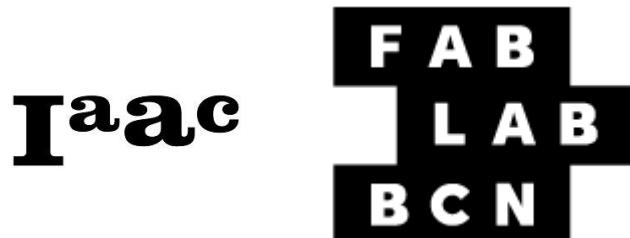


# **Terms & Conditions**

## **|Lab Protocol|**



[2023-24]

## Content

# P102 Lab Protocol of Use

## General Guidelines

### Introduction

IAAC is an international educational institution that offers a whole series of events running in parallel with the academic activities of its main Educational programmes (invited lecturers once a week, intensive workshops, professional symposiums, collaborations with professional creative groups, amongst others). Considering that IAAC's facilities and infrastructure are intensively used and become highly contested spaces. As a student, you are joining a place of fervent design activity and theoretical debate. IAAC will provide a whole range of possibilities and the infrastructure to develop your own interests, enhance your productive skills and push your creative potential.

As a student of IAAC, you will be granted a series of benefits:

- You will have a workspace and a security locker
- You will be provided with an electronic access card to enter the building during the opening hours
- You will have free Wi-Fi access.
- You will have access to Fab Lab facilities. The use of these machines and the Fab Lab spaces is regulated in a later chapter.
- You will have admittance to all IAAC lectures and special activities.

IAAC, the Institute for advanced Architecture of Catalonia, is a center for research, education, production and outreach; a platform that gathers several Projects:

- AAG - Advanced Architecture Group
- Robotics Lab
- FLB - Fab Lab Barcelona
- Valldaura Labs
- Urban Science Lab

It has 3 campus:

- Pujades 102 (P102), where Fab Lab Barcelona is located
- Pujades 59 (P59) or IAAC Atelier
- Valldaura Labs

You will have most of your activity happening in Pujades 102 building or P102.

## Access to P102 / Fab Lab Barcelona

### Opening Hours:

- Students have access to IAAC Facilities from 9:00hs to 21:00hs.
- Fabrication time from 10:00hs to 14:00hs and from 15:00hs to 19:00hs.
- Saturdays and Sundays, the Fab Lab Barcelona is closed.
- **It is absolutely forbidden to stay at IaaC overnight.**

### National Holidays

1 de enero Año Nuevo	24 de setiembre Virgen de la Mercè
6 de enero Reyes	12 de octubre Fiesta Nacional de España
7 de Abril, Viernes Santo	1 de noviembre Todos los Santos
10 de abril, Pascua	6 de diciembre Día de la Constitución
1 de mayo Fiesta del Trabajo	8 de diciembre la Inmaculada
24 Junio, San Juan	25 de diciembre Navidad
15 Agosto, la Asuncion	26 de diciembre San Esteban
11 de Septiembre Diada Nacional de Cataluña	

### Iaac Access Card & Locker Keys

During the registration process you will be provided with a locker, an electronic access card to enter IAAC premises and a basic tool Kit. A €20 down payment is required to receive the access card and the locker key, which will be refunded at the end of the academic year if both are in perfect condition.

### Access Card \*

The IAAC access card will allow you to enter the IAAC Pujades facilities during the opening hours. IAAC will be closed for winter, spring and summer holidays, and the day after the graduation ceremony. IAAC reserves the right to close the premises on other days during the academic year, for refurbishments or other activities. The closing dates will be published on the online calendar of the master program.

IAAC reserves the right to change the access hours at any moment during the academic year if contingencies occur.

IAAC authorises you to enter the IAAC Pujades facilities using ONLY the doors with a magnetic card access device

Please take into consideration that:

- The card is personal and cannot be given or lent to any other person. This authorisation is given to you exclusively as an IAAC student.

- The card must be returned to IAAC Administration staff at the end of the academic programme you are enrolled in.

### Locker \*

IAAC will provide you with a personal and non transferable locker, in which you can store your belongings. The academic secretary, the administration secretary, the Master coordinators, or the Academic Coordinator, have the authority to open a student's locker at any moment where there is considered to be a security risk. Lockers will have to be emptied at the end of each academic year. Should a student not empty the locker after the end of the academic year, the contents will be thrown out. IAAC waives any responsibilities with regards to your personal objects and the safety in any part of the building, including your locker.

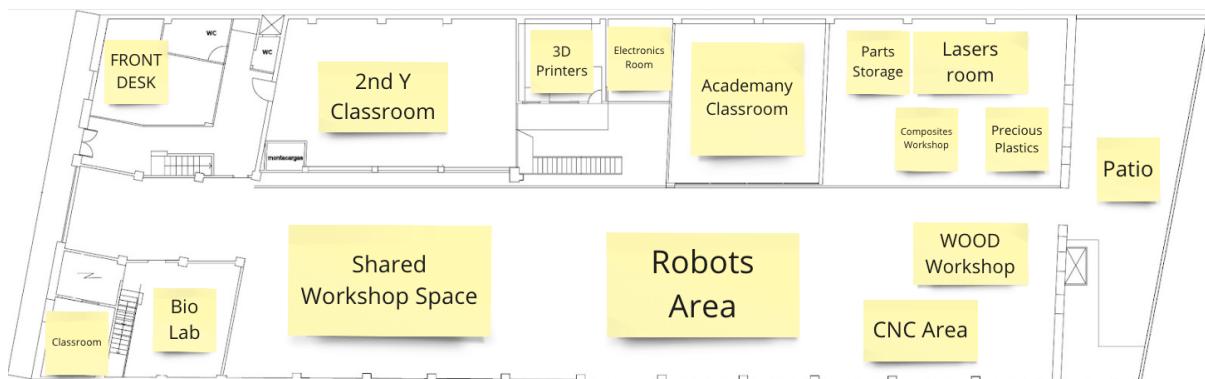
*\*For both locker key and access card you will have to pay €20 deposit that will be reimbursed to you when you return both items. In case of loss, you will have to pay an amount of €10 for a new card and €10 for a new key.*

**IAAC is not responsible for any material loss within its facilities and does not cover any material insurance. Students are responsible for their personal belongings at all times. The personal belongings that are found by other students can be brought to a member of staff and will be kept in the administration office and to be collected during office hours. However, IAAC is not responsible for personal belongings that the students might forget in its facilities.**

## Spaces

Pujades 102 Campus or P102 is comprised by several areas with distinct uses:

### P102 - Fab Lab Pujades 102 - ground floor plan \*



\*This floorplan and the uses of the spaces may be subject to changes

- **Laser Room area:** Only students who have a machine booking are allowed to use this area under staff supervision during the students open hours.
- **CNC area:** Students are allowed to use this area only under staff supervision and during students open hours.
- **Electronics and Academany Classroom:** This classroom is reserved for staff and Academany students only.
- **2nd Y classroom:** This classroom is reserved for IAAC 2nd year Programs students only.
- **3D printing room / Electronics:** Only students who have a machine booking are allowed to use this area under staff supervision during the students open hours.
- **Robots Area:** This area is reserved for staff and selected IAAC Program Students.
- **Shared Workshop Space:** this is a multipurpose area, you can use it only as a "hot-desk" and only if its available. No permanent projects or objects should be left in this area.
- **BioLab:** Space that supports biological experiments on microorganisms such as bacteria, cells, fungi, algae, small plants, or other living organisms. It only for the use of Fabricademy, FabAcademy and Master of Emergent Futures, under BOOKING.

**People not using the machines/biolab are not allowed to remain in the areas surrounding the machines: Please keep the space free for other students using the space.**

Tools and machines each have a designated area: Please keep it organized for others. The lack of respect of these rules, leading to disorganization in the Lab, will be penalised. (see chapter "Penalties" at the end of this document)



**Food/Drinks:** Food is not allowed in any of the Fab Lab areas. You can drink water, tea, sodas or coffee, but no alcoholic drinks can be brought into any of the facilities. Make sure to pick up your trash, leaving the spaces and tables clean.



**Smoking:** Smoking is strictly prohibited everywhere inside the building, the patio is the only available area for smoking inside P102 facilities.



**Bicycle/Motorcycles/Cars:** Students are not allowed to park their motorcycles or cars inside the building. Bicycles may be parked only in the patio, and for the time the student is taking the course. IaaC | Fab Lab Bcn is not responsible for any damage or loss. If a bike was left outside a designated area, blocking an entrance way, door or other, IaaC | Fab Lab Bcn reserves the right to break the lock or take alternative measures to remove it.



**Security:** IAAC will provide a personal locker to each student to secure their computers and other valued items. IAAC is not responsible for any material loss within its facilities, and does not cover any material insurance. Students are responsible for their personal belongings at all times



**Safety:** IAAC is not responsible for any damage to your person or personal property derived from the use of its facilities, and does not cover student health insurance (see also 8.2). Students are responsible for their personal safety at all times. If damage or injury should occur, the student must seek immediate assistance and notify IAAC staff as soon as possible, no matter how small the issue. IAAC has several fire extinguishers, indicated and distributed according to regulations, as well as first aid kits.

## BioLab

### General information

#### What is a biolab

Biolab supports biological experiments on microorganisms such as bacteria, cells, fungi, algae, small plants, or other living organisms.

#### Who is working in the biolab

Biolab in the Fab Lab Barcelona is a shared space among educational programs such as Fabricademy, FabAcademy and Master of Emergent Futures. It enables students to engage in an artistic and scientific study of living organisms, in which they can design

the respective environmental conditions themselves and observe the reactions of living organisms.

It includes an incubator equipped with centrifuges in which the preceding experimental subjects can be subjected to controlled levels of acceleration.

## **Lab safety**

Working safely with hazardous chemicals requires the proper use of laboratory equipment. Maintenance and regular inspection of laboratory equipment are essential parts of this activity. Please note that special attention would be required for the use of the laboratory, many of the accidents that occur in the laboratory can be attributed to improper use or maintenance of laboratory equipment.

- Keep all laboratory equipment at a safe distance from one another. In case of fire sprinklers, keep an area of 36" diameter clean at all times.
- While conducting experiments it is important to ensure that you are not only working in a safe environment but also using safe apparatus.
- Check out any chips or cracks in glassware or damaged tools and notify the manager immediately.
- Never lift any glassware, solutions, or other apparatus above eye level.
- Do NOT smell or taste any chemicals.
- Do NOT leave your experiment unattended.
- It is crucial to report any small injury, accident or breakage of equipment to the lab manager immediately. The first aid box is next to the bathrooms downstairs.
- Ensure that the laboratory waste is disposed of in the correct manner for the safety of people working around you.
- Tie back long hair and avoid wearing dangling jewelry or loose clothing around the experiments.
- Use closed footwear that covers your feet and do not put acrylic nails when working around bunsen burners, lighted splints, matches, etc.
- Wear face masks, face shields or safety glasses or gloves when working with specific equipment.
- Always wear a smock or a lab coat.
- Wash your hands before and after eating or leaving the lab.
- Plan well ahead. It is required that you make your request at least one week in advance.
- BioLab space has limited access to up to 5 people.
- For materials that are difficult to clean and handle, such as resins. Faculty should provide students with disposable materials.
- It is required to have proper laboratory equipment to work inside the BioLab space. Faculty should provide this equipment to students in order to develop their group activity.
- Students should clean the space at the end of each session or after lab work.

- Trash, algae, batteries, or any other material substances that can obstruct the sink should not be disposed of via wastewater. Users should use the respective bins in the BioLab.
- Please contact the respective fabrication support with the work you are doing specifying the following design parameters must be determined for the respective fabrication support before guiding the students towards robot use: Hours, Logistics, and BioLab supervisor.
- Students or faculty are not allowed to take products provided by IAAC outside the lab.

## Tools and equipment

The list of tools and machines that you will find in the biolab:

- Incubator VEVOR 25L



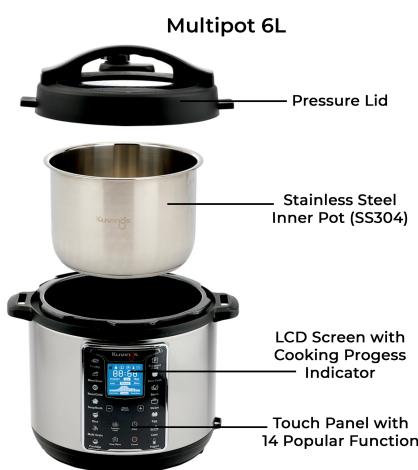
- Dehydrator



- Oven



- Pressure cooker - instant pot



- DIY laminar flow hood



- Magnetic stirrer LSCI

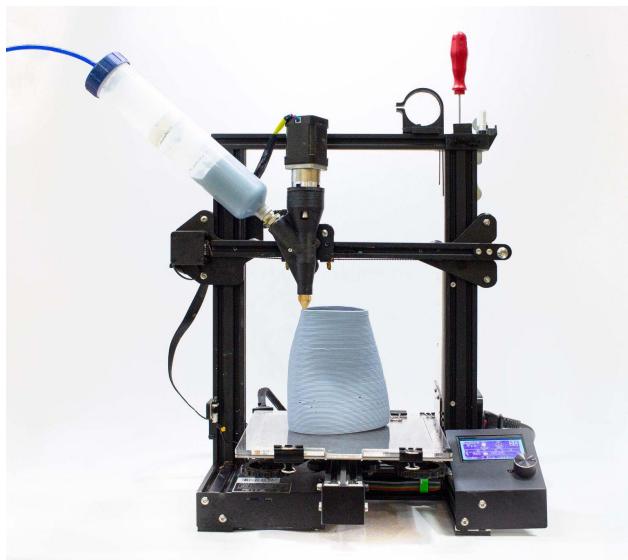


- Microscope AmScope 40x-2500X LED Monocular Compound



- Bio-3D printer

Machine kit for the FabLab Barcelona students that was assembled during an additional Seminar on Machine Building.



#### Machine characteristics :

- Cartesian machine with an exterior footprint of 552\*485\*510mm
- Print Build volume 220\*220\*280mm ( cubic footprint)
- Sturdier frame than last year and easy accessibility on the build platform.
- 24V-350w branded power supply to stand future modifications/upgrades
- Resume printing function ( in case of accidental unplugging)
- Covered and protected electronics, safe from accidental clay spills.
- Most of the sensible parts (bearing, belts,etc) are on the top part so they will be more protected than in previous versions.

- Blenders
- Cooking hubs
- Fridge

## Materials storage

Any use with material from the biolab material storage must be consulted with the staff.

## Contact information

To use the BioLab you must make a Booking in the Booking system (more information in next chapter).

Before booking/working in the biolab contact the biolab manager. In case that he / she is not available contact the fab lab team.

Petra Garajová: [petra@fablabbcn.org](mailto:petra@fablabbcn.org)

## Machines

P102 offers student access to machines on different regimes:

1. Electrical tools upon request
2. Fabrication machines via booking system, 48hs in advance!
3. Specific tools via email request, 48hs in advance!

### 1. Upon request:

Power tool set for wood (Jigsaw, Circular saw, Orbital & Belt sander, Router, Drill. etc...)



### 2. Via booking system (minimum 48h in advance):

Laser Cutters:

Trotec speedy 300  
Trotec speedy 400





CNC Milling machine

3D printers:

Ender3 (x3)  
Creality CR-10  
Hypercube Evo  
Formlab  
Prusa i3  
Photon S



CNC Precision Milling machine:

Monofab SRM 20 (x2)  
MDX-20  
CNC 1810



Vinyl cutter:

GX-24 Camm Servo  
Silhouette Cameo



Vacuum Press



Large Oven

+

Vulcano Kiln



**3. Via email (minimum 48h in advance):**

Power Tool set for metal



## Tools

### Basic Tools in free use



Some basic tools (Rulers, Clamps, Hammers, etc...) are accessible in the dusty area as a complement to your student's toolkit.

Students are requested to return the tools they used back to their appropriate place.

Tools should remain within the fablab area, in their respective room. Taking tools out of the lab without explicit permission will be penalized (see chapter "Penalties" at the end of this document)

**All borrowed tools/machines need to be given back by the end of the day (before 8 pm)**

In case a student fails to do so he or she will be responsible to replace the item. Any misuse, loss or damage has to be noticed by informing one of the fabrication assistants. Failing to do so will be considered as a fault (See Penalty section).

### Other machines and tools via email request

IAAC own many other tools that students are allowed to use if available (not already in use by other IAAC activities) and if staff is available for support (most of these machines need specific staff supervision).

If you wish to use one of these specific tools, please explain your needs and your schedule.

## Files

The lab enforces a no-pendrive policy between students/labs computers/staff. Any file sharing between students, faculty, and fabrication equipment can be done using the

internal IAAC cloud system. IAAC Cloud is a small cloud storage used to transfer and store files and designs.

Please, access the cloud and create your own student folder inside your respective course and year:

Example: FILE STATION > FAB STUDENTS > FabAcademy\_{{ year }}>Jane DOE

## Staff

Fabricademy and Fab Academy are part of our educational offer and as such is part of the Future Learning Group within Fab Lab Barcelona, led by Santiago Fuentemilla.

Your references for Fabricademy are:

- Petra Garajova: Fabricademy Lead Instructor
- Josep Martí: Teaching Support
- Adai Suriñach: Lab Expert Support

Your references for Fab Academy are:

- Josep Martí: Fab Academy Lead Instructor
- Petra Garajova: Teaching Support
- Adai Suriñach: Lab Expert Support

The rest of the Fab Lab Barcelona will be happy to support you in any regard.

You can contact us via [info@fablabbcn.org](mailto:info@fablabbcn.org)

## Booking System

**To use any machine/Space in the Lab, users must reserve them first via our Booking System.**

### BEFORE BOOKING

To book any machine you must have all the below things done:

- 1) Sign these terms and conditions
- 2) Have training in the use of EVERY MACHINE
- 3) Your name must be added to the trained user list
- 4) Be acquainted with the days your Program has fabrication availability

## BOOKING SYSTEM INSTRUCTIONS

To make your reservation, go to <https://booking.fablabbcn.org/>

1. Select the machine you want to use: milling machine, laser cutter, 3D printer, eg.
2. Select the date in the calendar and you'll see available time slots on that day
3. Select the duration of the service depending of the machine (30 min, 1, 2 or 4 hours).
4. Select your name from the "Select a Member" menu (right side of the screen)
5. To finish, click "Confirm This Slot" and "Validate".

### **IMPORTANT**

Failure to respect the following rules and conditions will result in a cancellation of the booking rights. Repetitive misuse of the booking system will be considered a fault (See Penalty section).

- **ONE-SLOT RULE.** Students are not allowed to use more than one slot per machine per day. Take into consideration that many other users need access too.
- **NO-SOLO USE.** Students cannot use machines without supervision.
- **JUST FOR EDUCATION.** It's not allowed to use the machines for personal projects outside the specific free slots made available by the team, according to availability. It is forbidden to use the machines for commercial purposes.
- **NON-TRANSFERRABLE.** The person who makes the reservation will be the only one allowed to use the time slot. Reservations are non-transferable. Failing to comply will automatically cancel the booking.
- **FILES READY BEFORE SLOT!** Students should come with a file prepared beforehand and ready to launch at the beginning of their slot.
- **FILE TYPE.** It is mandatory to have your files in Rhino v6 file, .DXF or .STL to properly use the machines.
- **BE PUNCTUAL.** Punctuality is important to allow everyone fair use of the space. You are requested to come 10 min before your reservation to prepare your material and file. Any delay will shorten that student's fabrication time on the machine. A delay of more than 15 minutes automatically results in a canceled reservation. Missing your reservation without notifying Fab lab staff will be considered as a fault (See Penalties section).
- **PLAN AHEAD.** Plan well ahead, and make your request at least 48h before needed. If your project requires more time than what is typically allocated on the booking system, it is obligatory to contact your assigned fabrication expert with the files you need to print, cut or mill along with a description of the material to be used.
- **CLEAN!** Students should always keep workspaces clean after use and return any tools.

- **BYOM.** Bring your own material (unless you are using the 3D printers, see Supplies section) .
- **STAY SAFE.** Always stay attentive and practice safe machine usage (See Safety)!

Our machines are fairly new, so we expect a minimum of downtime. Regardless, have in mind that sometimes that specific machine you book may not be available... be sure we'll do our best to help you.

## Hazardous Materials

Working safely with hazardous chemicals requires the proper use of laboratory equipment. Maintenance and regular inspection of laboratory equipment are essential parts of this activity. Special attention would be required when using the laboratory with these materials, many of the accidents can be attributed to improper use or maintenance of laboratory equipment.



IAAC provides students with gloves and lab coats. Please note that care should be taken to use gloves when handling laboratory equipment to protect against electrical, thermal, and chemical burns, cuts, and punctures. Some materials, such as graphene nanoplates, require specific staff supervision and control of their use. Students are not allowed to take products provided by IAAC outside of IAAC facilities. Trash, algae, batteries or any

other material substances that can obstruct the sink should not be disposed of via wastewater. Students should use the respective bins located around the buildings.

## Cleaning and Maintenance

**⚠️ Students are required to clean all machines after use! ⚠️**

Put special attention to:

1. **CNC Milling:** Includes small dust pieces anywhere on or under the machine, and on top of the control-box and computer.
2. **Jigsaw:** Should be cleaned from dust and replaced any broken blades.
3. **Drill Press:** Clean all the surface of the machine, table and surroundings.
4. **Compound Circular saw:** Cleaning surface, on top of the machine and table.
5. **3D Printer:** Cleaning the machine and removing small pieces from the platform.
6. **Laser cutter:** After using the machine remove the material and clean the top of the bed, in case of small pieces removed the bed and vacuum the leftovers (call somebody from the staff for support removing the bed)
7. **Matter Lab:** leaving the surfaces clear and clean, in the case of materials that are drying out such as plaster casting, notify the fabricant assistant.
8. **Carpenter table** in the wood workshop.

**⚠️** In the case of finding a dirty machine prior to commencing your work, please report it to staff or you will have to clean it yourself. Working in a dirty environment is dangerous, risks compromising the machine's safety or operation and will not be tolerated.

**⚠️** Part of cleaning is putting back all the tools in their appropriate storage space.

**⚠️** Failing to comply with any of these will be considered as a fault (See Penalty section). In an effort to reduce the amount of waste materials and promote recycling and reuse, it is important to separate and cut down all material off-cuts after use. Students are requested to cut up materials, such as wood and acrylics, in rectangular formats for easy storage.

## Supplies

In general, FabLab does not provide any material to the students apart from some basic consumable (such as sandpaper, screws, white glue and paper tape) available at the time in the lab.

Here is a list of material and hardware suppliers: <http://bit.ly/1MeHQx>

NB: students can have a discount of 10% at SERVEI ESTACIO, using the code 10906 at the checkout. <http://www.serveiestacio.com/>

In the case of 3D Printer, Material is purchased by Fablab and based on normal usage for the academic needs, unusual or alternative materials are needed the student will have to purchase on their own, use it and keep it in a safe place in the lab properly identified with the students name and contact details.

## Storage

Due to the amount of space available, there is no permanent storage at Fab lab Barcelona.

Students have designated storage space in their classrooms.

Students are allowed to store material in the Fab Lab only if it will be used in the same month. Everything should be stored in boxes with the name of the student / Name of the class or project and date of the beginning of storage. If this is not clearly visible on the box, this material may be displaced or used.

The institution is not responsible for the materials left in the space and can't guarantee the safety or integrity of your tools, project, and material if not properly stored. To avoid any issue with a lost or broken object, please get in touch with any Fabrication assistant to find a proper solution.

**Never pick an item from shelves as a self-service. If you have doubts, always ask your Instructor.**

- **3D Print Material shelves:** A place to store 3DPrint materials. To be used only under FabLab Staff supervision. Students are requested to leave the 3d print materials used in the appropriate place. Please keep the materials well organized.
- **Material Lab Shelves:** A place to store mixing, casting and cleaning material for the lab. Access only under Staff authorization and supervision.
- **Storage Shelves/Cabinets:** Staff only, Students do not have access to this area.

**All leftover projects or materials left on the workbenches or main workspaces will, at the end of the day, be put in the disposal cart and thrown into trash cans every Friday afternoon.**

If a project needs temporal storage in the workbenches or main workspaces is mandatory to put a tag with the students name, contact information and when the project will be removed from that location

## Safety

Use of this facility requires the use of standard safety precautions at all times.

The most important one is...

### Never work alone!

Also...

Make sure you know how to stop the machine, and how to call for help before starting to use any machine.

All students must wear safety glasses while using any electrical machines

Safety glasses are the student's responsibility, students are not allowed to work in the CNC space without them, if there aren't any available when you enter to the shop, ask for them to the staff!

Ear protection and dust masks are available and should be worn when necessary. Wear a dust mask when performing grinding or other operations that may generate fine airborne particles.

Wear the appropriate clothing to work in a Lab: Only closed-toe shoes should be worn in the lab areas. Long hair has to be tied up. Loose clothes should be tightened, and dangling jewelry should be removed before entering the lab areas. These can get caught on the tools or machines.

Do not make anything in a rush.

Use the dustpan or vacuum to remove chips from a machine while it is running; NEVER use your hands

Each student is required to report all issues, accidents, and tool breakages to the staff

No food allowed in the workshop areas.

Never use the machines for anything other than what they were designed to do, and never tamper or alter any of the parts.

Clean the machine and sweep the work area before leaving the lab areas, a dirty environment is a hazard for the people that comes next.

Take special care while handling these machines, and always wear protection:

Milling machine



Circular saw



Column Drill



Jig-saw



Angle Grinder



Dremel



Sanding Machines



## Disclaimer

Iaac | Fab Lab Bcn is not responsible for any personal damages derived from the use its facilities, and does not cover student's health insurance. Students are responsible for their personal safety at all times. If damage or injury should occur, the student must seek immediate assistance and notify any Iaac | Fab Lab Bcn staff person as soon as possible, no matter how small the issue is. Iaac | Fab Lab Bcn has several fire extinguishers and first aid kits.

Iaac | Fab Lab Bcn is not responsible for any material loss within its facilities, and does not cover any material insurance. Students are responsible for their personal belongings at all times.

## Penalties

In order to ensure clean, safe and healthy areas and to reduce the number of risks of regulatory failures, the Fab Lab Protocol establishes Basic regulation penalties.

The following misconducts will be penalised :

- Dangerous behavior, including disrespecting the safety measures recommended in this document, will incur a penalty
- Avoiding cleaning responsibility, especially after the use of tools and machines, will incur a penalty.
- Delay or not attending in any booking slot will incur a penalty.
- Displacing / Borrowing tools outside of the lab without having been registered by a Fab Lab staff will incur a penalty.
- Breaking a tool or machine without advising the Fab Lab staff, will incur a penalty.
- Use of the lab without supervision will incur a penalty (the Fab Lab is fitted with a surveillance system).

The **first act** of misconduct will trigger a formal warning through an email communicating the specific misconduct and requesting more awareness.

The **second act** of misconduct will incur a penalty: the student will be prohibited from using the Fab Lab machines for one week.

The **third act** of misconduct will directly forbid the student's access to the Fab Lab space until the end of the term.

Every person should have their individual RFID door entry card, which is not transferable. In case of visitors, staff need to be notified before letting anyone inside the building. Failure to do so, the student will be penalized.

The students are advised not to keep their belongings like coats, helmets and bags obstructing any areas, the function of equipment and movement of people in the building. Failure to do this would incur a penalty