Imaginengineering Lab (IL) Operating Procedures

**Purpose:** The College has created a new student facility that allows its engineering students to act on their creative energy and enhance their capacity to take on engineering initiatives. The IL offers a dedicated space for student exploration and innovation. While some students will have the opportunity to experience directed research within a faculty member’s lab, everyone has the opportunity to develop and design their own ideas within the IL. Often students, either individually or in groups, have novel ideas but lack the space and tools to bring their concepts to fruition. Use of research labs is often restricted to research directed by the faculty member or at least closely aligned with that type of research. The use of a research lab is typically based on a preexisting relationship between the student and the faculty member. Underclassmen normally do not develop these relationships until well into their junior year. This facility provides easy access to entrepreneurial students without limiting the topic or timeframe of use. It also encourages those students without access to a research lab to create engineering designs independently. The goal is that students will be empowered to use the knowledge and skills from their academic studies to test and develop unique engineering solutions to relevant problems.

The IL facility is designed with fixed bench space and modular tables. This design allows movement of tables within the space to create the appropriate work surface necessary for specific projects. The layout provides individual and small group work stations. All space is assigned on a temporary and first come - first serve basis. Secure storage space is available within the facility for projects that cannot be safely transported. Basic hand tools, soldering irons, diagnostic equipment, computers and bench supplies are available in the IL for student use. A rail system has been installed for hoisting and suspending devices/projects. Task lighting has been included at each work site to provide optimal visibility. The space has also been designed to allow minor modifications to facilitate oversized or unique requirements. All changes and space usage must be approved by the IL advisor and monitored by the IL senior program coordinator (who currently monitors the Ingalls Center).

The IL is also accessible by our undergraduate engineering clubs when other facilities are unavailable. However, clubs will not receive preferential treatment or priority over individual(s) using the facility. This space is not meant to augment or replace senior design space or research lab space. It is also not meant to be used for classroom projects assigned by an instructor. As with the spirit of the Ingalls Center, this facility is aimed at enriching the undergraduate experience. The emphasis is for undergraduates to assemble and use the facility under their own volition. However, IL is available to students to reinforce and perfect aspects of their course work on a specific topic of their choosing. In addition, the College may announce design competitions that would allow individuals or groups to use this facility to pursue that goal as outline in the competition guidelines.
**General Procedures:** The use of this facility is a privilege and comes with certain responsibilities outlined in these procedures. As such the College reserves the right to discontinue one’s privileges should their conduct be inconsistent with the IL operating procedures and academic or student life standards. Any Boston University engineering undergraduate student is allowed to use this facility after receiving the safety training (see Safety paragraph). Individuals will check in with the lab advisor (designated undergraduate senior or graduate student) each day of use to be assigned a work area. These spaces will be assigned on a first come-first serve basis. There will be one area that can be reserved for oversized projects. This specific reservation will be done online. In addition to the work space, a locker can be checked out for a 24 hour period. This again will be facilitated by the lab advisor.

In general there are very few limitations on what you can design and build in the IL. However, the facility was not designed to perform any wet lab work. So, BL work and corrosive or explosive materials will not be permitted in this facility. When you check in you will provide a short general description of your work to the lab advisor. This will help him/her assign work space and provide guidance as necessary. The lab advisors will rotate so that individuals who need advice can find the right advisor who matches their research discipline requirements (also see Resources paragraph). The lab advisors are there to provide administrative assistance in the lab as well as to provide advice when desired.

Unfortunately, as with any lab, no food or drinks are allowed. There are no restrictions on cell phones or conversation levels; however, consideration should be given to those around you. This is essential when using equipment (see Safety paragraph). Materials, supplies and equipment should be used so as not to limit the productivity of other individuals. Once you are finished with materials or equipment, they should be returned promptly to their original location. No equipment, tools, supplies or materials are to be taken from the lab, other than your project. Work areas should be returned after use to the same condition in which they were assigned. A shop vac and cleaning materials are available for your use.

Normal operating hours are:
12:00 to 10:00PM Monday – Thursday
12:00 to 6:00PM Fridays, Saturday, & Sunday

**Safety:** The number one priority at all times within this facility is safety. This begins with a detailed safety training (see website for times & dates). The following areas will be addressed in the training and are covered here for completeness:

1. Clothing: Safety goggles will be worn at all times when using equipment within the IL. No lose clothing, chains/jewelry, shall be worn within IL. Long hair must be restrained properly and closed toe shoes will be worn within the IL.
2. No outside tools or chemicals will be brought into the IL without permission from the lab advisor.
3. Individuals will not use any equipment they had not received formal training on by the designated BU trainer.
4. No one will operate any equipment without a trained individual directly observing.
5. All equipment will be operated in accordance with its designed purpose.
6. Equipment clearances must be observed and people in adjoining work areas must be advised.
7. When required, hearing protection will be used.
8. A phone is available in the lab and can be used to contact the BU police (3-2121) in emergencies.
9. FIRST Aid kits are available and located at all egress locations from the lab.
10. All incidents or accidents will be immediately reported to the lab advisor on duty.
11. Soldering will be conducted at the soldering station where proper ventilation is provided. Soldering irons will be unplugged when not in use.

Certain equipment within the lab (drill press, band saw, mill drill, 3D printer and grinder) requires training to be conducted by one of the College’s machinist. Equipment training sessions will be scheduled through the IL website.

All individuals within the lab are responsible for safety. If you see an unsafe act you should immediately notify the individuals involved and the lab advisor. In order to maintain a safe environment it takes everyone’s assistance to adhere to the safety procedures and maintain vigilance of their surrounding areas.

Access: Card access will be granted to individuals who read and sign this form, in addition to receiving the IL safety briefing and equipment training. Card access will be requested through Zaius once this form has been completed and turned into the College’s mail room (B15 in 44 Cummington St.) and showing their BU ID. Access is only granted to the individual ID holder who swipes into the lab. You are not allowed to bring guests or visitors into the lab unless approved by the lab advisor on a temporary basis.

Students from other Colleges within the University can seek access to the IL if they are part of a group working on a project that meets the guidelines as specified in the Purpose paragraph. Their approval process will be exactly the same except that they will need to provide the name(s) of the individual(s) from the College of Engineering that they will be working with them on their project.

Entry to the facility will be through the door located in the lobby of 44 Cummington St. The double doors in the Undergraduate Service corridor will only be used for material supply or removal and in the event of an emergency. Permission to use the double doors on any other occasion will be left to the lab advisor. None of the lab doors should be propped open to allow free access. This lab should be treated as a controlled area at all times.

Although you may see some similarities between the Ingalls Resource Center and this facility, there are some significant differences. The IL is NOT a study area or a breakout group area for class projects. Likewise, Ingalls will not be an overflow of the IL. These are really two distinct facilities with unique purposes that enhance your undergraduate experience. Failure to properly utilize and follow the operating procedures may lead to one’s access being revoked.

Equipment, Materials, & Supplies: The lab comes furnished with some fixed equipment and most commonly used hand tools. The lab advisor may keep some tools in a locked area. Should
there be equipment or tools that are not readily available please speak to the lab advisor. The lab also has been stocked with bulk materials, hardware, electronics materials, diagnostic equipment, and two computer work stations. All the equipment, materials, and supplies are for you to use within the lab. The computer workstations are to refine designs you have already worked on elsewhere, for analysis of electronic components, research of your project, or for looking up parts or components. The workstations are not available to permanently add hardware unless it is through a USB port or another peripheral type port. They will be available to collect data in certain cases. These workstations are not intended for individuals to check their emails, write papers, or any other social networking or academic assignments. These activities are not aligned with the purpose of the IL as stated in the Purpose paragraph.

You may find that there is equipment or supplies you require to successfully complete your project. While we have tried to set this lab up for general use, it may not meet all the needs of its users. You may discover that you need a specific part (i.e. pump or a motor) which we may be able to help you procure. For special order items like these we will need to discuss the nature of the request as it applies to the project. Your lab advisor will be the first step in the process of acquiring any materials that are not on our usual purchasing list. Please see the website for applicable forms.

Lastly, our goal is to be able to provide you with all the resources necessary to complete your project. Therefore, we ask that you conserve materials and supplies as best possible so that any extra funds can be spent on additional resources.

Resources: There are a number of resources that you can access by participating in IL. In the event that you need some precise machining, you can request the job be forwarded to the College’s machine shop or CAS’. Again, this will require some discussion of the project before the machine job can be requested. There will also be a number of skill sessions available to learn basic skills in topics such as soldering, CAD, adhesives, etc. Depending on your research project, there may be a faculty member who can provide additional guidance should you desire such assistance. Again, depending on the project, mentoring could be available from a host of alumni working in industry who are familiar with your project topic. Additionally, should your project rise to the level where you wish to apply for a patent or seek commercialization of your idea, there will be opportunities to work with BU’s Office of Technology Development. The College also anticipates a number of novel activities and programs geared specifically for those using the IL.

Suggestions: We did not expect that we would design a facility that was perfect for everyone right out of the gate. There are just too many degrees of freedom to make that happen. So we will rely on the tried and true method of taking suggestions and working the feedback loop. The IL website has a suggestion link that we encourage you to use. If it would be better explained in person then please discuss the issue with your lab advisor. Our goal is to provide you the resources necessary to make your Imagineering Lab experience the best possible and expand your engineering creativity.
I, ______________________________, have read the IL Operating Procedures (above information) and will comply with all procedures set forth in this document.

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Safety Training

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