



OPEN  
TEXTILES





Proposal for  
The International School  
Nido de Águilas

## Fablab Santiago | Open textiles

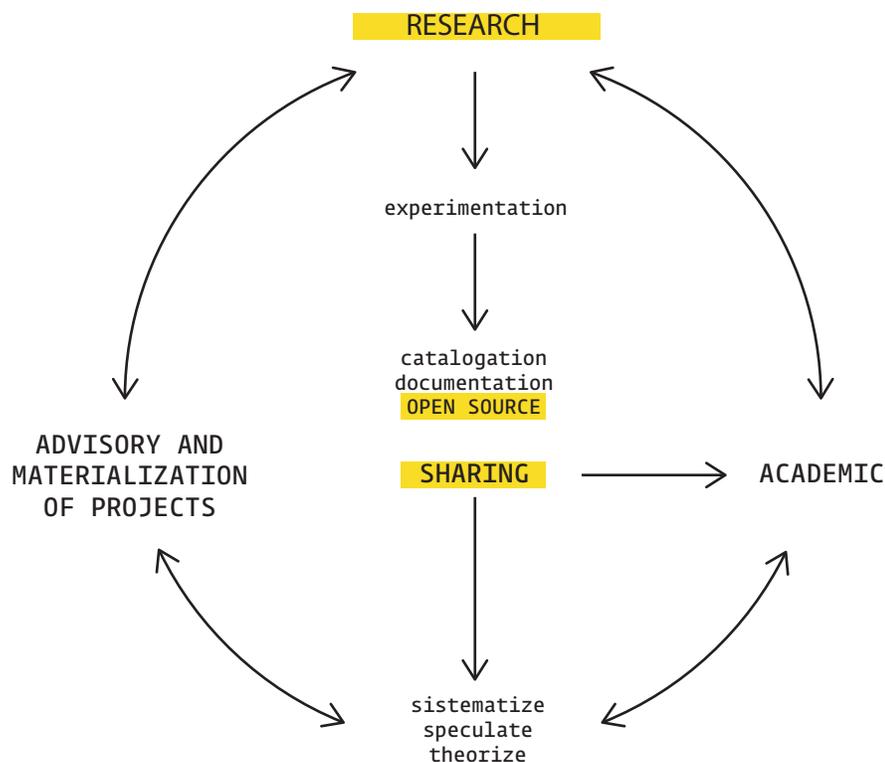
The Laboratory of Digital Manufacturing of Santiago (Fab Lab Santiago) is a space for innovation, experimentation and development of design and architectural projects, focused on new technologies.

Part of the worldwide network of Fab Labs ([www.fablabs.io](http://www.fablabs.io)) since 2013, Fab Lab Santiago is the first independent laboratory in Latin America. With its own business model, networks, management, methodologies and processes it is a unique component of the global network.

Fab Lab Santiago is structured in 3 pillars: social, academic and professional, with the aim of constructing answers to questions relevant to our context through collaboration and interdisciplinary work.

Open Textiles is a research area within Fab Lab Santiago dedicated to textile experimentation and development of design projects with an emphasis on exploration of new technologies.

Open Textiles is a space that seeks to open new questions in the field of textiles; exploring new possibilities in uses and functionality; and projecting interdisciplinary and collaborative work as a fundamental axis in the elaboration of projects.



## Proposal

The following document is a unique workshop proposal for the Nido de Águilas International School in Santiago.

### General purpose

Learn and experiment around new digital manufacturing technologies, becoming acquainted with specific areas of development which will culminate in a project.

### Specific objectives

The acquisition of technical, theoretical and practical knowledge of students is achieved through:

- Understanding of the material and technological environment.
- Develop critical thinking around the materialization of ideas.
- Material and form analysis

### General structure

The workshop will be presented to students as a one week Challenge, in which each day they will acquire specific knowledge and develop simple exercises. Then everything learned will culminate in the development of a group's project.

### Considerations

The workshops are designed for 15 students.

## Proposal

### Day 1

#### LASER + TEXTILES

Duration: 7 hours

Place: Fablab Santiago

Hours: from 9am to 16pm

Objective: Students will learn a new productive method through laser cutting and engraving. They will be able to personalize products understanding their parts, pieces and the logics of ensembling.

Structure:

- Introduction to digital manufacturing
- Introduction to digital textiles
- Possibilities of laser + textiles
- Modular textiles
- Use of the cutting laser machine
- Use of illustrator software and exercise

Break

- Examples of laser cutting and engraving textiles
- Examples of modular textiles
- Personalization of the pre-designed samples
- Cut and engrave of the samples
- Final assembly of the object

Objects to be developed: Accessories of medium complexity. If the objects are not cut during the day, it will be done during the next day.

#### Instructors

There will be a specialist and general manager instructor for the day "Laser + textiles", who will conduct theoretical classes and supervise the proper functioning of the activity, and assistants will support all the activities.

## Proposal

### Day 2

#### 3D PRINTING ON TEXTILES

Duration: 7 hours

Place: Fablab Santiago

Hours: from 9am to 16pm

Objective: Design and incorporate three-dimensional shapes on different textiles through 3D printing.

Structure:

- Introduction to 3D printing
- Study of cases
- Introduction to the 3D modeling software - Fusion 360
- Exercise

Break

- Introduction to 3D printing software
- Examples of 3D printing over textiles
- Exercise and printing

Objects to be developed: Interventions on surface from accessories to clothing. Si los objetos no se alcanzan a imprimir durante el día, se realizará durante el día siguiente.

#### Instructors

There will be a specialist and general manager instructor for the day "3D printing on textiles", who will conduct theoretical classes and supervise the proper functioning of the activity, and assistants will support all the activities.

## Proposal

### Day 3

#### ARDUINO PROGRAMMING (LILYPAD)

Duration: 7 hours

Place: Fablab Santiago

Hours: from 9am to 16pm

Objective: Students will learn basic Arduino programming, know the components of a Lilypad plate and its application through a textile exercise.

Structure :

- Lilypad's components
- Sensors and y actuators
- Arduino basic programming
- Exercise with flexometer

Break

- Assembly of a pre-designed textile object
- Integration of the electronic system in the textile object

Objects to be developed: A textile glove will be developed with LED lights that react with a flexometer

#### Instructors

There will be a specialist and general manager instructor for the day "Arduino programming", who will conduct theoretical classes and supervise the proper functioning of the activity, and assistants will support all the activities.

## Proposal

## Day 4 and 5

### PROJECT

Duration: 14 hours

Place: Fablab Santiago

Hours: from 9am to 16pm

Objective: Students will apply the acquired knowledge to develop an experimental project in groups, guided by the instructors of the previous classes.

Structure:

Day 1:

- Develop the idea
- First prototype
- File settings

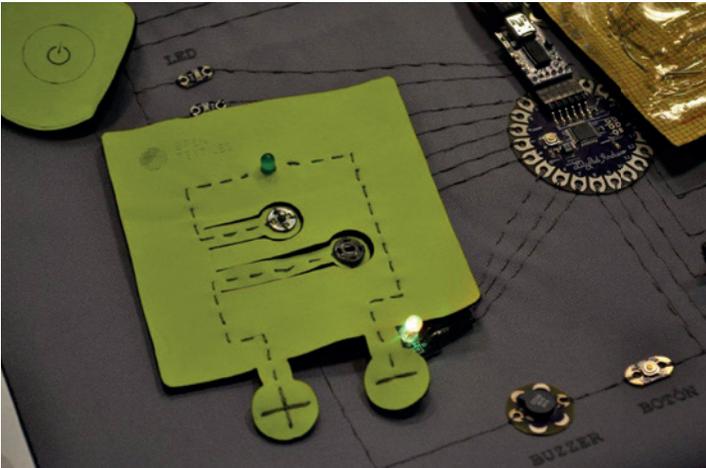
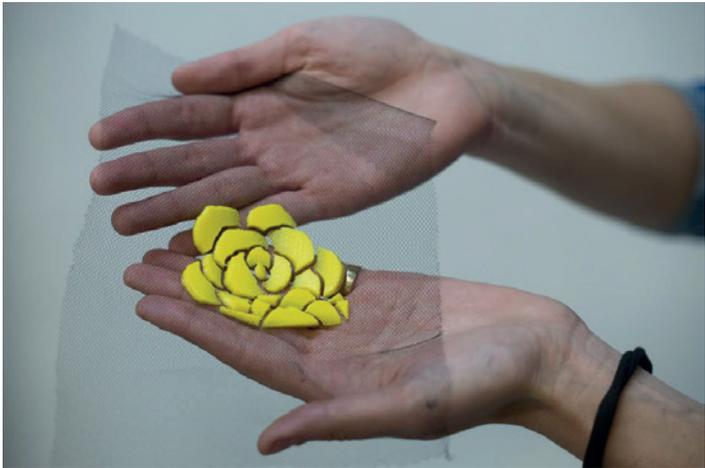
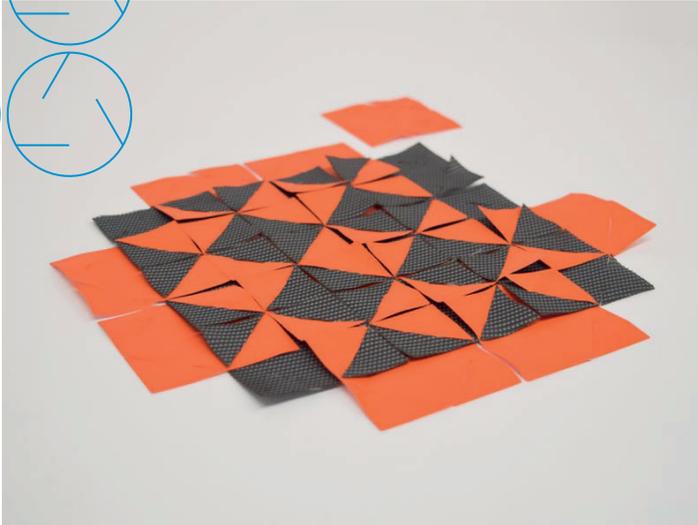
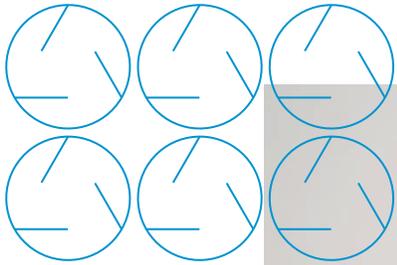
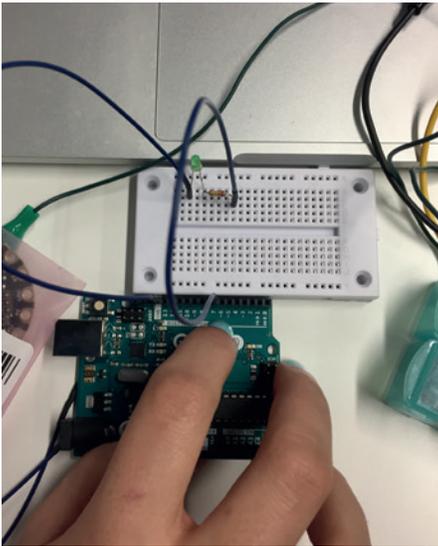
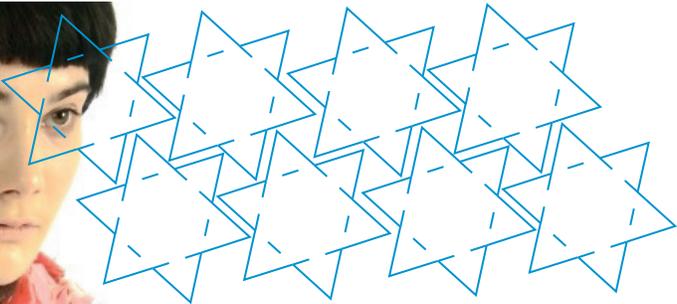
Day 2:

- Production
- Challenge closure

### Instructors

There will be 3 specialist instructors, who previously guided the classes of: Laser + textile, 3d printing on textiles and Arduino programming. They will guide the entire process of project development.

Reference photos



## Materials

The materials that will be used during the workshop are the following:

### DAY 1:

15 meter of felt

### DAY 2:

PLA filament

2 meters of mesh

2 meters of tulle

### DAY 3:

5 Proto snap, Lilypad programming plate

5 flexometer

### DAY 4-5:

PLA filament

3 meters of felt

3 meters of tulle

3 meters of lycra

3 meters of polyester raquelado

## Coffee Break + Lunch

included

## Transport

It is not included in the proposal

### Nido de Águilas commitments

Students are required to bring their own computer with the following free or trial software:  
Arduino IDE, Fusion 360 and Adobe Illustrator.

### Observations

A payment of 50% is required at the beginning of the project and 50% at the end of the workshop  
This budget includes all the teaching material that will be shown during the workshop

### Costs

from 11 to 15 students: \$341.109

from 16 to 20 students: \$321.169

Hope to hear from you soon.  
Kind regards,

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