International Summer Workshop

Modelmaking in the Digital Age - Module A

From craftsmanship to automated production - Towards Sustainable Making

Santander, Spain

Atelier La Juntana

Architecture Official College of Cantabria

Polytechnic University of Madrid

CRAFTMANSHIP AND DIGITAL TECHNOLOGY | ART OF MAKING

'Making is the most powerful way that we solve problems, express ideas and shape our world. What and how we make defines who we are, and communicates who we want to be.'

Daniel Charny

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Fig. 1: Model of a tower at 1:1000 scale designed during the MMDA-14 workshop.

Fig. 2: Participants of the workshop preparing sand moulds for the aluminum casting exercice.

Fig. 3: International shared lunch with participants of the first edition of the workshop, MMDA-14

Society teaches us how to use a product, education instructs us on how to design it, and our imagination pushes us to innovate, but who teaches us how to manufacture? What does making involve in the twenty-first century? What is the meaning of craftsmanship in the Digital Age?

The Model as a Key Part of the Design Process

Far from being overshadowed by the digital era, physical models reclaim, today more than ever, their place as a key element during the design process: from urban to interior design, public consultations and exhibitions, and even for interaction with the visually impaired. Utilised throughout all the phases of the design, from the early stages to final 1:1 scale mock-ups, physical models help us to visualise ideas, explain concepts, foresee problems and investigate solutions. Understood as an element on the borderline between craftsmanship and digital production, architectural models combine art and technical skills, reaching a result which is not a mere reproduction of the idea, but a unique creation itself.

This workshop is an introduction to the world of Model Making, embracing its different applications, scales, materials and techniques, while encouraging the research and discovery of new ways of making and representing the architectural model through a combination of fine arts and digital production.

Craftsmanship of the Digital Object

The impact of an information society, presumably dehumanised, makes us reconsider the role of craftsmanship as a human action. To what extent can the process of making help us confront the lack of identity and increasing dehumanisation of modern production? In the Digital Era, the everyday object is masked behind a technological veil, which places the product in a world foreign to our own, transforming the object into a standardised catalogue option to be used and discarded without us being part of the making process.

To preserve the essence of objects, it seems necessary to understand the process behind them. It is learning from this process, and not the end result, which provides us with the necessary tools to comprehend the “why” and “how” of production techniques, allowing us to choose, recreate and improve the learnt method in our future practice.

Workshop Method

The course is taught across a series of short exercises combining theory and practice, through which students are challenged to solve a given brief by means of making.

Varying in scale and duration, the exercises will be conducted through direct experimentation and manufacturing, and will include techniques such as embossing, etching, carving, moulding, and casting, making the students aware of the production time and process.

Workshop Objectives

- Students will acquire a comprehensive understanding of different making techniques related to the architectural representation and design process, allowing them to produce a set of outstanding architectural models, mock-ups and prototypes.
- Students will demonstrate the ability to master the making process through direct experimentation with the material and the craft, enabling a sensorial experience through direct contact with materials, tools and handling.
- Students will be understand to connect the process of architecture with digital design and automated production and to explore the border between architecture, fine arts and product design, while encouraging work in the overlapping areas
- Students will demonstrate the ability to work in groups and to exchange ideas and experiences in an open-minded research environment.

Modelmaking in the Digital Age
Atelier La Juntana, in collaboration with the Architecture Official College of Cantabria and the Polytechnic University of Madrid, organises the summer workshop 'Model Making in the Digital Age' for architects (both students and professionals) , designers and people willing to investigate and discover different techniques and materials, while developing an model. The workshop will particularly observe the relationship between traditional craft and digital design.
Led by architects Armor and Nertos Gutiérrez Rivas, along with interdisciplinary artist Daniel Gutiérrez Adán, the workshop takes place at Atelier La Juntana, located in Santander. Both beginners with little prior experience and those with specific professional interests are invited to participate.

The workshop is a full-time course, starting at 09.30am and finishing at 5.30pm each day, with a total of 56 learning hours. Each participant will have his or her own working space; access to Wi-Fi and the library, printer and plotter; a resting area in the garden; and access to a small kitchen. Accommodation in the surroundings of the workshop can also be provided upon request.

The course is recognised by the Polytechnic Architecture University of Madrid as part of the University Programme, and students are granted 2 ECTS (European Credit Transfer and Accumulation System) upon completion.

Fig. 4: Part of the work developed during the first workshop edition, MMDA-14.

About the workshop
Facilities and equipment

Fig. 5: Workshop, interior view.

Fig. 6: Workshop and apartment, view from the garden.

The Workshop space is separated into three different areas: the working space, where all the handling equipment is located; the research area, with access to computers, Wi-Fi and the library; and the resting area, with sleeping and cooking facilities. In addition, certain activities take place in the garden surrounding the Workshop.

Throughout the course, the equipment and materials are always available to participants. Use of machinery is subject to previous induction, and health and safety measures are fundamental to the use of the Workshop.

The Workshop facilities include:

-Carpentry and wood workshop
-Ceramic, clay and plaster workshop
-Slip casting workshop
-Metal melting and casting workshop
-Mould-making and resin-casting workshop
-Photography and cyanotype workshop
-Engraving and press printing workshop
-Glass workshop
-Vacuum-forming workshop
-Laser cutting studio
-3d printing studio

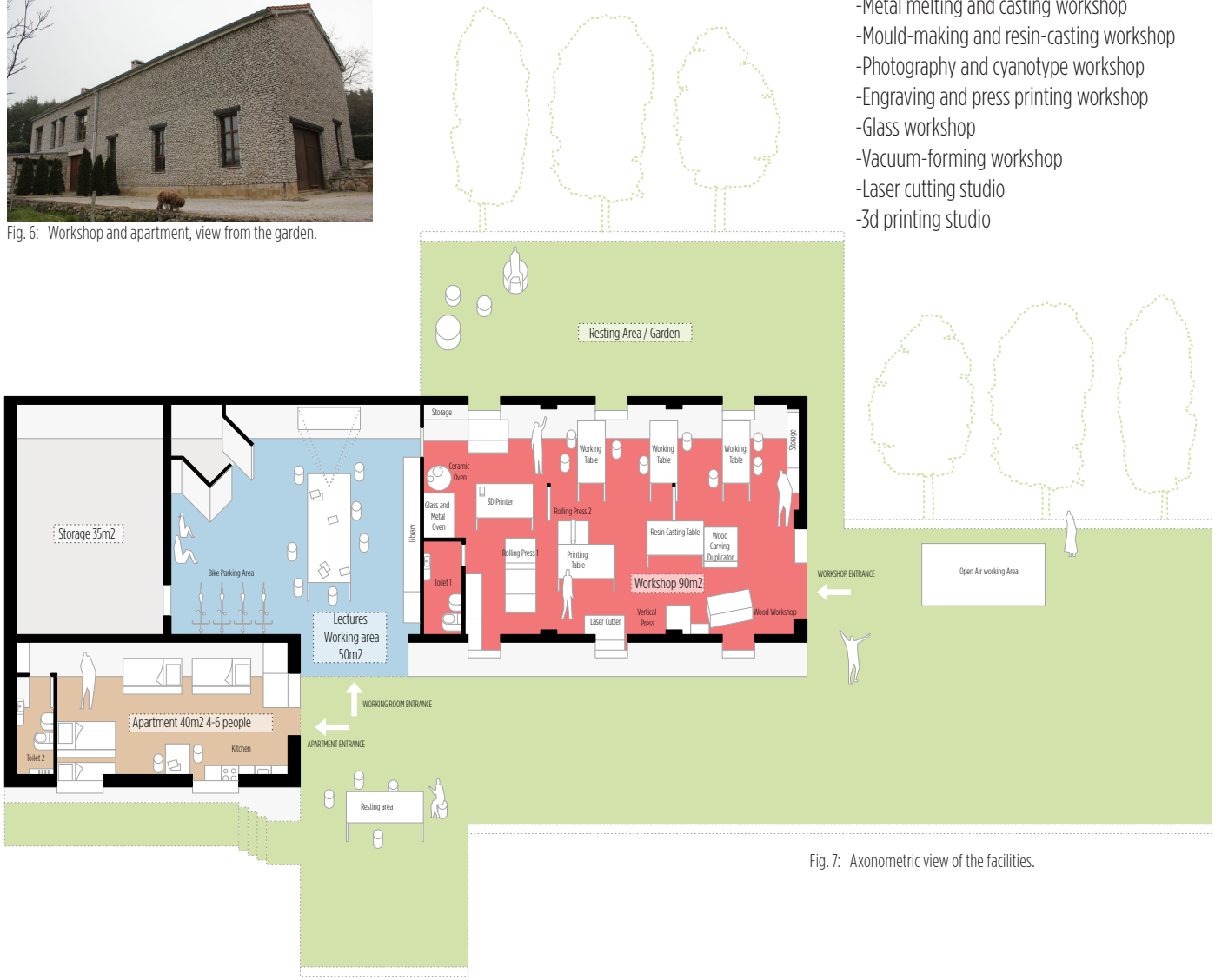


Fig. 7: Axonometric view of the facilities.


Fig. 8: Wood carving duplicator.


Fig. 9: Carpentry table saw.

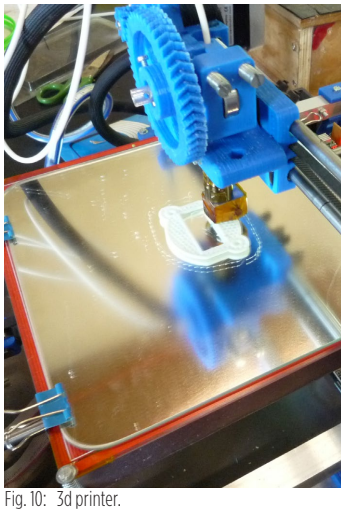


Fig. 10: 3d printer.


Fig. 11: Ceramic oven.


Fig. 12: Aluminum melting oven


Fig. 13: Printing press.

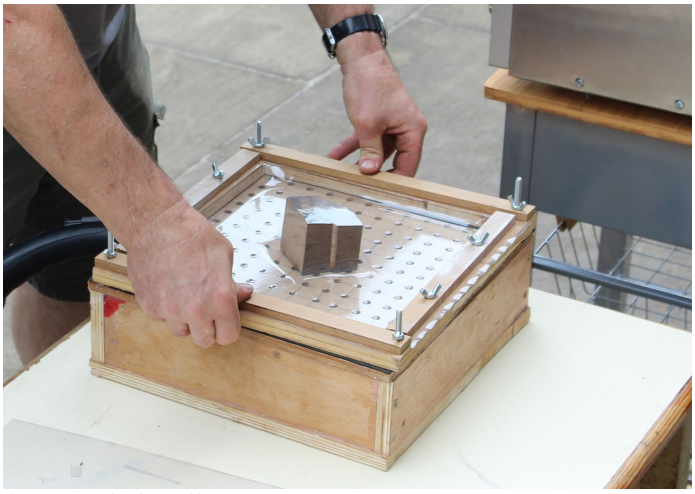


Fig. 14: Vacuum forming machine.

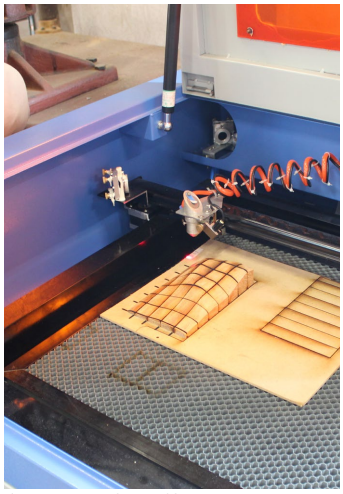


Fig. 15: Laser cutting machine.


Fig. 16: Cianotype UV Light box.

Fig. 17: Aerial image of the workshop´s surroundings, including Quebrada Coast area, Dunas de Liencres Natural Park and Picota Hill.

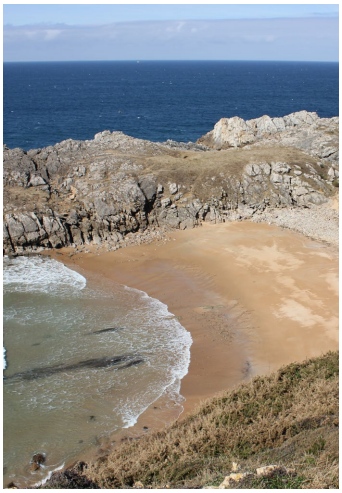


Fig. 18: Somocuevas beach.

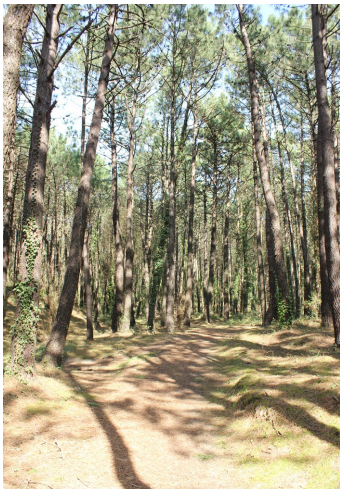


Fig. 19: Dunas de Liencres Forest.

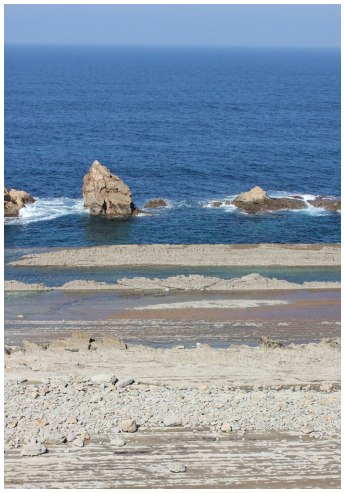


Fig. 20: Quebrada Coast protected area.

Fig. 21: River Pas estuary.

Dunas de Liencres Natural Park, Quebrada Coast and Picota Hill.

The Workshop takes advantage of its unique location at the centre of Dunas de Liencres Natural Park, the largest protected natural area on the north coast of Spain. A mix of green and blue landscapes, it has five different beaches located within 10 minutes' walking distance of the Workshop: Somocuevas, Valdearenas, Canallave, La Arnía and El Madero. The River Pas estuary, the Liencres Pine Tree forest, the Quebrada Coast area and the Picota Hill area are also located within the Natural Park, all within walking distance. In the evenings, different activities and trips provide the opportunity to discover this special location.

In parallel, part of the Workshop exercises take part in the surrounding areas, using materials collected from the forest and beaches and through direct interaction with the landscape.


Fig. 22: Practising Yoga in the garden.


Fig. 23: Workshop induction.


Fig. 24: Explanation of previous work by Atelier La Juntana.


Fig. 27: Horse Riding in the Natural Park of the Liencres Dunes (not included in the workshop fee)


Fig. 28: Surfing courses in Liencres beach (not included in the workshop fee)


Fig. 25: Trip to Somocuevas beach with tutors and participants, MMDA-14.


Fig. 26: Open doors day, MMDA-14.

"The relaxed and family atmosphere which makes the entire experience easy to enjoy"

"Excelent ambience and staff, an unbeatable learning experience"

"To experience everything from the first hand. Real working with real materials"

Techniques covered in the Module A

01 Carving a Tower
Carpentry and Woodworking Workshop
Silicon molds for solid casts
Epoxy resin and acrylic bio-resin casting

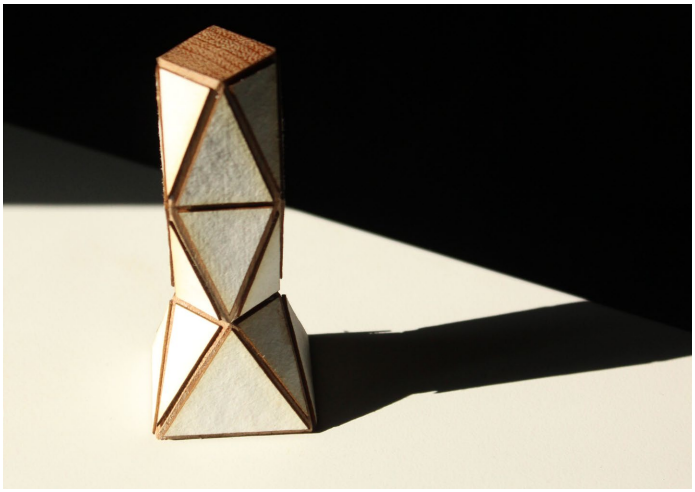
02 Ceramic Facade Prototype
Plaster press moulds, ceramic tiles and glazing

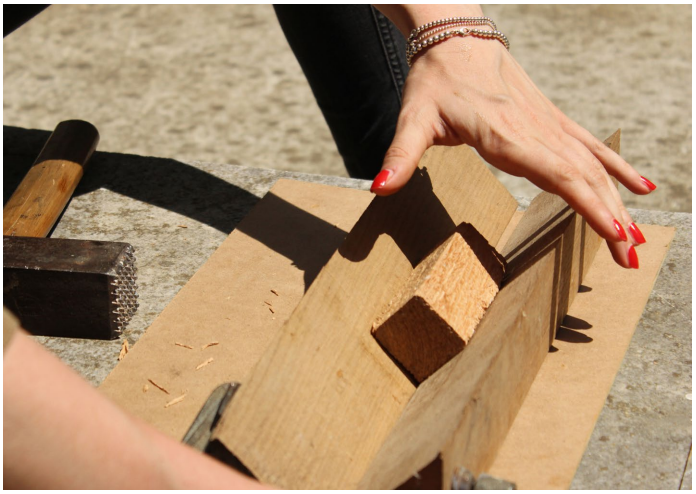
03 High Relief City: Cyanotype photo etching & press printing

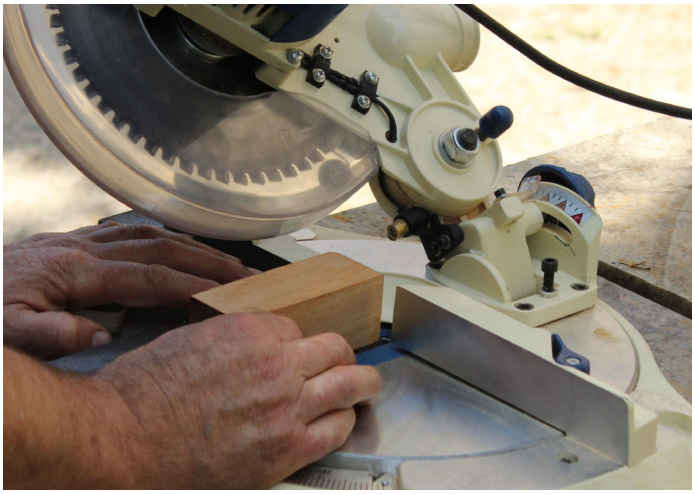
04 Hard Ground Engraving & press printing

05 The Metal Tile
Aluminium casting on sand molds

06 Screen printing Workshop







Exercise Information

Mini Brief:
Carving a Tower

Area involved:
Wooden Workshop

Duration:
6 hours

Material:
IPE Wooden base 4x4x10cm

Connection with the next exercise:
Yes - Silicone moulds / Polyester Resin

Scale:
1:1000

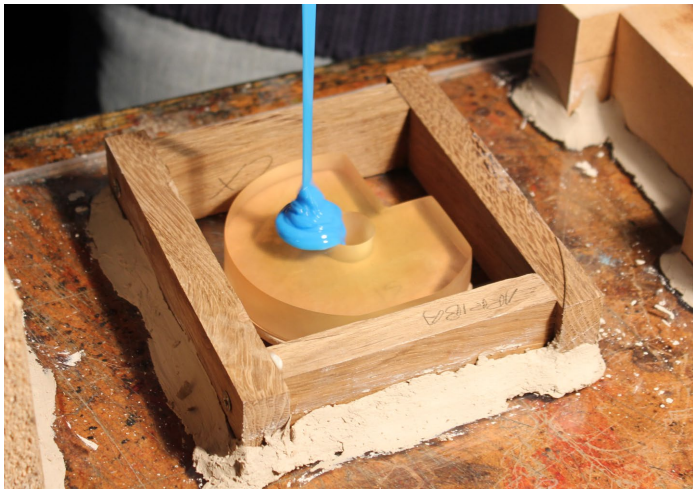
Key Words: **Carving#Casting#Cutting#BushHammering#Sanding#Scale#Texture#Proportion#Wood#Saw#Hammer**

Mini Brief

Taking advantage of the flexibility of woodworking, this exercise serves as a great induction to the variety of the workshop equipment. Using a solid wood block as a base, the student will develop an architectural idea, with geometry and texture playing a key role. Students are encouraged to use different woodworking techniques such as carving, bush hammering, cutting, sanding, subdivision and deconstruction.
At the end of the activity, each unique creation is replicated by means of silicone moulds, as a transition to the next exercise.

Process, Materials and Tools

The base material is wood, and the equipment includes woodworking tools such as a laser cutter, a wood carving duplicator, a carpentry table saw, a circular sander, a hammer, chisels, drills and sand paper.

Exercise Information

Mini Brief:
Carving a Tower
Area involved:
Silicone Mould Workshop
Duration:
2 hours
Material:
Wooden master / Silicone / Perimeter wood 5mm
Connection with the next exercise:
Yes - Carpentry Workshop / Polyester Resin Workshop
Scale:
1:1000
Key Words: **Copy#Mould#Silicone#Chemistry#Reaction#Precision#Texture**

Mini Brief

This exercise is a continuation of the carpentry and wood workshop. It explores the use of silicone moulds to replicate objects, materials and textures. Using a one-piece flexible silicone mould, the student will reproduce a master—in this case, the architectural creation from the first exercise. Further applications and good practice on silicon moulds will also be studied as part of the exercise.

Process, Materials and Tools

The process involves covering the object we want to reproduce with a flexible, yet resistant, material, creating the negative volume of the object: the so-called mould. Wooden containing walls are set up to enclose each volume. Silicone is then poured around the master and casted creating the mould. This technique allows us to replicate every detail and texture in a precise and efficient way as many times as necessary.




Exercise Information

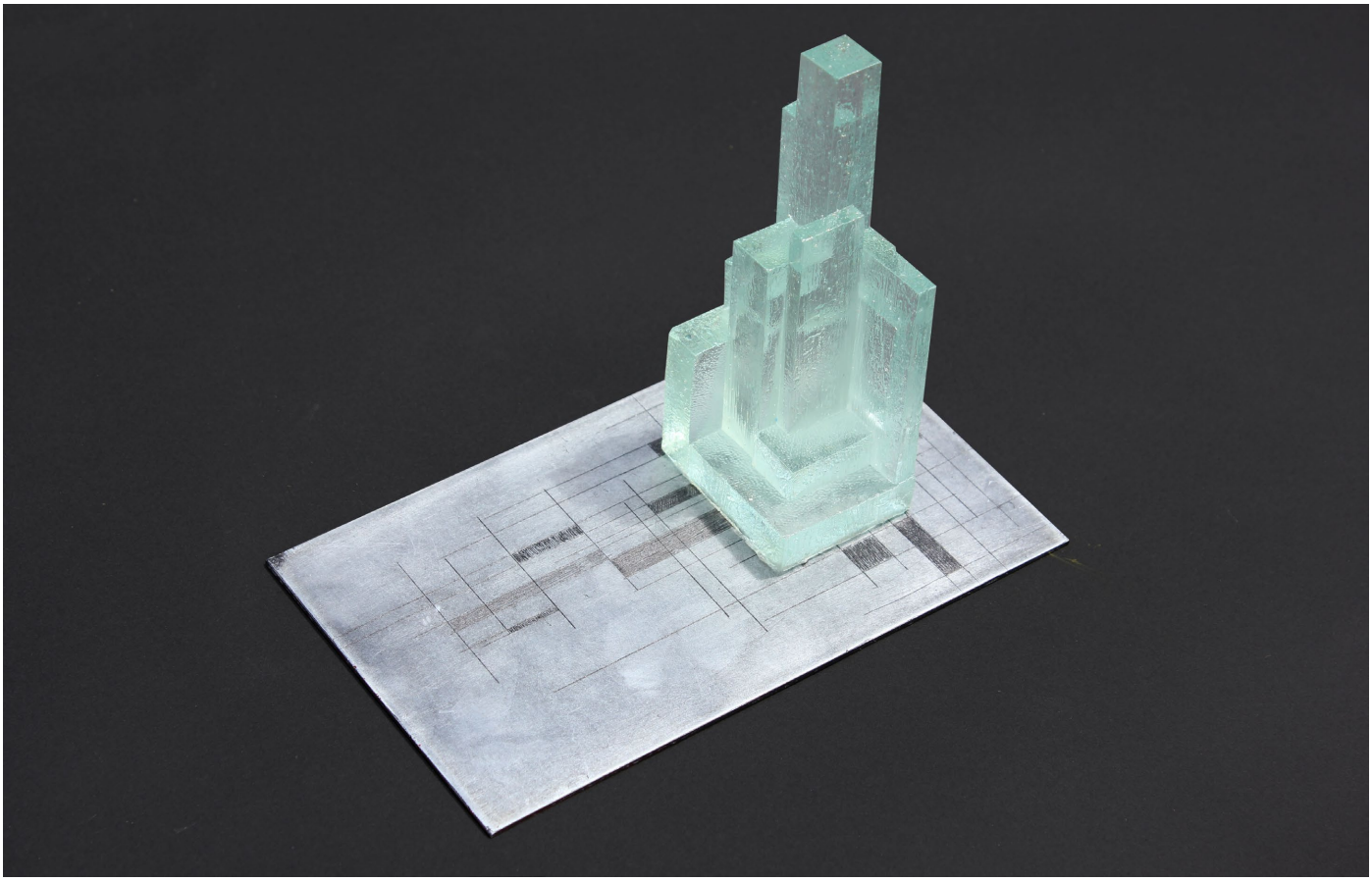
Mini Brief:
Carving a Tower
Area involved:
Resin Casting Workshop
Duration:
3 hours
Material:
Silicone mould / Polyester resin / Epoxi resin
Acrylic Resin / Tints, pigments and fillers
Connection with the next exercise:
No
Scale:
1:1000
Key Words: **Copy#Mould#Silicone#Chemistry#Reaction#Precision#Texture#Catalyst #Resin**

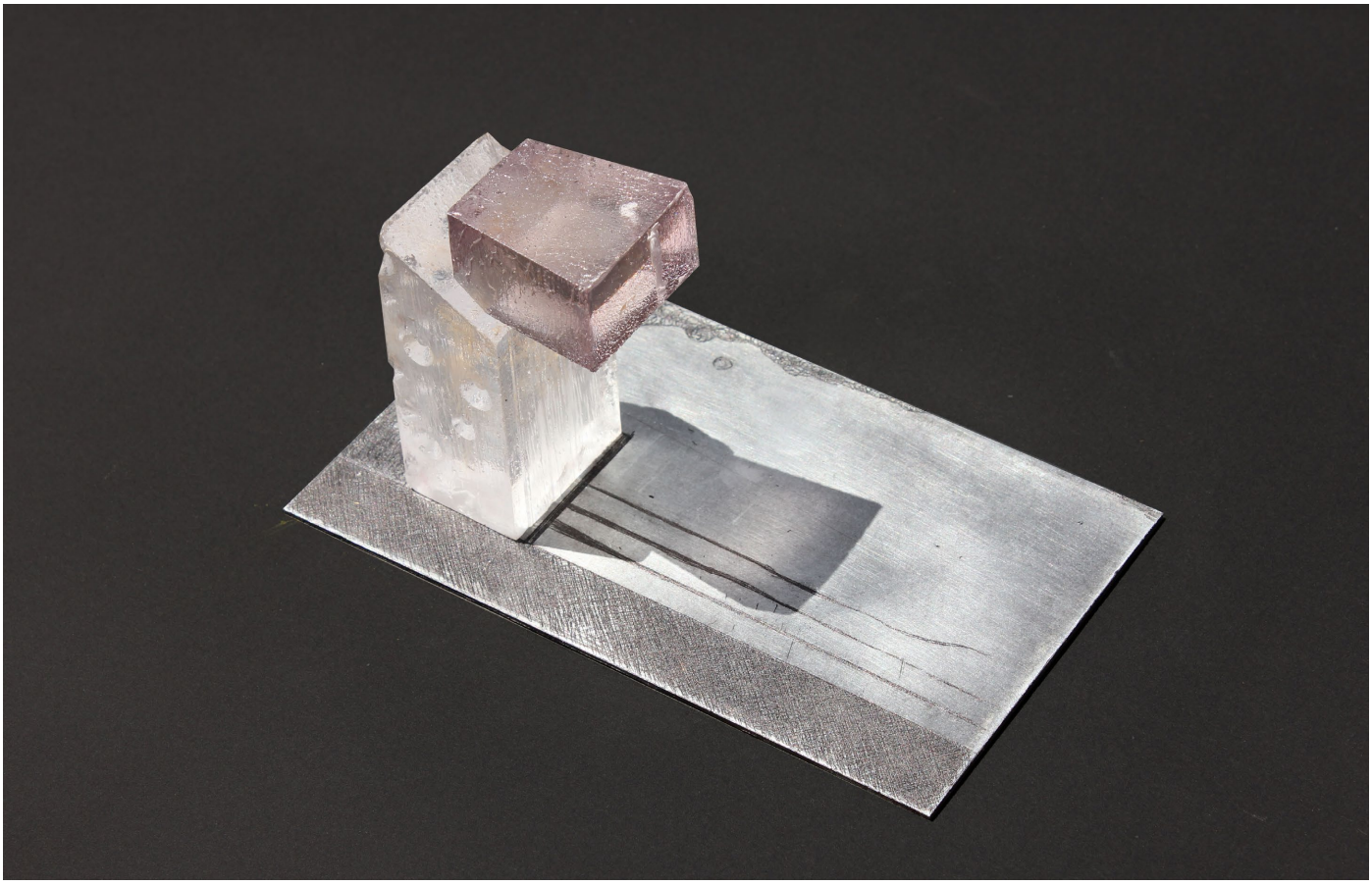
Mini Brief

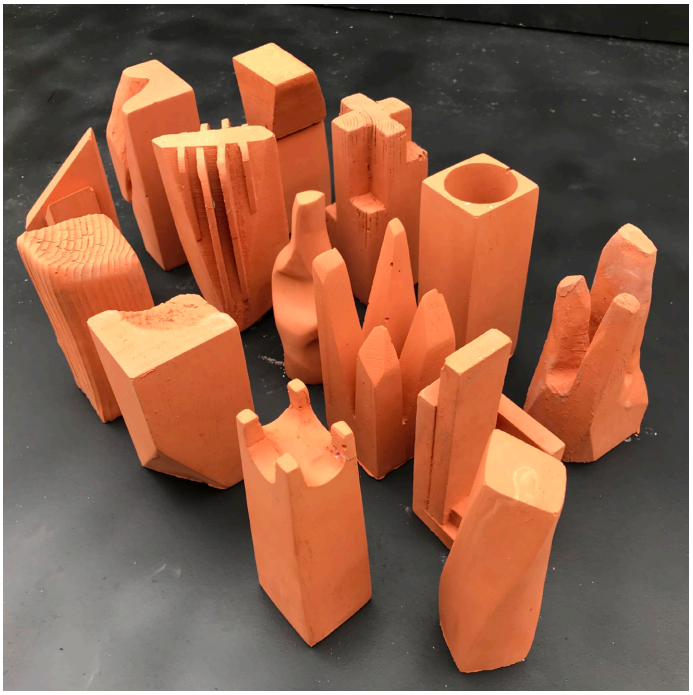
The first part of this exercise consists of preparing a number of samples where the student will investigate different finishes for the polyester resin, using tints, pigments and fillers to play with the colour, transparency and texture. Each participant will prepare five samples combining different finishes, while keeping a record of the proportions and method, thus creating a wide range of choice.
Once the silicone mould has cured, the student will extract the master to create a replica with polyester resin, selecting the finish from the sample collection and adding animation (figures and trees) which will crystallise inside the piece.

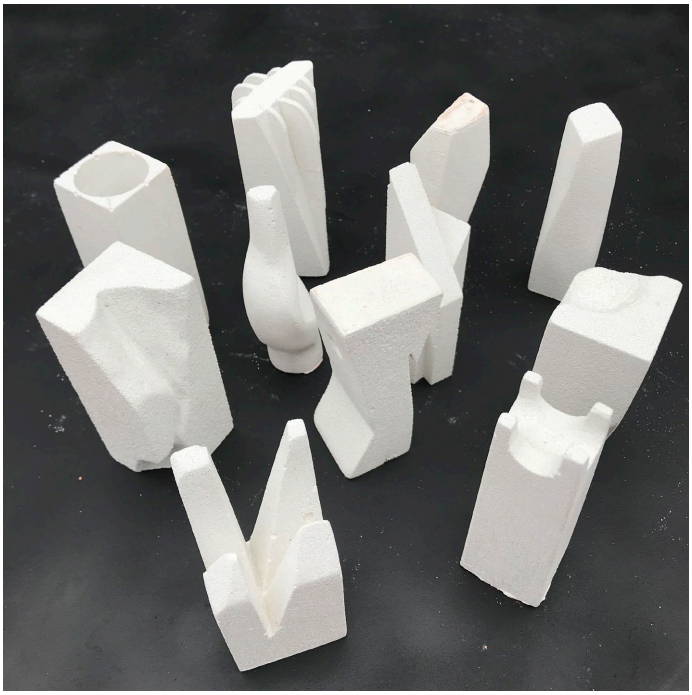
Process, Materials and Tools

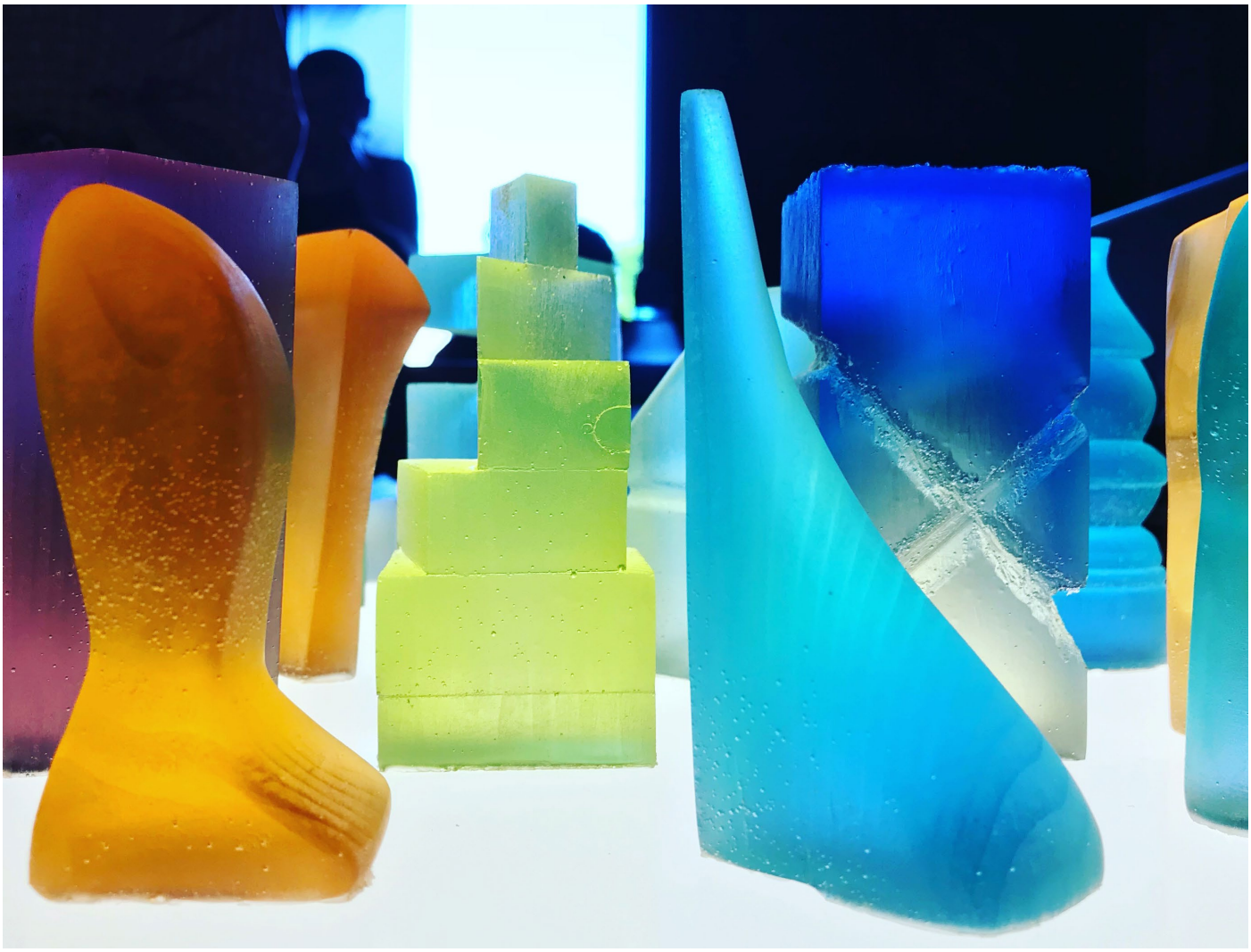
Coloured resin technique uses a synthetic resin mixed with a curing agent (polymerisation catalyst) which is poured into a mould or plastic container at room temperature and under normal pressure. By mixing both liquids, an exothermic reaction occurs, generating heat, and making the material harden within several minutes. Different types of resins can be used, including polyester resin, polyurethane resin, epoxy resin, acrylic resin and silicone resin. As the normal appearance is transparent, resins can be coloured using tints and fillers, allowing different degrees of opacity, tone and textures. Once the material dries, it can be shaped and sanded.

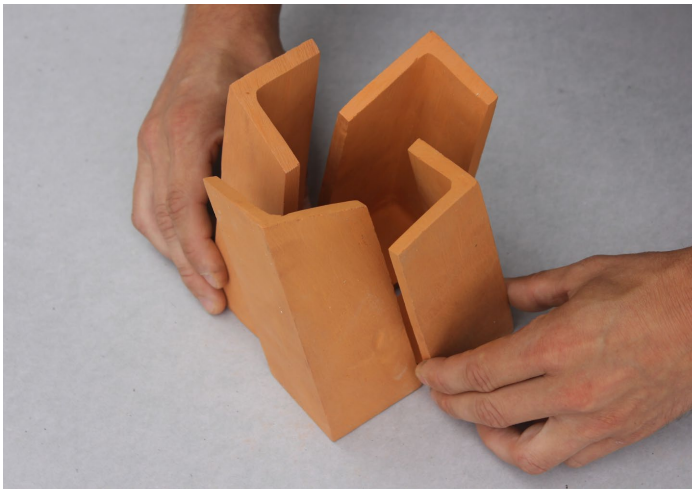












Exercise Information

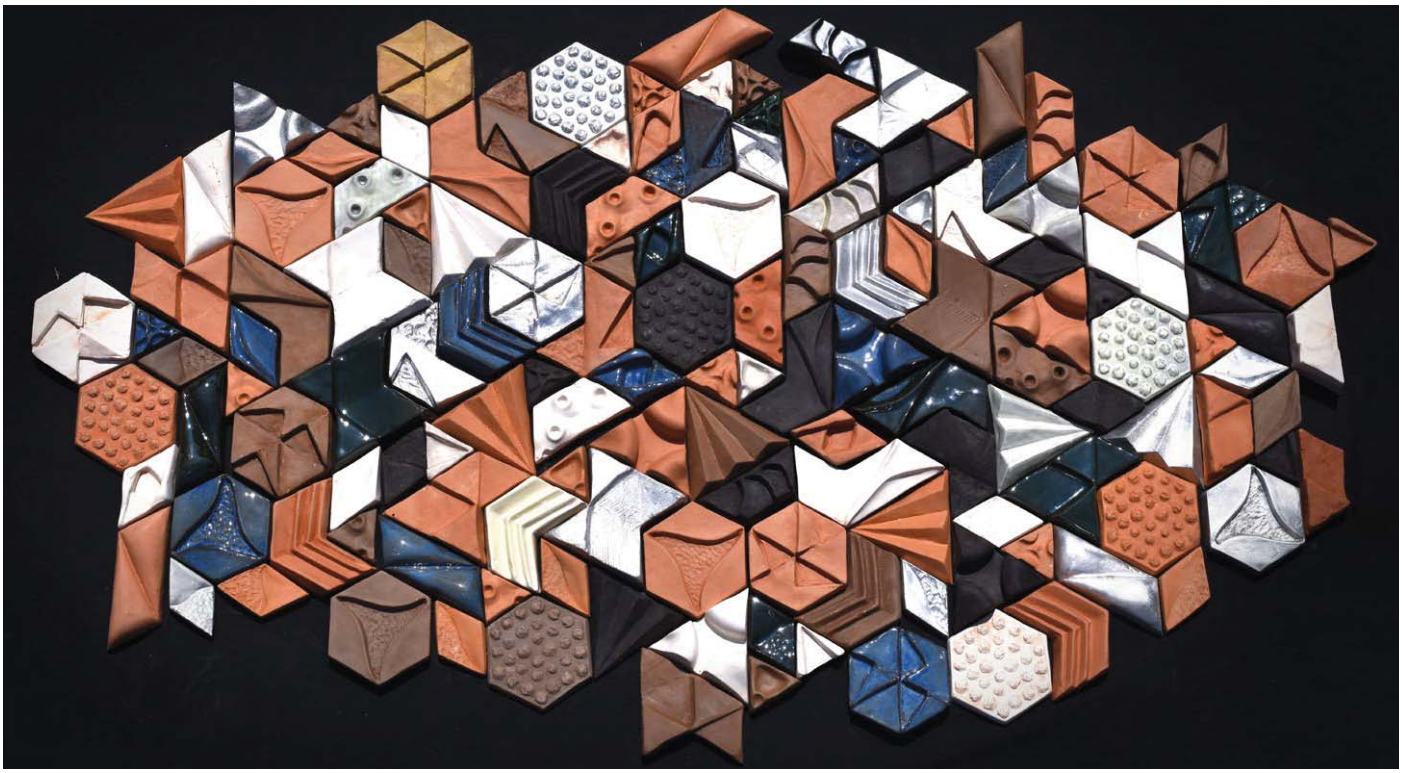
Mini Brief:
Facade Prototype - Ceramic
Area involved:
Ceramic Workshop
Duration:
8 hours
Material:
Master / clay / ceramic oven
Connection with the next exercise:
Yes - Wood Working Workshop
Scale:
1:1
Key Words:

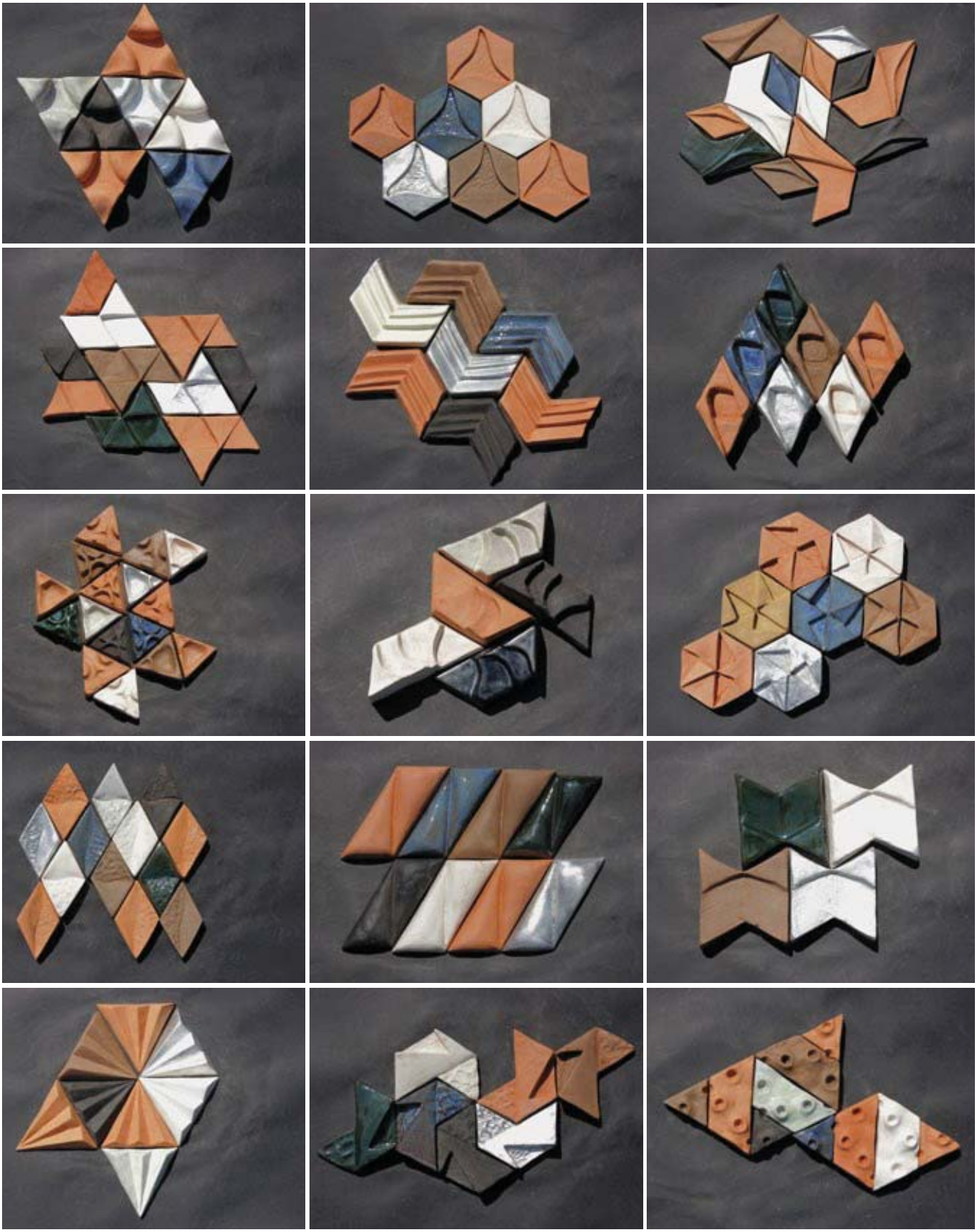
Mini Brief

Ceramic is one the most versatile and universal constructing elements, combining tradition and cutting-edge design. In this exercise, participants will design a ceramic façade prototype. Several options will be available while working with clay: plaster casting, slip casting and a potter's wheel, or a combination of techniques. The students will experiment with different types of clay, glazing colour, texture and oven temperature, creating a collection of samples for each façade prototype.

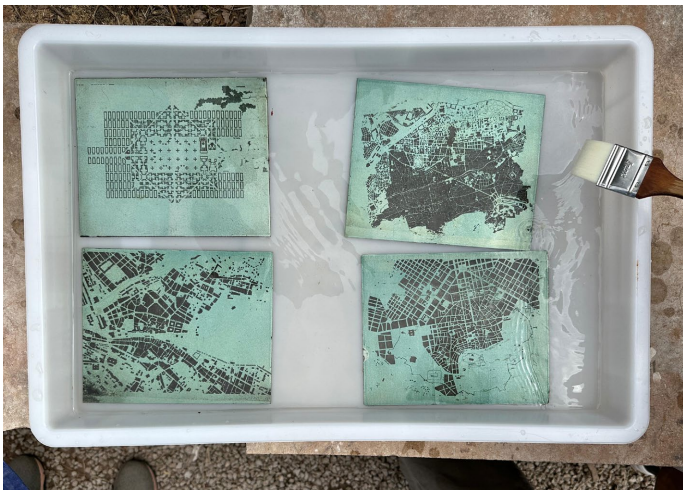
Process, Materials and Tools

Materials include plaster moulds, clay, glazing and mineral pigments, and a ceramic oven.









Exercise Information

Mini Brief:
High Relief City
Area involved:
Photo Etching Workshop
Duration:
4 hours
Material:
Zinc plate / Black and white print
Connection with the next exercise:
Yes - Printing Press
Scale:
1:2000
Key Words: **Etching#Zinc#Reaction#Acid#Paint#HorizontalPress#SitePlan**

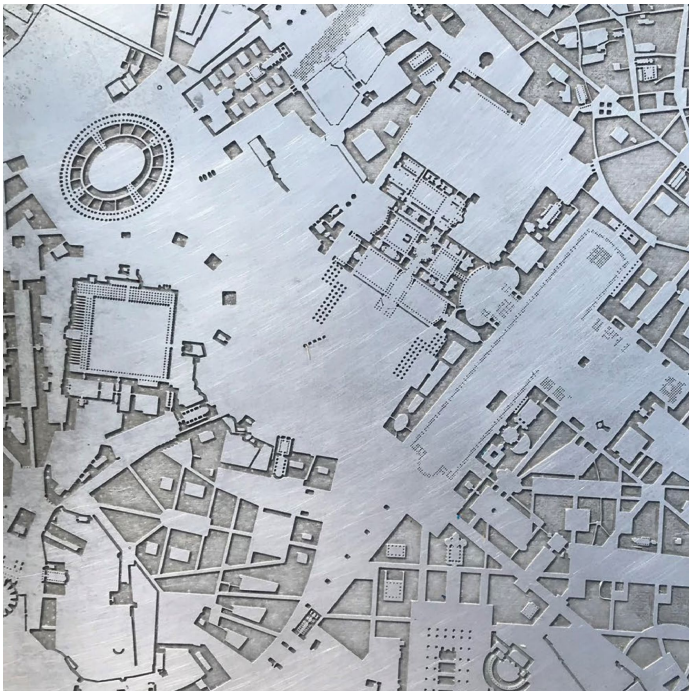
Mini Brief

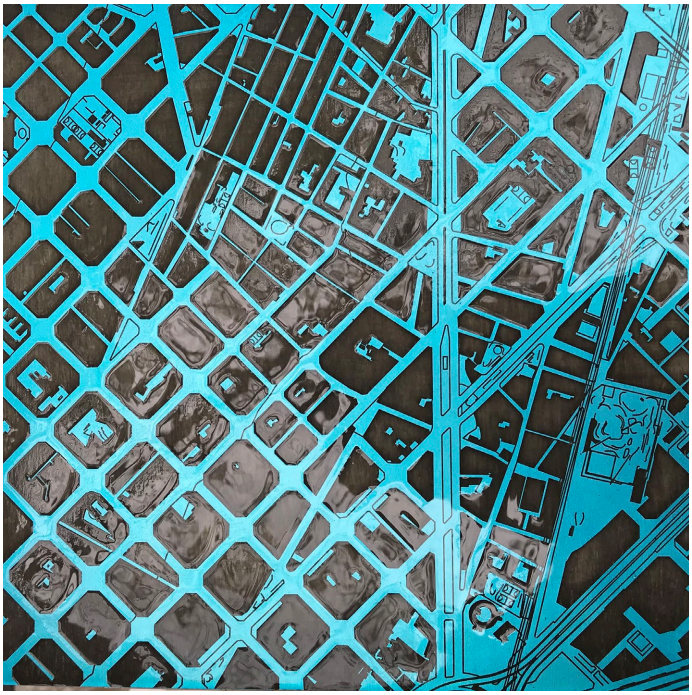
This exercise explores the possibilities of acid etching to transfer plans and drawings onto different materials and surfaces, so they can be used as site plans, model bases or tactile maps. Each participant will etch a metal plate with a given design, controlling the precision and depth of the carving.

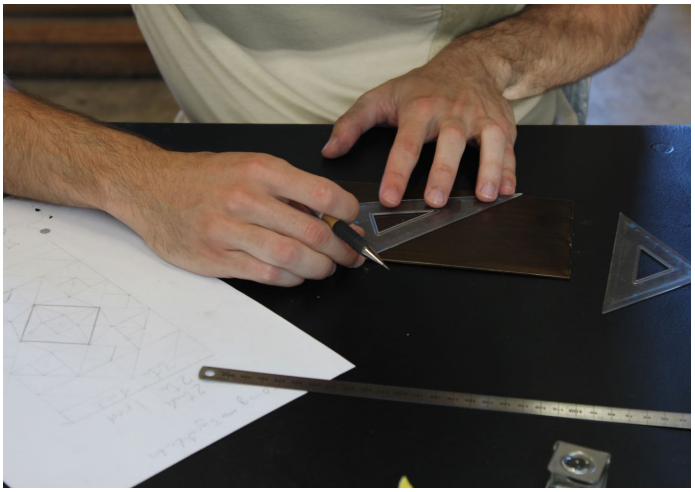
Process, Materials and Tools

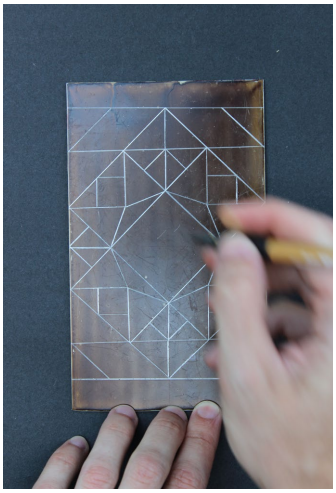
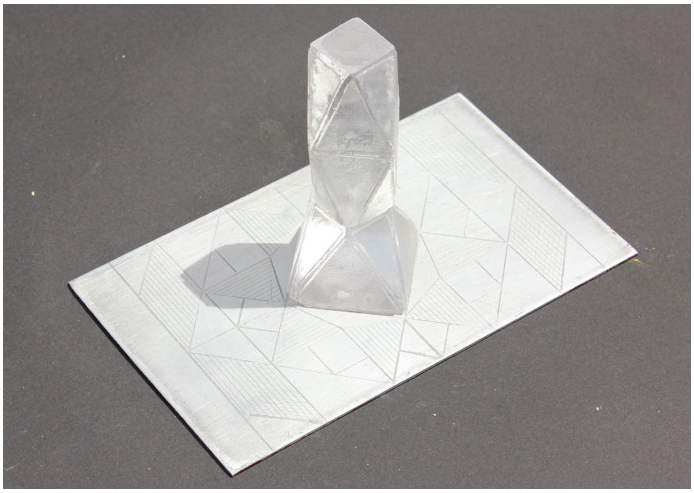
The cyanotype process uses one of the earliest photographic processes, invented by the scientist Sir John Herschel in 1842, and used by pioneering photographer Anna Atkins in the first published book to include photographic images.

The process starts by coating the metal surface with a UV-sensitive product, to which an acetate layer with the design printed in black and white is applied. Exposure to UV light will create a mask on the plate that shields the printed area, which is therefore protected during the etching process. The shielded parts get carved by acid; the depth of the mark is controlled by the acid exposure time.







Exercise Information

Mini Brief:

Carving a Tower

Area involved:

Hard Ground Etching Workshop

Duration:

4 hours

Material:

Zinc plate / Drawing and carving tools

Connection with the next exercise:

Yes - Printing Press

Scale:

1:1000

Key Words: **Etching#Zinc#Reaction#Acid#Paint#RollingPress#SitePlan**

Mini Brief

This exercise explores another technique to transfer designs onto metal surfaces, using the hard ground etching method. For this exercise, each participant will draw a design by hand directly upon the surface, which will later serve as a base for the polyester resin tower.

Process, Materials and Tools

A hard ground coating layer is applied to a plate to protect it from the action of the mordant used in etching. The hard ground is typically drawn through with carving and drawing tools. Traditionally, the hard ground yields a pen-like line associated with etchings. The longer the hard ground plate is exposed to the acid, the deeper and wider the line becomes.

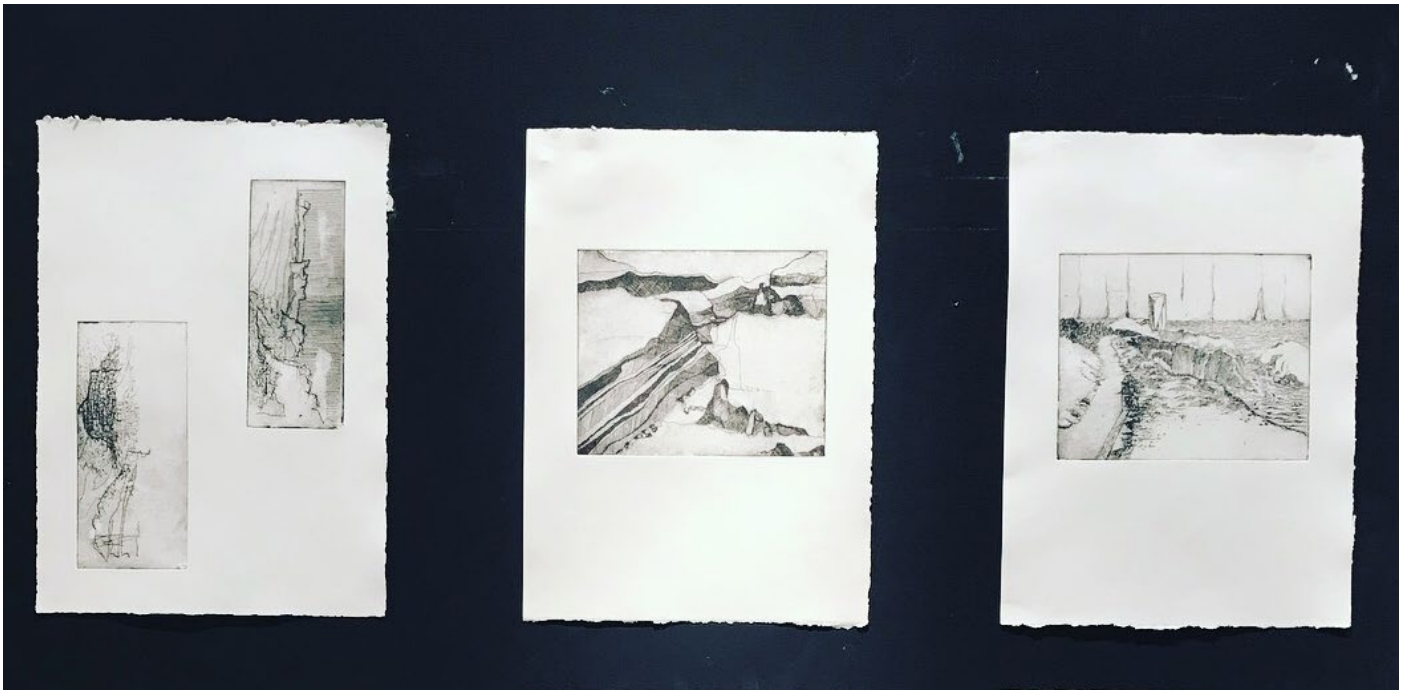

Sangre sami




Exercise Information
Mini Brief:
Printing Press
Area involved:
Printing Press Workshop
Duration:
2 hours
Material:
Cotton Paper / Tarlatan / Ink
Connection with the next exercise:
Yes - Etching
Scale:
Varies
Key Words: **Etching#Zinc#Ink#Tarlatan#RollingPress#VerticalPress**

Mini Brief
In this exercise, the surfaces and plates etched in previous exercises will be printed on cotton paper, creating various copies of the designs in different colours and textures.

Process, Materials and Tools
Materials and equipment include tarlatan, cotton paper, a water tray, a roller, tints and a printing press. Firstly, the ink is applied across the surface, both in the carved and non-carved areas. Secondly, using an open-weave cotton fabric called tarlatan, the ink from the non-carved areas is removed, remaining only on the designed area. Finally, pressure is applied over the surface, transferring the design onto the paper by means of a rolling press or vertical press.






Exercise Information

Mini Brief:
Metal City
Area involved:
Aluminium Casting Workshop
Duration:
8 hours
Material:
Wooden base 14x20x4cm / Aluminium / Foundry
Connection with the next exercise:
Yes - Wood Working Workshop
Scale:
Varies
Key Words: **Aluminium#Foundry#Sand#Bentonite#Copy#Master**

Mini Brief

This exercise investigates the potential of sand casting to reproduce an idea onto a metal working prototype. Each participant will create a design for a city, using a wooden base to be reproduced in aluminium.

Process, Materials and Tools

Materials include the master wooden piece to be reproduced, a mix of sand, water and bentonite, the wooden box which helps us in creating the sand mould, and the aluminium casting foundry.
The oven is heated to 660 degrees to melt the aluminium, which will be poured into the sand mould, taking the shape of the original object.

Exercise Information

Mini Brief:
Silk Printing Design
Area involved:
Cyanotype Workshop
Duration:
2 hours
Material:
Screen / Black and white acetate print
Connection with the next exercise:
No
Scale:
1:1
Key Words: **#Silkprinting#cyanotype#tshirts #acetate#photoemulsion**

Mini Brief

To better understand the process behind silk and screen printing, the participants will engage on the design of a silk screen that will be later transferred into any textile base.

Process, Materials and Tools

The cyanotype process uses one of the earliest photographic processes, invented by the scientist Sir John Herschel in 1842, and used by pioneering photographer Anna Atkins in the first published book to include photographic images.

The process starts by coating the screen's silk mesh with a UV-sensitive emulsion, over which a transparent layer with the design printed in black is applied. The screen is exposed to light and the printed areas are not affected by the UV light and do not harden, going away during the development process and leaving the mesh exposed. The unshielded areas harden during the exposure process. During the printing process, the parts that were not exposed to the light will allow the ink to go through and print the design on the T-shirt.

DAY 01

09.30	**Bienvenida e introducción al taller** Welcome and Workshop Induction **Técnicas y materiales** Techniques and Materials
11.00	**Cerámica - Facade Prototype** **Diseño + Molde de Escayola** Ceramic - Facade Prototype Tile Design + Plaster Mould
14.00	**Comida / Lunch**
15.00	**Cerámica | copia de piezas** Ceramic | tiles replication
18.00	**Free Time**

DAY 02

09.30	**Conferencia /** Lecture "ALJ works and practice "
11.00	**Taller de carpintería - Carving a Tower** Wood Workshop - Carving a Tower
14.00	**Comida /**Lunch
15.00	**Moldes de silicona /** Silicon Moulds
17.30	**Free Time**

DAY 03

09.30	**Grabado Barniz Duro-Preparación plancha** Hard Ground Engraving-Plate preparation **Fotograbado y cianotipado - Emulsión** Photo Etching and Cyanotype - Emulsion
12.00	**Desmolde y colada de resina** Unmoulding and resin casting
14.00	**Comida /**Lunch
15.00	**Grabado Barniz Duro - Diseño** Hard Ground Engraving - Design
17.30	**Free time**

DIA 04

09.30	**Lijado de tejas cerámicas** Ceramic tiles sanding **Bizcochado cerámica** / Ceramic Bisque **Fotograbado - Proceso de Revelado** Photo Etching - Developing Process **Colada de Jesmonite /**Jesmonite Casting
13.30	**Comida /** Lunch **Fotograbado y cianotipado - Ácido** Photo Etching and Cyanotype -Acid
15.00	**Colada de Jesmonite - Terrazzo** Jesmonite Casting - Terrazzo
17.30	**Free time**

DAY 05

09.30	**Esmalte de piezas de cerámica** Ceramic Glazing
10.30	**Colada de aluminio | fundición** Aluminium Casting | melting **Colada de aluminio | moldes** Aluminium Casting | moulds
14.30	**Comida /** Lunch
17.30	**Trip to Santander**

DAY 06

09.30	**Estampación en papel** Printing Press in paper
13.30	**Comida /** Lunch
15.00	**Serigrafia** Screen Printing
19.30	**Exposición -** Exhibition - final event

DAY 07

09.30	**Firmado obra gráfica** / Artwork Signing **Empaquetado obra** / Work wrapping
12.00	**Fin de Taller / End of the Workshop**

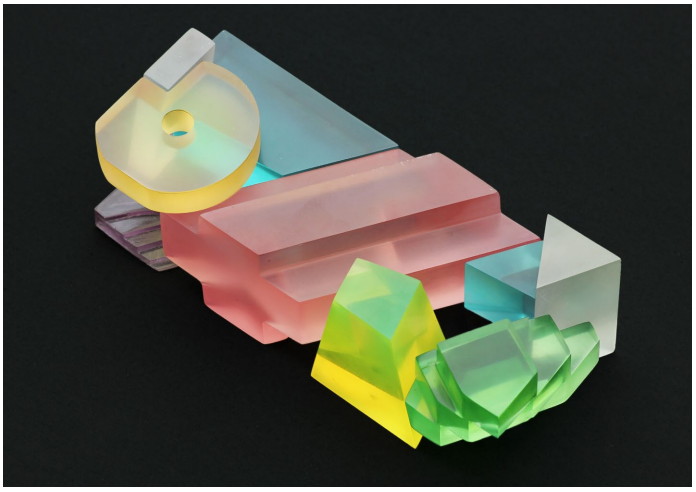


Fig. 29: Model for the project KU.BE, commissioned by MVRDV, The Netherlands, 2013.

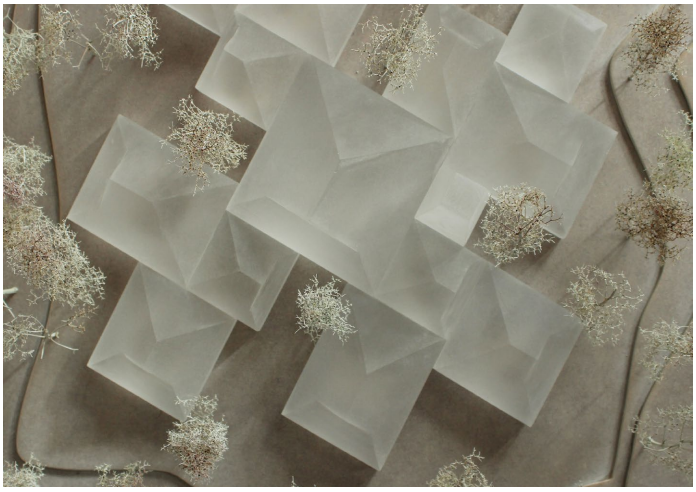


Fig. 30: Model for Arvo competition, commissioned by Alejandro Zaera-Polo AZPML, United Kingdom, 2014.

Fig. 32: Architectural model adapted for the visually impaired, Santander Council, Spain, 2014.

Fig. 31: Model for Taby competition, in collaboration with Bjarke Ingles Group, BIG, Denmark, 2011.

Atelier La Juntana Practice

Atelier La Juntana is a group of architects and artists developing architectural models in an international framework. Through a wide collaborative experience with various architectural practices and public institutions, their work is grounded on accurate and rigorous, yet always creative, production. Using a balanced mix of art and technical skills, their work combines the precision of architectural design with remarkable (innovative or handcrafted) materials and techniques. Therefore, the result is not a mere reproduction of the designed project, but rather a unique interpretation, enhancing the ideas and qualities behind the architectural creation. Traditional processes used in fine arts, such as acid etching, casting resin copies, silicone moulds and embossed paper, are combined with cutting-edge manufacturing and prototyping techniques. Likewise, 3D printing and the laser cutting process reach a high aesthetic and visual interest, while keeping accuracy and precision, both on an urban scale and on a 1:1 scale of detail. Over the last 10 years, the group's work has been exhibited worldwide on numerous occasions, such as at the Architecture Official College of Madrid 2008, the 12th International Architecture Biennale in Venice 2010, the Cité de l´ Architecture et du Patrimoine de Paris 2012, and the Architecture Official College of Cantabria 2014.

Clients and Collaborators

MVRDV Architects, The Netherlands.
ADEPT Architects, Denmark.
Bjarke Ingels Group, BIG Architects, Denmark.
Santander City Council, Spain.
Delegación Territorial de la ONCE Cantabria, Spain.
Alejandro Zaera-Polo, AZPML Architects, United Kingdom.
Cité de l `Architecture et du Patrimoine, Paris, France.
Paul St George, Devices of Wonder, Londres, United Kingdom.
Architecture Official College of Madrid.
Architecture Official College of Cantabria
Escuela Técnica Superior de Arquitectura de Madrid, ETSAM, Spain.
12th International Architecture Biennale, Venice, Italy.

Fig. 33: Coral Frontiers by Rosa Rogina, intervention on the Diego Garcia Island, 2015.

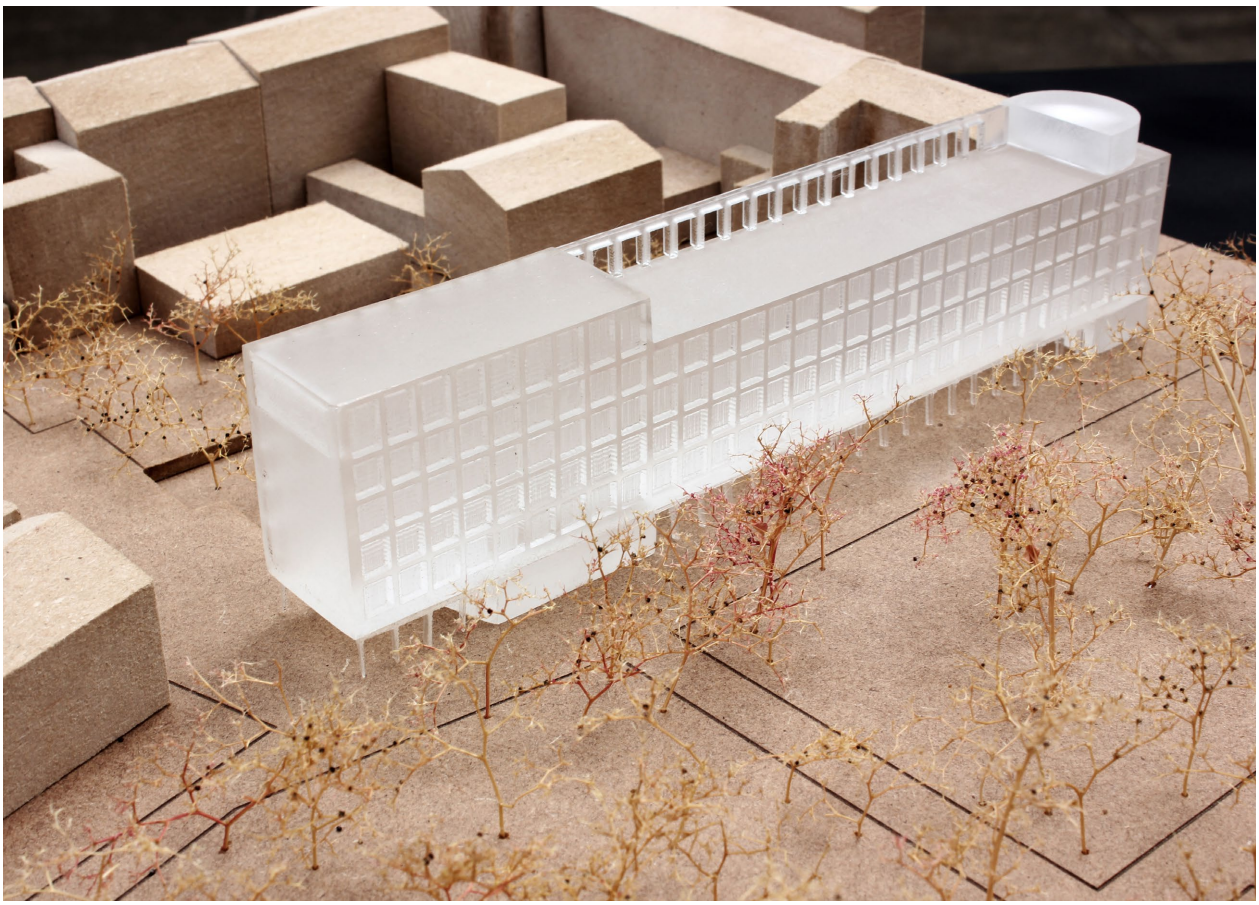


Fig. 34: Model for an University Campus Centre, San Sebastián, Spain 2014.

Throughout the course, participants are supported by three tutors, two architects and one artist. The tutors will lead an induction to the workshop equipment, techniques and materials available and assist each student in the production of the models. They will also aid with documentation (photography and animation) to provide a complete record of the course. In parallel, informal one-to-one tutorials for individual projects and the further exchange of ideas will take place.

Daniel Gutiérrez Adán (Santander, 1955)
Daniel is an interdisciplinary artist whose work encompasses a broad conceptual and formal span, with his artistic origins grounded in the fields of ceramics and sculpture. For over 30 years of his artistic career, he has researched and innovated tirelessly in the territory of contemporary sculpture. His solid technical background is coupled with unrelenting curiosity and a steady and always-necessary inquisitive drive. Besides his work as an artist, equally noteworthy is his intensive educational work, which he has developed in parallel with his art practice since his first steps as a professional. This activity has given him a chance to engage in constant dialogue with younger generations of artists. His work is part of an extensive number of museums and collections, such as Moderner Kunst Stiftung Ludwig Vienna, Fine Arts Museum Bilbao, Fundación Marcelion Botín Santander, Art Context Mountrouge Paris, New Europa Supranational Art Milan, ARCO `01 Open Spaces Madrid, Basel Art Fair Switzerland, Jacques Hachuel Collection Madrid and Runnymede Sculpture Form, Los Angeles.

Armor Gutierrez Rivas (Oviedo, 1984)
Armor graduated as an Architect from Polytechnic University of Madrid School of Architecture in 2009. He spent part of his studies abroad at École Nationale Supérieure d'Architecture de Paris La Villette. Member of Cantabria´s Architecture Official College since 2010, he participates actively in several Architectural Workshops with Elia Zenghelis, Carme Pinos or Mathias Klotz along with artistic collaborations with Andrés Jaque, Uriel Fogue or Chema Madoz.

He received a Leonardo grant and joined Bjarke Ingels Group in Copenhagen, working during two years in several projects and actively collaborating in the Expo 2010 Shanghai in China. In 2012 he starts collaboration with MVRDV in Rotterdam, working as a Project Architect and BIM Coordinator, and later developing a number of architectural models for the office. His work has been awarded with several prizes worldwide such as Gaudi Competition for Sustainable Architecture in 2010, Fundamentos de Arquitectura in 2008, Catedra Blanca ETSAM in 2004 or International Art Context Pancho Cossio in 2002 among others.

Nertos Gutierrez Rivas (Santander, 1989)
Nertos graduated as an Architect from Polytechnic University of Madrid School of Architecture in 2015. He spent part of his studies abroad at Technical University Vienna. His experience includes a wide range of scales, from urban planning and architectural projects including site delivery to exhibition design and 1:1 prototypes and installations. He works since 2020 as a Project Architect for Herzog & de Meuron in Berlin after having collaborated during the last years in some distinguished architectural offices across Europe.

He has given workshops as a guest lecturer at various renowned universities such as the VCU School of the Arts in Qatar, Manchester School of Architecture or the University of Nebraska among others, since 2022 he has been collaborating as a guest lecturer at the Berlin International University. His work has been awarded with several prizes worldwide and exhibited in different institutions such as the XII Venice Architecture Biennale, the Cite de l'Architecture et du Patrimoine in Paris, the School of Architecture in Madrid, or the Ecole Nationale d'Architecture in Rabat.

Bilbliography & recommended reading

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Holly Morrison - VCU Center for Teaching Excellence - Small Grant Program
www.hollymorrison.com

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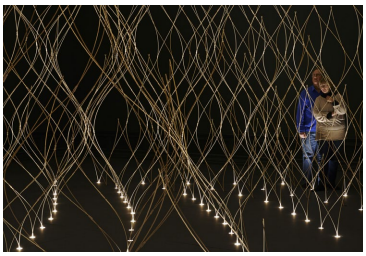

Fig. 35: Kengo Kuma, Sensing Space Exhibition, Royal Academy of Arts, London 2014.
www. royalacademy.org.uk/exhibition/4

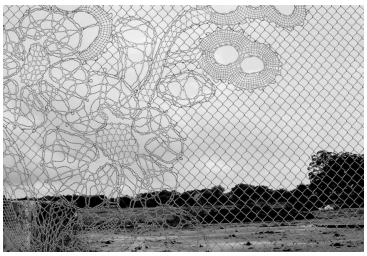

Fig. 36: Lace Fence Architectural Fabric, The Netherlands 2014.
www.lacefence.com

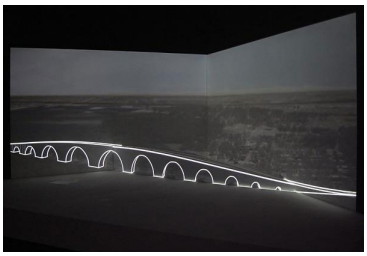

Fig. 37: BIG, Bjarke Ingles Group, Loop City Model, Venice Biennale, 2010.
www.big.dk

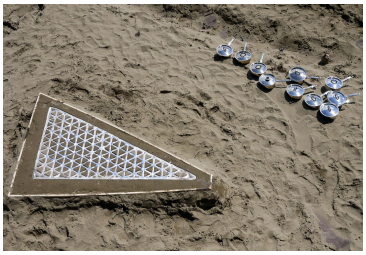

Fig. 38: Max Lamb Petwer Desk, Pewter, Caerhays beach, Cornwall, United Kingdon 2011.
www.maxlamb.org

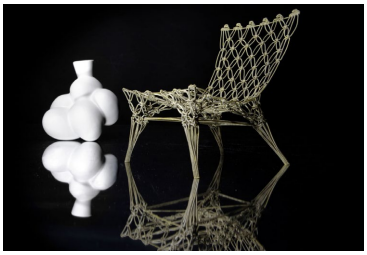

Fig. 39: Marcel Wanders, Knotted Chair, Droog´s Dry Tech Project, 1996.
www.marcelwanders.com

Fig. 40: "The Column", video installation, Adrian Paci's Architecture Biennale in Venice, 2014.
www.labiennale.org/en/mediacenter/video/fundamentals47

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