EE333 Intro to Microcontrollers

Lab Materials

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EE333 is a hands-on, lab-oriented class. The textbook for the class is optional to keep costs down, however, students will need to purchase the following components for the course. Please see the vendors and part numbers for the components.

Every effort will be made to keep the total component cost under $100.

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| **Qty** | **Required** | **Vendor** | **PN** | **Cost** |
| 1 | Build Your Own Arduino Kit | Jameco | 2151259 | $ 14.95 |
| 1 | Arduino Uno | Arduino | UNO Rev3 | $ 24.95 |
| 1 | FTDI Basic Breakout - 5V | Sparkfun | DEV-09716 | $ 14.95 |
| 1 | IC I/O EXPANDER I2C 8B 18DIP | Digikey | MCP23008-E/P-ND | $ 1.22 |
| 1 | IC I/O EXPANDER SPI 8B 18DIP | Digikey | MCP23S08-E/P-ND | $ 1.28 |
| 1 | Basic 16x2 Character LCD - Black on Green 5V | Sparkfun | LCD-00255 | $ 13.95 |
| 1 | 10K Ohm Potentiometer | Digikey | CT6EP103-ND | $ 0.79 |
| 1 | Real Time Clock | Digikey | DS1307+-ND | $ 3.37 |
| 1 | Crystal (32.768kHz Quartz Crystal) | Digikey | 535-9034-ND | $ 0.17 |
| 1 | DC Motor | Sparkfun | ROB-11696 | $ 1.95 |
| 1 | Flyback Diode | Digikey | 1N5820GOS-ND | $ 0.46 |
| 1 | Transistor - NPN (BC337) | Sparkfun | COM-13689 | $ 0.50 |
| 1 | Temperature Sensor - TMP36 | Sparkfun | SEN-10988 | $ 1.50 |
| 1 | LED - Infrared 950nm | Sparkfun | COM-09349 | $ 0.95 |
| 1 | IR Receiver Diode - TSOP38238 | Sparkfun | SEN-10266 | $ 1.95 |
| 1 | WiFi Module - ESP8266 | Sparkfun | WRL-13678 | $ 6.95 |
| 1 | Logic Level Converter - Bi-Directional | Sparkfun | BOB-12009 | $ 2.95 |
|  | **Total** |  |  | **$ 92.84** |

Please note, that the SparkFun RedBoard may be substituted for the Arduino UNO. The RedBoard is SparkFun part number DEV-12757. The cost is $19.95.

In addition, many of the components required for this class are included in the SparkFun Inventor’s Kit (KIT-12060). The entire kit is $99.95. If you are interested, please talk to the instructor to determine which components you will need to order separately.

This course will use a variety of resistors, capacitors, a breadboard, jumper wires, and micro USB cables. It is assumed that students have this material from other courses. If you need to order these items, please request recommendations from the instructor.

I highly encourage students to consider purchasing an Analog Discover 2 from Digilent (or an equivalent device). These multi-channel oscilloscope/function generator/logic analyzer devices can be used to complete all of the labs in this course.