School of Design Laptop Requirement for New Majors, Industrial Design (BSID) Fall 2022

The School of Design requires that each incoming Design student own a laptop with graphics capabilities, and that they be prepared to purchase the software programs used in courses.

Students should budget for the purchase of the necessary hardware and software the way they would books and other supplies for class. *Educational purchase discounts for both hardware and software are available at the [SFSU student store](), and through various online vendors.*

It is best to begin the program with a good graphics computer that can support demanding software such as Adobe Creative Cloud and/or SolidWorks, but you may be able to hold out until your second semester in the program with a laptop that can handle still images and presentation applications. Below are details of the hardware and software requirements for all ID students.

Minimum Hardware Requirements for BSID Majors:

NOTE: The Microsoft Surface is not a laptop. Please do not purchase a Surface hoping it has the graphics cards and processing capabilities to run graphics software. The Surface cannot run our required software You will need to purchase a Windows PC Laptop.

The main 3D modeling applications used in the BSID program are SolidWorks and Rhino 3D. Details are on [page 2]() and [page 3.]() SolidWorks only runs in Windows and Rhino is primarily developed for Windows, so a Windows PC laptop is recommended for all students in the BSID program. In general, good quality PC laptops are available from Dell, Lenovo and HP. Following the specifications below, you should expect to spend $1500-$2500.

REQUIRED:

- **Processor:** Multicore 64-bit Intel processor. Minimum 2.2GHz dual-core Intel Core i7.
- **Operating system:** Windows 10 (64-bit)
- **Memory:** Minimum of 8GB of RAM recommended. 16GB will give superior performance
- **Storage:** 500GB+ 7200RPM hard disk or 256GB+ solid-state drive (SSD). SSD will significantly improve performance.
- **Graphics:** Intel HD Graphics 620 or better required. While Intel graphics chips will run the applications, performance will be reduced. A discrete NVIDIA graphics card with at least 4 GB of VRAM will provide significantly better 3D performance.
- **Size/Display:** 15" display with at least 1920 x 1080 resolution and ideally higher. A smaller, lighter (e.g., 13") laptop may be a reasonable choice if you have a large display at home. A high-resolution laptop display is still recommended, no matter the size.
- **Optical Mouse**: For 3D modeling software, a 3-button mouse with a center wheel-button is required. You can get a wireless mouse or one with a retractable cord for convenience.
- **Backup and Storage**: You will be making a lot of large files that can quickly fill up your hard drive and can seriously affect the performance of your laptop. **All students are required have at least an online ("cloud") storage/backup that is synced daily.** All students have a free Box account: [https://sfsu.app.box.com/](). This is a safe and secure way to store and backup your work. Other options include [Google Drive]() or [iCloud]() (both sync automatically and have low fees). We strongly recommend you purchase an external drive as well for secondary backup ([La Cie]() or [Seagate]() are good brands). See the ["3-2-1 Backup Strategy]()" for more information.

School of Design Laptop Requirement for New Majors, Industrial Design (BSID) Fall 2022

Strategic Extras:

- **Pocket USB flash drive** for exchanging files with others, loading files onto 3D printers and CNC tools, and presenting work. Note: these are not stable enough to function as backup drives.
- **Spare AC Adaptor to leave at home** (most frequently seen object in our lost and found)
- **Extended Warranty** if available
- **Second Display Screen** for work at home
- **Insurance policy coverage** added to your home or renter's insurance.
- **Laptop security cable** to tether your machine wherever you are working at school, assuming laptop has a Kensington-type security slot.
- **External battery or power pack** (10000-20000 mAh) for charging laptops and smartphones.

While not recommended, Apple computers can be made to run SolidWorks if necessary. In this case, additional software is needed to allow the applications to run at reduced capacity:

- A Windows 10 license (roughly $100) and either
    - Parallels Desktop (roughly $80 in addition to the Windows license)
    - Apple's Boot Camp software (free, but requires partitioning your hard drive)
- A multi-button mouse to access certain commands
- Some remapping of keyboard commands for best results (e.g., Backspace to Delete)

Software:

Required for All Design Majors:

Basic Productivity Applications:

All SFSU students have access to free Microsoft Office: https://its.sfsu.edu/service/office365students. You could use other applications that perform word processing, presentation/slideshow, spreadsheet, etc. such as **Apple iWorks**, or through cloud-based software like **Google Docs**.

Design Specific Applications:

All students, whether using an Apple or Windows computer, will need the following Adobe applications installed and running on their computers: Photoshop, Illustrator, InDesign, and Acrobat Pro.

Registered students in the School of Design can get free Adobe Creative Cloud licenses. This is for declared Majors and Minors only. The process for accessing Adobe software for installation on personally-owned computers is https://athelp.sfsu.edu/hc/en-us/articles/360034974694-How-to-install-Adobe-applications-on-personal-machines. Please log-in with your SFSU credentials and you should then have immediate access to the creative cloud programs.

If you are already using your SFSU credentials/email for your current CC account, please contact service@sfsu.edu. If, when you login the system does not recognize you, please send your name, ID number, and registration status (Major or Minor) to design@sfsu.edu.

School of Design Laptop Requirement for New Majors, Industrial Design (BSID) Fall 2022

Adobe Software, continued

For problems and support with accessing the Adobe software, students can call 415-405-5555, or email service@sfsu.edu. Please note that SFSU IT support is limited to troubleshooting access to the Adobe software or access to the Adobe Creative Cloud portal. SFSU IT cannot provide support or training for the use of the Adobe titles or support student computers themselves.

When students graduate or leave the University, they will lose access to the SFSU Adobe Creative Cloud license. To migrate their content that they may have stored in the Adobe Creative Cloud to a personal account, students will need to request assistance migrating their data. For now, this can be done by emailing service@sfsu.edu and a member of the AT Desktop Service will assist them.

Additional Applications:

Some advanced or special topic courses require additional software which may be made available to students in the course through an educational license, which may be purchased just before taking the class, or which is open-source and free. Information about accessing specific programs will be provided in these classes' syllabi.

Software Required for Industrial Design:

The BSID program requires the use of 3D computer-aided design and modeling software in addition to standard 2D applications. The most demanding applications used in BSID are SolidWorks, Rhinoceros 3D, Keyshot, and Fusion 360. Make sure your hardware meets the specifications on page 1 of this document in order to run the software properly.

- Dassault SolidWorks, for mechanical modeling and solid product design (free educational license, renewable every year; your faculty will share how to access this software
- McNeel Rhinoceros 3D, for sculptural surface modeling and advanced form work (floating educational license, available to BSID students through the school network)
- Luxion KeyShot, for photorealistic 3D renderings (floating educational license, available to BSID students through the school network)
- Autodesk Fusion 360, for CNC machining and manufacturing (free educational license available through autodesk.com)

Where to Purchase Additional Student Priced Software:

- https://sfsu.onthehub.com. *Always make sure that you are obtaining student pricing for the applications that you purchase and be ready to provide documentation supporting your student status. Your faculty can help you obtain all available discounts*.
- Adobe Creative Cloud: See information above about the Free License for Design majors and minors.
- Companies will have student pricing on their sites. Please work with your faculty to ensure you are getting the best price.

In addition to the skill-development classes that teach them, core product design studio classes will require the use of these applications. Other courses may require additional special-purpose applications which are usually free/open-source and available for Mac and Windows.