🛠️ Step 1: Install Arduino IDE

Download the latest Arduino IDE from arduino.cc.
Install and open it.

🛠️ Step 2: Add ESP8266 Board Manager URL
Open Arduino IDE.

Go to File → Preferences.

In the "Additional Board Manager URLs" box,
 paste this link:

http://arduino.esp8266.com/stable/package_esp8266com_index.json

If you already have another URL there, just separate them with a comma ,.
Click OK.

🛠️ Step 3: Install ESP8266 Board Package

Go to Tools → Board → Board Manager.
In the search bar, type: esp8266.
Select "ESP8266 by ESP8266 Community".
Click Install.
Wait until installation is complete.

🛠️ Step 4: Select Your ESP8266 Board

Plug in your ESP8266 board (NodeMCU, Wemos D1 Mini, etc.) via USB.
In Arduino IDE, go to:
 Tools → Board → ESP8266 Boards → NodeMCU 1.0 (ESP-12E Module)
 (or choose the exact model you're using).

🛠️ **Step 5: Select the Port**

Go to Tools → Port.

Select the COM port where your ESP8266 is connected (e.g., COM3 on Windows, /dev/ttyUSB0 on Linux).

⚠️ If no port shows up → install the USB driver:

CH340 driver (common on cheap NodeMCU boards).

CP2102 driver (some Wemos boards).