

Graduate Certificate in Information Technology: VR and AR

Technology Requirements

Updated: March 19, 2024.

Embarking on a postgraduate journey in Information Technology: Virtual Reality (VR) and Augmented Reality (AR) demands a robust technological foundation. To ensure you are fully equipped for the innovative landscape of Virtual, Augmented, and Mixed realities, we have curated a set of required XR hardware specifications to help you make the right choice.

While a laptop and XR headset will be necessary to harness the full potential of this program, we understand the importance of making an informed decision. We encourage you to carefully review this document before purchasing an XR hardware/ laptop with specifications that will serve you throughout the program and beyond (2 to 3 years).

If you already have an XR headset/ laptop, we advise you to defer your decision about upgrading or buying a new one until the end of the first semester. This period will allow you to consult with faculty and local licensed distributors to determine the most suitable option for your academic needs.

Computers

Laptops

- **Processor:** Intel Core i7, i9 or later generations for better performance. Focus on high-performance models that balance thermal management.
- **RAM:** 16 GB (minimum) or 32GB (preferred for development flexibility).
- **Graphics Card:** NVIDIA RTX 3060 (or greater), considering thermal throttling and power constraints in laptops.
- **Storage:** Minimum 512GB NVMe SSD, recommended 1TB for ample space for development tools and projects.

Desktops

- **Processor:** 64-bit Intel Core i7, i9, AMD Ryzen 7 or 9 (or later generations for better performance. Consider dual processor options.)



- **RAM:** 16 GB (minimum) or 32GB (preferred for development flexibility) or more for handling multiple development tools and VR content simultaneously.
- **Graphics Card:** NVIDIA RTX 3060 (or greater), or AMD Radeon RX 6700 XT, 6800, 6900 XT, prioritizing higher VRAM for better performance.
- **Storage:** SSD for the primary drive (at least 1TB NVMe) for fast boot times and project loading, with an additional HDD or SSD for extra storage if needed.
- **Cooling:** Adequate cooling solutions, especially if opting for high-performance components.
- **Dual Monitor:** We strongly recommend a dual monitor setup for an enhanced development environment. This boosts productivity and helps in efficient multitasking, which is essential in complex VR/AR development scenarios.

Sample VR/AR Development Systems:

Laptop – Minimum Requirement: [Legion Slim 5i Gen 8 Intel \(16"\) with RTX 4060.](#)

Desktop – Minimum Requirement: [Lenovo Legion Tower 5 Gaming PC](#)

** These laptop options are provided as examples of configurations that will be sufficient for the program. They may not be available on the market at the time of purchase, or their prices may be subject to change. We recommend conducting thorough research and considering all alternatives before making your final decision.*

Laptop vs. Desktop

| Laptop | Desktop |
|--|---|
| Portability: Easily work from different locations in university or home. Your professors might ask you to bring laptops to the classroom. | Performance: Offers more powerful components and better handling of VR/XR software at a lower cost. |
| Space-saving: Compact design saves space, ideal for small work areas. | Upgradeability: Easy to upgrade components, extending the system's lifespan. |
| All-in-one: Includes built-in display, keyboard, and speakers. | Cooling: Better cooling systems, comparing to laptops, allowing for longer periods of intensive work without throttling. |

We recommend purchasing your computers from licensed retailers to ensure you receive quality hardware and professional guidance. Trusted names like [Canada Computers](#) and [Best Buy](#) offer the expertise of trained professionals who will help you make an informed decision. For those who prefer macOS, Apple is a reliable option.

Standalone XR devices

| Recommended Devices | Device Software |
|---------------------------------|----------------------------|
| Meta Quest 2 | Quest software version 39+ |
| Meta Quest 3 (Preferred option) | Quest software version 57+ |



VR Headset Safety Recommendation: Starting in Term 1, students will use Meta Quest (or an alternative device) for immersive VR. We recommend testing the headset under faculty supervision to ensure a safe and comfortable introduction to virtual reality environments. This approach will allow students to familiarize themselves with VR technology, ask questions and learn how to handle potential issues such as motion sickness. It is important for students to gradually acclimate to using VR equipment and test it in a controlled environment as part of ITVR safety guidelines.

Frequently Asked Questions

Question: Should I prioritize upgradeability or portability when choosing my computer?

Answer: This depends on your specific needs. If you anticipate the need to enhance your system's capabilities over time, a desktop may be better due to its upgradeability. However, if you require the flexibility to work from various locations, a high-performance laptop would be more suitable due to its portability.

Question: Why is it recommended to buy computers from licensed retailers like Best Buy or Canada Computers?

Answer: Purchasing from licensed retailers ensures you receive genuine and warranted products. Retailers like Best Buy and Canada Computers also provide professional advice. They can help answer any technical questions, ensuring you make a purchase that's well-suited for your ITVR program needs.

Question: I'm feeling overwhelmed by the technical specifications and choices. I just want to purchase a laptop that will work for my ITVR program. What should I do?

Answer: Consider visiting a licensed retailer like [Canada Computers](#) or [Best Buy](#), where trained professionals can guide you to laptops that will allow you to smoothly run your essential software in Terms 2, 3 and 4 – Unity and Unreal Engines, Adobe Creative Cloud, and other applications. Remember to consult multiple professionals before making the decision.

Question: Why do I need an XR (Extended Reality) device for the ITVR program?

Answer: An XR device is critical because it immerses you in the virtual and augmented realities you'll create and study. It's not just about visualizing your work in a real-world context; it's also about understanding user experience, testing interactions, and gaining firsthand insight into spatial computing. This hands-on experience is invaluable for grasping the nuances of user-centric design in virtual spaces. If you prefer to purchase an alternative XR device not listed in this document, remember to verify with your instructors that the headset is compatible with the hardware and software you'll be using for your program.



Question: Can I bring my own computer to the program and take time to explore my options before purchasing a laptop?

Answer: Absolutely! You are encouraged to bring your own computer and thoroughly understand your options before making a laptop purchase. To support this, we will organize a workshop specifically for students who need additional guidance in selecting the appropriate hardware for their laptop needs.

