Microprocessor Labs Parts List (to be distributed Week 6)

In addition to the parts listed, students are expected to have the following items from Yr1 - items can be purchased from Electrical Engineering Stores [approx. prices below] or local Electronics Stores

* Large Breadboard with poles installed (e.g. 1660 points - 6.5"Lx4.3"W or larger - $175 TT)
* Assorted breadboard wire
* Basic Digital Multimeter (e.g. DM-850 - $150TT )
* Soldering iron (40W), desoldering pump, and solder (only if needed - $75 for toolkit that includes these items)
* 9V battery or 9V power supply

| **ECNG2005 Parts for uP Labs (1 set per student)** | | |
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| **Quantity** | **Part Number/Footprint** | **Item** |
| 1 |  | 5.6V Zener Diode |
| 1 | 2N4401/2N3904 | NPN transistor |
| 1 | DIP - compatible | 2MHz crystal oscillator |
| 1 | 3mm-5mm round | Yellow LED |
| 1 |  | common anode 7-segment LED display |
| 4 | 1/4Watt or 1/2Watt | 220/330/470 Ohm resistors |
| 4 | 1/4Watt or 1/2Watt | 1k/10k Ohm resistors |
| 1 |  | 0.1 uF capacitor |
| 1 |  | 0.33uF capacitor |
| 1 | 16-pin DIP | 220/330/470 Ohm SIL resistor pack |
| 1 | 16-pin DIP | 1k/10k Ohm SIL resistor pack |
| 2 | 4-pin | momentary switches NO |
| 1 | 8-pin DIP | 4-bit DIP switches |
| 1 |  | 5V DC Fan motor with speed sensor (0.6W or less) |
| 1 |  | 9V battery connector |
| 1 | MC78L05ACP | 5V Regulator (min 100 -200mA) |
| 1 | ICD2/ ICD2 Clone/ SNAP | PIC programmer with 40 pin DIP header, USB cable, and header cable |
| 1 | 40-pin DIP | Microchip MidRange variant PIC16F877, PIC16F877A, or PIC16F18877 |
| 1 | USB-Dongle | USB-USB Serial CH340 Adapter |