



Computer Hardware/Software for Students in Civil Engineering

As a student in the Civil Engineering program at the University of Waterloo (UW), you will use computers in several lecture courses and in the design studio. Each student workstation includes locked storage for a laptop. Because you will be moving between the studio, the library, and classrooms, and traveling on work terms, you must have a laptop. This is an essential tool for your academic studies.

In addition to your own equipment, computer labs are provided by the Department of Civil and Environmental Engineering (CEE) the Faculty of Engineering (FOE). CEE provides access to the [Departmental Labs](#) and FOE provides access to general use [public computer labs](#). The first formal teaching that involves computers begins in the first term. Each student needs a mid-range laptop with the processing power, memory, storage space and display resolution to support moderate 3D graphics work. In addition, students will want to ensure they have warranty protection for their purchase. We recommend you spend \$1,500 - \$2,000 for a laptop with the minimum specifications & warranty; bear in mind prices and models can change.

NOTE: When buying hardware/software, verify you apply the appropriate educational discounts. The [Waterloo Store](#) may have deeper educational discounts for the product you're looking for. You may contact them at wstore@uwaterloo.ca

Recommended Minimum Device Requirements

Note Taking Tablet

If you already have a desktop or laptop and are just looking for something that can help you with note taking, getting an affordable tablet may be what you need. We recommend that the tablet uses AndroidOS or iOS so it will be compatible with MS OneDrive and Teams. You will find the recommended minimum specification and sample tablets below.

Please keep in mind that this is for note taking only and should not expect any course software to be installed on this machine. For example, you will not be able to run ArcGIS, SAP2000 and more, software should be installed on your desktop instead.

Hardware component	Specification	Comments
Processor	Qualcomm Snapdragon	Minimum 6 cores, 8 threads.
Memory	4 GB RAM minimum	RAM = Random Access Memory
Storage	Min 32GB	If you save more files locally, you may want more storage.
Network	Wi-Fi 6 (802.11ax)	Wireless '802.11ax' is necessary for you to connect to campus Wi-Fi
Stylus	Standard stylus for device.	This will help with note taking.



Make	Models	Website
IBM/Lenovo	Lenovo Tab	Lenovo Tab
Samsung	Galaxy Tablet	Galazy Tablet

All in one tablet

If you are looking for a hybrid solution that can help you with note taking but also run some software, you may want to consider a touch screen laptop. The recommended specification below will allow you to run software taught in this course.

Hardware component	Specification	Comments
Processor	Intel Core i5 or AMD Ryzen 5	Minimum 4 cores, 8 threads.
Display	1920 x 1080 pixels resolution minimum	13-inch+ screen is preferable.
Memory	16 GB RAM minimum	RAM = Random Access Memory
Storage	256-500GB M.2 style SSD storage drive minimum	SSD = Solid State Drive Anything smaller or slower than this will not be sufficient.
Network	Wi-Fi 6 (802.11ax)	Wireless '802.11ax' is necessary for you to connect to campus Wi-Fi
Video card	Integrated memory	Default integrated GPU would work.
Keyboard accessory	Standard US layout keyboard	Required for assignment use.
Webcam	HD Webcam built-in	Suggested for class and group collaboration

Make	Models	Website
IBM/Lenovo	ThinkPad X Series	Lenovo ThinkPad X Series
Surface Pro 7+/8	Surface Series	Surface Pro



Your Everything Laptop

If you are looking for a laptop that will be able to handle all coursework you will encounter during your University career, then getting a mid-range laptop is something you should consider. We recommend getting a laptop with the specifications listed below to ensure easy access to course work and software, and networking around campus.

Hardware component	Specification	Comments
Processor	Intel Core i7 or AMD Ryzen 7	Minimum 6 cores, 8 threads.
Display	1920 x 1080 pixels resolution minimum	15-inch screen is preferable.
Memory	16 GB RAM minimum	RAM = Random Access Memory
Storage	256-500GB M.2 style SSD storage drive minimum	SSD = Solid State Drive Anything smaller or slower than this will not be sufficient.
Network	Wi-Fi 5 (aka 802.11ac) minimum, 2x2 fine or Wi-Fi 6 (802.11ax)	Wireless '802.11ax' type is more future proof
Video card	4GB minimum - dedicated memory	Discrete (not integrated) graphics are preferable. NVIDIA/AMD and Direct X11 or above required.
Ethernet port or adapter	10/100/1000BASE-T Gigabit Ethernet	Required for classroom use.
Webcam	HD Webcam built-in	Required for classroom use.

Make	Models	Website
IBM/Lenovo	ThinkPad P-Series or similar	Mobile Workstation Laptop ThinkPad P Series Laptops Lenovo CA
Dell XPS	XPS series	Dell Canada: Dell XPS Laptops - High Performance Notebooks
Asus	Asus ZenBook 15 Series	Zenbook Pro 15 UX535 Laptops For Home ASUS Canada

NOTE: You are likely to buy more than the required laptop over the course of your studies. Future purchases may address more specialized requirements in years to come.



Recommended Supplementary Purchases

Hardware component	Specification	Comments
Extended Warranty (Highly recommended)	3 year Lenovo \$145.00 3 year Premium Support Dell \$160.00	A recommended part of any laptop purchase, which ensures a greater return on investment.
Mouse	Multiple buttoned mouse with scroll wheel.	Having a mouse than can use macro can aid in productivity and efficiency.
Separate Screen	Larger resolution display screen (24-27inch)	A recommended purchase for professional work. Can be budgeted under \$200.
Portable Monitor	ASUS MB MB169B+ 15.6" LED-Lit Monitor	Make sure connectivity is compatible with your laptop.
USB 3.0 Flash Drive, or Thunderbolt/USB external Hard Drive	32 GB or better	See section 6 on Data Security for more information. Note: A USB Flash Drive is not adequate as a primary means of backup.
Headset	USB/Bluetooth with Mic	Subjective; should be comfortable for you
Stylus	Wacom Graphics Tablet recommended, unless you have a pen-enabled laptop	Drawing Tablet VEIKK A15 10x6 inch Graphics Pen Tablet with Battery-Free Passive Stylus and 12 Shortcut Keys (Red) : Amazon.ca: Electronics
Laptop Stand	Prevents overheating and lengthens laptop life	AmazonBasics Ventilated Adjustable Laptop Computer Holder Desk Stand : Amazon.ca: Electronics

NOTE: Your individual computer needs may vary. You may choose to purchase additional supporting equipment such as a backup hard drive, a small desktop printer, docking station, etc.

Apple or Microsoft?

While Civil Engineering has previously supported Apple applications, in the future we are **no longer recommending** the use of Apple-based platforms and operating systems.



Required Software

Required Software	How to obtain
Windows 10	Windows 10 is provided free of charge to UW students. Activate your account at: http://uwaterloo.onthehub.com using your WatIAM username and password.
Office 365	Office 365 (Word, PowerPoint, Excel and more) is provided free of charge to UW students for Microsoft platforms and can be installed on up to 5 devices. You can have Activate your account at https://uwaterloo.ca/office-365 using your WatIAM username and password.
AutoCAD	AutoDESK is available free of charge to UW students for Microsoft platforms. Activate your account at Autodesk Education & Student Access Autodesk

Optional Software

Optional Software	How to obtain
Adobe Creative Cloud	Available in Adobe - WStore .
OneDrive	OneDrive is provided free of charge to UW students for Microsoft platforms and offers 5TB of cloud storage. Activate your account at https://uwaterloo.ca/office-365 using your WatIAM username and password.
Azure for Education	Students receive developer tools from Microsoft at no cost. This includes software such as Project, Visio and operating systems. For access sign in here: Azure Dev Tools for Teaching (microsoft.com)

NOTE: We strongly encourage students NOT to purchase Adobe Creative Cloud prior to starting Civil Engineering in Fall. The course instructor will advise when this software becomes a requirement.

Licensing

Most professional software packages used in the program offer a free or a discounted academic license option for students. However, it is important to note that software licensing agreements and pricing change frequently and without notice. Students will be expected to acquire licenses for their software during the length of the program.



Data security

Students are responsible for their own data security. Back up often, and to different media; reduce data loss. Flash memory (USB Keys) has a finite number of program-erase cycles; please do not use it as your only backup medium. USB drives are a better for back up.

We also encourage students to take advantage of the secure network storage space provided by Engineering – the [N:Drive](#). Microsoft's [OneDrive](#) is also available for storage.

Technical Support

- **Waterloo**
[Civil and Environmental Engineering Computing](#) (CEEC) is available to consult with students. CEEC provides general support for Windows platforms. Application-level support for course software is not provided, but direction to the proper people for support is provided to students. CEEC provides hardware and [software support](#) for all department-level computing facilities. You can also email civrt@uwaterloo.ca for help.
- **Faculty of Engineering Computing Support**
[Home](#) | [Engineering Computing](#) | [University of Waterloo \(uwaterloo.ca\)](#)
- **Campus-Wide Information Technology Support**
[Home](#) | [Information Systems & Technology](#) | [University of Waterloo \(uwaterloo.ca\)](#)

More information on the location of helpdesks and contact information is available [online](#).

Financial support

Ontario Student Loans now provide support for purchasing a computer. See “How student loans are determined” at: [OSAP: Ontario Student Assistance Program | ontario.ca](#)

Questions

[Contact Us](#)