



# THE UNIVERSITY OF TEXAS AT EL PASO

## COLLEGE OF ENGINEERING

Choosing the right computer equipment for your college journey can seem to be a little overwhelming. Too many brands, features, vendors, and components can confuse even the most tech-savvy and given the amount of options available, it is best to do some research to have a better understanding of which features can maximize your return on investment.

Being a college student is going to demand portability and enough processing power so you can tackle any task assigned to you while on campus and on-the-go. Therefore, you will need to select a well-balanced array of components and it is important that you understand which component is in charge of what. This brief guide will give you a clear picture of what to look for.

### Operating System



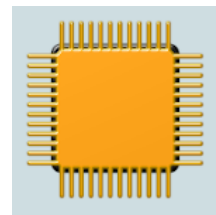
Before jumping into brands and components it is important you choose one of the main operating systems (OS) out there. Think about the operating system as the environment in which you will operate your equipment. The most common operating systems are MacOS and Windows and selecting one is a matter of personal preference.

Windows is the most flexible OS and runs on more laptop models. Selecting this OS will provide you the highest compatibility with all the different software packages you might need for your college journey.

MacOS is the native OS for Apple devices, it offers similar functionality to Windows, with some differences in the way it looks and how they handle programs. If you are interested in an Apple device keep in mind that you might encounter issues with software compatibility since some programs do not run natively on MacOS. Even though this is cumbersome, there might be ways around through the use of virtual machines, however some of the required software for courses are not fully compatible with MacOS devices. If you want to play it safe, we recommend a Windows computer.

### Processor

Once you select your OS, the next step will be to look at the “brains” of your equipment. There are three main things should look for when searching for the right processor: 1) Brand and Generation, 2) Speed, 3) Number of cores.



In the market you will find mainly two big players, AMD and Intel. Do a little bit of research when choosing which one you prefer. Once you have selected your processor brand, then you will need to see how current is the processor you are looking at. At Intel, the most common processors are their Core line and the generations look something like “Core i3”, “Core i5”, “Core i7”. The higher the number the newer the generation and the better their performance. Currently, Intel is on their 10<sup>th</sup> generation of Core processors.

If you are interested in AMD, you will mainly find their Ryzen processors with a sequential numbering that looks something like “AMD Ryzen 7 3700X”, “AMD Ryzen 7 3800X”, etc. Choose one that is not too far from the most current generation as your budget permits.



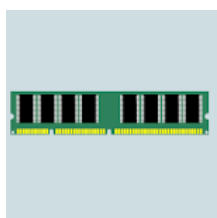
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The next spec you should consider is going to be the “speed” and it is usually expressed in GHz. Usually, the higher the number the faster your processor, for example a Core i9 at 4.6GHz is going to perform considerably better than a Core i5 at 3.8GHz.

Lastly, the number of cores plays an important role in the performance of a processor. The higher the number of cores, the more “parallel” operations your processor will perform. Usually a dual-core or a quad-core are going to be your de facto options when choosing a laptop.

### RAM Memory



Think about the RAM as a short term memory. If your short term memory was twice as big than it is now, you would be able to perform more tasks at the same time, and you would remember more information that might be needed for those tasks. In a computer, the RAM memory serves as a short-term volatile memory, therefore the more RAM you have, the more applications you will be able to run at the same time without significantly reducing the performance of your computer.

RAM memory is measure in GB, and the minimum recommended for most programs is at least 8GB. If you are able to get 16GB, you can be comfortably certain that your computer will have enough RAM for a good amount of tasks. Your next step will be 32GB, which are usually recommended for gaming and high graphic processing. Go as high as your budget permits but make sure to meet the minimum recommended amount of RAM.

### Hard Drive

Choosing the right amount of storage will allow you to save files and project while having enough space to install the required programs you will utilize during your College journey. Storage capacity is expressed in GB. Our recommendation is to purchase a computer with a Solid State Drive (SSD) hard drive because you will see at least three times the speed and a much faster laptop overall.



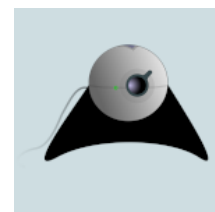
### Display



Having the right display size will facilitate readability and increase comfort for your eyes, especially when working with 3D models, simulation, or graphics. Most laptops range from 13 inches up to 17 inches. If you think bigger is better, bear in mind that you will need to carry your computer around campus and the bigger the display the heavier the equipment will be. A 15 inch display will provide you with a good balance between size and comfort.

### Webcam

Being able to communicate and interact remotely with faculty and students is going to be an important part of your college experience. You might need to attend a virtual lecture or even take a test from home, therefore a webcam is going to be an important component to consider. While most laptops have one included, make sure the equipment options you are considering have this component, and in case they do not, make sure to purchase an external webcam that is compatible with your new laptop.





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## Graphics Chip



A graphics chip, is in charge of processing graphics for your laptop. This is necessary given that graphics can consume a good amount of processing power making your equipment slow. There are two types of graphics chipsets, the ones that come integrated (meaning it shares the system's RAM memory), and the ones that are separate from it, called discrete graphic chips, which have their own dedicated amount of memory separate from the one on your system. If you are not planning on creating 3D objects and high-resolution simulation renderings, an integrated chipset will do the job, however it is always recommended to have a discrete graphics card in order to make sure system resources are not sprayed too thin.

## Battery Life

Lastly, this is a system feature that most of us overlook since there is always the option to connect our equipment to an outlet. While this is true, please consider that your schedule is going to change from semester to semester and you might end up spending more time on campus with a lot of students that, like you, are going to be searching for outlets in common areas. We recommend to look for a laptop that can comfortably provide you with at least 7 hours of battery life although 8 or more might be ideal.



## Minimum Hardware Requirements

Now that you understand better what are the main components you need to look for, here is the list of the minimum requirements your computer should have:

Hardware & OS	Minimum	Preferred
<b>Operating System</b>	Windows 10 64-Bit or macOS Catalina (v10.15.5)	Windows 10 64-Bit
<b>Processor</b>	Intel Core i5 (2.0Ghz or faster) or AMD Ryzen 5 (2.0Ghz or faster)	Intel Core i7 or AMD Ryzen 7
<b>Memory</b>	8GB RAM	16GB RAM
<b>Hard Drive</b>	256GBSSD (100GB free for courseware)	500-1000GB SSD
<b>Video</b>	Integrated Video	Discrete Graphics
<b>Webcam</b>	Required	Required
<b>Warranty</b>	Factory Warranty	Extended Warranty

Remember, a computer equipment is a system, so it will be as fast as the slowest component in it, therefore, try to keep a balance and if your budget permits always go above the minimum requirement. If you invest a little bit more at an earlier stage, the right equipment might graduate with you in 4 years.