



Future Technologies For Sustainable Fashion

Program Summary

Future Technologies for Sustainable Fashion (FTSF) is a 2-month special project entered in the EU Horizon 2020 research and innovation project ATTRACT, an initiative bringing together Europe's fundamental research and industrial communities to lead the next generation of detection and imaging technologies.



Future Technologies for Sustainable Fashion (FTSF) aims to foster collaborations in the emerging field of Fashion Technology with a critical approach under the spectrum of sustainability, future scarcity, and space habitation.

Students will work intensively to develop emerging technologies that respond to societal needs through a hands-on approach, using digital manufacturing, first-person perspective methodology, multiverse thinking, and embodied design ideation methods. The project brings together students from IED and IAAC, the Institute of Advances Architecture of Catalunya. Projects are led by mixed student teams from the two institutions that share visions and agendas and wish to

establish their collaboration. It enables participants to work under the guidance of a broader and multidisciplinary pool of experts to ideate and prototype solutions with a design hands-on-centred approach.

The main challenges they will face will be focused on:

- 1) how emerging and disruptive technologies could reverse the environmental impact that the fashion system has on the planet.
- 2) exploring new ways of designing and producing fashion that lead to novel approaches to how fashion is consumed and discarded.

Student teams will work on researching and prototyping solutions using agile manufacturing technologies, new materials, and wearable computing that will be presented at the end of the course to an invited jury of experts from IdeaSquare at CERN (the European Organization for Nuclear Research), and related industrial partners.

Course Description

Future Technologies for Sustainable Fashion (FTSF) reflects on the use of new technologies and materials in the field of fashion design through a combination of design and novel scientific methodologies, such as Multiverse Thinking. Students will be provided with theoretical and technical knowledge about disruptive technologies, materials, and processes transforming today's industry and creating the culture and conditions to innovate. They'll dive into Digital Fabrication, Biotechnology, Soft Robotics, Wearables, and New Textiles to gain a broad perspective of the textile industry and develop critical thinking to integrate sustainable design strategies that consider environmental, ethical, and societal challenges.

Program Methodology

The course will be run by multidisciplinary student teams and supported by tutors and experts in developing novel technologies applied to fashion, textiles, and wearables. Those multidisciplinary student teams are formed, bringing together artists, interaction designers, engineers, and architects from the Institute of Advanced Architecture of Catalonia (IAAC) and fashion and product design students from the Istituto Europeo di Design (IED).

Students will be introduced to state of the art in fashion, sustainability, and emerging technologies. By working from a 1st person-perspective, students will reflect on their socio-economic context to identify their research interests and to generate preliminary ideas. Students will team up and prototype using embodied design ideation (EDI) methods. EDI methods allow students to engage in more personal, intuitive, and situated ways with the research topics they are exploring. Students accelerate the prototyping phase by working within a specific context, with their bodies and materials, aligning their ideas with the practice.

The program will be running with different types of activities:

Introduction sessions: at the beginning of the course, students will be coached to create mixed teams taking into consideration multiple intelligence skills and academic backgrounds to apply their talents and capabilities better.

Visit IdeaSquare/CERN: in the first part of the program, students will travel to IdeaSquare to deep-dive into multiverse thinking methodology that will enrich their skills and forecasting capabilities.

Hackathons and intensive sessions: in some weeks, students will meet in intensive sessions to boost their work.

Weekly sessions: students will work together to get familiarised and use the infrastructure of the two schools.

The expected outcomes range from proposals that innovate the textile and fashion production processes to sustainable product development using new technologies or novel solutions that tackle how fashion is consumed and discarded. The deliverables will consist of a physical prototype and a video presentation showing the design process and final results.

To ensure the established learning outcomes, IED and IAAC put at disposal of the students a broader and multidisciplinary pool of experts with different backgrounds that will work jointly with the student's team and advice their project development.

Students will ideate and prototype their proposals directly using the two institutions' laboratories, machines, and any kind of working space to ensure a design hands-on-centred approach.

Coaches and professors will also foster peer coaching so that students can transfer their knowledge to each other and enrich their points of view with the use and appliance of different kinds of design methodologies.

To enrich the process, students will travel to Geneva for an intensive experience within IdeaSquare spaces at CERN, being IdeaSquare the liaison organization for this program. Students will meet IdeaSquare team and relevant researchers and collaborators in masterclasses, presentations, and workshops to deep-dive into the liaison organization environment.

Previously to this travel, and to take full advantage of this opportunity, students will work on concept proposals that could be directly tested with the application of the multiverse thinking methodology.

Course Schedule

May 2nd to June 27th, 2023

- Introduction sessions: May 2nd
- visit IdeaSquare/CERN : May 24-26th
- weekly sessions: on Wednesdays-Fridays, from 15.00-18.00h

Student's support and facilities

The projects led by IED and IAAC are committed to including multidisciplinary teams by bringing together students with a set of skills, attitudes, ages, and knowledge that are relevant to the purposes of the courses. The coaches of the multidisciplinary teams will foster cooperation so that their members can contribute with their skills, understanding and respecting those of others, and making sure that all team members are comfortable in the role given.

Students will have access to:

IED Medialab: The MediaLab is a photo and video dynamic set dedicated to the study and learning of audiovisual techniques.

IED Design Lab: The design workshops are equipped with the necessary tools for the realization of models and the development of volumetric projects, such as: CNC, laser cut, 3d printers.

IAAC Fab Lab Barcelona: a cutting-edge Digital Fabrication Laboratory specialized in multiscalar projects, from a house to circuit boards and digital platforms. Founded in 2007 it was the fourth Fab Lab to join the Fab Lab Network initiated by MIT's Center for Bits and Atoms (CBA) and the first one in the European Union. Fab Lab Barcelona facilities include large-scale manufacturing facilities equipped with large-scale CNC milling machines and laser cutters and a 6-Axis industrial robot. The laboratory also includes electronics facilities for prototyping and manufacturing printed circuit boards (PCB's) in low quantities. The laboratory has a KUKA KR150L110 with a milling head, tool changer, and rotative table, as well as an ABB IRB 6620. Furthermore, the laboratory also hosts Fab Textiles and Materials, a unit dedicated to developing and implementing a new approach on how to create, produce and distribute fashion elements, with the use of digital fabrication, from digital embroidery to a bio lab dedicated to material driven design with microorganisms.

Technologies

Kniterate

Kniterate is bringing an affordable and compact version of industrial knitting machines to the fashion production. It automatically turns digital designs into knitted garments. The Kniterate machines make the process of designing and making knitwear very easy. Kniterate has been developed to be able to explore knitting's potential, make knitting more accessible for designers and industry.

Protopixel

The platform that helps materialize the vision of light. From functional configurations to emotional, dynamic and interactive lighting. Protopixel is changing the way of creating expressive smart lighting in the retail, hospitality and entertainment markets. The Lighting as a Service platform allows businesses to create and control unique lighting experiences directly from the cloud, without the need for significant budgets or expert professionals.

Megamorph

MEGAMORPH is a project funded by ATTRACT, working with a disruptive imaging technology: Graphene Interferometric MOdulator Display (GMOD).

Partners

Istituto Europeo di Design IED

For more than fifty years, Istituto Europeo di Design has been operating in the fields of education and research in the disciplines of design, fashion, visual communication, and management. Today, the IED is a constantly expanding international network in 13 cities around Italy, Spain, and Brasil that issues first-level academic diplomas and organizes three-year courses, Master courses, continuous professional development, and advanced training courses. Since 1966, the IED has developed innovative and diversified teaching methodologies, focused on synergies between technology and experimentation, creativity,

strategies and integrated communication, market issues, and a new form of professionalism. Thus the Istituto Europeo di Design offers young professionals working in the fields of Fashion, Design, and Communication the knowledge and the effective tools they need to cater to the constantly developing requirements of the working world.

Fab Lab Barcelona / IAAC

Fab Lab Barcelona, part of IAAC, is a think and make tank, a laboratory for research, services and education, driving and developing investigations into citizen-centred technology, digital fabrication, productive citizens and emergent futures. We work in strategic areas of expertise that drive our programs and research: Civic Ecology, Distributed Design, Emergent Futures, Future Learning, Materials and Textiles, Productive Cities and Sense Making. Founded in 2007 it was the fourth Fab Lab to join the Fab Lab Network initiated by MIT's Center for Bits and Atoms (CBA) and the first one in the European Union.

The Institute for Advanced Architecture of Catalonia (IAAC) is a centre for research, education, production and outreach, with the mission of envisioning the future habitat of our society and building it in the present. IAAC follows the digital revolution at all scales (from bits to geography, from micro-controllers to cities, from materials to the territory) to expand the boundaries of architecture and design and meet the challenges faced by humanity.

IAAC is an open, independent, and radical non-profit foundation, with 20 years of activity; inspired by the values of Barcelona, the capital of architecture and design, where urbanism was invented and where a local high-quality and innovation-oriented research is connected to an international network of excellence in technology, architecture, and society fields.

FTFS

Academic team

Marina Castán

A textile designer and a researcher focusing on material experimentation, and emergent embodied design methodologies. She holds a Ph.D. from the Royal College of Art within the ArcInTex European Training Network (Marie Skłodowska-Curie actions -Horizon 2020). ArcInTex aims to strengthen the foundations of design for more sustainable forms of living by connecting architecture, interaction design, and textiles in a training network for earlystage researchers.

As a part of her PhD program, she did a four-month placement at Heatherwick studio in London and published the results of her investigation in Design conferences such as NordiCHI, EKSIG and Elisava Temes de Disseny scientific journal. Marina also holds a Bachelor in Textile Design (ESDi Design School), and an MA in New Media Art Curating (MECAD-ESDi). She has experience as a professor and researcher, often collaborating with industry and other stakeholders to develop innovative design processes and outcomes. She is interested in collaborative practices where different expertise and perspectives coalesce in a common ground.

Her interests include embodied design, craft and technology material experimentation, and ways of communicating research.

Anastasia Pistofidou

A digital fabrication expert, wearables and e-textile practitioner, biomaterial maker, and educator. Part of the Fab Lab Barcelona at IAAC team since 2011 as a tutor, advanced manufacturing office manager, coordinator, researcher, mentor for artistic residencies and mentor of

the Barcelona siscode pilot project; winner of the STARTS prize 2021. In 2013 she co-founded Fab Textiles lab, focusing on Experimental Digital Open-Source Couture and since then she is the Fab Lab Barcelona Materials and Textiles Lead. In 2016 she established a globally distributed course called: Fabricademy, a new Textile & Technology Academy, that combines Digital Fabrication, Textiles, and Biology in a 6-month intensive flexible and ageless educational program. She also works as a content curator for Fab Foundation.

Susana Zarco

Multidisciplinary designer and educator. Professor, Academic Coordinator at the Master area, and coordinator of the Foundation in Global Design course at IED Barcelona. In 2006, she created the studio and brand Lots of Loops, as well as the Barribastall Workshop, where she develops creative activities for cultural associations through the workshop format. She has collaborated with Emiliana Design Studio in the development of projects, especially those related to the design and coordination of exhibitions. In the academic field, she's involved in transversal and multidisciplinary courses focusing on conceptualization and design processes.

Petra Garajová

Petra is a Slovak designer with a background in architecture, exploring the boundaries of material science, digital manufacturing and textiles. Currently she is working in Fab Lab Barcelona as a Fabricademy Local Instructor.

Petra holds a Master's degree in Arts and Architecture at the Academy of Arts Architecture and Design in Prague. After her architectural studies she graduated from Fabricademy - Textile and Technology Academy in Fab Lab Barcelona IAAC. During her studies she was part of Shemakes.eu European project as an Ambassador between Fab Lab

Barcelona and TextileLab Iceland working on the Lab to Lab project - Rethinking Wool. Her Fabricademy final project was awarded the Young Scientist Award 2022.

Nowadays, she is also a co-founder of the Experimental Design platform which is using fashion as a tool to reshape the connection between nature, soft materials and the human body using new technologies.

Cristian Rizzuti

Graduated in Visual and Multimedia Art, he works as interactive Media artist & Reasercher between Barcelona and Rome. Currently he is a Physical Computing expert at IAAC – Institute of Advanced Architecture Catalonia. He has always been inspired by science and mathematic and I am very passionate about digital arts, live media and interactive projects. His personal research is focused on the role of human perception, synesthetic spaces and wearable technolgy.

Julia Esquè

Julia is a Design professor at IED Barcelona. Journeyed through various creative processes before establishing her independent practice. Her projects stir in the intersection between product, fashion and textile design. Has collaborated with companies that include Santa&Cole, Moooi, Paloma Wool, Mobles114 or Nomad Coffee. Her projects stir in the intersection between product, fashion and textile design.

Roberta Modena

Roberta is a fashion designer and teacher at IED Barcelona. Her fashion brand is rooted in the sustainability concept which covers the raw materials we use , the production process and sale philosophy.

Our timeless and aseasonal collections have been created in collaboration with local artisans expert in garment finishes, natural dye, pleats and knit.

Fees

SINGLE APPLICATION

MAY - JUNE

1.350 € including:

- Introductory sessions
- 9 weekly sessions
- 3-day trip to IdeaSquare/CERN (flights and accommodation included, allowances covered by students)

PACKAGE OFFER

MAY - JUNE 2023 / SEPTEMBER '23 - MARCH '24

9.000 € including:

- Introduction sessions
- 9 weekly sessions
- visit IdeaSquare/CERN (flights and accommodation included, allowances covered by students)
- Fabricademy postgraduate program (Early bird) 2023/24 for 6 months



Contact

IAAC – Fab Lab Bcn

Luciana Asinari
Educational Programs Lead
luciana.asinari@iaac.net

