

ENSC 220-R4

This kit contains all the parts that are needed for completion of the ENSC220 lab course. Your kit has been carefully assembled as per this list using brand new parts. Upon receipt, please check the contents and declare any deficiencies at the Lab Resource Office (ASB9876) within 3 school days following kit handout. After this time, should you lose or damage any parts, you will need to replace these at your expense from an external source. Shop locally for replacements at Lee's Electronic Components, Interior Electronics, RP Electronics in Vancouver or credit card fast mail-order through Newark Canada (canada.newark.com) or Digi-Key (www.digikey.ca). The School will not replace or sell you more materials. Keep your parts after this course - many will be useful for future classes or projects.

Qty	Part	Description	Marking ¹
1	82R	resistor, 1/4W, 5%	Gy-Rd-Bk
1	100R	resistor, 1/4W, 5%	Bn-Bk-Bn
1	470R	resistor, 1/4W, 5%	Ye-Vt-Bn
2	1k2	resistor, 1/4W, 5%	Bn-Rd-Rd
2	2k2	resistor, 1/4W, 5%	Rd-Rd-Rd
2	3k3	resistor, 1/4W, 5%	Or-Or-Rd
3	4k7	resistor, 1/4W, 5%	Ye-Vt-Rd
1	5k6	resistor, 1/4W, 5%	Gn-Bu-Rd
1	6k8	resistor, 1/4W, 5%	Bu-Gy-Rd
2	10k	resistor, 1/4W, 5%	Bn-Bk-Or
1	1M	resistor, 1/4W, 5%	Bn-Bk-Gn
1	1nF	capacitor, ceramic disc/monoceramic	1n, 102, .001
1	100nF	capacitor, ceramic disc/monoceramic	100n, 104, .1
1	47pF	capacitor, ceramic disc/monoceramic	47, 470
1	470pF	capacitor, ceramic disc/monoceramic	471, 470p
1	1uF	capacitor, aluminium electro, radial	1u, 105
1	100uH	inductor, fixed, axial (coloured body)	Bn-Bk-Bn
2	TL072/LF353	IC, opamp, dual, bi-FET, PDIP8	(x)072/353(x)
1	1N4148/914	Diode, small signal, glass, DO-35	Band = K

¹ Markings may vary between batches
² Opamps may be substituted with similar parts based on availability.



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A few hints - To avoid damaging your semiconductors, keep the power supply limited to a maximum of 20-30mA or have a very good idea as to the normal operating current and voltage levels for your circuit.

Always work from the device datasheets from the manufacturer of the component that you have been supplied. Carefully observe lead polarity before applying power to the device(s). Check this each time you connect or alter your breadboarded circuit.

Data sheets are available on Lab1 computers. Login -> select **Reference Material** folder icon on Windows Desktop -> **Parts Data**. Parts are categorized in families: i.e. diodes & transistors = Discrete Semi, opamps = Linear, resistors & capacitors = Passive

Refer to the **Reference Material** folder > Tutorials & App Notes on Windows Desktop for relevant Lab Handbook sections, practical techniques on breadboarding, use of test equipment, parts parameters, circuit applications, colour codes, standard value sets, and much, much more!

Use the 100n capacitors to bypass IC power supply leads directly between the IC and its closest related ground. Keep wiring interconnections as short and direct as possible. If the device gets too hot to touch, check for undesired oscillations at a few MHz (apart from the obvious power connections and I/O wiring).

Some IC components are static sensitive. ESD handling precautions should be followed.

Wire and resistors are finite resources – please do not waste! Do not throw reusable material such as wire or parts into waste cans! Keep resistors and wire-jumpers in your zip-bag kit for reuse – you will need them all for future engineering lab courses. Maintain component leads at supplied length – don't mangle or cut. Bent wire/leads can be straightened with fingers or your needle-nosed pliers. If necessary, make series/parallel connections using your breadboard - **do not twist component leads together.**

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