

Fab Lab Barcelona

Fab Lab Barcelona is one of the leading laboratories of the worldwide network of Fab Labs, a small scale production and innovation centre equipped with digital fabrication tools and technologies for the production of objects, prototypes and electronics.

Fab Lab Barcelona is part of the Institute for Advanced Architecture of Catalonia, where it supports different educational and research programmes related with the multiple scales of the human habitat. It is also the headquarters of the global coordination of the Fab Academy programme in collaboration with the Fab Foundation and the MIT's Center for Bits and Atoms: the Fab Academy is a distributed platform of education and research in which each Fab Lab operates as a classroom and the planet as the campus of the largest University in construction in the world, where students learn about the principles, applications and implications of digital manufacturing technology.

The **Fab Lab Barcelona** has produced projects such as Hyperhabitat IAAC (official selection for the Venice Biennale XXI) or the Fab Lab House (Audience Award in the first Solar Decathlon Europe in Madrid). It is currently developing projects in different scales, from smart devices for data collection by individuals (Smart Citizen innovative project award in the Smart City Expo and World Congress in Barcelona), the development of the new generation of Fab Labs in the Green Fab Lab project, to the new production models for cities with the Fab City project being implemented in Barcelona in collaboration with the city council.

Fab Lab's mission is to provide access to the tools, the knowledge and the financial means to educate, innovate and invent using technology and digital fabrication to allow anyone to make (almost) anything, and thereby creating opportunities to improve lives and livelihoods around the world. Our primary beneficiaries are community organisations, educational institutions and non-profit concerns.

Green Fab Lab

As a part of the FabLab network, the **Green Fab Lab** works towards the creation of a self-sufficient habitat and research centre at **Valldaura Self-sufficient Labs**, one of IAAC's campus locations.

Located in the Collserola Natural Park, in the heart of the metropolitan area of Barcelona, it has laboratories for the production of energy, food and things, and develops projects and academic programmes in association with leading research centres around the world. As part of IAAC's commitment to promoting and advancing habitability in the world on the basis of ecological principles and to making the fullest use of all available technologies and resources, we have created a research centre focused on the idea of self-sufficiency, with a view to providing a

worldwide point of reference. The Green Fab Lab offers an opportunity to learn directly from nature in order to bring that understanding to the regeneration of 21st century cities.

Fab Lab Barcelona programmes

Fab Academy

The Fab Academy Diploma is a worldwide distributed programme, founded by the Center for Bits and Atoms at MIT, and devoted to teach anyone to make almost anything. Each Fab Lab that participates in the Fab Academy programme is part of a global Fab Lab / Fab Academy network. These Fab Labs are Nodes that offer the Fab Academy programme. The Fab Academy faculty, who are leaders in their respective fields, provide global video lectures, supervise academic content and guide research. The Fab Academy is directed by Neil Gershenfeld from MIT, produced by Sherry Lassiter from MIT and coordinated by Tomas Diez, from Fab Lab Barcelona. It consists of a 5-month part-time student commitment, from January to June 2017.

Workshops

Fab Lab Barcelona offers a programme of workshops focused both on specific aspects of Advanced Digital and Robotic Fabrication, as well as spreading knowledge and empowering citizens and creative people. Some of the latest workshops include: Computational couture, 3d printing, building with robots, cutting and blending, extreme manufacturing, making things talk, mold's fabrication and objects production, networking environmental robotics (NERO), and much more.

Fab Kids

The Fab Kids is a creative laboratory that favours the development of intelligence, creativity and imagination of children and youth. It is a place where thinking is encouraged and innovation occurs, a space where educational and recreational activities take place, focused on design and digital fabrication.

Students at the Fab Academy learn:

- How to use a Fab Lab's digital fabrication tools for rapid prototyping: Epilog Mini Laser Cutter, Roland MDX-20 Milling Machine, 3D printers, Roland CAMM-1 Servo GX-24 Desktop Vinyl Cutter, ShopBot CNC Milling Machine
- Electronics design and production by producing circuit boards using a variety of sensors and output devices.
- How to programme AVR microcontrollers on the boards they have produced
- Molding and casting
- 3D scanning and printing
- The programme requires a minimum of 30 hours per week.