

**2019-2020 Academic Year**

Students taking ENGR120 and ENGR121 are required to have the **Living With The Lab Kit**. The Kit is available from the Campbell University Bookstore, or students may assemble their own (this allows some personalization and may result in a lower price). If students wish to assemble their own LWTL kit, care must be taken to obtain comparable or better items. In some cases, substitutions are not permitted.

| FOR THIS SECTION, GET EXACTLY THE SPECIFIED ITEM   | Possible Vendor | Part Number   |
|--|-----------------|---------------|
| <b>Boe-Bot Parts Kit</b> ( <i>only available at Parallax.com</i> )                       | Parallax.com    | 28124         |
| <b>Neotek NTK017 Auto Ranging Digital Multimeter</b>                                     | Amazon          | 8233D PRO     |
| <b>Arduino Uno USB Microcontroller Rev. 3</b> ( <i>Make sure it is Rev 3 DIP</i> )       | Robot Shop      | RB-Ard-34     |
| <b>Texas Instruments TI-36X Pro Calculator</b>   | Amazon          | 36PRO/TBL/1L1 |
| FOR THIS SECTION, SUBSTITUTIONS FOR COMPARABLE OR HIGHER QUALITY/PERFORMANCE ITEMS IS OK | Possible Vendor | Part Number   |
| <b>Safety glasses</b> ( <i>get something that fits over your glasses if needed</i> )     | Amazon          | 09206804      |
| <b>400 tie point solderless breadboard</b> ( <i>400 tie and size are important</i> )     | Robot Shop      | RB-Cix-11     |
| <b>Mini Long-nose pliers</b>   | Robot Shop      | RB-lbo-129    |
| <b>Wire Stripper/Cutter</b>  | Robot Shop      | RB-lbo-133    |
| <b>Alligator and Hook Clamp &amp; Lead Set (for multimeter)</b>                          | Amazon          | B06ZY68KPV    |
| <b>USB A to B conversion cable, 6ft</b>  | Robot Shop      | RB-Spa-1154   |
| <b>15 in canvas tool bag</b> ( <i>larger/different bags are acceptable</i> )             | Harbor Freight  | 32282         |
| <b>6 in. dial caliper</b>  | Harbor Freight  | 66541         |
| <b>6 in. stainless pocket ruler</b>  | Harbor Freight  | 93684         |
| <b>7-in-1 screwdriver</b>  | Harbor Freight  | 94955         |
| <b>Lead Free Flux, 2 Oz, For Solder Prep</b> ( <i>Make sure it is lead-free</i> )        | Grainger        | 1UYJ2         |
| <b>Lead-free solder</b> ( <i>Make sure it is lead-free</i> )                             | Grainger        | 19YP69        |
| <b>Stanley Multi-Tool Folding Knife</b>  | Grainger        | 45J350        |
| <b>Thread sealant tape</b>   | Grainger        | 31XH96        |
| <b>Electrical Tape, Black Vinyl, 3/4"x60'</b>  | Grainger        | 19N746        |
| <b>Ultra-Fine point black Sharpie Marker</b>   | Amazon          | 32101PP       |
| <b>6x AA batteries</b>   | Any vendor      | Any brand     |