

SMFA DIGITAL FABRICATION STUDIO

POLICIES AND PROCEDURES

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The Digital Fabrication Studio (DFS) at SMFA is a studio space that aspires to integrate traditional fine art and craft techniques with emergent technologies and materials. Through additive (3D printing) and subtractive (laser cutting, CNC milling), students are able to transform digital 2D and 3D digital concepts into physical artworks. Interdisciplinary coursework and specialized workshops in the DFS embody SMFA's commitment to collaboration and innovation in the arts.

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STUDIO ACCESS

The Digital Fabrication Studio (DFS) is categorized as a High Hazard Studio, meaning there are tools or processes that can pose an immediate threat to life if used improperly. Therefore, the DFS must always be supervised by a Tufts Employee (faculty member, Studio Manager, or student Safety Monitor) when the studio is available to users.

Studio hours are **9am to 10pm Mon-Wed, 9am to 6pm Thu-Fri, and 12-6PM Sat-Sun**, unless otherwise stated on posted schedules.

All SMFA students, faculty, and staff who plan on using the DFS independently, outside of class time, must meet at least one of the required certification levels outlined in this guide.

When a class is scheduled to use the DFS, students not enrolled in the course may not work in the studio. The schedule for classes is located on the door to the DFS.

Only trained Student Safety Monitors, faculty, and the Studio Manager have card swipe access to the DFS. The studio can only be open when one of these is present.

Violating studio policies can result in the loss of access to the studio. See [SMFA Studio Policy Violation Guidelines](#) for more information.

TRAININGS/CERTIFICATIONS

Each piece of equipment/machine available for use in the Digital Fabrication Studio requires a separate training and certification by either the Studio Manager, trained/certified faculty teaching a class, or trained/certified Studio Team member.

Students, faculty, and staff interested in becoming authorized on a piece of equipment (and ultimately using equipment on their own) in the DFS must take part in a training/certification session. Training/certification dates and times are posted on the door of the DFS in room A212 at the beginning of the semester and students/faculty/staff can sign up using the online form.

STUDIO STAFF

Trained Safety Monitors supervise the studio when the Studio Manager isn't present or when classes aren't running.

- Monitors are primarily responsible for keeping everyone safe, although they also take care to keep the studio clean and well-stocked.
- Let a monitor know if any supplies are running low, if you walked in to see a mess in a specific area, etc.
- Monitors can usually help you with finding things around the studio. You can ask for help with a technical issue, but they may not know the answer. Monitors are not obligated nor allowed to train students on entire processes; please see the Studio Manager for training. If you're really struggling with something, a monitor may be able to reach out to the Studio Manager for further assistance.
- While monitors perform some cleaning tasks, they are not paid to clean up after you.

STUDIO ETIQUETTE

The artmaking studios at SMFA are communal spaces that are used by many people throughout the day. Each user is responsible for adhering to community standards. This includes:

- Cleaning up after yourself.
- Being respectful of other users' space and artwork.
- Being respectful of equipment and shared resources.
- Not removing non-stationary equipment or non-circulating equipment
- Avoiding excessive and/or wasteful use of the materials provided in the studio
- Reporting issues to the Studio Manager, faculty, or studio staff in a timely manner.
- Adhering to the Tufts [Code of Conduct](#).

Tables and stools should be put back in their original position(s) in the middle of the room and surfaces/floor cleaned/wiped down to remove any debris and/or stickiness.

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Allot at least 15 minutes of clean-up time to your work session. See [Equipment-specific clean-up](#).

CAPABILITIES, EQUIPMENT, MATERIALS

PROCESSES

1. Laser cutting
2. Laser etching
3. 2D CNC milling
4. 2.5/3D CNC milling of foam and wood
5. FDM (plastic spool) 3D printing
6. SLA (resin) 3D printing
7. SLA (resin) 3D print washing and curing

EQUIPMENT

1. (1) Epilog Fusion M2 28"x40" Laser Cutter
2. (1) Shapeoko XXL 29"x29"x2" CNC Router
3. (3) Ultimaker S7 FDM (plastic spool) 3d Printers (13"x9"x11" build volume)
4. (3) Form labs Form 3 SLA (resin) printers (5"x5"x7" build volume)
5. (2) Formlabs Form Wash
6. (2) Formlabs Form Cure

MATERIALS

Only materials purchased in the DFS or approved by the Digital Fabrication Studio Manager are allowed in the DFS.

Materials brought in by a user cannot be stored in the DFS.

The following materials are NOT allowed in the Digital Fabrication Studio:

PVC (Polyvinyl Carbonate)

Pleather

Vinyl

Artificial Leather

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Free chipboard, plywood, acrylic, and foam scraps are often available in the DFS but are not stocked. When available, scrap materials are located in clearly marked bins and are first come, first served.

Materials for sale:

Chipboard

Cardboard

Plywood

Clear acrylic

PLA 3d printing filament

SLA 3d printing resin

Rigid foam -- for CNC milling, not laser cutting

Purchasing Materials:

A user can approach a Safety Monitor who will tally the material(s) on a sales slip which the user will then bring down to the SMFA Art Store to pay. Materials sales transactions can not take place when the SMFA Art Store is closed nights and weekends.

SAFETY AND EMERGENCY PROCEDURES

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Disposable gloves, safety glasses and ear protection are available in the studio. Safety glasses are required for students and faculty using the CNC machine or SLA (resin) printers. Ear protection is recommended for students and faculty either using the CNC or when the CNC is in use. Disposable gloves are required for students handling or cleaning SLA (resin) prints.

SAFETY DATA SHEETS (SDS)

The DFS Safety Data Sheet (SDS) binder is located on the rear (southeast) wall of the studio to the right of the SLA (resin) printers.

EQUIPMENT-SPECIFIC SAFETY PROTOCOLS AND HAZARDS

LASER CUTTER

The exhaust system must be on and pulling in at least 650 CFM, and the air assist must be on – this is the audible wisp of air pointing at the laser beam, and currently turned on by rotating the yellow valve to the right until it is parallel with the pipe it is on.

The laser lens must be clean at all times (this is checked by monitors at the start of every shift).

Only material bought from the DFS may be cut and/or etched on the laser cutter – all other materials must be checked for safety by the Digital Fabrication Studio Manager.

Students, faculty, and staff must stay with the laser cutter at all times while it is cutting.

CNC ROUTER

Safety glasses or over-the-glasses (OTG) safety glasses must be worn at all times by students, faculty, and staff operating the CNC.

Material must be firmly fastened to the CNC bed and outside of the cutting tool path to minimize the risk of the router bits cutting the fastening hardware/screws.

Ear protection is recommended. Students, faculty, and staff must stay with the CNC router at all times while it is cutting.

SLA (RESIN) 3D PRINTERS

Safety glasses and surgical gloves must be worn by students, faculty, and staff who are handling, or washing uncured resin prints.

IN CASE OF EMERGENCY

In case of injury: the Studio Manager cannot provide first aid, but immediately alert Studio Manager or Safety Monitor who will contact TUPD. If it's more than a small cut, the Studio Manager or Safety Monitor must fill out an Incident Report. If it's a serious emergency, call TUPD immediately **617.627.6911**. Do not wait for Studio Manager or faculty, just call!

In case of fire, alert the supervisor and move to safety. On the SMFA campus, we report fires directly to 911 before calling TUPD.

Note: You are NOT obligated to fight fires of any size. If you have any doubt, do not attempt to fight the fire.

EQUIPMENT RESERVATIONS

Once a user is authorized on a piece of equipment, they are certified in WebCheckout to reserve and sign out that equipment. Before using a piece of equipment in the DFS, a user must first reserve it on WebCheckout – even if it is free in that moment – so that others can see that it is in use and plan accordingly. A reservation is considered forfeit if someone is more than 15 minutes late.

ARTWORK AND MATERIAL STORAGE

Students enrolled in classes scheduled in A212 may store labeled work on the large kitchen racks in room A210.

Student work being made in classes scheduled in A212 may be stored in room A210 for the life of that particular project and/or the last day of review boards or it will be subject to disposal.

In-process SLA (resin) 3D prints requiring drying after washing may be stored on the drying rack overnight but must be removed after they are cured.

EQUIPMENT SPECIFIC CLEAN-UP

LASER CUTTER

To avoid fire, check for debris in tub (under grate).

Remove waste debris and wipe down machine if dust/debris has accumulated.

CNC ROUTER

Check to make sure Festool vacuum bag (under the CNC) isn't full.

Periodically use shop vacuum in addition to CNC's automatic vacuum to keep down dust during cuts.

Unfasten (unscrew) waste material and discard in appropriate bin.

Sand down CNC's MDF bed waste board if the surface has become uneven due to fastener pullouts, or routing/cutting errors.

ULTIMAKER/FDM (PLASTIC SPOOL) 3D PRINTERS

Remove prints, rafts, and/or support material and wipe down. Dispose of waste filament in appropriate bins.

FORMLABS/SLA (RESIN) 3D PRINTERS

After removing prints on their build plates and placing them in the washer, make sure that the tanks is clear of debris (pieces of failed prints) and that the machine is "Primed" for the next user.

Stainless steel washing/curing stations must be cleaned of debris and wiped down with Isopropyl Alcohol which is available in a spray bottle labeled IPA.

TECHNICAL CONSULTATION

Users may contact the Studio Manager via email to schedule a project-specific technical consultation. The Studio Manager will discuss the user's project objectives, offer advice on technical planning and execution, and direct the user to relevant studio resources. If the user's objectives appear to exceed their technical ability within the allotted timeline, adjustments may be recommended to project goals.

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Any studio user may request a technical consultation. Users should plan ahead and seek technical consultations in the early stages of their projects to help the Studio Manager provide the best support possible.

The Studio Manager's hours are generally 9-5:00 Monday-Friday.

The Studio Manager's office is located in room B012.

SMFA STUDIO POLICY VIOLATION GUIDELINES

This document outlines the actions which the Studio Team may take in order to keep studio users accountable for not adhering to Studio policies.

TYPES OF STUDIO POLICY VIOLATIONS

The following types of actions either violate the Tufts Student Code of Conduct or create inequity or hazardous conditions in the studios. Definitions marked by * are from the Tufts Student Code of Conduct.

- **Cleanup issues:** Disregarding established cleanup procedures, which are shared by studio managers and/or faculty and may be posted in the studios
- **Misuse of equipment:** Using equipment in a way that is potentially harmful to the studio user or is likely to cause damage to the equipment
- **Misuse of consumables:** Using studio consumables excessively or not for their intended purpose
- **Property Damage and Vandalism*:** Unauthorized conduct that is reasonably likely to or does cause damage, destruction, or vandalism of Tufts property
- **Safety violations:** Disregarding posted signage or instructions from studio managers or faculty or participating in reckless behavior that endangers the studio user or other studio users
- **Theft and Possession of Stolen Property*:** Unauthorized taking of property or possession of property that a studio user knows or reasonable should know was obtained through theft
- **Unauthorized access/entry*:** Entering an access-restricted area by circumventing established security procedures (e.g., using another person's credentials, tailgating authorized individuals into a restricted area)
- **Unauthorized removal of equipment from studios:** Taking equipment from one studio to another, or to private studios, without permission from the studio manager.
- **Violation of other studio policies as stated in the studio-specific policy documents**

ACCOUNTABILITY ACTIONS

The following steps will be taken when studio users violate studio policies in any of the ways listed above.

1. **First violation:** A reminder letter will be sent to the studio user via email, and relevant faculty may be included in the email. The Studio Team may require studio user to be re-trained, correct the situation, or take financial responsibility, depending on the circumstances.
2. **Second violation:** A notice of warning will be sent to the studio user via email, which the studio user can choose to accept or contest through the Student Conduct Resolution Procedure, facilitated by Student Life.
3. **Any additional violation:** Studio users will receive formal notification of the initiation of the Student Conduct Resolution Procedure. This process may result in formal sanctions above a warning and could include restrictions on studio use and access.