

# ECE177: Programming I: From C...

## Lab #1 — Linux Instructions

### 1 Introduction

Setting up a Linux machine for doing future ECE177 Labs. (TODO: this might assume Ubuntu)

#### 1. Installing GCC and other needed programs

(a) Run the following commands

```
sudo apt update
sudo apt install python3 git tar build-essential
sudo apt install git cmake gcc-arm-none-eabi
sudo apt install gcc g++ gdb-multiarch
sudo apt install automake autoconf
sudo apt install texinfo libtool libftdi-dev libusb-1.0-0-dev
```

(b) Verify installation by running the following command:

```
gcc --version
```

#### 2. Install VS Code

(a) Install VS Code by downloading the correct .deb or .rpm (depending on your distribution) from:

<https://code.visualstudio.com/Download>

(b) Follow the instructions for your distribution: [https://code.visualstudio.com/docs/setup/](https://code.visualstudio.com/docs/setup/linux#_install-vs-code-on-linux)

[linux#\\_install-vs-code-on-linux](https://code.visualstudio.com/docs/setup/linux#_install-vs-code-on-linux)

#### 3. Install Screen

(a) Install the screen serial port utility using the following commands:

```
sudo apt update
sudo apt install screen
```

#### 4. Setup udev rules for the USB-serial connection to the Pi Pico

(a) In order to program the Pi Pico from VS Code you have to setup a special “usb\_device” file

(b) On Ubuntu/Debian at least you do that by creating the file 99-libusb.rules with this contents:

```
# libusb device nodes
SUBSYSTEM=="usb", ENV{DEVTYPE}=="usb_device", MODE:="0666"
SUBSYSTEM=="usb_device", MODE:="0666"
```

(c) Next copy this to the /etc/udev.rules.d/ directory

```
sudo cp 99-libusb.rules /etc/udev/rules.d
```

(d) Then tell udev to refresh things

```
sudo udevadm control --reload-rules
```

- (e) You might need to unplug/replug the pico but after that hopefully hitting “Run” in VS Code will be able to program things.

5. Setting up serial port permissions. Only do this step if you get permission errors when trying to use the serial port.

- (a) Create the file `99-serial.rules`

```
# Serial devices
```

```
KERNEL=="tty[A-Z]*[0-9]|pppox[0-9]*|ircomm[0-9]*|noz[0-9]*|rfcomm[0-9]*"
```

- (b) Copy the `99-serial.rules` files to `/etc/udev/rules.d`

```
sudo cp 99-serial.rules /etc/udev/rules.d
```

- (c) Then tell udev to refresh things

```
sudo udevadm control --reload-rules
```

- (d) You might to unplug/replug before it starts working