Getting Start with STM32 using STM32CubeIDE and HAL

Preparation Before The Short Course

# Market Part List

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Component** | **Qty** | **Images** |
| 1 | MCU Training Board STM32F103C8T6, *Micro USB* a.k.a: Bluepill  IF financially allowed, buy 2 units. | 1 | STM32F103C8T6 Blue Pill Arduino Compatible Board |
| 2 | ST-LINK V2 | 1 | Buy St link V2 mini STM8 STM32 programming usb Online in India | Robocraze |
| 3 | micro USB to USB cable Programming cable (Optional) | 1 |  |
| 4 | KY-009 RGB Full Color LED SMD Module for Arduino | 1 | HALJIA 5pcs SMD LED Board Module KY-009 3 Colour RGB LED DC 5V Compati |
| 5 | Resistor 0.25 W, any value from **220~470 Ohm**  (in pack of 10 pcs) – any value from this range | 1 pack | A close up of a logo  Description automatically generated |
| 5 | Resistor 0.25 W, any value from **2k ~ 10k Ohm**  (in pack of 10 pcs) – any value from this range | 1 pack | A close-up of a resistor  Description automatically generated |
| 6 | Momentary pushbutton, 4 pins.  If financially allowed, buy a few units. | 2 | A black and silver button  Description automatically generated |
| 7 | breadboard, MB102 | 1 | A close-up of a white electronic device  Description automatically generated |
| 8 | Male to Male 20mm length, (normally in bundle of 40pcs or less) Dupont Jumper Wire | 1 set | Amazon.com: SUNKEE 20CM Male to Male Dupont Wire Color Jumper Cable, 2.54mm  1P-1P : Electronics |
| 9 | Male to Female 20mm length, (normally in bundle of 40pcs or less) Dupont Jumper Wire | 1 set |  |
| 10 | USB to UART Converter CH340 or CP2102 (either one would work)  If financially allowed, buy 2 units. | 1 | A close-up of a circuit board  Description automatically generated |
| 12 | OLED  0.96"， 128x64  I2C  (optional – we might be able to look at OLED) | 1 | 0.96 inch 128×64 I2C 4Pin OLED Display ... |
| 13 | Personal laptop  OS - Window 10 or 11 | 1 |  |

Note:

1. All self-purchased market parts belong to the participants.
2. These market components are currently available in the market.
3. The cost may vary depending on personal purchases.
4. If financially allowed, consider purchasing spare units, such as MCU, USB to UART Converter and OLED.
5. Not a must but it would be much convenient if you could equip your toolbox with a digital multimeter, wire cutter, screw drivers, tweezer, etc. All within your personal budget.

# Installing STM32CubeIDE

Please download and install the IDE before attending the short course. It might save some time.

If you are not too sure, installation could be done in class too. Will take a couple of minutes.

1. It is free and can be downloaded from (or google it!)

<https://www.st.com/content/st_com/en/stm32-mcu-developer-zone/software-development-tools.html>

1. Choose Windows version (I use Windows)
2. Follow the instruction. Register your name and email. Once registered, check your email. Click the link to download the software.
3. Unzip and then install STM32CubeIDE.
4. Official guide by STM32
   1. Getting start video – by STM32 website
   2. <https://www.st.com/content/st_com/en/stm32cubeide.html>

Friendly suggestion:

1. You could simply click ‘ok’ and accept all options along the installation.
2. Alternatively, when being prompted to enter the local folder for workspace, Suggestion: create a specific folder in your computer as the workspace for all projects.

Example:

D:\STM32CubeIDE\workspace\

Because C-drive is app and os. D drive is my working drive.

## First Glance

We will explore this IDE in this training.

Once installed, search for “STM32CubeIDE 1.14.1”. (Your version might be different!). Click and run.

A black text on a white background

Description automatically generated

The IDE should run and similar to the image below. We shall go through the IDE as we practice.

A screenshot of a computer

Description automatically generated

*Source: UM2609 – User Manual - STM32CubeIDE user guide*

## ST reference

<https://wiki.st.com/stm32mcu/wiki/Category:STM32CubeIDE>

*No worry about it. We would know the operations as soon as we create a new project.*