

List of Materials for the *Raspberry Pi for Beginners* Course

I haven't included links because of the following reasons:

1. As the course receives students from all over the world, stores/suppliers can be different for each country.
2. It's very easy to find all the components on big websites such as Amazon, eBay, or even in online stores specific to your own country.

So, here is what you will need to complete this course.

Raspberry Pi Board

If you're buying a new one, choose Raspberry Pi 4. You will have the choice between three configurations: 2GB, 4GB, or 8GB of RAM. The more the better, but of course, it becomes more expensive. I personally use the 2GB version and it works perfectly fine for most projects. I would recommend buying the 2GB or 4GB version. Unless you plan on executing highly demanding programs, 8GB is something you probably don't need.

If you're using a previous version of the board (RPi 2 or 3), that's fine too and you will be able to follow all the lessons/activities/projects.

Power Supply for the Pi

For Raspberry Pi 4, you will need to power your board with a USB-C connector. For Raspberry Pi 2-3, you will need a micro-USB connector.

Important: Do not power on your Pi directly from your computer. This may seem to work, but the delivered current will be too low. Use a proper power supply; for example, a smartphone power

supply.

- For Raspberry Pi 4, try using a power supply that can deliver 5V - 3.0A min
- For Raspberry Pi 2 and 3: 5V - 2.5A min

If you can't get those values, the minimum you should aim for is 5V - 2.0A.

Micro SD Card

Two important criteria here: the class and the storage capacity.

For the class, choose at least class 10. You should see a “10” inside a circle on the card. Some new cards are even more powerful; if you see a “3” inside a U shape, it’s even better.

If the class of your SD card is too low then it won’t be fast enough for the Raspberry Pi OS to run properly.

For the storage capacity, choose at least 8GB, so you have enough space for the operating system and some additional files. 16/32GB is better especially if you plan on installing more software and storing image/video files. You can go with more than 32GB but it might require some formatting from your side. In this course, I personally use a 16GB micro SD card.

Note: If you want, you can directly buy a **Raspberry Pi kit**, which usually contains the board + power supply + micro SD card + a box to put your Pi in.

Hardware Components

Here is a list of hardware components you will need if you want to reproduce the examples and activities using GPIOs. You can still follow the course without those components if you want to.

- 1* breadboard
- Set of wires: male-male, male-female, and female-female
- Set of resistors: 1kOhm, 10kOhm (if not available, resistors between 330Ohm and 20kOhm will do)
- 3* LEDs (any color)

- 1* push button (4 legs)

Note: For this list, you can usually find kits that include all these hardware components (search for “breadboard kit”).

If you want to do the section using PIR sensor, as well as the final project, you will also need the following:

- 1* PIR sensor (model: HC-SR501). Having several of them is useful especially if you buy the cheapest ones. The very cheap ones are often lowquality ones, it's better to have 2-3 available if one of them is not working properly.

PiCamera V2

You will need the camera if you want to follow the camera section as well as do the final project.

You have two options here:

- “Standard” Pi camera V2 (recommended for this course), mounted on a green board.
- “NoIR” Pi camera V2, mounted on a blackboard. This camera doesn’t need light to operate so you can use it in the dark. Note however that in daylight, the images will not look as good as the standard camera.

The instructions in this course apply to both cameras as the way to control them is the same.

