

## STI 2007 Equipment List

### Digital Electronics (DE)

#### General Information:

The classroom and/or laboratory should accommodate up to 15 participants and two instructors. It is recommended that you do not exceed 20 participants in each training session.

An electronics lab is preferred. You will need multiple tables for participant laptops and for workspace. The classroom will need the necessary electrical connections to power the laptops, printers and all equipment necessary to teach the course. Internet access and Internet connection cords, or wireless network cards will be needed for the student provided laptops. Contact your computer support department for assistance.

The Master Teachers/Affiliate Professors will need access to the classroom before and after class for setup and preparation (approximately 30 minutes before instruction and several hours after instruction). Because laptops and equipment are left in classrooms during lunch and, in some cases, overnight, instructors must be able to secure these areas. If possible, reserve your classrooms and labs areas on a 24-hour basis during your STI.

Each participant will come to the training with a laptop. It is recommended that they have an external wired scroll wheel mouse, a USB Flash Memory Stick and a Digital Camera. **(Multiple wireless mice tend to cause interference with each other in classroom situations.)**

#### General Supply List:

1. Network Compatible Printer
2. 3 hole punched printer paper – 2 to 3 reams per class
3. LCD Projector w/ extra bulbs
4. Overhead Screen
5. A chalk board with chalk OR white board with markers
6. Power strips
7. Extension cords
8. Heavy-duty 3-hole punch
9. Permanent markers for CD labeling
10. Blank CD's – A min of three per Student and Master Teacher
11. Three-ring binder-3"
12. Section dividers (*8 tab*) – 1 per participant
13. Safety Glasses (Minimum of 8 pairs)
14. Scissors – 2 pairs
15. Paper clips
16. Stapler

\* - check supplies level at end of each session

\*\* - replace each year

## 17. Post-it Notes

Amount	Item	Activity	Comments
<b>Electronics Equipment Needed</b>			
<b>Power Supply Test Equipment Requirement</b>			
1 for each student	Variable Power Supply 0-12v minimum	1.5B Ohm's Law	
1 for each student	Breadboard	1.5B Ohm's Law	
8 per breadboard	Logic switches spdt breadboardable slide switch	3.1A, 4.1A	
2	Function Generator	1.7A, 7.2A, 7.3A	
2	Oscilloscope	1.7A	
1	Fluke #75 Digital Multimeter or equivalent with Leads	All	
1 per trainer below	Multimeter Digital Model 100LE Kelvin #990087	All	
<b>Explanation Under BB Compaion</b>			
1 per student	Bread Board Companion **	Soldering Practice	<a href="http://www.breadboardcompanion.com">www.breadboardcompanion.com</a>
<b>OR/AND</b>			
1 per student ( at least one at each STI for demo purposes)	Electronics Trainer Martek #XK-700 ( contains all of the above)		<b>NOTE: Each STI needs at least one trainer for demo purposes</b>
<b>Soldering Equipment Requirement</b>			
1 for each student	25 Watt Solder Iron w/Stand	Soldering Practice	
<b>Electronics Supplies Required to teach to minimum benchmark</b>			
100 Red, 100 Green,	LED*	3.1A, 4.1A	
1	Resistor Capacitor KitB*	1.4 A Resistance, 1.5 <sup>a</sup> , 1.5D, 3.1A	
1 per 2 students	Multimeter*	1.5B Ohm's Law	
200' spool	22 Gauge Solid Core Wire BLACK*	All	
200' spool	22 Gauge Solid Core Wire BLUE*	All	
200' spool	22 Gauge Solid Core Wire RED*	All	
200' spool	22 Gauge Solid Core Wire YELLOW*	All	
50	Transistor NPN 2N3904*	1.7B	
50	555 timer*	1.7B	
100	74LS00 NAND GATE*	3.1A, 4.1A, 4.2(all), 5.1A&B,	
100	74LS02*	3.1A, 4.1A	
100	74LS08*	3.1A, 4.1A	
100	74LS04*	3.1A, 4.1A	
100	74LS32*	3.1A, 4.1A	
<b>Electronics Supplies Required to teach to minimum benchmark</b>			
50	MAN6760 7 segment	5.2D	

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	display*		
50	7447 BCD to 7 segment display converter*	5.2B	
50	74147 Decimal to BCD encoder*	5.2C	

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<u>Amount</u>	<u>Item</u>	<u>Activity</u>	<u>Comments</u>
50	Lattace G22v10D Programmable Logic Devices*	5.3	
1	EMP 11 Programmer	5.3	
100	7486 Two input XOR GATE*	6.1B	
100	74LS66 2-INPUT XNOR GATE*	6.1B	
50	74LS83 FOUR BIT ADDER IC*	6.1C	
50	74LS75 GATED "D" FLIP-FLOP*	7.1A, 7.3A	
50	74LS74 DSR FLIP-FLOP*	7.1B	
1 tablet per student	GRAPH PAPER**	7.1C	
50	74LS76 J-K FLIP FLOP*	7.2A, 7.3A	
50	74LS164 8-SERIAL -IN SERIAL-OUT SHIFT REGISTER*	8.1A	
50	74LS93 ASYNCRONOUS RIPPLE COUNTER*	8.2C	
50	74LS163 4-BIT SYNCRONOUS COUNTER*	8.3C	
50	74LS192 BCD UP/DOWN COUNTER*	8.3E	
2 per class	Boe Bot Robot Kit USB Version	Unit 10	www.parallax.com
1 per student	X celite 103-S Wire Stripper	All	
1 per student	4.5 Inch diagonal Cutters	All	
1 per student	Needle Nose Pliers	All	
<b>Optional</b>			
2	Rosin Core Solder (1/16" Diameter, 1 Lb. Spool)	1.A,11	
2	Rosin Core Solder (3/32" Diameter, 1 Lb. Spool)	1.A,11	
2	Capacitors and Resistors Kit <a href="#">Click for parts list</a>	1.4 A Resistance, 1.5 <sup>a</sup> ,1.5D, 3.1 <sup>a</sup> ,10.1c,10.1d, 10.1e,10.1f, 10.2a, 11	
2 Kit	Integrated Circuits Kit <a href="#">Click for parts list</a>	All	
75	Audio Power Amp 386 Dip-8 Mouser Electronics #513-NJM38	10.1e	
25	Dual H-Bridge Driver 3 <sup>a</sup> #L-298N	10.2b, 10.2c	
25	Dual H-Bridge Driver 754410	10.2b, 10.2c	
500	Green Light Emitting Diode	10.1c, 10.1d, 10.1f,	
500	Red Light Emitting Diode #SR-RLED	10.1c, 10.1d, 10.1f,	
1	LED Assorted Kelvin	10.1c, 10.1d, 10.1f,	

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	#840485		
25	Cds Photocell, 1.5 Ohm Kelvin #260018	10.1f,	
25	Stepper Motor 5 Volt, Bipolar #5VDC 350 MA	10.2a, 10.2b, 10.2c	
25	Motor 5 Volt DC, 2mm Shaft	10.2a, 10.2b,	
65	Speaker 2" Dia. 8 Ohm Kelvin #350009	10.1e,	
1	Logic Probe #B&K DP21	All	
10	PLTW/Parallax 28132- "Boe-Bot" Microcontroller Robotic Kit, manuals ( <a href="#">click here to other purchasing options</a> )	All of Unit 10	
13	Electronic Breadboard Trainer in a Briefcase Martek #XK-700	All	
25	Solderless Breadboard 2.4K TP Co. (1 Breadboard per 2 Students) Kelvin # 680093	Unit 11	
20	Weller SP-23 Soldering Iron 25 Watt	Unit 11	
20	Soldering Iron Holder Kelvin #830010 (1 for Each Iron)	Unit 11	
1	Safety Glass Cabinet, Capacity 25 Glasses and 10 Goggles, With Sterilization Light and Timer	Any soldering activity	
25	Safety Glasses with Side Shields and Adjustable Temple #11782 Phoenix Edge - Black TM-53	Any soldering activity	
1	Magnifying Lens XLite #RSR060439100	All	
1	Nut Driver Set XLite #RSR0601ps120	Unit 11	
20	4.5-Inch Needle Nose Pliers (Crescent or Channel Lock) CL#43	All	
20	4.5-Inch Diagonal Cutter (Crescent or Channel Lock) CL#41	All	
8	Xcelite 103-S Wire Stripper	All	
1	Dremel High Speed Drill Set 1/32 - 1/8 Kelvin #490050	Unit 11	
2	Dremel Single Speed Moto-Tool	Unit 11	
1	Chuck for Dremel Multipurpose Tool, Dremel #4486	Unit 11	
2	Dremel Drill Press Stand	Unit 11	

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	Only Kelvin #490019		
1	Needle File Set XLite #RSR0604451P	Unit 11	
200	IC - 555 Timer #SR-555IC	1.7B	
	Digital Electronics will need substantial access to a computer laboratory as specified in the <a href="#">Computer Laboratory</a> section. Refer to the “ <a href="#">How To Use This Manual</a> ” file for scheduling suggestions that could eliminate the need to purchase a second Computer Laboratory	All	
1	Lap Top Computer, P4-2.8 GHz minimum OR Pentium M processor 1.8 GHz- See Specifications in the “ <a href="#">How to Use This Manual</a> ” File.	All	
1	Digital Projector, 2000 Lumens Minimum, Adjustable image size (zoom), Keystone correction, XGA Native resolution, Universal AC 120V, 60 HZ, All necessary cables <b>OR</b>	All	
1	Portable Digital Projector Specifications, 1300 Lumens Minimum, 3.5 Lbs. Maximum, Adjustable image size (zoom), Keystone correction, XGA native resolution, Universal AC 120V 60 HZ, All necessary cables	All	
1	Digital Camera, Hewlett Packard Photosmart, 2.1 Megapixels, 3x Optical and 4 x digital zoom – See <a href="#">Computer Laboratory</a> supply list for storage devices. <b>OPTIONAL</b>	All	
1	Digital Camera, Nikon CoolPix #3200, 3X Optical & 4X Digital Zoom, 3.2 Megapixels, 40 sec. video mode– See <a href="#">Computer Laboratory</a> supply list for storage devices. <b>OPTIONAL</b>	All	

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40	SPDT PB Switches	10.1d, 10.2a,	
25	N Channel MOSFET 4050	10.2a,	

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