

## STUDENT COMPUTER RECOMMENDATIONS

Computers are necessary for many courses and school related activities at NDSU, but unless otherwise specified, having your own PC is generally not required for students within the College of Engineering. It is, however, highly recommended. Some tasks and services will be much more convenient and accessible if you have your own computer.

### *Common personal computer uses:*

- Research
- Writing papers, or reports
- Email, Zoom, Social Media, and other methods of communication
- Access to Blackboard and other campus administration tools
- Course related software or utilities
- Entertainment (music, videos, web downloads, etc...)

### *Internet Access:*

NDSU maintains **Wi-Fi internet** access in many locations across campus. Additionally, our residence halls provide high speed internet access in each room.

### *Software:*

Required software is available for use in the computer clusters provided by each department within the College. NDSU also provides computer clusters campus-wide that are loaded with many commonly used software packages.

Students enrolled in one or more credits are eligible to access **Microsoft Office 365** at no charge on their personal equipment.

### **Technical Recommendations:**

There are many different configurations that can be used successfully if you decide to purchase your own PC. You can use the following information as a general guide when evaluating equipment.

### *Computer Types:*

**Desktop PCs** are the ultimate in compatibility, performance and price. Desktop PCs are typically less expensive, and easier to upgrade and repair, but their size makes them hard to bring along.

**Laptop computers** can be carried with you for easy access to your computer and its contents, but they are usually lower powered when compared to a desktop PC of the same price. They can be harder to upgrade or repair, while also being easier to damage or lose. Keep size and weight in mind if selecting a laptop.

**Tablets and Pads** are quickly becoming the tool of choice for quick, portable access to computing needs; however, depending on their features, they can be limited in their performance and functionality. Underpowered processors will not yield the same results as a laptop and some smaller keyboards and screens may make tasks uncomfortable or even impossible, they can be useful as a secondary device though.

### *Operating Systems:*

**Windows 11:** *Windows 11 Home* will provide a solid foundation for most student needs. Pro, Enterprise, and Education versions have useful tools for admins, but are not required.

**Apple (macOS 11 or later)** Current (and recent) models should allow a student to tackle most necessary tasks, but since most faculty and staff computers are Windows based, Apple products may present some compatibility hurdles when sharing data or trying to use a particular software package. There are, however, tools available to help overcome these hurdles if a person is inclined to learn them.

### **Processor (CPU):**

For used equipment, an 8<sup>th</sup> generation Intel Pentium Core i7 (or equivalent) should be considered the bare minimum for basic computing needs.

If purchasing a new computer, look for a **12<sup>th</sup> Generation Intel Core i3 or greater** (or equivalent) at a minimum. There are many processors that surpass this one in terms of speed and capability, but with each increase in performance, you can also expect an increase in price. On the other hand, today's higher performing PCs will have a longer useful life.

Current processor performance comparison (highest rated at top of the list):

- Intel Core i9 - Any
- Intel Core i7 - At least an 8<sup>th</sup> generation (released in 2017).
- Intel Core i5 – At least a 10<sup>th</sup> generation (released in 2020).
- Intel Core i3 – At least a 12<sup>th</sup> generation (released in 2022).

There is also a wide performance range within each processor level. Keep in mind that a high end Core i5 processor may eclipse low end Core i7 processors. The best way to compare processors is to use benchmark scores to compare choices. Here is one of the more popular sites: [http://www.cpubenchmark.net/cpu\\_list.php](http://www.cpubenchmark.net/cpu_list.php), aim for a benchmark score somewhere in the 12,000 to 25,000 range with this benchmarking service.

### **Hard Drive (Storage):**

A hard drive is where the computer stores your files. A **500GB hard drive** should be considered the minimum, but 250GB could work with proper file maintenance. Great increases in storage space can be had for minimal increases in price. **SSD, or Solid State** drives have significant performance advantages when compared to standard hard drives and are quickly becoming the norm.

### **Memory (RAM):**

A computer's **RAM** is where it keeps data that it's currently working on for quick/easy access. The minimum recommended amount is **16GB**, but 8GB could provide acceptable basic performance. Having more RAM will typically help the computer work faster and is a good place to start if you're looking to increase performance.

### **Optical Drives:**

As internet speeds increase, cloud services become more popular, and inexpensive flash drives become larger many manufacturers are omitting the bulky drives to conserve space. If you find that you need one, external DVD drives can usually be had for less than \$30.

### **Other Considerations:**

There are many other factors that may come into play when buying a new (or used) computer system. If you have specific requirements keep them in mind. If you need to use or install specific software packages, please refer to the software developer for their requirements.

If the above recommendations are followed, most other options will be size, feature, or appearance factors.