

## Technical Specifications for High-Performance PCs

### 1. Processor (CPU):

- **Type:** Intel Core i7 (12th generation or later) or AMD Ryzen 7 (5000 series or later).
- **Cores/Threads:** Minimum of 8 cores and 16 threads for multitasking efficiency.
- **Base Clock Speed:** At least 3.0 GHz with Turbo Boost up to 4.5 GHz or higher.
- **Cache:** Minimum of 16 MB L3 cache.

### 2. Memory (RAM):

- **Capacity:** 32 GB DDR4 or DDR5, depending on motherboard compatibility.
- **Speed:** At least 3200 MHz for DDR4 or 4800 MHz for DDR5.
- **Upgradeability:** Support for future upgrades up to 64 GB or more.

### 3. Storage:

- **Primary Storage (SSD):**
  - 1 TB NVMe PCIe Gen 3 or Gen 4 SSD for faster boot times and application loading.
  - Sequential Read/Write Speed: 3500 MB/s or higher.
- **Secondary Storage (HDD):**
  - 2 TB 7200 RPM SATA HDD for bulk storage of large files.
  - Cache: Minimum 256 MB for enhanced performance.

### 4. Graphics Card (GPU):

- **Model:** NVIDIA GeForce RTX 3060 or higher (e.g., RTX 4060, RTX 4070, etc.).
- **Video Memory:** Minimum of 6 GB GDDR6.
- **Features:**
  - Support for DirectX 12 and OpenGL 4.6 for compatibility with training software.

- Multi-monitor support with up to 4 outputs (HDMI 2.1, DisplayPort 1.4a).

## 5. Operating System:

- **Default OS:** Windows 10 Pro 64-bit (with support for Windows 11 Pro) or macOS Ventura (latest version).
- **Licensing:** Ensure the OS is pre-installed with a valid license.

## 6. Display:

- **Size:** 27 inches.
- **Resolution:** 3840 x 2160 pixels (4K UHD).
- **Panel Type:** IPS for wide viewing angles and accurate color reproduction.
- **Refresh Rate:** Minimum 60 Hz (preferably 120 Hz for smoother visuals).
- **Features:** Adjustable stand, anti-glare coating, and HDR support (HDR10 or better).

## 7. Connectivity:

- **Wireless:**
  - Wi-Fi 6 (802.11ax) for high-speed wireless connectivity.
  - Bluetooth 5.2 for peripheral connectivity.
- **Ports:**
  - USB: Minimum 4 USB 3.2 Gen 1/Gen 2 ports, including Type-C.
  - HDMI: 1 HDMI 2.1 port.
  - DisplayPort: 2 DP 1.4 ports.
  - Ethernet: 1 RJ-45 port (1 Gbps or higher).
  - Audio: 3.5 mm headphone/microphone combo jack.

## 8. Additional Peripherals:

- **Keyboard and Mouse:** High-quality wired or wireless keyboard and mouse.
- **Webcam:** Full HD 1080p webcam for online training or communication.
- **Audio:** Built-in speakers with high-quality sound output and a 3.5 mm audio input/output jack.

## 9. Cooling and Power Supply:

- **Cooling System:**
  - Efficient air or liquid cooling system to prevent overheating during intensive tasks.
- **Power Supply Unit (PSU):**
  - 650W or higher, 80+ Gold certified for energy efficiency.

## 10. Chassis:

- **Form Factor:** Mid-tower or mini-tower, depending on space requirements.
- **Features:**
  - Tool-less access for upgrades.
  - Adequate ventilation and cable management options.