

Edition
2023/2024

Fabricademy Barcelona

The intersection of textiles,
digital fabrication and biology.

Postgraduate Diploma in Fabricademy, Textile and
Technology Academy by School of Professional
and Executive Development at UPC



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Fabricademy is a program at the intersection of digital fabrication, textiles and biology.

It explores the interrelation of human-technology-environment through the notions of embodiment, materiality, ecodesign, biodesign, performance, smart textiles, and digital fabrication.

Our mission is to (re) shape and (re)define the implications and applications of technology in the textile and clothing industry, from the fashion sector to the upcoming wearable market.



Fabricademy Diploma

Postgraduate Diploma in Fabricademy, Textile and Technology Academy by School of Professional and Executive Development at the Polytechnic University of Catalonia – European Higher Education Area (EHEA)

Course Length
6 months
September 2023
to March 2024
(Full Time)

Credits
45 ECTS

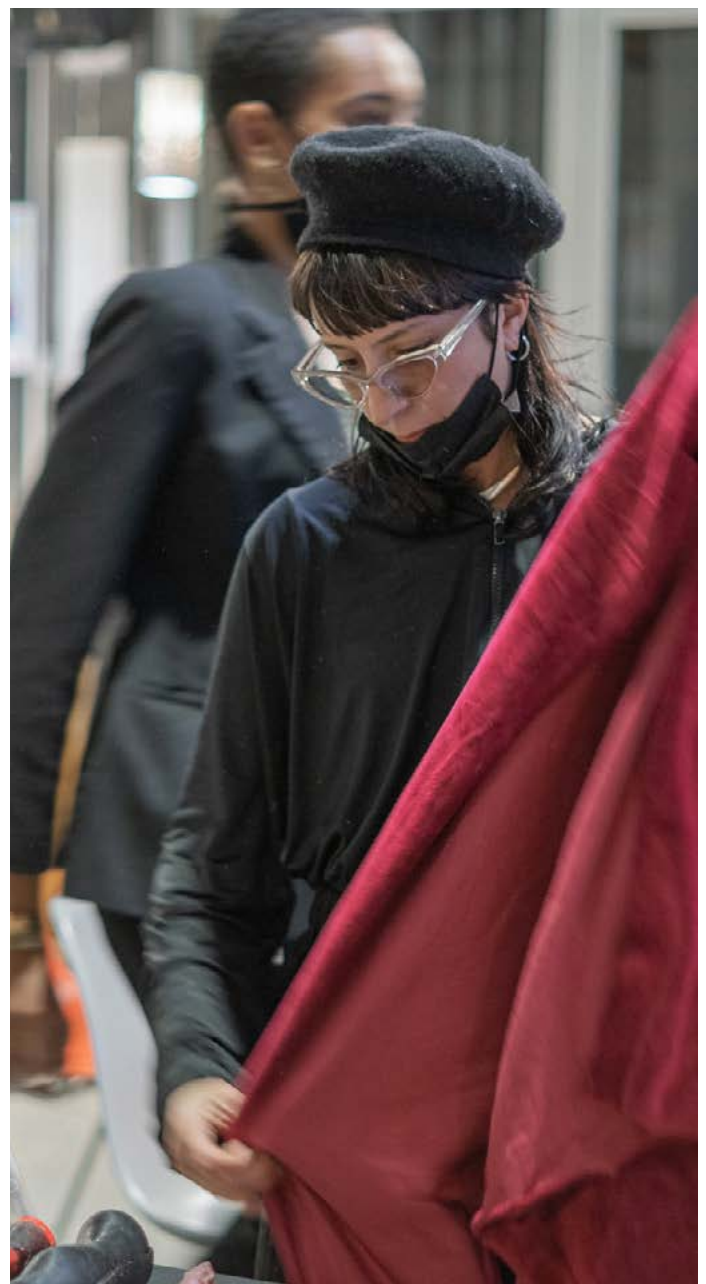
Tuition Fee
\$8.800

Change how you **think**, not just what you wear

Fabricademy at Fab Lab Barcelona equips students with the skills and knowledge to become key players in an emerging sustainable future of textiles. The program and educational environment encourage students to rethink industrial processes regarding textile production and design.

Merging tradition and advanced technologies, students learn a range of skills from digital fabrication to synthetic biology and work across the creation, production and distribution of textile and fashion elements to help them establish their careers as future textile professionals.

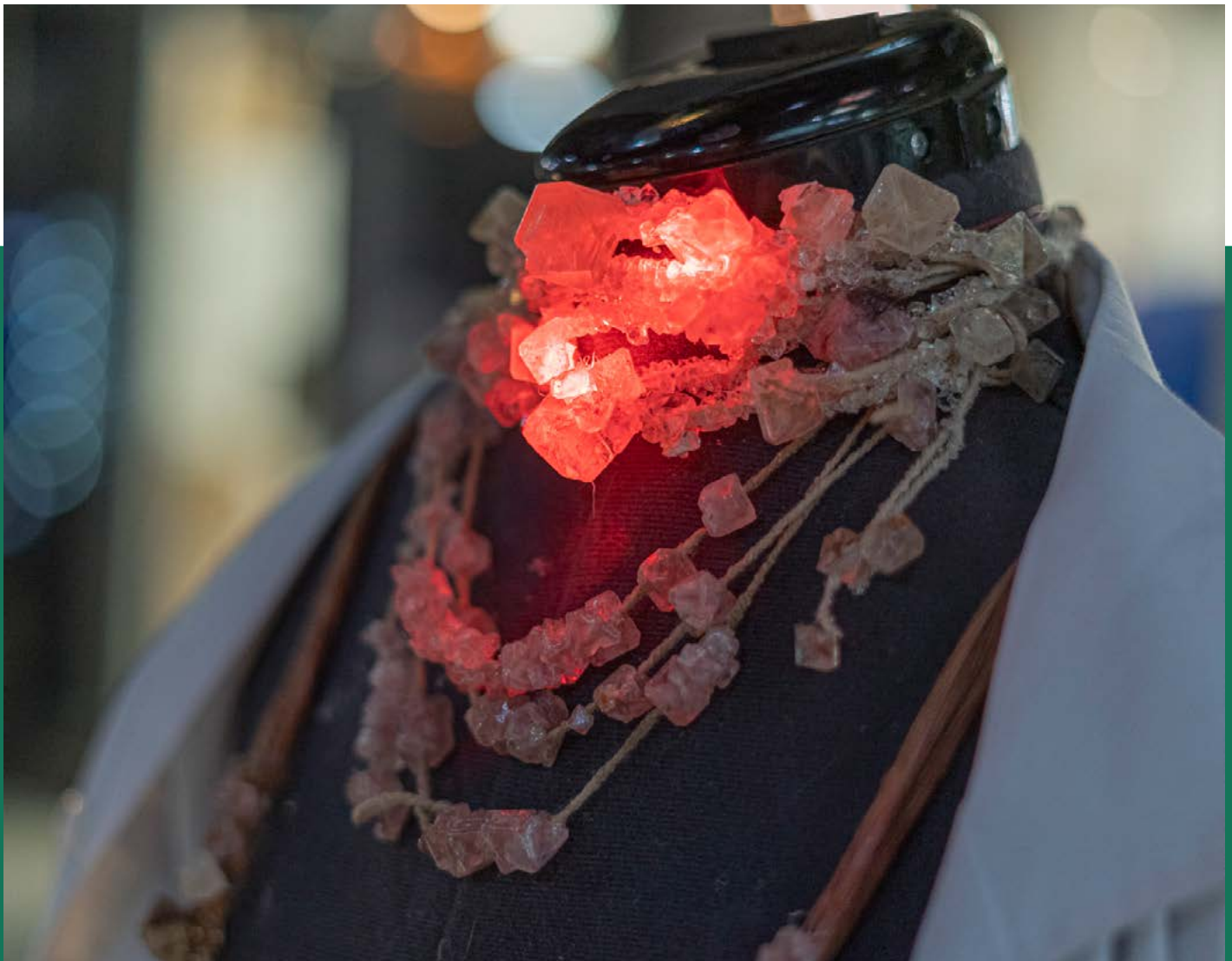
Learning is supported by experts from the field who help students investigate how the textile and fashion industries can benefit from new technologies, processes and business models.



Learning through making

The possibilities to conduct experimental research in an open laboratory give students the physical and mental space for innovative re-thinking and reframing of today's realities, offering the resources to materialize, test, develop and fabricate, not as a linear process, but as a spiral iteration and implementation into reality. Working in an open laboratory,

students experiment with the human body and culture by recycling, hacking and sensing. Rapid prototyping is used to create real-time feedback loops for project development, in which materials, aesthetics, sustainability and customization play equal and important roles. Students use acquired knowledge to develop a final project which may intersect multiple sectors of the future textile and fashion industry.





Student Profile

We wish to reach all creative disciplines dealing with design and the Maker Movement: creative players, makers, designers, artists, architects, scientists, and others.

Fashion designers

For existing fashion designers who are seeking new and innovative ways of working with textiles – whether this is with biomaterials, 3D printed clothing, interactive wearables and more. Fabricademy gives the option for fashion designers to become more sustainable in their practice.

Designers

We hope to benefit and increase the number of designers and creatives that self-produce goods by integrating resources they don't have access to. Utilizing digital platforms for all aspects of the creation process, to financing and execution.

Makers

This global movement merges artisanal skills with a digital layer of tools. We hope to benefit from this global community of do-ers by enhancing the connectivity between them and the spaces in which they work such as Fab Labs.

Fabricademy Diploma

Structure

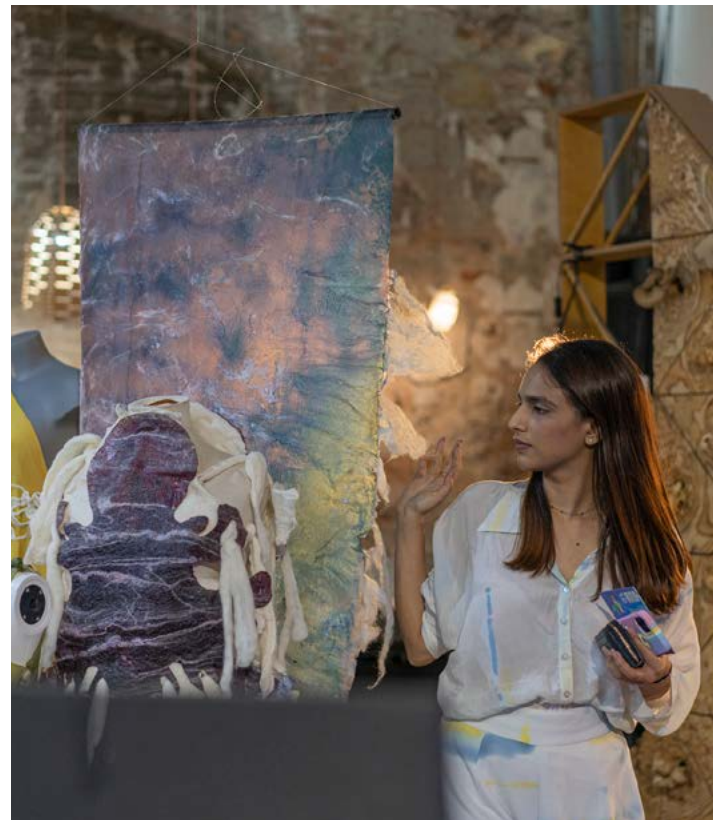
Phase 1: Skills Capsules

The first phase (September to December) emphasizes on the development of knowledge of prominent technologies through a series of hands-on intensive masterclasses that interweave traditional craftsmanship with advanced prototyping tools, innovative materials, software and manufacturing techniques. This phase sees the students work individually in short intense exercises and experiments.



Phase 2: Personal Project Development

The second phase (January to March) capitalizes on all the learning of phase 1 in order to develop a mature personal project. Participants focus on individual in-depth applied project research, employing critical thinking, hard and soft skills for the development of innovative solutions that explore and implement more viable, sustainable and fair alternative systems of today.



Program

Classes – Global Lectures



From
September to
December

- **Week 1 State of the art, project management and documentation by Fabricademy Coordination**
Introduction to teams, Values and Principles, scope of the program, Calendar overview
State of the Art: the textile and clothing industry, sustainability, innovation and technology
Project management, Documentation and Website
- **Week 2 Digital Bodies by Anastasia Pistofidou**
Representation of the human figure in art, The mannequin in haute couture, Human anatomy, Measuring the body, Digital fabrication techniques, Materials, CAD 3D, Modelling.
- **Week 3 Open Source Circular Fashion by Zoe Romano**
Circular fashion, Hacking the fashion system, Agile fashion, Modular elements, Modular seams, References, Tools/software
- **Week 4 Biochromes by Cecilia Raspanti**
Overview and context: Biochromes; Dyes: Natural & bacterial; Base materials, animal fibers and vegetable fibers; Mordants; Color modifiers; Dyes from roots, leaves, flowers - recipes; Dyes from pigmented bacteria; Inks: botanical
- **Week 5 E-textiles by Liza Stark**
Electronic in textiles; soft/flexible/fabric circuits; analog fabric sensor and digital sensor; Materials, Tools.
- **Week 6 Biofabricating Materials by Cecilia Raspanti**
Overview and context: BioFabrication, BioFabricating materials, Hi-tech, Cooperative research, Researchers around the world, Material Archives
- **Week 7 Computational Couture by Aldo Sollazzo**
Introduction, Patterns manipulations, Box Morphing, Loops and iterations, Recursive subdivision / localized subdivision, Physics and simulations, Wrapping, Foldable patterns, Unrolls and mesh planarization, VR representations

- **Week 8 Wearables by Liza Stark**
This second class on the topic of wearables and e-textiles will provide a more advanced coverage on soft sensors and actuators.
- **Week 9 Textile as Scaffold by Anastasia Pistofidou**
Technical textiles overview and applications, Crystallization, Textile formwork, Concrete casting, CNC Milling, Composites
- **Week 10 Open source Hardware - from fibers to fabrics by Mar Canet & Varvara Guljajeva**
This class focuses on the importance of the techniques, tools and machines that create traditional fabrics. The lecture will give an overview on the evolution of these tools and how these impact production and manufacturing, with the focus on hacking, both machines and tools, and creating open source accessible machinery for a broader public.
- **Week 11 Implications and applications by Oscar Tomico**
Relation between craftsmanship, mass production, customization and services, Ultra-personalised product service systems (UPPSS): ultra-personalized fashion and connected health, Personalization at a product level: digital material production; Personalization at a systems level: generative design and fit; Personalization at a service level: end user programming
- **Week 12 Soft Robotics by Dr. Lily Chambers & Adriana Cabrera**
References, Biomimicry, Locomotion, Pneumatics, Flexures, Molding and casting
- **Week 13 Skin electronics by Katia Vega**
Wearable computing subfield that integrates technology into cosmetics for direct application to the body (skin, fingernails and hair)
- **Week 14 Project Proposal Presentation by Fabricademy Coordination**
References, Strategies.

→ **Personal Project Development** **From January to March**

Review on Workflow - GANTT by Fabricademy
Coordination

Focus Group - Mentoring Sessions by
Fabricademy Coordination & Mentors

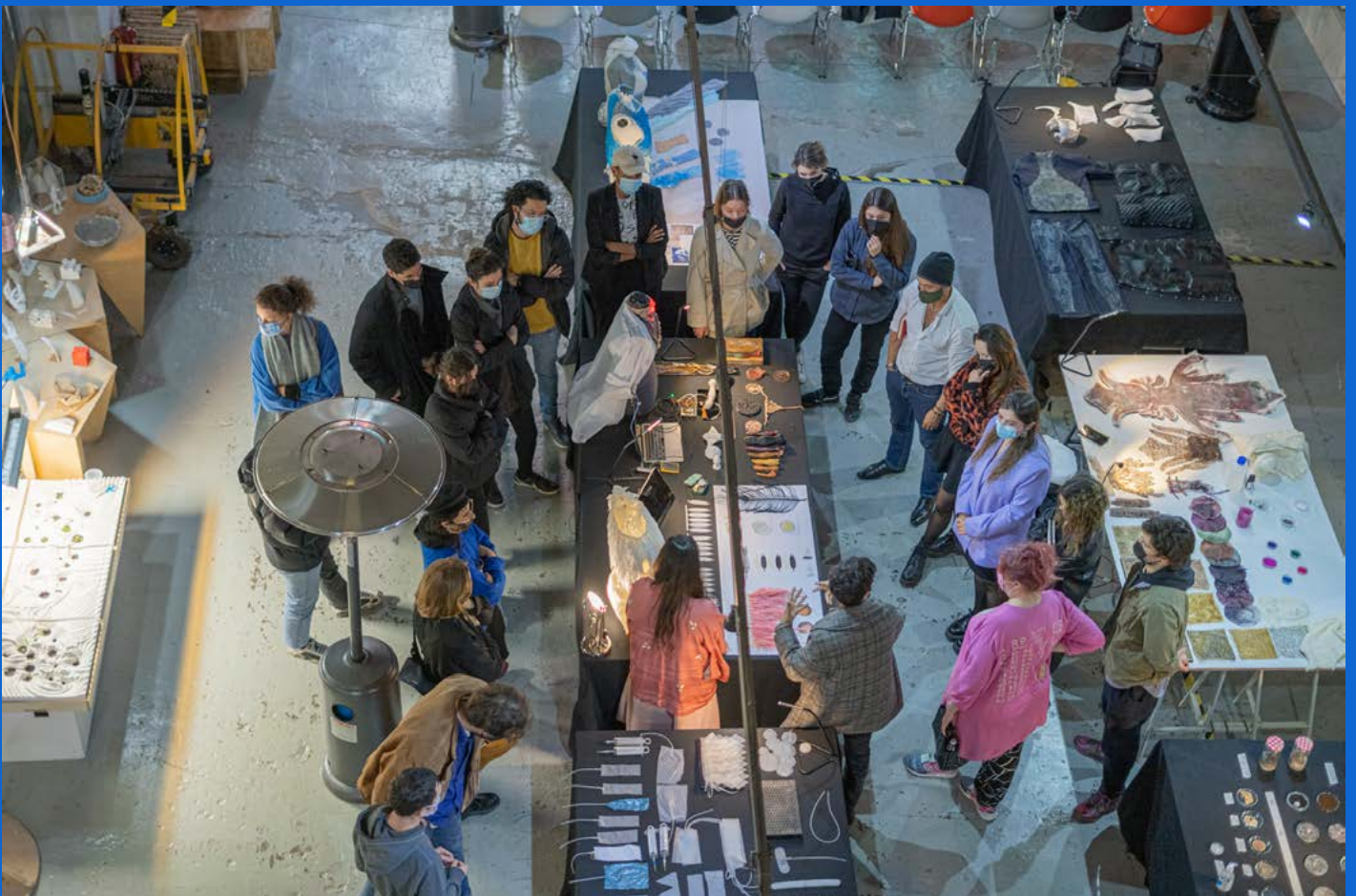
Mid-February: Mid Term Presentations by
Fabricademy Coordination

Review on Process & Workflow by Fabricademy
Coordination

Focus Group - Mentoring Sessions by
Fabricademy Coordination & Mentors

Review on Storytelling & Final prototype by
Fabricademy Coordination

Late March: Final Project Presentations by
Fabricademy Coordination & Jury Members



Fab Lab Barcelona

Student teams will work for 12 weeks bootstrapping their Fabricademy Final Projects, researching and prototyping incremental improvements using manufacturing technologies, new materials, and wearable computing.

Why study Fabricademy in Fab lab Barcelona?

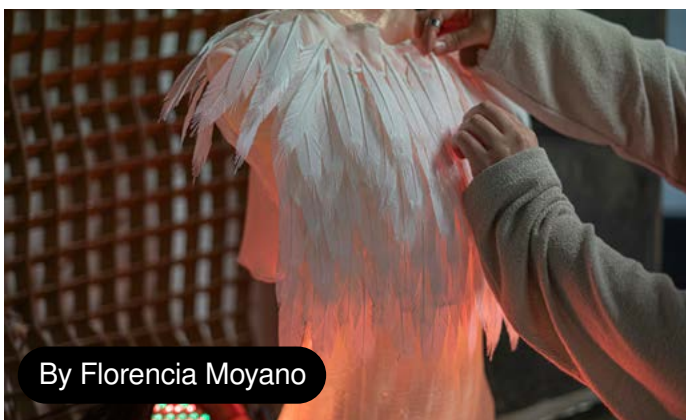
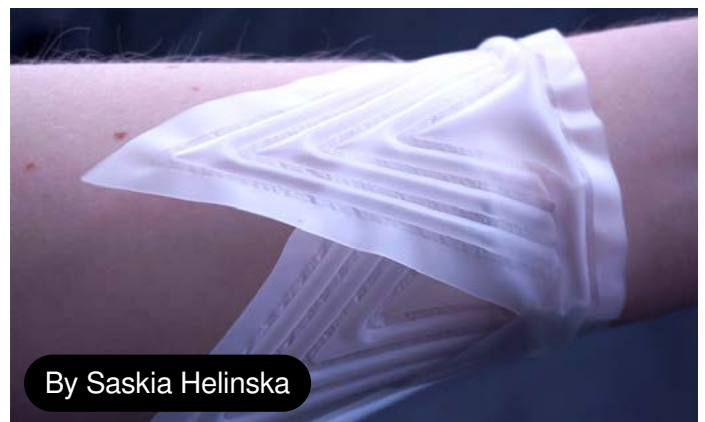
Over 15 years, Fab Lab Barcelona has become a global benchmark for Academy Programs and Distributed learning. Students in Barcelona are surrounded by a multidisciplinary team of professionals and researchers, enriching their learning experiences.

In addition, the Poblenou neighborhood, where FLB is located, is one of the most genuine and prolific metropolitan scenarios of Barcelona city, an epicenter of creativity and innovation where ultra-modern buildings such as the Agbar Tower, Media TIC or the Design Hub Barcelona, coexist with old warehouses, art galleries, organizations, design studios, advertising agencies, higher education centres, production companies, hotels and restaurants. The neighbourhood is so unique it has been branded, the 22@ District.



**‘Rethinking the way we live,
work and play in cities.’**

Student Projects



Buzz Words

Wearable technology

Sustainability

Assistive technologies

Personal fabrication

Bio materials

Distributed manufacturing

Industry 4.0

“Learning by doing” methodologies

Ecodesign

Biofabrication

Biodesign

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Location

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Social Media

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 **FABFOUNDATION**

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FABTEXTILES

 **waag**
technology & society

 **waag**
textilelab amsterdam

 **Academy**
The Academy of (almost) Anything