

Solid Space Fabrication and Prototyping Lab.

School Of Interactive Arts And Technology.
Simon Fraser University, Surrey.
Room 3702. Card key access.

Contact:

Maja Jensen,
Production Technologist.
maja_jensen@sfu.ca,
SFU phone: 778- 782-8911

1.0

Guidelines for Instructors and Classes On Using the Lab (as part of course instruction).

Instructors must inform the Solid Space technician of their intention to use the Lab for scheduled courses at least two months prior to commencement or **before** the course assignment and time lines are established.

A meeting will occur where matters pertaining to the course are discussed. This is to facilitate hiring of any needed extra staff, changes in shift schedules, as well as to organize any specific tooling needs or demos.

Specific usage guidelines fitting the requirements of the class, assignment, and the constraints of Solid Space will be established, ie what the extended hours may look like. These will be circulated via e-mail

Some basic issues instructors should take into account:

- **6 students max (not including Lab staff) is the capacity of Solid Space.**
- **A minimum number Lab hours have to be put aside for other uses. For example – out of a 5 day week, not all 5 days can be purely allotted for booking undergraduate class time.**
- **Weekends and very late hours cannot be accommodated as well due to staff, budget, and facility constraints.**
- **Mandatory safety and power tools orientation session for students and faculty. This can be scheduled anytime before expected start of assignment.**
- **Material limitations for the laser cutter, and the lack of ability to accommodate major metal work, sanding or spray painting can affect assignment parameters.**
- **It may be necessary to deliver information related to the Lab in class. For example, safety materials and quizzes, and having staff come in to deliver handouts, etc.**

Orientation/Training may be not be needed for those on record as already having received it. However, the Production Technologist may require users to come in to receive an updated one.

Note: If students are not on record for the approved orientation, they will not be allowed in. Lab staff follow a specific checklist, and we cannot be sure any prior orientations will have covered what's needed.

1.1

What Teaching Staff Can Do To Help.

The key to Solid Space running smoothly is having students show up for their Solid Space time prepared. All guidelines and safety issues need to be communicated and emphasized with students. As such, instructors should familiarize themselves with all aspects of these documents.

For example, laser cutter projects need to have the right materials and have the files in the right format to work. There simply is no time or space for the students to sit in the Lab and have the technician correct work.

Students unprepared will be asked to leave and rebook their appointment, even at the risk of an incomplete project. See 'General Solid Space Guidelines', and the guidelines for '3D Printing' and 'Laser' for details and tips on setting up projects.

Helping prepare student groups before they book Solid Space includes ensuring student files and materials are ready for booking. This is in addition to reminding students to communicate clearly in how they intend to use the lab, *before* they book it. This ensures the right staff (and number) are on hand to help out and that any special needs can be taken care of.

- **When students book, they need to be able to say whether they are laser cutting, using power tools, or 3D printing, and how many of their group intend to show up for the booking.**
- **Solid Space staff should have access to the class mailing list, for important/time sensitive notices.**
- **Student to be made aware of booking and orientation guidelines, and where the documents are online.**
- **STUDENTS NEED TO BE MADE AWARE OF, AND MUST USE, IF LASER CUTTING, CORELDRAW IN LABS SC3130 AND SC3140 .**
- **Students who are using Solidworks for laser file export need to be made aware of issues that can come up. (see Laser Guidelines)**
- **Understand the software used for the machines in Solid Space and related technical requirements.**
- **Understand principles of operation of the machinery in Solid Space.**

Handouts will be provided facilitate the communication of these matters to students. Solid Space staff can also come to lectures to communicate Solid Space policies.

Instructors are encouraged to introduce assignments that cover file preparation and tool use. Students may also need to complete an in-class quiz to demonstrate general safety awareness, etc. Students that do poorly, refuse, may not get access to the Lab.

Additionally, the instructor and students are reminded that:

The larger the team (and less teams in total), the more hours can be allotted to the *project* the team is producing. Doubled bookings (ie: Team A and Team B using Solid Space at the same time) can be done if students communicate booking information clearly). This can also increase project time.

Example, Class A has 73 students to complete a project over a 4 week period.
Say available technician time is 40 actual hours of in lab support per week:

73 students /about 3 members per team= equals 19 teams or so
 $40 \times 4w = 160$ hours total/19 teams= 8-1/2 hours per team if not doubling bookings in the space, 16+ if they are.

If its 73 students/about 5 members per team = equals 16 teams or so
 $40 \times 4w = 160$ hours total/16 teams= 10+ hours per team if not doubling bookings in the space, 20 or so if they are.

Also:

- **Volume constraints/fees may be imposed for projects, especially if using the 3D printer.**
For example: each team may be limited 5 cubic inches of model material for project use.
- **Additional material and sizing constraints might be imposed for use of the laser cutter to ensure students fall within their time constraints.**

Instructors are reminded that the longer assignment duration, the better the allotments of Solid Space hours per team will be.

The required fidelity of the models/projects is also an issue in setting up Solid Space times. For example, very high fidelity models, over a short assignment duration, with a high number of lab sections may be very difficult, if not impossible to accommodate.

Do keep in mind that Solid Space cannot be held liable for missed deadlines or for the aesthetic qualities of models, etc.

1.2

The Roles Of Solid Space CUPE Technical Staff and Teaching Assistants for 336, 337 and Undergrad classes with Solid Space access.

Solid Space scheduling and use is coordinated by the Production Technologist. No matter what, instructional staff must adhere to agreed upon policies of the Lab's use and schedules. **This means undergoing orientations, training, and aligning with the overall lab schedule to gain access to the lab.** Unauthorized access to Solid Space and equipment is never allowed.

Teaching assistants hired to support undergrad classes that need Solid Space for delivery of student projects need to maintain a close working relationship with CUPE technical staff in order to help with use of Solid Space.

Since Solid Space technical support staff (CUPE) are hired specifically to support Solid Space and its users, **their roles must also largely remain distinct. This is in order to stay within SFU HR policies and keep the Lab running efficiently, predictably, and safely.**

To clarify:

Cupe tech staff expectations:

- Operate and maintain the machinery in Solid Space, in a safe and knowledgeable manner.
- Assist and/or coordinate with in-Lab orientations and safety training.
- Assist students with technical implementation of their project.
- Work within the Solid Space booking/Schedule.

Teaching Assistants expectations:

- Teaching assistants generally **will not** operate or maintain the machinery in Solid Space.
- Do not conduct in-lab orientations and safety training, but may be involved in their set-up and implementation.
- Can assist students with design and aesthetic issues in their project inside of Solid Space .
- Work within the Solid Space booking/Schedule.

If a special circumstance arises in which a **qualified and trained** Teaching Assistant needs to operate the machinery in the Lab to assist students, and the current schedule cannot accommodate their needs, they must seek documented permission from BOTH the faculty liaison for Solid Space, and from the Production Technologist.

Note: Access for Research Assistants and Graduate students differs slightly from this policy.

1.3

Other Matters Affecting Solid Space Scheduling.

In the event of machinery breakdowns, Solid Space staff will do their utmost to rectify such situations.

Instructors and students will be notified ASAP and relevant information will be communicated.

In the event of serious issues, (such as; the 3D printer breaks down and needs a site visit), staff will assist to identifying and arranging alternative methods of completing projects.

Although Solid Space tech staff are more than happy to help come up with an extended schedule to facilitate the completion of student projects, Solid Space hours still need be established within a reasonable framework. **Hours will not be altered or extended because students have prioritized other classes or are poorly prepared.**

This cannot be repeated enough: Student will be expected be on time for their bookings and be prepared when they show up. If they forfeit bookings, and that results in a late or incomplete project, that is simply the consequence of being unprepared.