Fort Schuyler Makers Document

Your guide to machinery capabilities, space, and access at SUNY Maritime College

Created by the New York Maritime Makers Club

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Document Scope & Overview

This document was created as a record of resources available for students at the SUNY Maritime College. This document includes access guides, conditions of access and use, lists of associated contacts, agreements and standard operating procedures for both regular and special functions/permissions, and is a comprehensive list of what equipment is available at SUNY Maritime College and their condition.

The contents of this document are continuously updated by the student body to reflect machinery inventory and condition, current agreements of space access, and standard operating procedures as they change over time. This document is also routinely saved each year for security, and for students to reference in the future. As of the writing of this document, the state of equipment and access is continuously evolving. As of the publication of this document in Spring, 2024, access to most spaces is a matter of reputation and interpersonal relationships at the college. The engineering department and student body are working on standardizing the pathways towards space access for all students and creating clear avenues in which students can gain the credentials and approvals needed to use these tools if needed.

This document was made from a need for a verifiable record of tool use agreements between student groups and school entities, and the lack of a standard operating procedure by which students can coordinate tool and space access at the college. Through the lobbying and tireless work by students, this document serves as a starting point, record, and foothold for those looking to use available machinery at SUNY Maritime College.

About the New York Maritime Makers Club

This Document was created by Thomas Rohmann, Founder of the NYM Makers Club

What is a maker?

"A 'maker' is someone who can take an idea and bring it to life. They are able to use a tool or supplies in a creative way to realize something."

The Makers Club is a student group focused on enabling of students and student groups to work on engineering and maker-related projects both academic and extracurricular. This is accomplished by the Maker's Club by:

- Establishing a network of motivated students, clubs, and faculty to help collaborate and generate interest in the process of making things on campus
- Serve as a creative outlet for those seeking to exercise and improve on their manufacturing skills and abilities
- Publishing informational documents to raise awareness of on campus capabilities and how to gain access to such equipment for projects
- Host events utilizing resources on campus to work on various projects

For more information, go to the club website at https://www.nymmakersclub.com/

Information including copies of this document, project ideas, manuals, student made equipment guides, and much more, visit the Club OneDrive:
https://forms.office.com/Pages/ResponsePage.aspx?id=VGZw_NSNrUO32IhD8WGXXigPwIXu8JZHuKz_ckepTQJUOENBNkdNWEU0R004TzlJVkc3TU5YS1RQOC4u

To join the club and receive email updates on club projects and whereabouts, follow the link fill out the form:
https://sunymaritime0-my.sharepoint.com/:f:/g/personal/thomasroh_20_sunymaritime_edu/Epz-X3QpOt5JgKyKkLvm0coBqXFxLCTfWmWnjj3odFl4NA?e=1a3ZFF

Note: If there are any errors in this document, please notify the acting club president so they can make necessary changes.

General Tool Use Policy

In addition to any additional conditions of use for a given machine space, the following policy applies for doing any work at a school facility. These rules are consistent with courteous shop use and are generally universally practiced.

Permission and Conditions of Use
In the manner specified by those in charge of a given space, the person or entity in charge of the space must be made aware of any use of tools or equipment. To use equipment on campus, you must have proper training and qualifications. If a student is found to be doing anything perceived to be a hazard or cause damage to equipment, themselves, or other people, they may be barred from using the respective equipment and have resulting actions reported to the school as deemed necessary.

Shop Cleanliness
Clean up after yourself. Any chips, sawdust, trash, fluids, etc. should be cleaned up and disposed of properly, and all tools should be put away after use so that whoever is using the space next can get right to work. An unclean space is generally a hazard that can lead to injury, fire, lost/broken tools, and more. Access to many of the spaces listed in this document depends on good relationships between staff and students, so please be courteous and clean up after yourself.

Safety
It is in everyone's best interest to remain safe while operating equipment.

In machine shops, foundries, wood shops, and other fabrication settings, there is risk of burns, abrasions, lacerations, entanglement, falls, impacts, fire damage, asphyxiation, chemical burns, blood poisoning, and many other injuries/ailments. Please do everything you can to mitigate this risk. Here are a few of the ways you can protect yourself and others from accidents and injuries.

- Do not operate equipment if impaired or tired, do not operate equipment you are unfamiliar with
- Work with others or under supervision
- Wear proper PPE for the job being done and tools being used
- Be aware of the risks associated with the machinery, and make sure others are aware of these risks as well
- If you see something unsafe occurring, exercise your stop work authority and correct the problem at hand
- Receive proper permissions and consultation from responsible individuals before using any machinery

Inclusivity
Everyone should have access to the machine shop. Behaviors exhibited towards anyone to belittle, mislead, exclude, or harm an individual for their gender, race, sexual orientation, religion, perceived ability, or handicap is unacceptable. Be polite to those you work with.

General Guidelines for Special Space Access

When Requesting to Use Equipment

It is usually better to contact professors and staff in person so they can get to know you and see your face. It's easier to talk to someone than respond to an email. That said, respect their time, and that they have a job that they are trying to do. If they are not available, try to find a time when you can talk with them.

If you are emailing, try to keep your messages concise and to the point. If you do not hear a response, follow up with who you are trying to contact.

When approaching someone to use a piece of equipment, its good to have a plan for the project you are working on, such as a set of drawings/plans, if you have your materials/consumables for the project, or any previous work you have done to share. This shows your competence with this equipment and that you have actionable procedures you are following.

Machinery Spaces

Format of Documentation

The machinery space guide includes the following:

- A summary of what tools are at the space and what kind of work can be done
- Where this space is located on campus
- How to get access to the listed space
- General restrictions to using the listed space
- Opportunities associated with use of the space

Note on listed equipment capabilities:

Although a general overview of these spaces and pieces of equipment, full lists of equipment are kept, and are included in the appendix of this document to be referenced by anyone looking to find what specifically the college has to offer for students to use.

Some notes on space access:

This section includes regular access, and conditions of special access, which are overviewed in detail in the Makers Club Agreements and Student Permissions section of this document. While regular access would entail use of a space during normal operating hours in which a faculty member would normally be present, special access involves use of a space outside of normal operating hours, where approvals and potentially access through UPD is required.

S&E Machine Shop


Overview: The S&E Machine shop is the host of various tools and manufacturing means including but not limited to Arc Welding, Metal Turning, Milling, Plasma Cutting, Drill Presses, pipe fitting materials, and more. See the associated Equipment List for the full list of tools available for use.

Location: S&E Room 147

Regular Access: The Machine Shop is open to all students with permission from a machine shop professor while a lab is being taught. Only equipment not being used during a lab may be used by students.

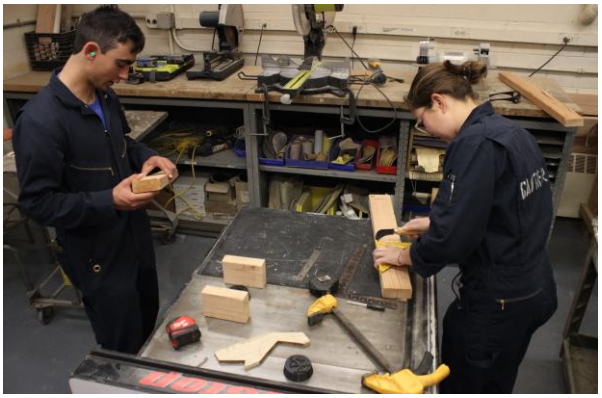
Special Access: Special access to the machine shop can be arranged through S&E special access procedures outlined in the Makers Club Agreements and Student Permissions section of this document.

Note: You are not allowed to use any equipment unless allowed by a staff member. You must be proficient in the use of equipment in order to be able to use it. To use a lathe or welder, you must have taken the respective manufacturing processes lab. For this reason, it is recommended that students take these classes, even if not required for their given major.

Opportunities: Currently there are no opportunities associated with the machine shop, however there are tools which have not been operated in numerous years in this space. Generally, if you can show that you need to use a tool for a project, and that you are capable, you will be allowed to use the tool in question

Furthermore, some staff at the machine shop are happy to teach students looking to learn more about the tools at the machine shop. An example would be one of the professors teaching basic TIG welding during lab hours. If there is something you want to learn that is present at the machine shop, the best course of action is to reach out to one of the professors teaching in the machine shop and ask if you want to learn something new.

Waterfront

Overview: The waterfront is home to sailing, powerboats, kayaks, and everything else watersports on campus. To properly maintain all the equipment they manage, the building is equipped with a wood shop, paint, fiberglass, soldering and some metalworking capabilities.

Location: Across Quad from Mess Deck

Regular Access: Access to tools and space at the waterfront is accessible to students between 9 AM and 10 PM. Students must be familiar with the Waterfront Wood Shop Safety Manual, and have taken the General Shop Safety Test, listed below.

Safety Manual:
https://sunymaritime0-my.sharepoint.com/:w:/r/personal/mlawless_sunymaritime_edu/_layouts/15/Doc.aspx?sourcedoc=%7B366B6086-BC55-4C84-9227-7BE093532BAA%7D&file=Waterfront%20Wood%20Shop%20Safety%20Manual.docx&action=default&mobileredirect=true&DefaultItemOpen=1

Wood Shop Safety Test:
https://maritimecollege.formstack.com/forms/wood_shop_safety_test

Training and Other Opportunities:
Routinely the waterfront will also offer opportunities such as fiberglass repair classes or forklift certification classes if there is enough student backing to hold these events.

Additionally, the waterfront offers many opportunities that are not necessarily associated with building or fabricating. These opportunities include but are not limited to employment at the waterfront, various sports teams, safe powerboat operation classes, and numerous events.

S&E CNC Room

Overview: The 3-Axis CNC Machine can be used to automatically machine foam and wood, with other materials such as metals being possible up to 4 ft by 8 ft, and up to 10” high. Constraining machine stock can be accomplished using the vacuum system or by using T-nuts.

Location: S&E Room 2-58

How to Get Access: Professor Munsch oversees the use of the CNC Machine. If you would like to use it, he would like for you to contact him individually and coordinate access. Professor Munsch must be present cmunsch@sunymaritime.edu.

Times of Access: The CNC Machine is rarely used, and as a result, time of use is extremely flexible. So long as a certified student or staff member is present and the room is unlocked, the CNC can be used.

Other Notes: When using the CNC Machine, you must be accompanied by someone certified by Professor Munsch. To become certified, you must demonstrate that you know how to use the CNC Machine and avoid damaging it.

S&E Strengths of Materials Laboratory

Overview: The strengths lab is host to various manufacturing means on campus including a 3 axis CNC router suitable for nonferrous metals, multiple 3D and resin printers, 3D scanners, drill presses, assorted hand tools, and other pieces of equipment. This space also is home to the strengths of materials laboratory, which is host to many pieces of equipment used for testing material properties in a variety of ways, including but not limited to bending, impact, and tensile tests.

Location: S&E Room 132

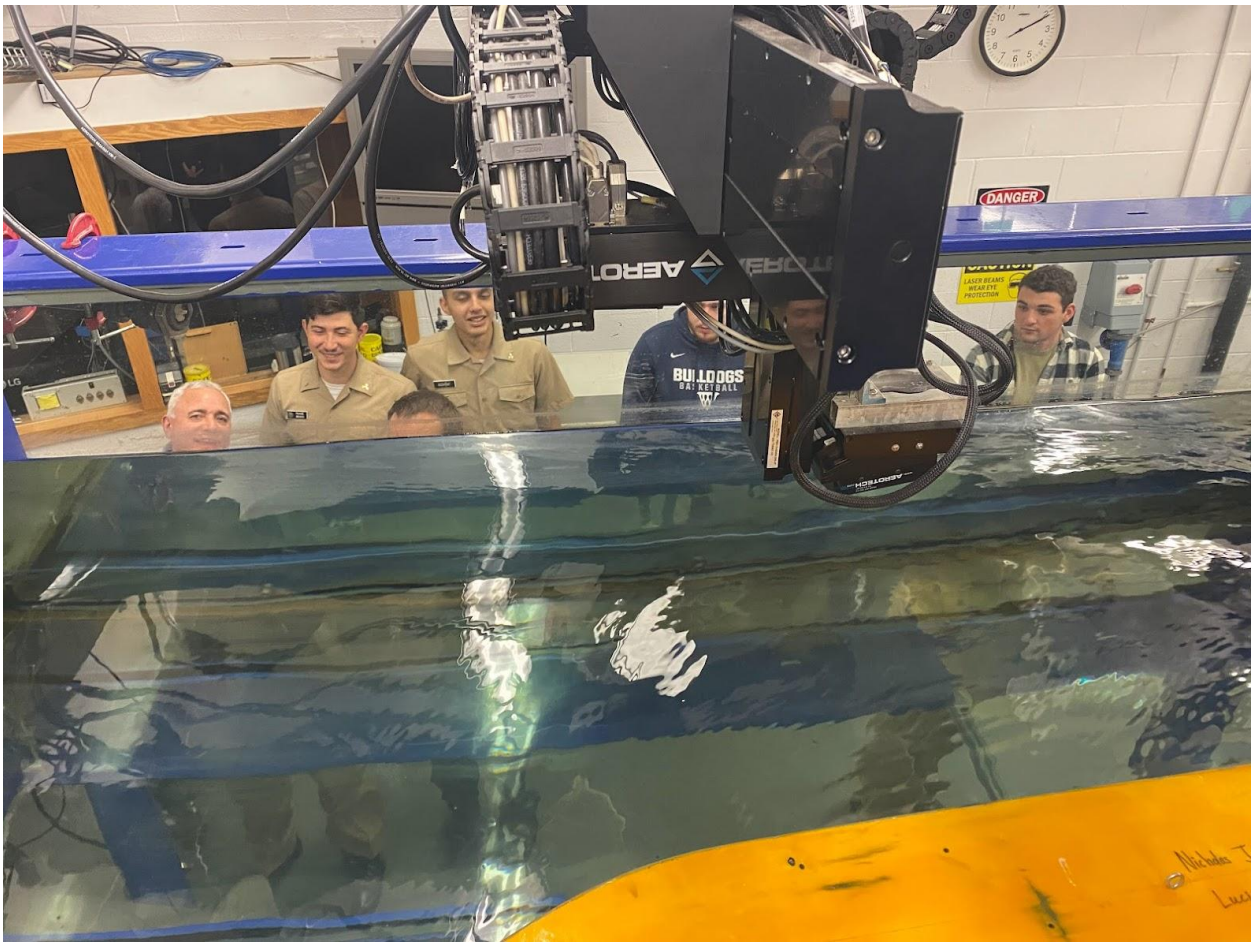
How to Get Access: Access to equipment is “by appointment” with Dr. Kidd, but he is willing to accommodate anyone looking to work with equipment M/W. For the scanner and the machining tools, emailing Dr. Kidd would be best practice.

Opportunities: There are offers for internships and work study for students. If interested, email rkidd@sunymaritime.edu directly.

Services: for use of tools or scanners in the space email rkidd@sunymaritime.edu directly or for the use of the 3D printers, files should be sent to the 3D printer email account (maritime.3dprinting@gmail.com).

Other Notes: The strengths lab is the location where a majority of mechanical engineering capstone projects are worked on. This space has not been used much by students for building personal projects in the past, but those running the space encourage use of it. Access to the space is limited due to the host of expensive equipment kept here, which is the main reason behind the limited access.

S&E Flow Channel Room



Overview: The Flow Channel Room is home to the Naval Architecture Program's Recirculating Flow Channel and associated equipment. This room is largely unused by the school. In the absence of a makers space, the Makers Club uses the space for tool storage, student workspaces, and more.

Location: S&E 1-52

How to Get Access: The Flow Channel Room is typically locked and not open to students, but is rarely used.

Opportunities: New, student led efforts to refurbish the space and make it usable again are making the space more student accessible and gives an opportunity to help work on repairing lab equipment on campus.

S&E Electrical Laboratory

Overview: The electrical is host to a variety of electrical equipment. Function Generator, power supply, Soldering Station, Micro level soldering kit and microscope, multimeters, and other hand tools.

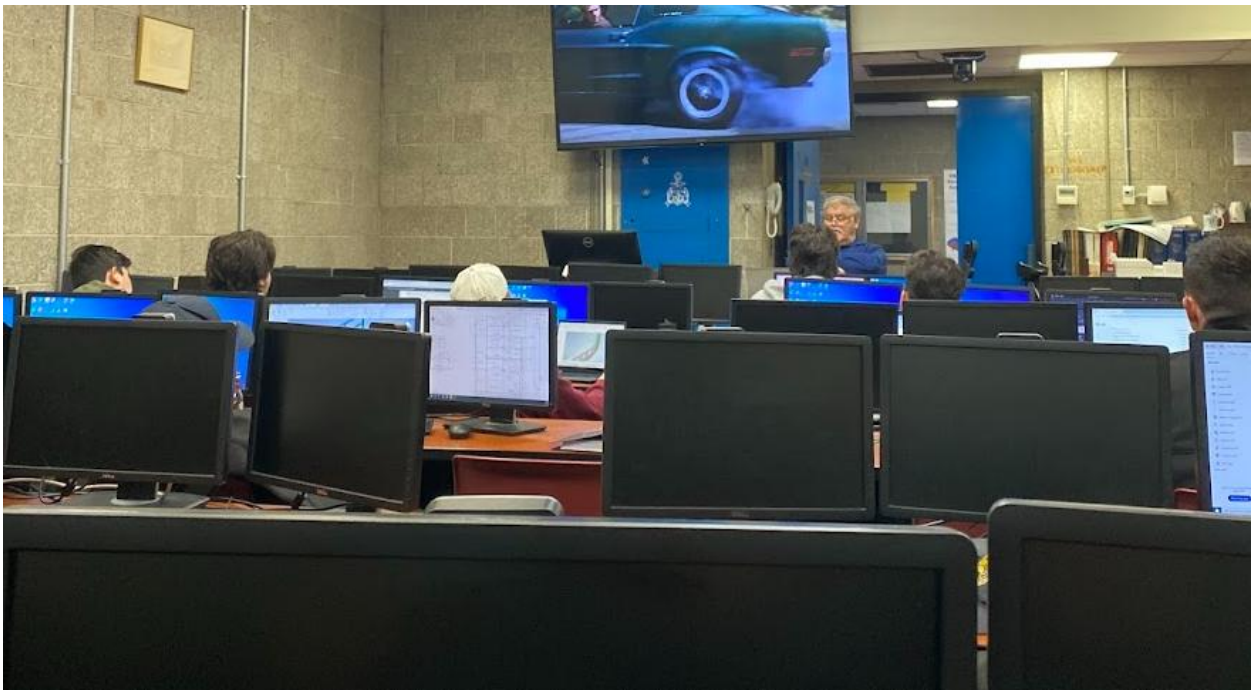
Location: S&E 2-56B

Regular Access: To use equipment here, talk to Roland Aragon, his office is in the CAD Lab (S&E 2-57). He is usually in his office, and while present, with his permission, use of the electrical lab is allowed as long as there is not a class taking place there.

Special Access: This location is open to S&E special access through the Dean of Engineering

Other Notes: There are other tools and small pieces of equipment available at the electrical shop. For more information, refer to the condensed equipment list, and ask Roland Aragon when talking with him.

S&E CAD Lab



Overview: The CAD Lab is host to numerous desktop computers and allows students the ability to use the numerous software tools the college offers. This space also has a black wand white office printer and supplies for binding class reports.

Location: S&E 2-57

Regular Access: The CAD Lab is typically open to students, and is often open Monday through Thursday from 8 am to 10 pm. Access is encouraged so long as no classes are taking place. Even then, so long as working in the CAD Lab is not disruptive to the class.

Special Access: Access to the CAD Lab can be requested through the Dean of Engineering, and when granted, the room may be unlocked by UPD

Other Notes: There are other tools and small pieces of equipment available at the electrical shop. For more information, refer to the condensed equipment list, and ask Roland when talking with him.

TSES VII

Overview: The TSES VII is the colleges training ship for license cadets. During the academic year, the training ship can usually be found docked on campus. The training ship has numerous machine spaces, including welding, machine shop tools, a wood shop, and more.

As of the end of the Spring 2024 Semester, the staff of the training ship has not been responsive to requests for conditions of student access. Hopefully in the near future, the training ship will be open for student use for projects.

Science Labs

The Science Department at the S&E is host of numerous labs. These labs, although not necessarily pertinent to design and manufacture, these spaces could be of benefit to the student body.

Makers Space

As of the making of this document 03/22/2024, the Makers Club does not have a single location for storing equipment, projects, consumables, or other related items. That said, the Makers Club does have assets to allow students easier access to equipment when the listed spaces are difficult to access, or to fill in gaps that exist in the colleges manufacturing capabilities. These assets and their locations are listed in the Equipment List listed in the Appendix and linked below.

These assets include:

- Foundry Equipment/Propane Tanks
- Stock and Scrap Materials
- Scrap Wood and other consumables
- Leatherworking Tools
- CNC Embroidery/Sewing Machine
- Roku TV Monitor for club advertising
- A heat gun and hot plate
- Nichrome wire foam cutter

Often, students have their own equipment, materials, and spaces, and are often willing to help other students working on a project. To know what you might have access to through the student body is really a matter of being apart of the network of students in the Makers Club and building stuff on campus. To learn about what you might have access to, join the Makers Club, ask your peers, or email a Makers Club Executive inquiring about available equipment.

Potential locations for a Makers Space on campus include the old TIV kitchen at the waterfront, and potentially reallocated classrooms in the S&E. Ideal locations would allow for tool and project storage, work spaces, and amenities such as a flammable locker, electrical outlets, 3-phase power outlets, air, and water lines.

Misc Equipment and Printers

Maritime College has many printers, plotters, and other office machines to serve the students and staff. For regular student use, there are kiosks in the S&E, Fort Library, MAC, and Student Union. These printing services can be accessed by students using their student account login credentials. Documents can either be sent locally to the kiosk via USB, or using the online service Pharos, linked below:

https://user-portal.beacon.pharos.com/a0e5ef39-3da9-4dec-a857-9515452415a3

Other printers are available to students such as the office printers and binding tools in the CAD Lab, large format plotter in the Electrical Lab, and several plotters in the fort.

Appendix

Listed below are the machinery and software available on campus.

Equipment List:

https://sunymaritime0-my.sharepoint.com/:x:/g/personal/thomasroh_20_sunymaritime_edu/Ee0x3v-mDIZEgO_6DU76qKgBya_XxN6tsaes6OtPFP0jkQ?e=ammqM5

Makers Related Clubs:

https://sunymaritime0-my.sharepoint.com/:x:/g/personal/thomasroh_20_sunymaritime_edu/ESsOVw57hAVOv-qfazecWf0Bsswr847395Oy9_PKQ72flg?e=XF9Fsd