

**EECS PARTS LIST**

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE. AVAILABILITY OF PARTS IS NOT GUARANTEED, BUT PARTS ARE USUALLY AVAILABLE UNLESS EXTREME DEMAND OR UNFORSEEN CIRCUMSTANCES OCCUR. PARTS IN ITALICS WILL ONLY BE AVAILABLE UNTIL THE CURRENT INVENTORY IS SOLD. STANDARD SALES TAX (9.25%) HAS BEEN ADDED TO ALL PRODUCTS. FOR NORMAL PARTS, NO RETURNS WILL BE ACCEPTED. RETURNS FOR COSC 130 LAB KITS WILL BE ACCEPTED ACCORDING TO THE POLICY.

**TRANSISTORS**

2N3904	(NPN)	\$0.28
2N3906	(PNP)	\$0.28
2N3771	(NPN)	\$0.44
2N4401	(NPN)	\$0.28
2N4403	(PNP)	\$0.28
2N5089	(NPN)	\$0.55
2N6028	(PROG. Unijunction)	\$1.10
ALD1106	(NPN)	\$2.74
ALD1107	(PNP)	\$2.74
MPQ3904	(Quad NPN Array)	\$4.92
MPQ3906	(Quad PNP Array)	\$4.92
J271	(P JFET)	\$2.46
J309	(N JFET)	\$2.94
CA3096	(16 PIN MONO, 3 NPN, 2 PNP)	\$1.10
CA3146	(14 PIN MONO, 5 NPN)	\$1.10
MPS4126	(PNP) (DROP AT 0)	\$0.06
MPF102	(FET, N-Ch., Lo-Noise Amp)	\$0.55
2N7000	(NMOS, 60V, 0.2A, 0.4W)	\$0.55
2N6650	(PNP, 100W, 20MHz, 10A, 80V, Darlington)	\$0.55
2N5875	(PNP, 150W, 4MHz, 10A, 60V)	\$1.37
<i>D40E5</i>	<i>(NPN, 8W, 230MHz, 2A, 60V)</i>	<i>\$1.37</i>
<i>MJ4237</i>	<i>(PNP, 90W 75MHz, 8A 120V)</i>	<i>\$1.92</i>

<i>MTP3055E</i>	<i>(NMOS, 60V, 12A, 40W)</i>	<i>\$1.21</i>
<i>FT417</i>	<i>(PNP, 25W,3MHz, 2A, 100V)</i>	<i>\$1.10</i>
<i>2N2222A</i>	<i>(NPN)</i>	<i>\$0.55</i>
<i>VP1306</i>		<i>\$0.55</i>

**INDUCTORS**

100mH		\$1.21
43LH210		\$0.00

**DIODES**

1N34A	(60V Germanium)	\$0.55
1N4004	(1A/400V Rectifier)	\$0.22
1N4148	(200mA/100V Small Signal Diode)	\$0
1N5404	(3A/400V Rectifier)	\$0.55
1N5817	(Schottky Diode)	\$0.66
1N6263	(Schottky Diode)	\$0.66
C106B1	(4A/200V SCR)	\$0.55
LTR-516AD	PHOTO DIODE	\$0.82

**ZENER DIODES (SILICON, REFERENCE)****(±5% TOLERANCE, 1/2 WATT)**

1N5228B (3.9V)	1N5235B (6.8V)	1N5242B (12V)	\$0.17
1N5229B (4.3V)	1N5236B (7.5V)	1N5243B (13V)	\$0.17
1N5230B (4.7V)	1N5237B (8.2V)	1N5244B (14V)	\$0.17
1N5231B (5.1V)	1N5239B (9.1V)	1N5245B (15V)	\$0.17
1N5232B (5.6V)	1N5240B (10V)	1N5250B (20V)	\$0.17
1N5234B (6.2 V)	1N5241B (11V)	1N5252B (24V)	\$0.17

**(±5%, 1 WATT)**

1N4739A (9V)	1N4742A (12V)	1N4744A (15V)	\$0.44
TL 431	Adjustable Precision Zener Diode		\$0.55

**INTEGRATED CIRCUITS-DIGITAL (POSITIVE LOGIC)****TTL - \$0 CMOS - \$0**

<b><u>FUNCTION</u></b>	<b><u>74xx (TTL)</u></b>	<b><u>74Fxx(TT)</u></b>	<b><u>74LSxx (TTL)</u></b>	<b><u>40xx or 74HCxx (CMOS)</u></b>
Quad – 2 Input NAND	7400,7438	74F00	74LS00	74HC00N
Quad – 2 Input NOR			74LS02	4001
Quad-2 Input NAND W/open coll	7403		74LS03	74HC00N
Hex Inverter – Driver			74LS04	74HC04
Hex Inv w/Open Coll.			74LS05	
Quad - 2 Input AND			74LS08	
Triple – 3 Input NAND		74F10	74LS10	4023
Hex Schmitt Trigger Inv			74LS14	
Dual – 4 Input NAND	7420		74LS20	4012
Dual – 4 Input NOR	7425			4002
Triple – 3 Input NOR	7427		SN74ALS27	4025
Quad 2-Input OR			74LS32	
BCD to Segment Decoder/Driver			74LS48	4511
Dual 2 Input AND-OR-Inv	7450		74LS51	4019
3-2-2-3 Input AND/OR Inv			74LS54	
Dual D-type Flip Flop		74F74	74LS74	4013
Quad. Bi-Stable D Latch	7475			
Dual JK Flip Flop			74LS76	4027
4-Bit Binary Full Adder			74LS83	
Quad – 2 Input XOR			74LS86	4030
Decade Counter			74LS90	
4 Bit Binary Counter	7493		74LS191,74LS93	

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Retrig. Monostable Multi.	74122		
Dual, re-trig reset mono		74LS123	4528
8-input mux		74LS151	
Dual 2 to 4 Line Decoder		74LS155	
Quad 2 to 1 line Selector/ Multiplexer		74LS157,158	
Hex D Flip Flop	74F174	74LS174	
Quad D Flip Flop		74LS175	
Multiplexer		74LS251	
Quad 2-Input AND W/open coll. Outputs		74LS09	
Dual, Comp. Pair + Inv.			4007
BCD to Dec/Hexadec Decoder			4028
12 Stage Counter			4040
8 Input Multi-Func. Gate			4048
Quad. Bilateral Switch			4066
BCD to 7-Segment Decoder		DM74LS47N, HD74LS48P	
Triple 3-Input AND Gate	74F11		
SYNCHRONOUS 4-BIT COUNTERS		SN74161N	
Dual 4-Input Positive AND Gate		SN74LS21N	
Dual 1-of-4 Decoderr/Multiplexer	74F139		
Dual J-K Negative-Edge Triggered FF		SN74LS112AN	
High Speed 256 x 4 PROM		HM1-7611-5	
Hex Inverter			
Octal D Flip Flop C3D19	MC14069U		74LS273
8-Bit Binary Counter			74LS590
MOS-to-LED Quad Segment Driver			DS75491

**MISCELLANEOUS INTEGRATED CIRCUITS-DIGITAL (POSITIVE LOGIC)**  
**WHILE SUPPLIES LAST (TTL = \$0, CMOS = \$0)**

<i>9-bit Odd/Even Parity Bit Generator/Checker</i>	74S280	74F280
<i>Parallel-Load 8bit Shift Register</i>		74LS166
<i>4-bit Bidirectional Universal Shift Register</i>		74194
<i>Quad 2-Input AND Gate Buffer w/30V Open Coll.</i>		74F130
<i>Hex Buffer/Driver w/30v Open Coll.</i>		7407
<i>8bit Shift Register w/Sign Extend, 3-State Outputs</i>		74LS322
<i>Octal Buffer w/Non-Inverted 3-State Outputs</i>		74F241
<i>Quad Bus Buffer w/3-State Outputs, Positive Enable</i>		74LS126
<i>8-bit Magnitude Comparator</i>		74KS682
<i>Octal Bus Transceiver w/Non-Inverted 3-State Outputs</i>		74HC245AN
<i>5-bit Parallel-In/Parallel-Out Shift Register, Asynchronous Preset</i>		7496
<i>Quad 2-Input NAND Schmitt Trigger</i>		74132
<i>Octal Bus Transceiver</i>		74LS646
<i>Programmable Logic IC (UV PLD)</i>		EPM5032DC
<i>32-Macrocell EPLD</i>		CY7C344B
<i>Single-Ended Driver-Transmitter NAND</i>		UA75150TC
<i>Quad Tri-State Bus Transceivers</i>		DS8835
<i>UV EPROM</i>		AM2732DC - (\$5.50)
<i>Quad 3 State Buffer</i>		74LS125APC
<i>Quad Bus Transceiver</i>		SN75136N

**INTEGRATED CIRCUITS-LINEAR AND OPERATIONAL AMPLIFIERS**

LF353P	Op-Amp JFet 3MHz 8DIP	\$0.55
LM317T	(3-Term. Adj. Pos. Voltage Regulator, I(max)=1.5A)	\$1.21
LM337T	(3-Term. Adj. Neg. Voltage Regulator, I(max)=1.5A)	\$1.10

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LM329BZ	(3-Term. Adj. Pos. Voltage Regulator, I(max)=30mA)	\$1.00
LM723	(14 Pin Pos. Regulator)	\$0.82
LM331N	Voltage-to-Frequency Converter	\$1.00
LM393N	Voltage Comparator	\$1.00
741	Op-Amp Bipolar 1MHz GB 0.5/Usec	\$0.55
34072BP	4.5MHz 13V/us	\$1.21
34081	JFET	\$1.43
AD811AN		\$7.65
AD818AN		\$5.70
CA3080E	Op-Amp	\$0.88
MC34082		\$1.00
NE555N		\$0.82
NE565N		\$0.82
OP-27		\$3.01
Op Amp 2337	3MHz Dual	\$0.00
TLC555CP		\$0.82

**Transducers (\$0)**

LAH 25-NP/SP1

LAH 25-NP/SP9

LAH 25-NP/SP10

SEE BULLETIN BOARD FOR LISTING OF RESISTOR VALUES EXCEPT FOR VALUES OF VARIABLE RESISTORS WHICH ARE LISTED BELOW. ALL NORMAL 5%, 1/4 WATT, CARBON-FILM VALUES ARE STOCKED FROM 10Ω TO 1 MΩ. SELECTED VALUES OF 5% 1/4 WATT, CARBON-COMPOSITION VALUES ARE AVAILABLE FROM 1.5 MΩ TO 20 MΩ. SELECTED VALUES OF 10%, 1/2 WATT, CARBON VALUES ARE STOCKED FROM 2.7Ω TO 50 M.Ω

**RESISTANCE VALUES**

1Ω – 20MΩ, 1/4w	\$0.06
1Ω – 15MΩ, 1/2W	\$0.11
1Ω – 15MΩ, 1W	\$0.28
0.47Ω – 1Ω, 2W (metal oxide film ±5%)	\$0.22
1Ω – 15MΩ, 2W	\$0.22
10Ω – 10MΩ (metal film ±1%)	\$0.22

**VARIABLE RESISTORS**

1-Turn, 1/4 Watt    100, 200, 250, 500, 1K, 2K, 5K, 10K, 20K, 100K, 500K	\$0.55
15-Turn, 3/4 Watt (Trim Pot)            10 ,100, 500, 1K, 5K, 10K, 50K, 100K, 500K	\$2.19
Anodized Aluminum Knob	\$0.55
Dual 125k Ohm (110/15)	\$2.19

**Varistor VDR**

39Z1 Varistor	\$0.22
ZNR14K201U Varistor	\$0.22
ZNR7K201U Varistor	\$0.22

**CAPACITORS - CERAMIC DISK, 500VDC, 20% TOLERANCE (pF)**

1	10	47	270	1000	3900	\$0.22
2.2	12	68	300	1500	4700	
3.3	15	75	360	1800	5600	
4.7	18	82	470	2000	6800	
5.6	20	100	560	2200	8200	
6.8	25	120	680	2500	10000	
7.5	33	150	750	2700		
8.2	39	220	820	3000		

Capacitor 0.1uF (+1-10%),X7R, Cer. 50/100 VDC; for hi-freq bypass \$0.28

Capacitor 0.01uF (+1-10%),X7R, Cer. 100V; 63DC; for hi-freq. bypass \$0.28

**CAPACITORS – PLASTIC & Ceramic (+1-10% TOL), ALL 100V (uF)**

1 - Plastic						\$0.82
Ceramic	0.033	0.068	0.082	0.047	0.33	\$0.55
Plastic	0.022	0.22	0.02			\$0.55

**ELECTROLYTIC - ALUMINUM 25 VDC, - 50,-100% TOL**

<u>Rating</u>	<u>Voltage</u>	
0.47 uF		\$0.55
4.7 uF	35 & 50 V	\$0.28
10 nF AXIAL	50 V	\$0.00
10 uF	35 & 50 V	\$0.28
22 uF	35 & 50 V	\$0.28
47 uF	35 V	\$0.28
100 uF	35 & 50 V	\$0.33
220 uF	35V	\$0.44
470 uF	50 V	\$0.55



1000 $\mu$ F	35 V	\$0.82
2200 $\mu$ F	35 V	\$1.10

### **VARIABLE CAPACITORS**

5 TO 100 pF (50V)	\$0.55
75 TO 330 pF	\$2.46

### **SOCKETS**

IC 8S	8 Pin DIP Solder Tab	\$0.28
IC 8W	8 Pin DIP Wire Wrap	\$1.64
IC 16S	16 Pin DIP Solder Tab	\$0.28
IC 16W	16 Pin DIP Wire Wrap	\$1.92
IC 18S	18 Pin DIP Solder Tab	\$1.10
IC 20W	20 Pin DIP Wire Wrap	\$2.19
IC 20S	20 Pin DIP Solder Tab	\$0.33
IC 24S	24 Pin DIP Solder Tab	\$0.00
IC 28S	28 Pin DIP Solder Tab	\$0.33
IC 40S	40 Pin DIP Solder Tab	\$0.82

### **HEAT SHRINKS**

Heat Shrink Set (Small Size)	\$10.93
Heat Shrink Set (Large Size)	\$12.02

### **HEAT SINKS AND FITTINGS**

Dip H-Sink	\$0.00
RL2004 NTC Thermal	\$0.00
TO-220 H-Sink	\$0.00

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TO-220 MICA	\$0.00
TO-220 Nuts	\$0.00
<i>TO-31.5 c / w Heatsink</i>	<i>\$1.10</i>
<i>TO-35 c / w Heatsink</i>	<i>\$1.10</i>
<i>TO-92 Heat Sink</i>	\$0.00
<i>TO-92 Socket</i>	\$0.82
<i>To-3 Insulator Lug Socket</i>	\$0.00
<i>To-3 MICA Insulator</i>	\$0.00
<i>To-3 Steel Washer</i>	\$0.00
<i>To-3 Washer Plastic</i>	\$0.00

### **WIRE & CABLE**

<i>10pc Alligator clips wires Set</i>	\$4.38
<i>22AWG wire Solid</i>	\$0.06
<i>Alligator clip</i>	\$0.44
<i>Jumper wires box</i>	\$5.47
<i>Lamp cord</i>	\$2.19
<i>Magnet Wire 26AWG.05/ft</i>	\$0.17
<i>Zip Tie 3"</i>	\$0.06
<i>Zip Tie 7.5"</i>	\$0.06

### **POWER CABLES ARE AVAILABLE**

### **TEST LEADS & SCOPE PROBES**

Multi-meter Leads	\$5.65
<i>BNC to Alligator Clips</i>	\$3.22
BNC Male to Female	<i>RG-58C/U</i> \$0.00
<i>BNC to IC Test Hook Set</i>	\$3.55
<i>Banana Binding Posts</i>	\$0.00

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<i>Banana Jack Plug - Snap</i>	\$1.26
<i>Female Banana Jack Plugs</i>	\$0.56
<i>Rubber Alligator Clip Sleeves</i>	\$0.00

### CONNECTORS

<i>BNC Clamp-Solder Plug for RG-58, 141, 142A</i>	\$0.00
<i>RF Coaxial Connectors</i>	\$0.00
<i>COAXICON RF DIV</i>	\$0.00

### SWITCHES and RELAYS

2 Switch Mini-Dip	\$0.82
3 Switch Mini-Dip	\$0.82
4 Switch Mini-Dip	\$0.82
5 Switch Mini-Dip	\$0.93
6 Switch Mini-Dip	\$0.99
7 Switch Mini-Dip	\$2.19
8 Switch Mini-Dip	\$2.19
10 Switch Mini-Dip	\$2.19
DPDT .5A 125V Slide Switch	\$0.66
SPST 3A 125V slide switch	\$0.55
Magnacraft W171DIP-2 Relay	\$4.17

### LED'S

7segment display	\$0.00
Amber LED 2.2V 15mA	\$0.22
Green LED 2.2V 15mA	\$0.22
Red LED 2.2V 15mA	\$0.22
LED Holder - Panel Mount	\$0.11
LED PCB Socket	\$0.82
MLED 71	\$0.55

**MISCELLANEOUS**

Plastic Project Box (7.5"x4.3"x2.2")		\$3.56
Storage Box		\$4.50
Solder (1 ft) #22		\$0.17
Solder Wick (1 ft)		\$0.28
Speaker (8 ohm, 0.5w)		\$0.00
Lcd Module	RCM7033M-A	\$0.00
Male Header Pins	Conn Header .100" Sngl Str 40pos	\$0.55
Female Socket Pins	Conn Socket 40 Pos 0.100" Gold Through Hole	\$2.41
Right Angled Male Header Pins	conn header 16pos .100 r/a 30au	\$0.72
Crystal SE3333-ND		\$0.17
.1" Male Crimp Pins		\$0.00
Panel-Mount Neon Indicator - Red		\$0.00
Neon Glow Lamps		\$0.00

**TRANSFORMERS**

LP-433	Universal, Center Taps, 110/220V, 9-0-9V, 1A	\$3.39
DPC-34-125	115 V TO 17 VRMS, 0.11A RMS	\$6.10
42TU013-RC	Signal XFMR EI-24 1KCT-PCT	\$3.28

**MAGNETIC TORROID CORES**

T 50-2	OD = .500 in, ID = .303 in, Ht = .190 in, 250 KHz - 10 MHz	\$0.93
T 50-6	OD = .500 in, ID = .303 in, Ht = .190 in, 3 MHz - 40 MHz	\$0.93
T 68-2	OD = .690 in, ID = .370 in, Ht = .190 in, 250 KHz - 10 MHz	\$1.21
T 80-2	OD = .795 in, ID = .495 in, Ht = .250 in, 250 KHz - 10 MHz	\$1.64
A-189043-2	Toroid Core	\$1.21

**BATTERIES**

AAA Alkaline Battery	\$0.41
AA Alkaline Battery	\$0.50
9 V Alkaline Battery	\$1.17
D or C Cell Alkaline Battery	\$1.21
9V Battery Clip	\$0.28

**FUSES**

Misc. Sizes	Ask For Sizes	\$0.28
Fuse Holder		\$1.37
Fuse Holder, in-line		\$1.37

**CIRCUIT BOARDS**

Circuit Vector Board	per 8.5" x 17"	\$9.75
Single-Side Copper		\$4.81
Double-Side Copper		\$9.33
4"x4" Perf Board	PC Board Fr4 1-Side Pph 4.0x4.0	\$6.01
3.5"x3.0" Perf Board	PC Board .1"Sp 3x3.5 Single Side	\$4.92
Single Breadboard (without wire kit)		\$4.64
Single Breadboard (with wire kit)		\$5.92
Double Breadboard (with wire kit)		\$18.57

**LAB KITS**

COSC 130 Lab Kit	\$28.41
ECE 201/202 Lab Kit (No Breadboard)	\$40.22
ECE 201/202 Lab Kit (With Single Breadboard & Jumper Wires)	\$46.14
ECE 201/202 Lab Kit (With Single Breadboard)	\$44.86
ECE 201/202 Lab Kit (With Double Breadboard & Jumper Wires)	\$58.79
ECE 482 Lab Kit	\$142.00

**CoSC 130 Lab Kit Parts List**

Development Board (Arduino Due)      Multi-Function Shield      USB Cable

**ECE 201/202 Lab Kit Parts List**

Breadboard (Single, Double, None)	1N4004 Diode			
Scope Leads (x3)	1N5228B Diode			
Alligator Jumpers (x10)	0.22 $\mu$ F Capacitor			
Multi-Meter Leads (1 set)	1 $\mu$ F Capacitor			
SPST Switch		<b>Resistors (All 0.5W)</b>		
Magnacraft W171 DIP-2 Relay	20 $\Omega$	300 $\Omega$	330 $\Omega$	470 $\Omega$
PC-34-125 Transformer	560 $\Omega$	680 $\Omega$	820 $\Omega$	1 k $\Omega$ (x2)
741 Op Amp	1.5 k $\Omega$	2 k $\Omega$ (x2)	2.2 k $\Omega$	3 k $\Omega$ (x2)
100mH Inductor	3.3 k $\Omega$	4.7 k $\Omega$	5.1 k $\Omega$	6.8 k $\Omega$
15-turn 1k Potentiometer	10 k $\Omega$ (x2)	12 k $\Omega$	15 k $\Omega$	62 k $\Omega$
15-turn 10k Potentiometer	100 k $\Omega$			

**ECE 482 Lab Kit Parts List**

Vectorboard, 6.5x4.5	Cap 100nF, 50V	Diode Schottky, 40V 1A
Header 40pos	Cap 1uF, 50V	Diode Schottky, 200V 2A
Nylon Standoff	Cap 4.7uF, 50V	Heatsink (Dual w/clip)
Nylon Screw	Cap Film 8.2uF, 250V	Thermal insulator, adhesive one side
Dual Binding Posts	Cap Ceram 1uF, 100V, X7R	Fan, 12V
TP Black	Cap Film 15uF, 100V	SHUNT, ECON, PHBR 5AU, BLACK
TP Red	Elec Cap 820uF / 2.75 Arms / 250mOhm	LAUNCHPAD DEV BRD
TP Green	Boost Controller (TI LM5121)	IC MCU 16BIT 32KB
TVS Diode	Hall Pre-Driver (Toshiba)	CONN HEADER 10POS 2.54MM SMT
MOV	Hall Pre-Driver (Allegro)	IC REG LDO 3.3V 1A SOT223-6
100K Pot	IC OPAMP GP 1.5MHZ RRO 8DIP	18-Pin DIP SOCKET
10K Pot	DIP8 Socket	power MOSFET
5mOhm Resistor, Current sense	Gate Driver	
Vectorboard, 6.5x4.5	Diode 200V 1A	