

Team BAFfled (Bushra Karim, Faria Lorin, Amy Zhang)

IntroCS pd 06

Lab01

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Tyrone's Shiny New Computer

Tyrone is an architect. He is currently working with a computer that runs autoCAD 2017; however, he wants to purchase and run AutoCAD 2020. Tyrone needs you to design a new computer to make his designs come to life.

Tyrone does not want to spend more than \$3,000 (including peripherals, but not software).

System Requirements for AutoCAD 2020:




System requirements for AutoCAD 2020 including Specialized Toolsets (Windows)	
Operating System	<ul style="list-style-type: none">● Microsoft® Windows® 7 SP1 with Update KB4019990 (64-bit only)● Microsoft Windows 8.1 with Update KB2919355 (64-bit only)● Microsoft Windows 10 (64-bit only) (version 1803 or higher)
Processor	Basic: 2.5–2.9 GHz processor Recommended: 3+ GHz processor Multiple processors: Supported by the application
Memory	Basic: 8 GB Recommended: 16 GB
Display Resolution	Conventional Displays: 1920 x 1080 with True Color High Resolution & 4K Displays: Resolutions up to 3840 x 2160 supported on Windows 10, 64-bit systems (with capable display card)
Display Card	Basic: 1 GB GPU with 29 GB/s Bandwidth and DirectX 11 compliant Recommended: 4 GB GPU with 106 GB/s Bandwidth and DirectX 11 compliant
Disk Space	6.0 GB
Browser	Google Chrome™ (for AutoCAD web app)




Network	<p>Deployment via Deployment Wizard.</p> <p>The license server and all workstations that will run applications dependent on network licensing must run TCP/IP protocol.</p> <p>Either Microsoft® or Novell TCP/IP protocol stacks are acceptable. Primary login on workstations may be Netware or Windows.</p> <p>In addition to operating systems supported for the application, the license server will run on the Windows Server® 2016, Windows Server 2012, and Windows Server 2012 R2 editions.</p>
Pointing Device	MS-Mouse compliant
.NET Framework	<p>.NET Framework Version 4.7 or later</p> <p>*DirectX11 recommended by supported OS</p>


Toolset	Additional Requirements
AutoCAD Plant 3D	<ul style="list-style-type: none"> • Disk Space: 8GB • .NET Framework Version 4.7.2 • MS SQL Server (Express, Standard, or Enterprise edition) 2008 SP1 or newer
AutoCAD Map 3D	<ul style="list-style-type: none"> • Disk Space: 16GB • Memory: 16GB • Database & FDO Requirements (see below)
AutoCAD Architecture	Disk Space: 10GB
AutoCAD Electrical	Disk Space: 12GB
AutoCAD MEP	Disk Space: 12GB
AutoCAD Mechanical	No additional requirements
AutoCAD Raster Design	No additional requirements

<https://pcpartpicker.com/list/T8kcjp>

Part	Specific Item and Significance	Price
<p>CPU</p> <p>It receives data and controls other parts of the computer to execute instructions from that data. Acts as the “Brain” of the computer</p>	 <p>AMD Ryzen 9 3900X 3.8 GHz 12-Core Processor</p> <p>This CPU is particularly powerful and good for the high demand programs that this architect will be using. It goes beyond the requirements for AutoCAD 2020, with a 3.8 gigahertz processor (AutoCAD needing an optimal 3+ GHz).</p>	<p>\$434.00</p>
<p>CPU Cooler</p> <p>Keeps the CPU cool by drawing away heat so that the CPU can function efficiently</p>	 <p>Corsair H100i RGB PLATINUM 75 CFM Liquid CPU Cooler</p> <p>According to the AMD website for the Ryzen 9 CPU, this component needs liquid cooling for optimal performance. This specific CPU cooler is also pretty good in terms of decibel output, with 37 decibels.</p>	<p>\$159.49</p>
<p>Motherboard</p> <p>The motherboard is the main circuit board that connects all the parts of the computer.</p>	 <p>Gigabyte X570 AORUS ELITE ATX AM4 Motherboard</p> <p>Firstly, according to the PC Part Picker website, this is compatible with the Ryzen 9 CPU. In addition, it is completely capable of keeping up with overclocking (making a processor go faster than the speed intended for it).</p>	<p>\$199.00</p>

<p>Memory</p> <p>The memory stores information temporarily while data is being used or a task is being completed. The more RAM (Random Access Memory) that you have, the faster your computer works.</p>	 <p>G.Skill Sniper X 64 GB (4 x 16 GB) DDR4-2400 Memory</p> <p>This includes 64 GB of RAM and the more memory a computer has, the more programs or functions it can handle at the same time. This is useful for completing large tasks such as rendering or 3D modeling and working with complex visuals. For AutoCAD 2020, the recommended amount of memory is 16 GB, so with 64 GB the computer should have no problem running the program.</p>	<p>\$272.64</p>
<p>Storage</p> <p>Allows for the long term storing of data, so that you can retrieve and use it later when needed.</p>	 <p>Seagate Barracuda Compute 2 TB 3.5" 7200RPM Internal Hard Drive</p> <p>The main AutoCAD program requires a minimum of six gigabytes in the hard drive and in addition to this standard six gigabytes, the additional add-ons that Tyrone needs also require about an additional 10 gigabytes each. On the PC Part Picker website, this specific hard drive seemed like the biggest bang for Tyrone's buck, with two terabytes (2,000 gigabytes).</p>	<p>\$50.99</p>
<p>Case</p> <p>The case stores the hardware of a PC and is also highly customizable.</p>	 <p>Cooler Master MasterCase H500M ATX Mid Tower Case</p> <p>It circulates heat that is produced from a high capacity system and also looks really cool.</p>	<p>\$209.99</p>

<p>Graphics Card</p> <p>The graphics card takes data and converts it to imagery that you can see on the monitor.</p>	 <p>Gigabyte GeForce RTX 2070 SUPER 8 GB WINDFORCE OC 3X Video Card</p> <p>This graphics card has 8 GB of memory separate from the RAM dedicated to performing graphics functions, which surpasses AutoCAD's requirement. More VRAM allows for more texture to be shown, which may be beneficial for an architect.</p>	<p>\$499.99</p>
<p>Power Supply</p> <p>As the name suggests, this supplies power to the computer.</p>	 <p>Corsair RM (2019) 750 W 80+ Gold Certified Fully Modular ATX Power Supply</p> <p>This power supply has a high enough wattage to supply sufficient power and with an 80+ gold efficiency rate, it will generate less heat than a power supply with a lower efficiency rate. By being fully modular, all the cables connecting the PSU to the system are removable, so there will be less cable clutter since you only have to install the cables that you need.</p>	<p>\$124.99</p>
<p>Operating System</p> <p>The OS is the most important software; it manages every part of the computer and basically translates between machine and man.</p>	 <p>Microsoft Windows 10 Pro OEM 64-bit</p> <p>This operating system is reliable and efficient and is able to run AutoCAD 2020. Since this operating system is Microsoft "Pro" and not "Home," it offers additional features such as an extra layer of security for your information through BitLocker (Microsoft's encryption software) and giving you the ability to join a domain. These features make it better for business use.</p>	<p>\$139.99</p>

<p>Wireless Network Adapter</p> <p>Allows the computers to connect to the internet wirelessly</p>	<div></div> <p>Intel 62205ANHMWDTX1 PCIe x1 802.11a/b/g/n Wi-Fi Adapter</p> <p>Taking into consideration that Tyrone most likely does not want to connect to the internet via Ethernet cable and will most likely need internet in the first place, which is why we included this wireless network adapter.</p>	<p>\$249.95</p>
<p>Monitor</p> <p>This displays the graphics associated with the program Tyrone is using and is a big part of the graphical user interface</p>	<div></div> <p>LG 27GL850-B 27.0" 2560x1440 144 Hz Monitor</p> <p>This monitor has an IPS panel type which offers great color production and viewing angles. An IPS panel will allow for consistent colors from different angles. The low response time and 144 Hz refresh rate also leads to better image quality. The screen is 27" so you will be able to view a lot of different windows at the same time. As an architect, these visual features will make your work go smoother. Though this monitor has less than 4k resolution, the resolution is higher than the minimum specifications (1920 x 1080) required by AutoCAD for a conventional display.</p>	<p>\$499.99</p>
<p>Keyboard + Mouse</p> <p>Allows the user to interact with the graphical user interface and input commands in AutoCAD</p>	<div></div> <p>Microsoft Designer Bluetooth Desktop Bluetooth Wireless Slim Keyboard With Laser Mouse</p> <p>As AutoCAD would be immensely easier to maneuver with keyboard shortcuts, we also included a keyboard to make Tyrone's life easier. In addition, the mouse also allows him to actually interact with the interface without having to memorize computer commands/code.</p>	<p>\$79.47</p>
<p>Grand Total:</p>		<p>\$2860.50</p>

References:

- ★ Completed Build Section on <https://pcpartpicker.com/>
- ★ [System Requirements for AutoCAD 2020](#)
- ★ <https://design.ncsu.edu/it/kb/architecture-computer-requirements/>
- ★ Previous homeworks

Notes:

- A lot of parts that are labelled for gaming can be used for this purpose (since gaming and AutoCAD both focus on higher resolution graphics and no lag)
- We utilized some sites that gave lists of “best _____ for autocad”, which really helped us narrow our choices, considering that PC Parts Picker doesn’t filter by purpose
- We decided to spend some of the budget on making the build look cool, because Tyrone sounds like a fun guy
- As for the pitch:
 - A capable computer that leaves some extra money in the budget for Tyrone to pay some of his rent or some other financial responsibility
 - His build looks not bad; could impress his other architect friends
 - This build is versatile for other activities, such as gaming, if Tyrone is into that