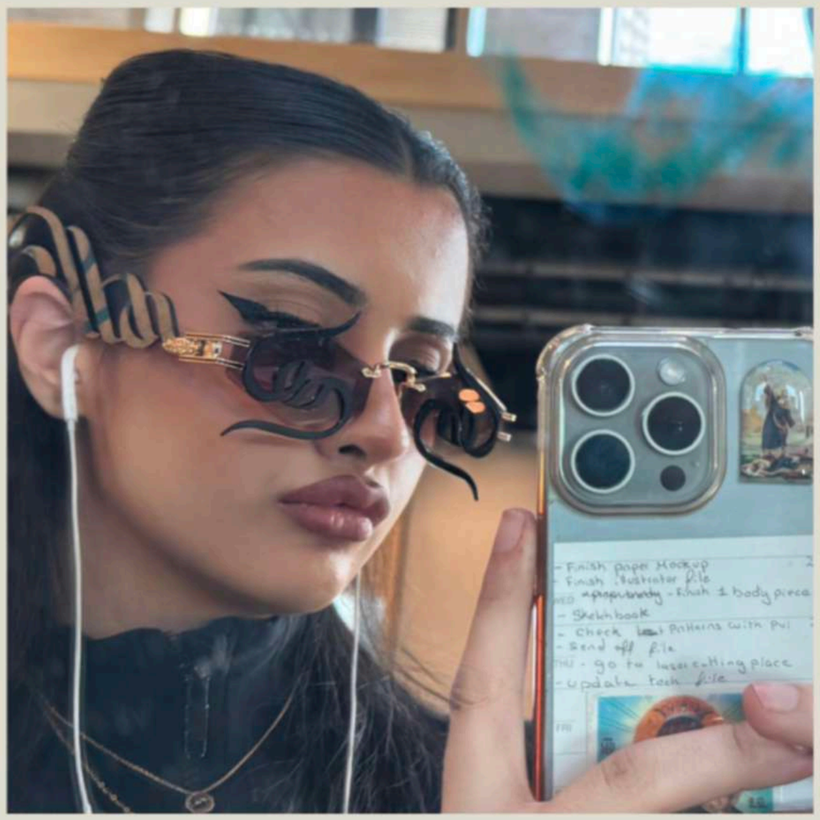
Evaluation on sunglasses



Overall, I was thrilled and delighted with my sunglasses. While they are just a prototype, I look forward to having them properly manufactured in the future. I was particularly pleased with how I could translate my idea into a tangible piece that looks quite realistic.

Working on this project was enjoyable, despite encountering minor errors such as some parts being too thin, which would be resolved in a proper manufacturing process. The concept itself is intriguing, and I appreciate how an everyday item like sunglasses can subtly express one's cultural identity and heritage.



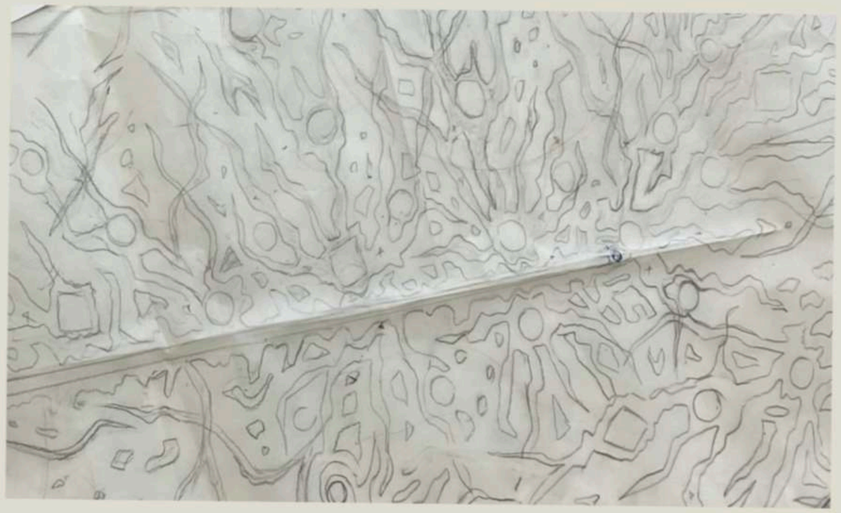


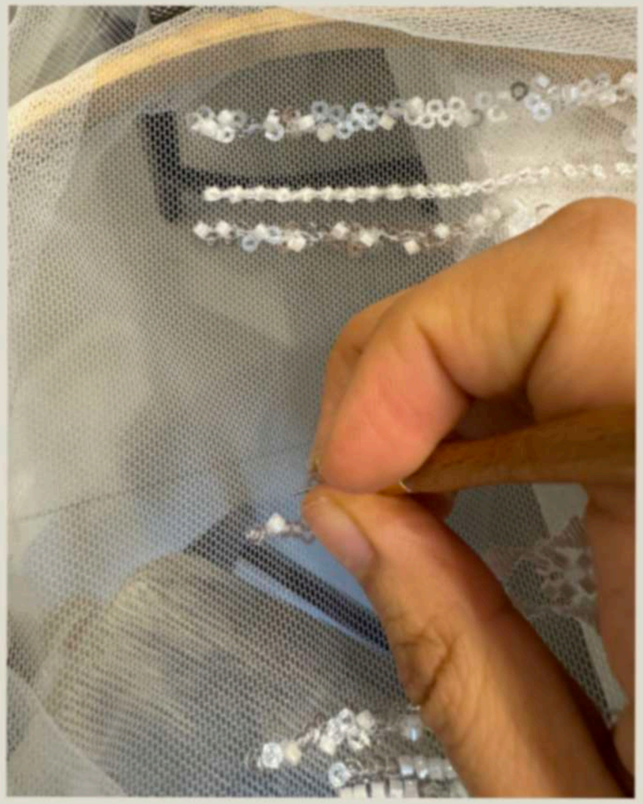
Beading

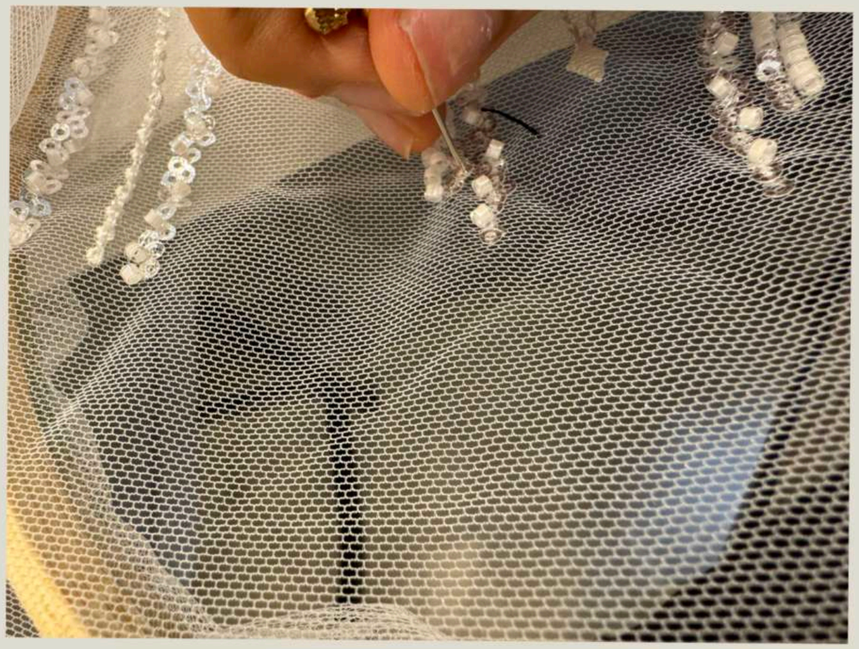
Beading process

I was fortunate to learn beading during my summer internship. Initially, this skill was quite tricky to pick up, but it became much easier once I got the hang of it. The process begins with tracing your design onto carbon paper, which is then transferred onto the tulle. While it appears that the beads are individually placed one by one, a bead spinner is used for most of them. The spinner catches all the beads onto a long needle, which is then threaded, making the stitching process onto the tulle much faster and less fiddly.

Though beading requires time and patience, it is fairly repetitive and not overly difficult. The most challenging part for me was organizing the beads, as I used recycled beads that hadn't been dyed yet. Since they were all white, distinguishing and sorting them was somewhat annoying.





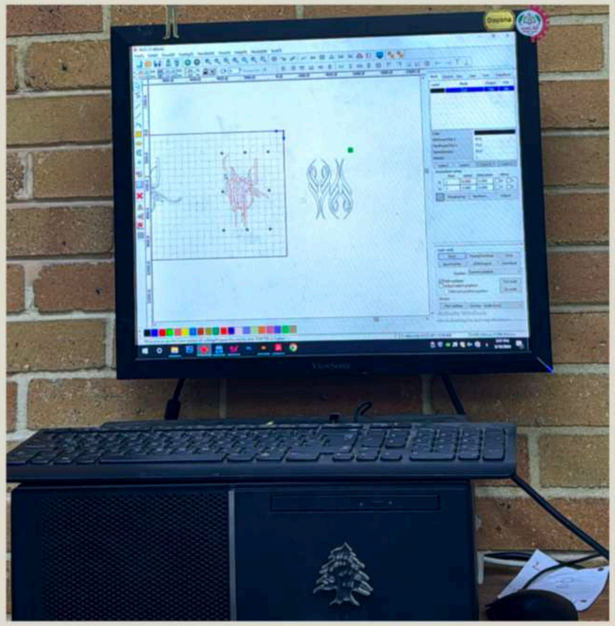


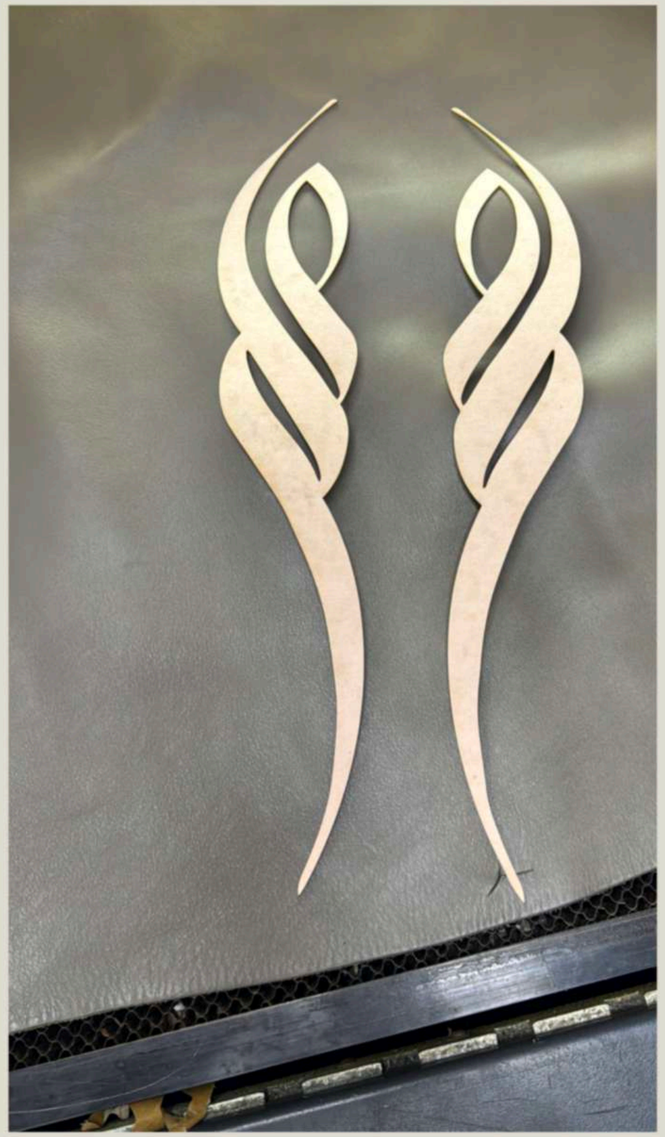
Laser cutting Body suit and Belt

Laser cutting body and belt piece

I took my design and translated it into Illustrator so it could be sent to the laser cutter. First, I cut the design in Texon to check the sizing. Once I confirmed the sizing was correct, I proceeded to cut the pieces out of leather. I realised that the pieces needed some cleanup after cutting.

This process was fairly easy, and I was pleased with how the same initial shape could yield such different outcomes on both the bodysuit and the belt.





Since I was using an outsourced laser cutter, I couldn't make the adjustments I wanted. I should have used tape to prevent and minimize the burnt edges. I later found that the cleanup process was very time-consuming and could have been avoided with this precaution.

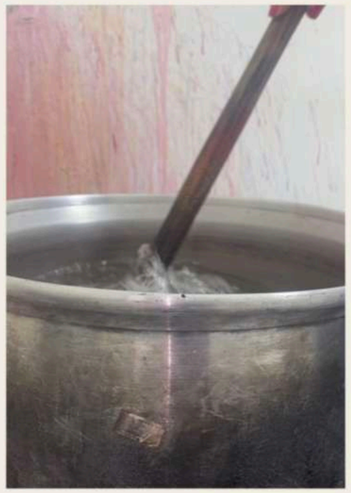
Naturallly Dying Beaded material

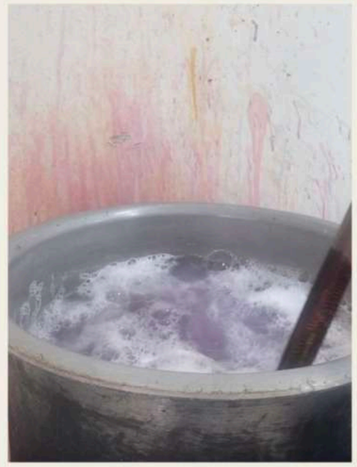
Naturally sourcing materials / benifiting Lebanon

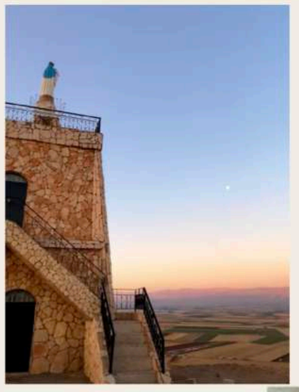
Final outcome

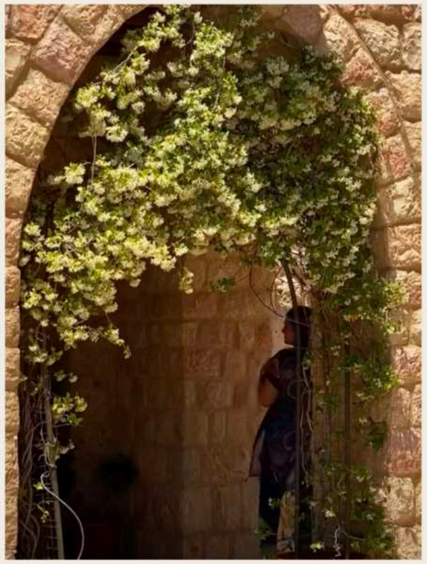
Left for longer leaves darker colour

During my visit to Lebanon, I aimed to fully utilise the natural resources and support local farmers. In my village of Deir Ahmar, which has been severely affected by the current economic crisis, I purchased a substantial quantity of vine leaves to create a natural dye. I was delighted to incorporate this bio feature into my garment, making the most of the local materials while contributing to the community.







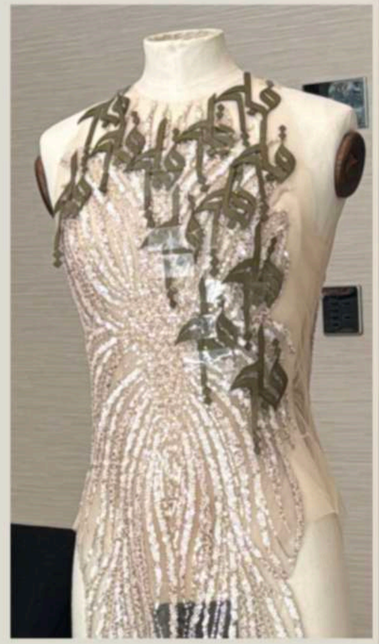


Deir Ahmar sourced vine leaves from local farmers

Vine leaves used to create natural dye

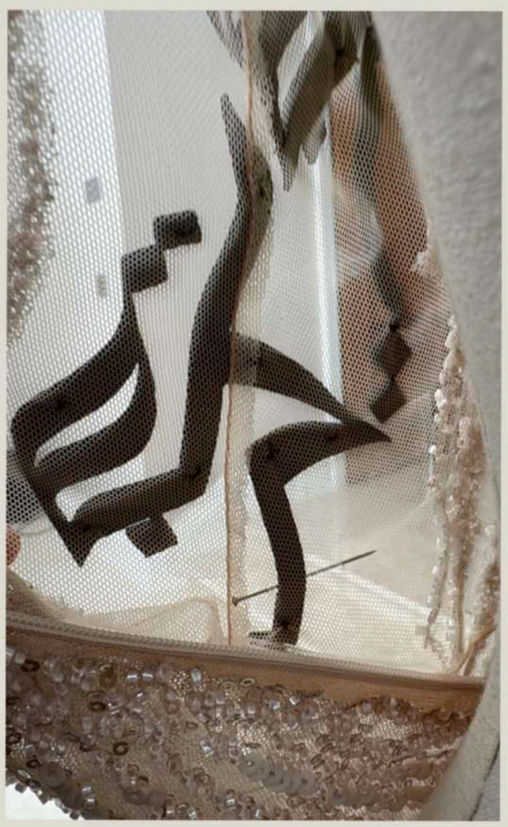
Attaching laser cut pieces onto embellished body

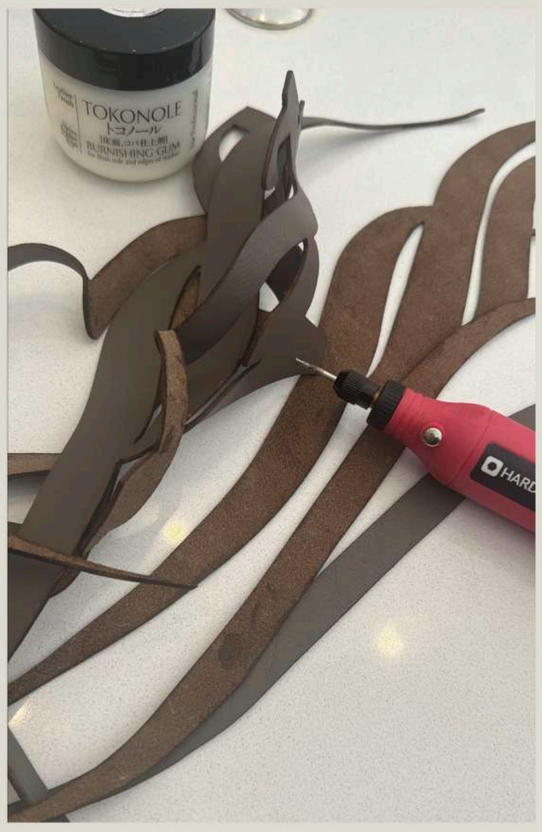
Laser cut onto embellished body



I initially taped all my laser-cut pieces in place to visually check their arrangement. After securing the main points, I found it wasn't as neat as I wanted. To improve this, I decided to add light stitches on the inside. Although this process was tedious, the result was much neater and clearly necessary for a couture piece.t

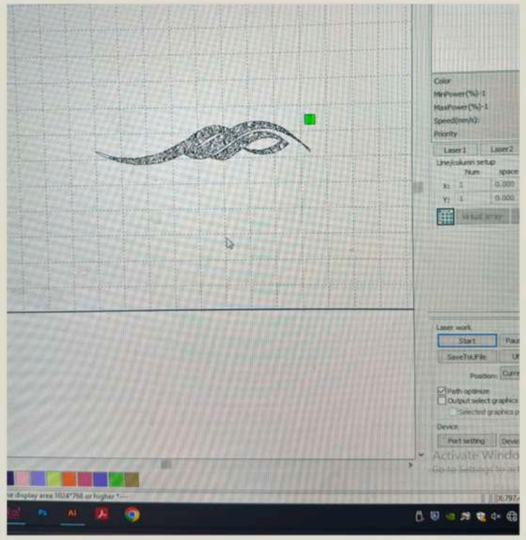
For the second body piece with the large calligraphy laser-cut leather, I cleaned the pieces using a sanding drill and applied Tokonole to the edges. Reflecting on my belt sample, which was edge-coated in the same colour as the leather, I decided to use burnishing gum for the finish instead of adding an edge coat. Any additional colour on the edge of the laser-cut leather would have made the piece look too busy and detracted from its cohesion with the bodysuit.

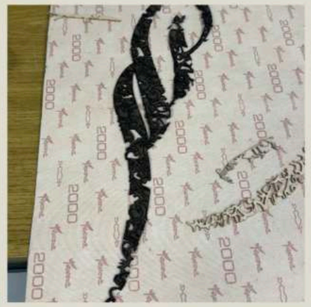


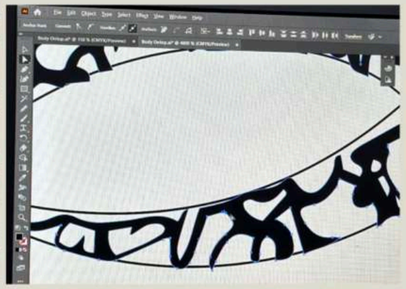


Continuing with belt

Making rest of Belt pt 1

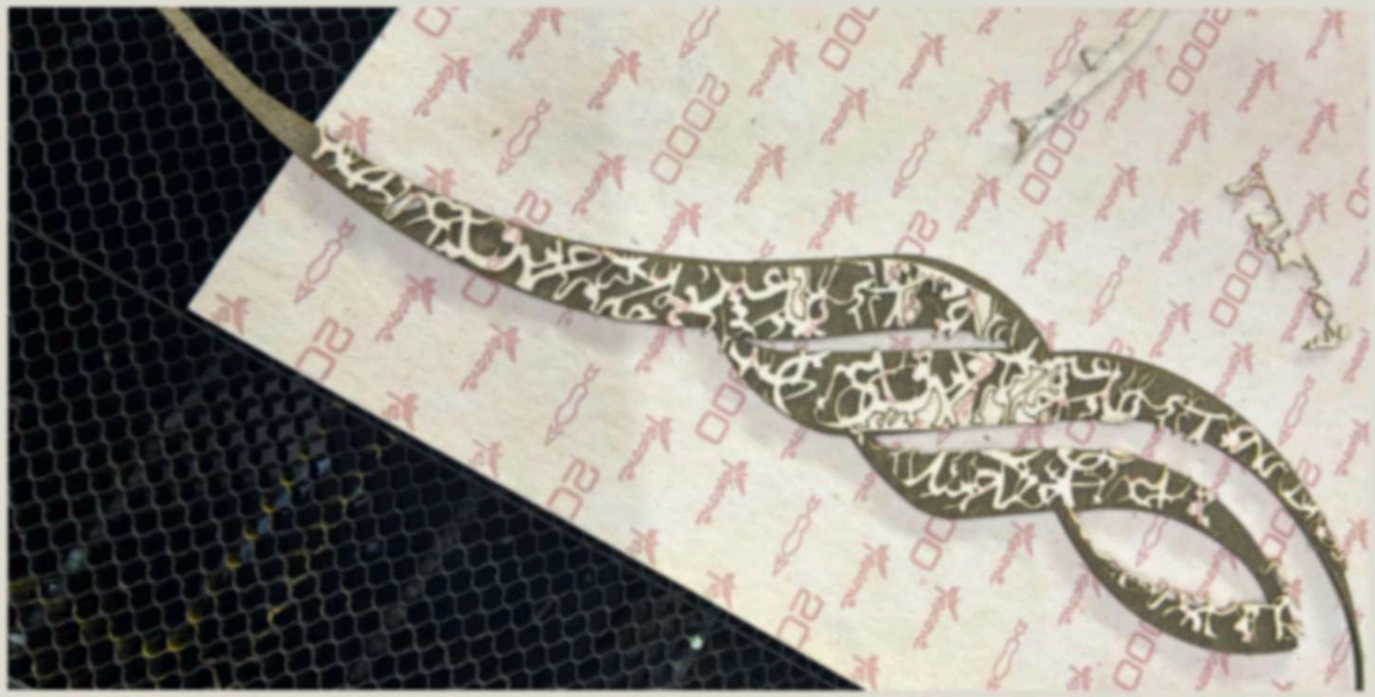






I then took the design and placed it into the laser cutting file. I first laser cut a test piece out of Texon and placed it on top of the leather belt piece to check the fit. I noticed that some adjustments were necessary, particularly widening certain pieces to prevent snapping due to their thinness. Once the adjustments were made, I proceeded to cut the design out of leather.

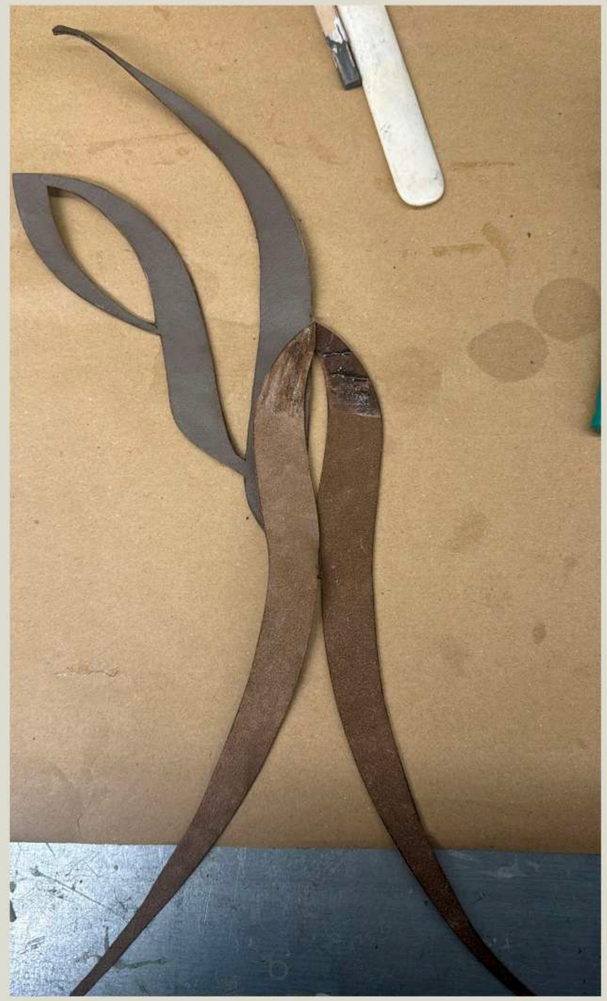
Although a few pieces still snapped despite the adjustments, it was manageable since this part was to be glued onto the main belt piece. To ensure the pieces wouldn't get lost or snap further during transport from Lebanon to the UK, I taped them securely. This precaution helped maintain the integrity of the laser-cut pieces while I finished making the belt.

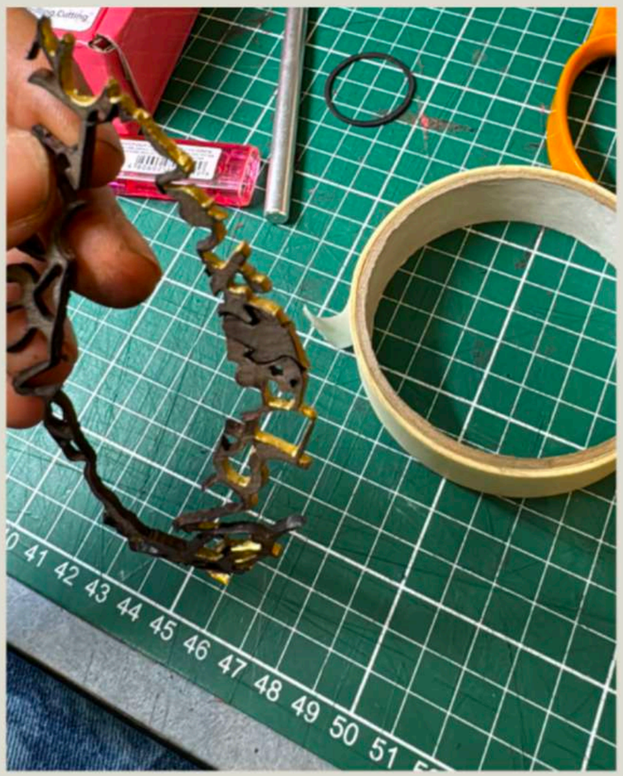


Making rest of belt pt 2

I carefully glued each section to ensure everything was accurate. This task was relatively easy since the laser-cut pieces fit together perfectly.

For the top embellishment of the belt, I used a drill to clean off the burnt marks and then went over the edges with a lighter to burn away the frayed leather. After that, I applied Tokonole to smooth and seal the edges. Finally, I painted the edges with gold acrylic, adding a nice pop of color.



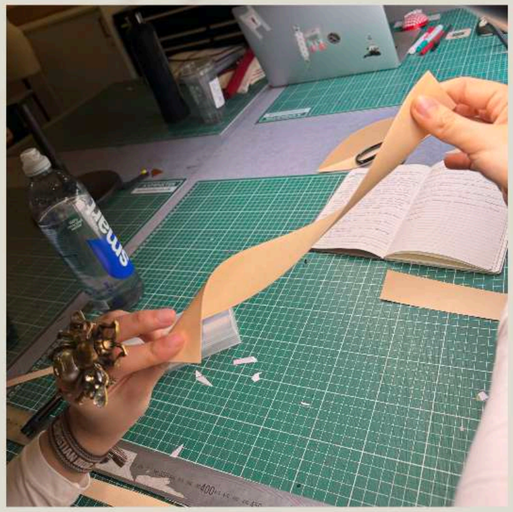


Bag

Beit Litani

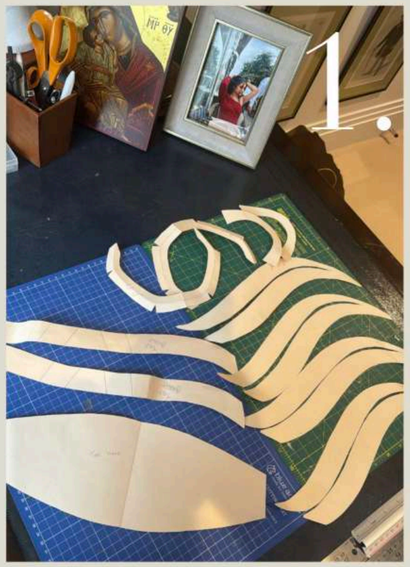
Trying to create bag design into shape

I really liked this design and wanted to turn it into a bag. Initially, I only had a flat 2D front drawing, which made it difficult to visualise the side gusset. To better understand the design, I decided to create a tangible paper mock-up. I started with the drawing, adding a front pocket and cutting out similar strips to wrap around the sides. While experimenting with a wrap-around base, I felt that a solid base was necessary. I liked the idea of the design wrapping from the front to the gusset.



Finalising Paper mock up

Overall, I was very pleased with the final outcome, and this is definitely something I want to pursue as my final bag design. However, I need to test it with actual materials to see how it looks when stitched, as paper and fabric can have very different effects.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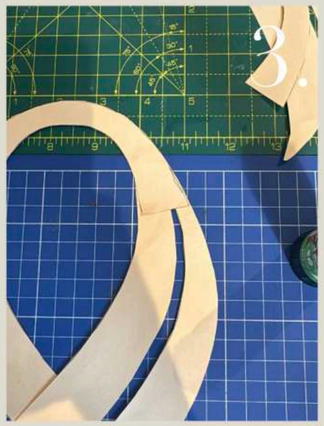
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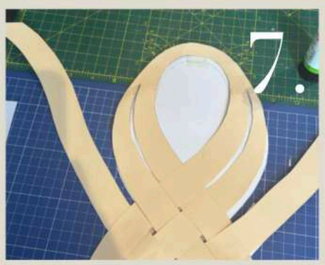
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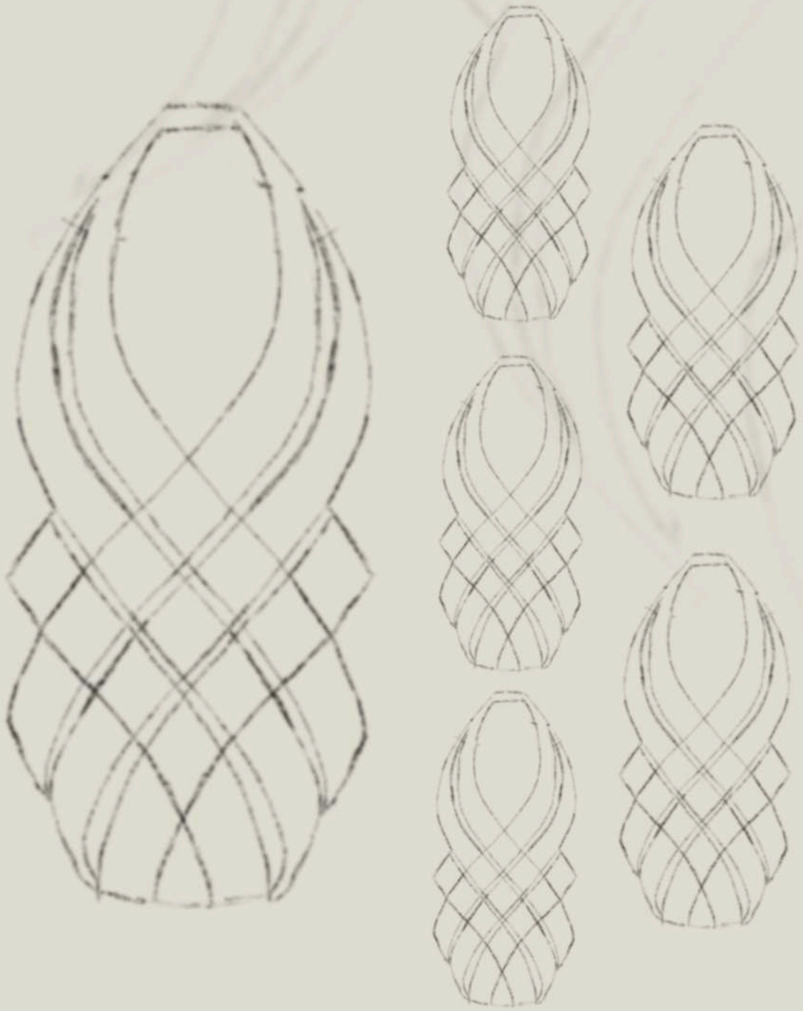
I wanted to create a final paper cut-out before sending the design to a laser cutter, so I cut out all the pieces based on the adjustments I made from my previous paper mock-up. As I began gluing the pieces together, I made notes of things to remember or alter during the process.

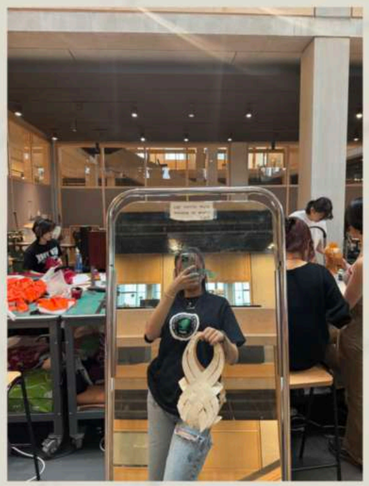
Initially, I didn't like the first finish on the handle, as it looked too awkward. To improve this, I made a slit following the initial line, which allowed the bag to flow more naturally and avoided a blocky handle. This change made a noticeable difference. I then wove together the pieces for the front in preparation for attaching the gusset and glued and stapled everything together.

Next, I attached the collar to the base, making sure to add slits to the collar for a better fit. Once the base was prepped and ready, I attached the body to it.

On the body Evaluation

Before continuing with the bag, I checked how it looked on my body. I liked the size, as it felt neither too big nor too small—perfect for events or dinners. Satisfied with the proportions, I felt confident in proceeding to make a fabric mock-up.

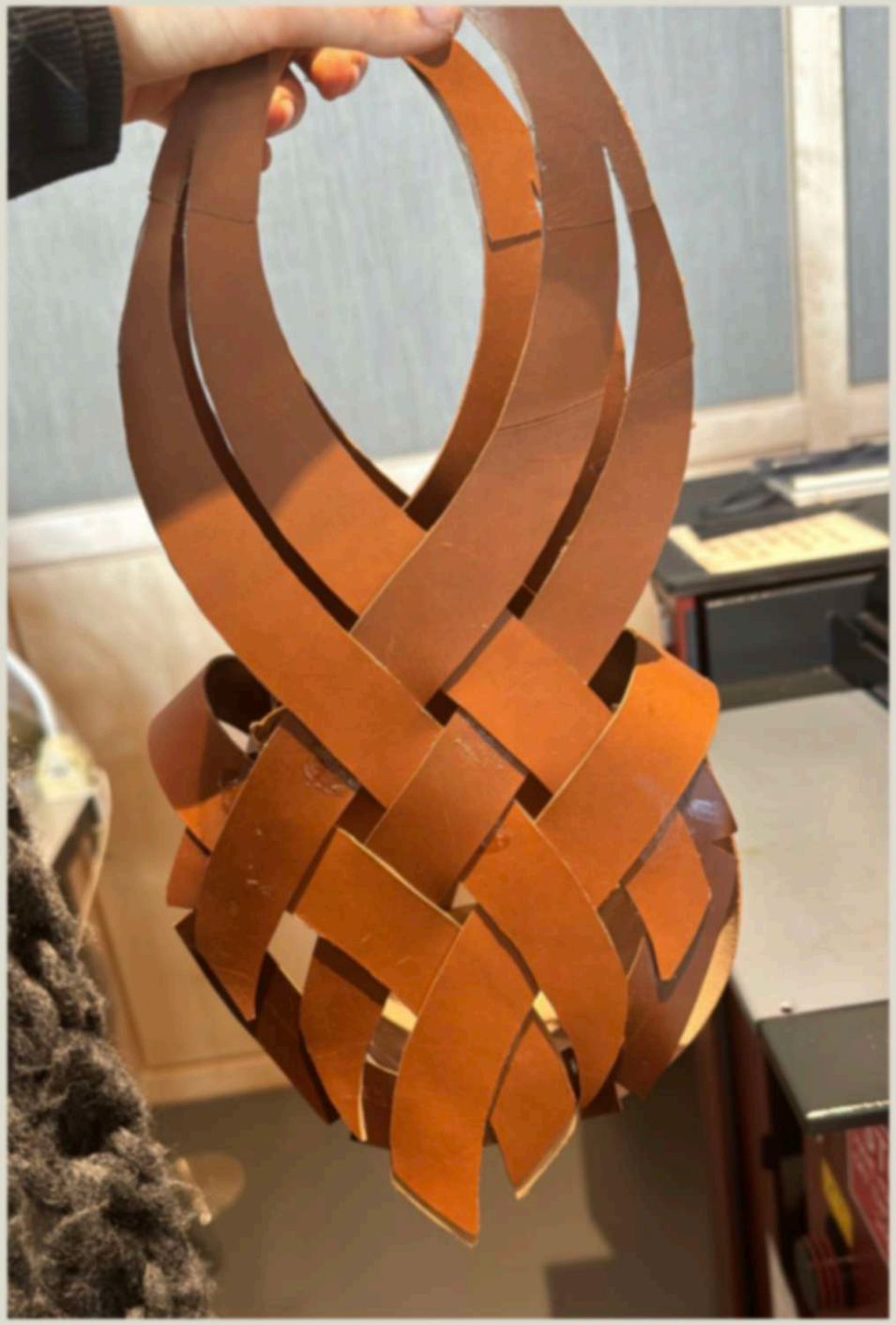


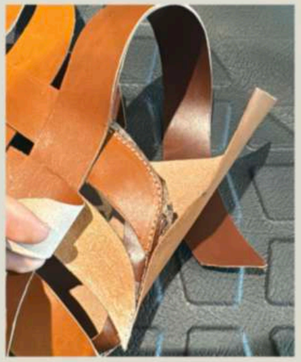


Making Material Mock up

I printed out the pieces I wanted to laser cut. Then, I skived the material to match the thickness of my actual leather. After tracing and cutting out my patterns, I glued the pieces together, making sure to align the points from the body piece of the bag to the handle. Once everything was prepped, I laid the pieces down and glued them on top of each other, arranging them in the desired weaving pattern.

Next, I scored the collar at 1 cm and stitched it to the base. While stitching the collar, I lifted the top pieces so the stitching wouldn't show. Finally, I attached the other side.





Testing plugging, reinforcement for bag

Upon making the mock-up, I felt that the bag was too thin and flimsy. I tested various ways to thicken the bag. First, I tried sticking a front and back piece together, but this didn't improve the structure.

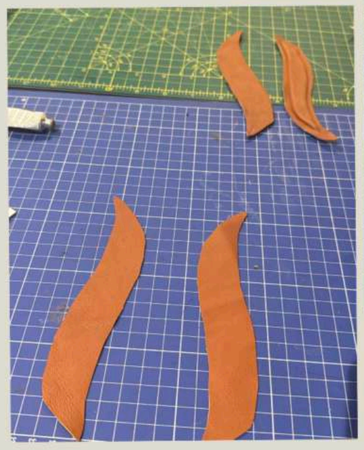
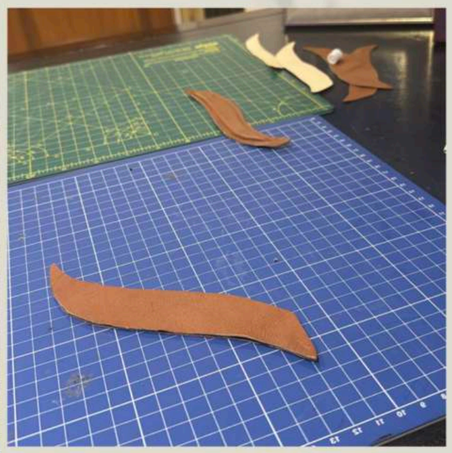
Next, I experimented with plugging, which created a cool effect but altered the overall aesthetic too much. Since the front pieces were woven together, it looked too busy.





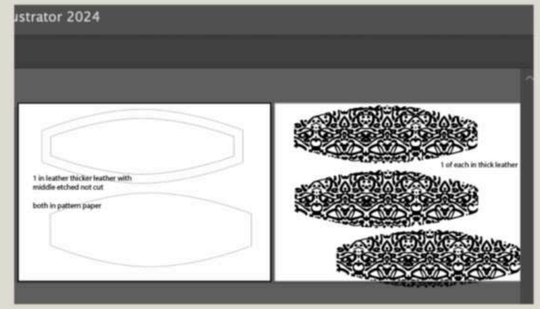




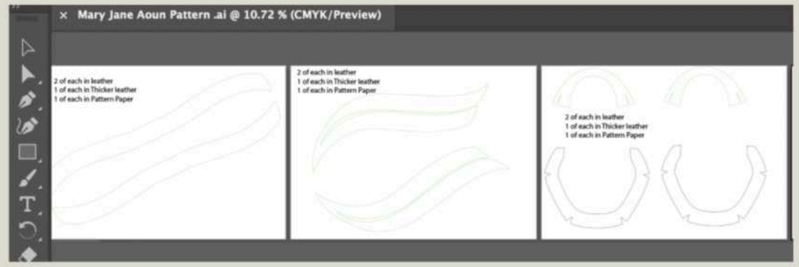



The most successful method was cutting out the pieces in the same size and shape and then gluing them together with a thick reinforcement in the middle. This approach provided the necessary thickness and maintained the bag's intended design.

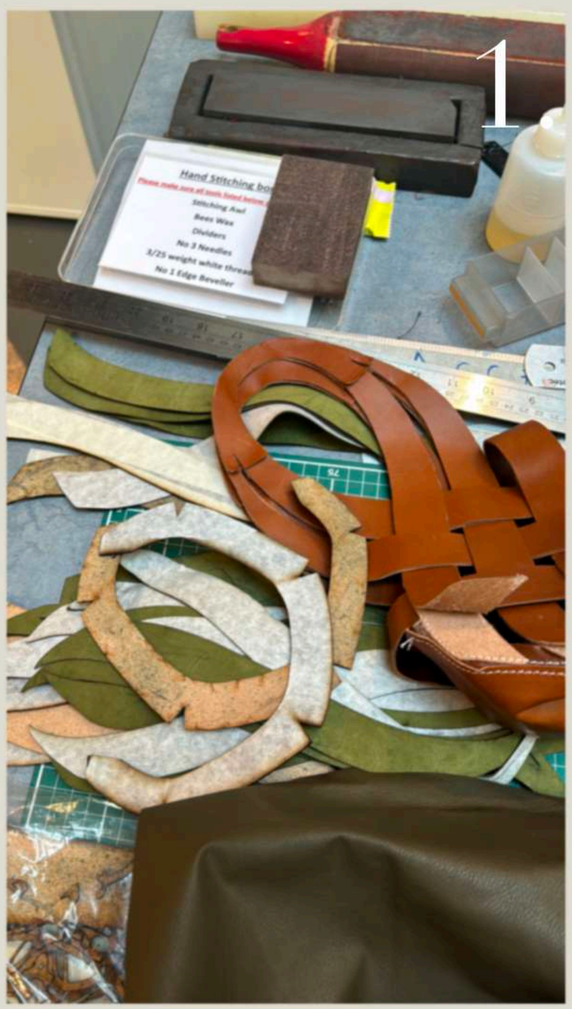
Making bag pt 1

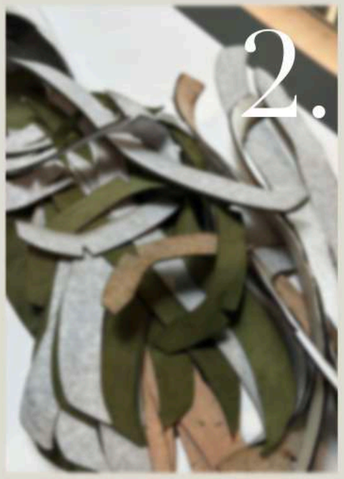


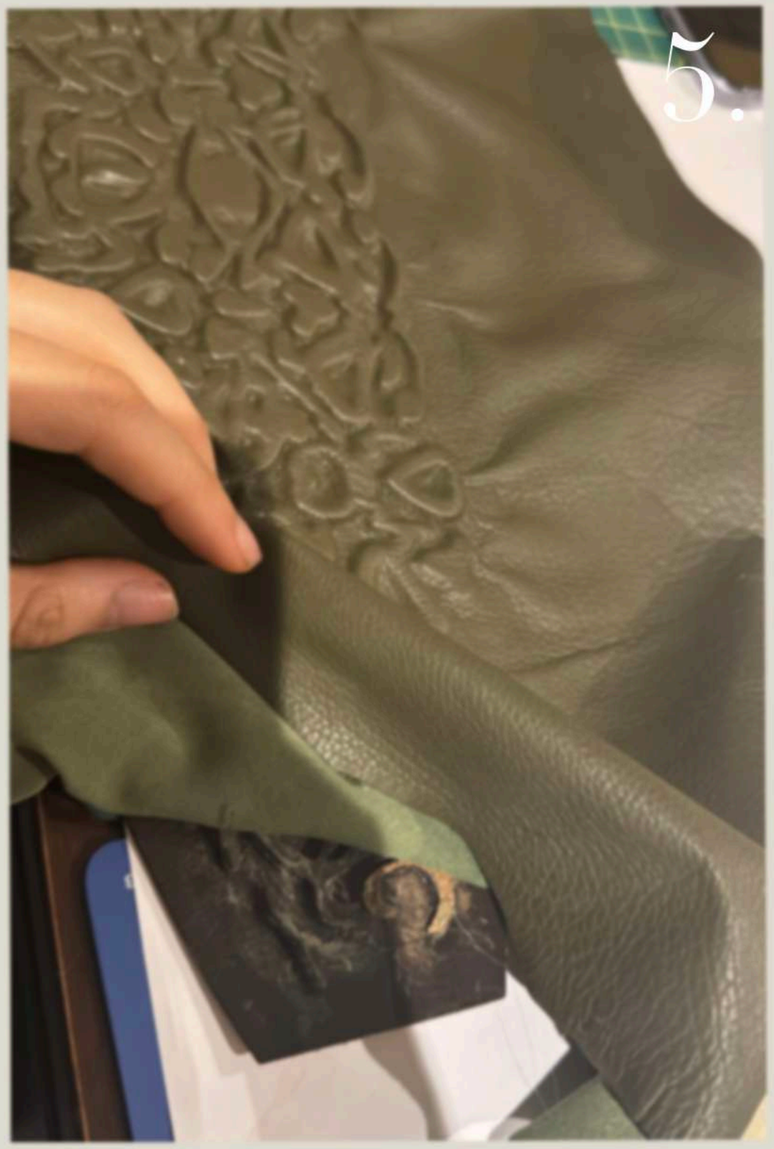
I laser cut all my pattern pieces and then attached the plugging pieces to my template. After transferring the pieces, I realised it would have been easier if I had etched the pattern onto the leather beforehand. I then glued my skived leather in place and used a bone arrow to plug. Once the plugging was complete, I neatened the edges around the sides and glued the second piece of leather to the base of the bag.



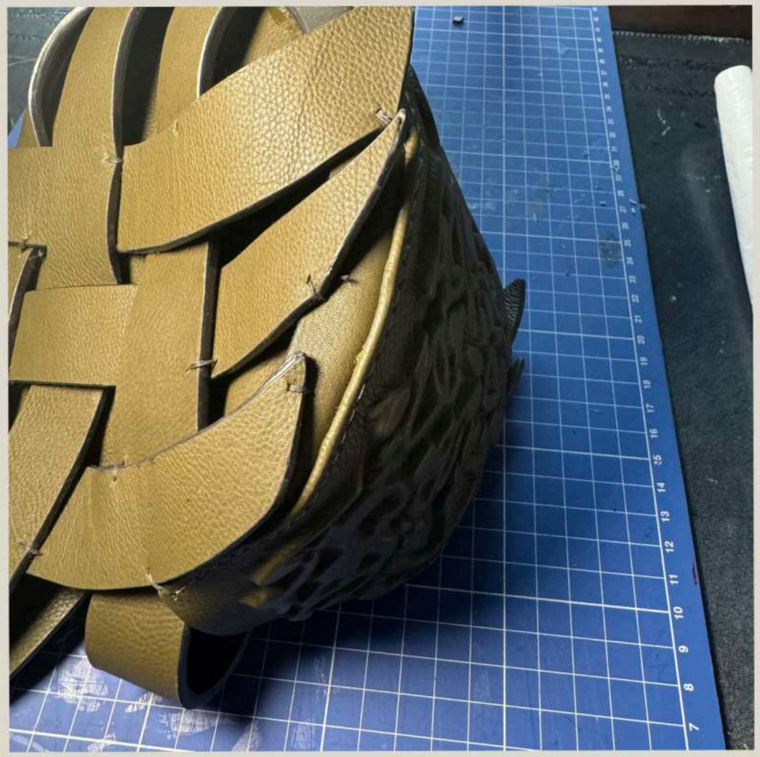
Next, I took my laser-cut pieces, glued, sealed, and prepped them for edge coating. I applied edge coating to the prepped parts, repeating the same process for the collar since it is visible from inside the bag. I then weaved my pieces together and bar-stitched at key points. To ensure a seamless finish, I skived down the sides of the handle and used double-sided tape to attach the collar, leaving a 2mm gap so it stitches flat.







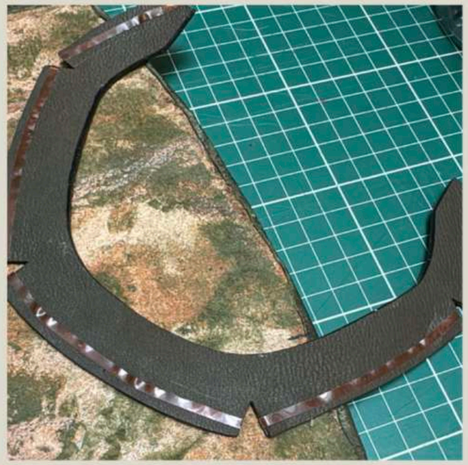
Making bag Pt 2

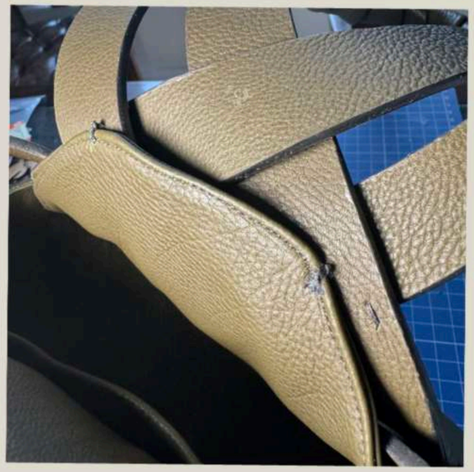


After attaching the collar to the base and bar-stitching the woven front pieces together, I connected the base and body by bar-stitching them at key points. I realised I had made a mistake by not attaching the inner piece before stitching the base to the body, which made the process very difficult.

Despite this, I managed to bar-stitch the inner piece to the front body, although it was quite fiddly.

Once the main body was prepped and finished, I cut a strip of leather, joined it at the middle, and wrapped it around the handle to further enhance the woven effect.





Having experimented extensively with the bag and laser-cut each piece, the overall making process was fairly easy. Although I had written down a detailed order of assembly, I was quite annoyed that a simple mistake —failing to attach the inner piece to the body at the right stage—made the final process much more fiddly and time-consuming. However, I was very impressed with the result and noticed a significant improvement in my skills and precision in working with leather over the past three years.

Overall bag evaluation

Overall, I was extremely pleased with the bag. I was thrilled to see how a simple sketch evolved into prototypes and, ultimately, a final product. Laser cutting the pieces proved to be very beneficial, as everything fit together seamlessly when gluing. My work was much neater, especially with edge coating and other finishing touches.

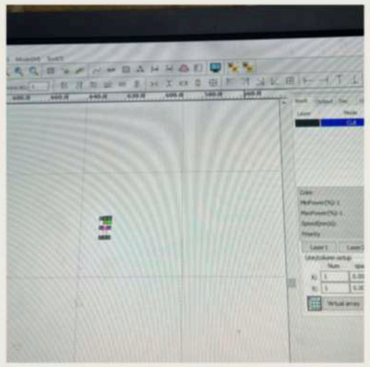
However, I was slightly annoyed that I missed a step in the process, which required me to backtrack and complicate the assembly. This experience taught me the importance of double-checking each step, especially when managing multiple tasks, to avoid such mistakes. Despite this, I was very impressed with the final result.

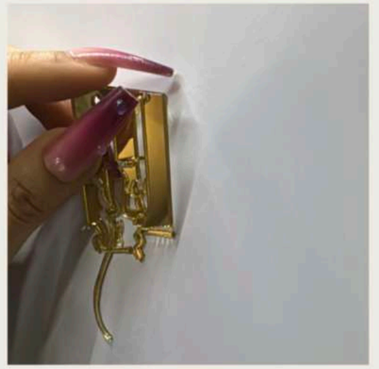
Packaging

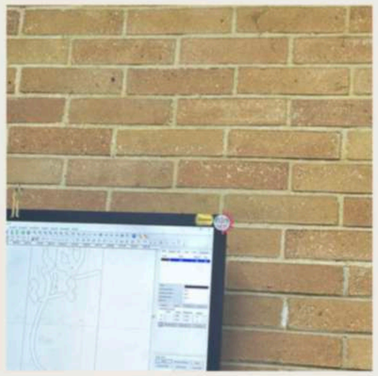
Making Packaging

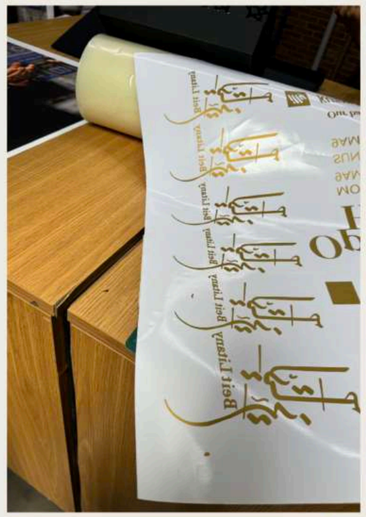
Using a combination of vinyl and Plexi with a sticky backing, I laser cut my packaging designs.

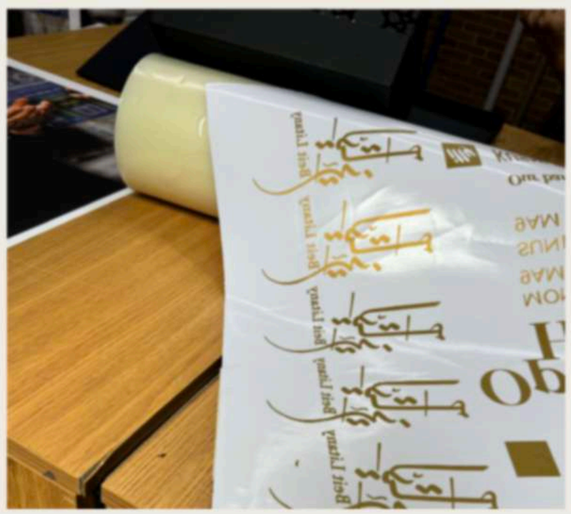
After cutting, I carefully removed the vinyl from the underlying paper and transferred it onto the boxes.

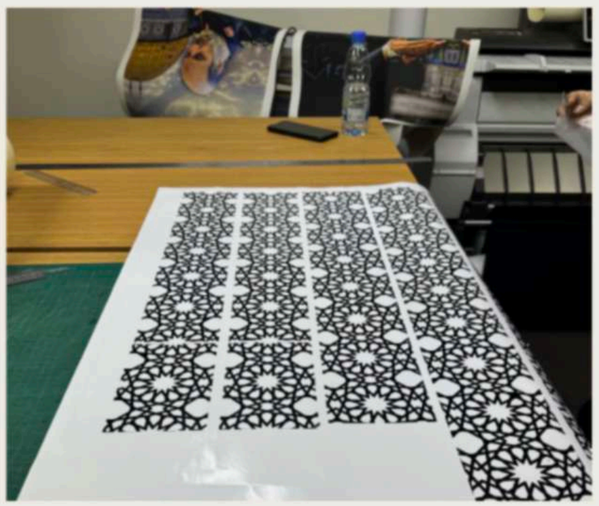












Critical Path

Critical Path

Month 1: Initial Inspiration and Design Development
- Week 1: Gather initial inspiration
- Week 2-3: Begin design development
- Week 4: Choose final designs

Month 2: Prototyping and Testing
- Week 1: Make paper prototypes
- Week 2-3: Develop and adjust prototypes
- Week 4: Test out biomaterials

Month 3: Preparing Files and Mould
- Week 1: Prepare laser cutter files
- Week 2: Make biomaterial mould
- Week 3: Create fabric sample
- Week 4: Work on samples for sketchbook

Month 4: Finalizing Designs and Assembly
- Week 1: Laser cut final material
- Week 2: Clean burnt marks, edge coat
- Week 3: Glue leather pieces together, stitch
- Week 4: Assemble final bag, stitch laser cut leather onto body piece

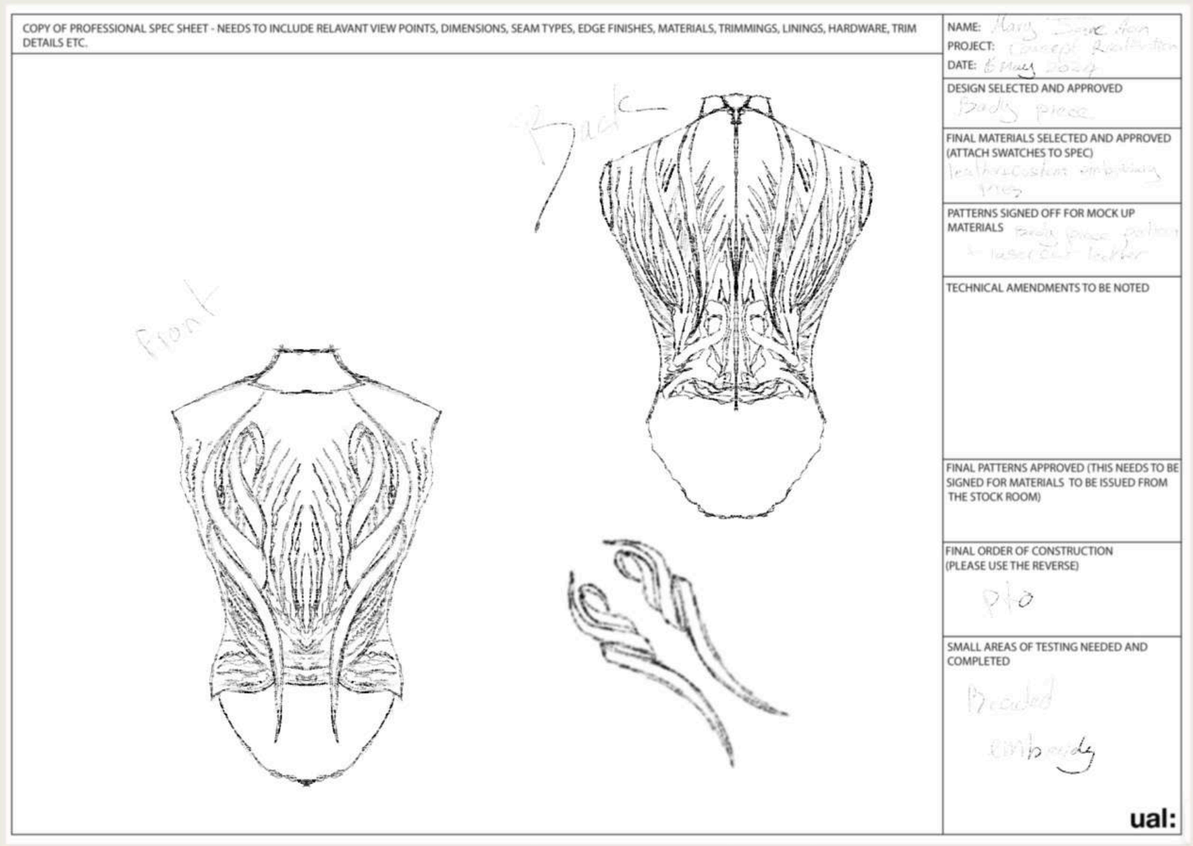
Month 5: Final Preparations and Presentation
- Week 1: Create embellished material with beading, cut out material for bodysuit, assemble bodysuit
- Week 2: Attach sunglass mock-up, purchase packaging boxes
- Week 3: Prep packaging (apply laser-cut vinyl on boxes), make dust bags
- Week 4: Prep photoshoot, purchase props, conduct photoshoot

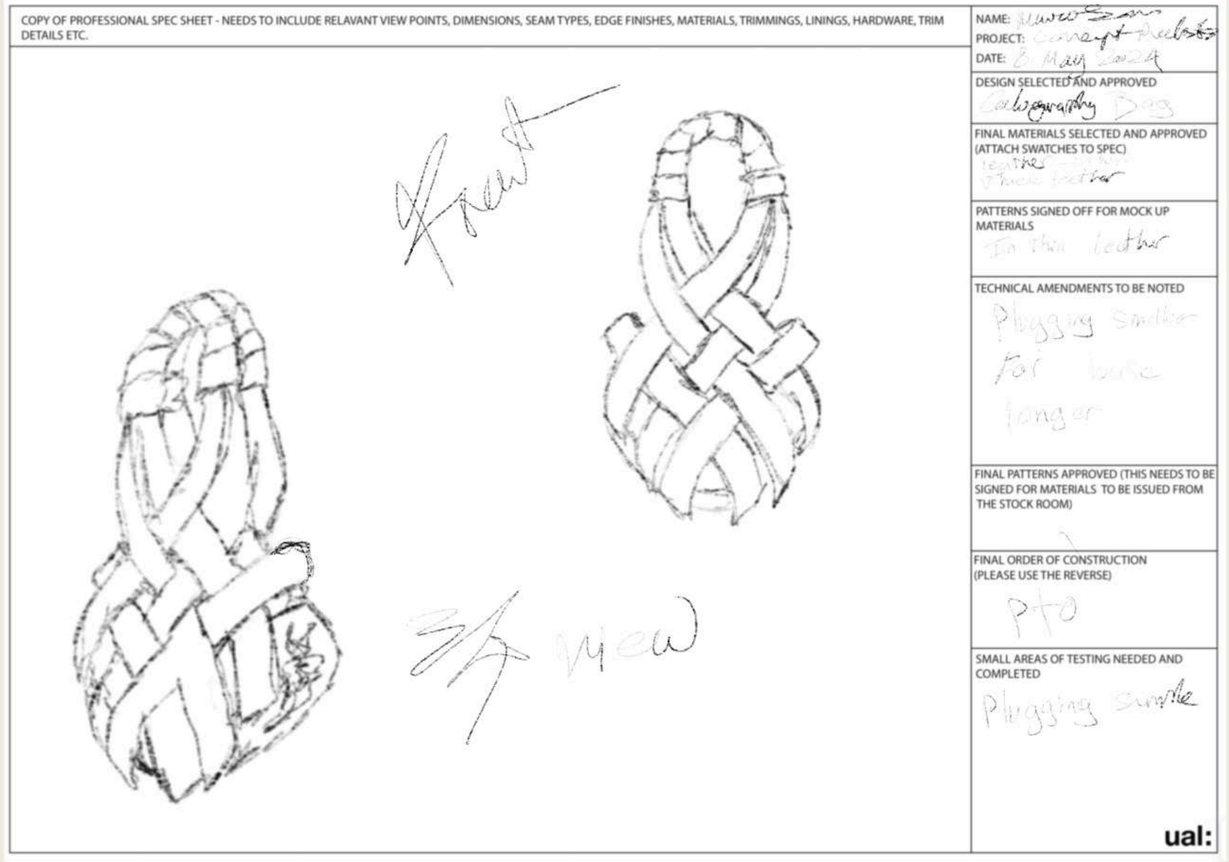
Post-Photoshoot: Editing and Final Touches
- Work with photographer on editing the photoshoot
- Layout the lookbook
- Send the lookbook to the printing company

By creating this critical path i was able to have a structured approach to my project, allowing for more than enough time for each thing that needed to be completed. I created it in the notes app as I found that there were often times where things needed to be arranged which was okay as I had a general idea of what needed to be completed when and how much time i had left

Design progression sheet

Design progression sheet





Overall Evaluation

Overall Evaluation

Overall, I am incredibly pleased with the final outcome of every sample and prototype I made. I pushed myself despite facing significant obstacles. The university laser cutter not working delayed my ability to make and test samples, but through effective time management, I prepared my files in advance. This allowed me to efficiently print everything over the course of three days once I had access to the laser cutter.

I was particularly pleased with how I experimented with new ideas, such as creating biomaterial recipes, which I plan to implement in my future practice as a designer. After my summer internship at the couture houses in Lebanon, I was excited about the idea of fusing leather with couture beading but was initially anxious about potential clashes. I found a way to integrate these elements harmoniously and was very pleased with the aesthetic result.

My craftsmanship has significantly improved, and I noticed this in my pattern development process. I was much faster and more adept than in previous years. I also paid close attention to detail and maintained neatness throughout each product and sample.

Overall, I consider what I created to be a great success and look forward to utilising my skills beyond graduation.