

# PHYS 2P30 - Electronics

• Lectures : T F 11:00 - 12:30 Th 256

• Labs : W Th 14:00 - 17:00 H300

• Instructor: edward.sternin@brocku.ca  
B206 x 3414

all your admin. questions answered!

• Home page: www.physics.brocku.ca/Courses/2P30/

• Prerequisite: Y1 Physics, Math

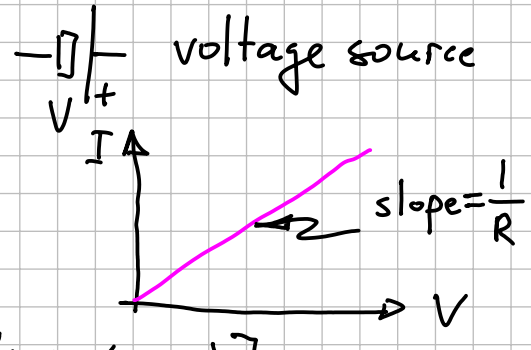
• Assume the students already know:

- terminology : charge,  $q$   
Coulomb,  $F_{12} = k \frac{q_1 q_2}{r_{12}^2}$   
current,  $I = \frac{dq}{dt}$  (rate of flow)

- symbols :  resistor  $R$        voltage source  $V$

- Ohm's Law:  $I = \frac{V}{R}$  or  $V = IR$

- resistance is a property of the material :  $R = \rho \frac{L}{A}$ ,  $\rho(T) = \rho_0 [1 + \alpha(T - T_0)]$



• Physics, not Engineering: emphasis on analysis, not design

To understand (Physics) measurement, need to know the limitations of (Electronics) instruments.

To build better (Electronics) instruments, need to understand the underlying (Physics) phenomena.

• Grading:

20% homework

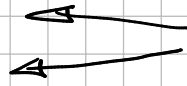
← full marks for demonstrated effort

32% labs (8 lab reports)

10% midterm

30% final

8% lab final



correct answers are required for full marks

- to pass the course, a minimum of 50% needs to be achieved on the final exam
- lab final is a hands-on exam: an unknown circuit, similar to one of the circuits used in one of the lab experiments, is presented to the students who need to figure out what is inside their "black box"

- PHYS 2P30 is an introductory course, covering both analog and digital electronics. During 1995-2018 two separate courses, PHYS 2P31 / 2P32 were taught. A separate Digital Electronics course is no longer offered, but an Advanced Electronics Laboratory course, PHYS 3P92 is available to those interested in pursuing Digital Electronics further.

• Math skills required for success:

- algebra + elementary trigonometry
- linear algebra (solving systems of equations)
- SHO (up to driven, damped, H.O.)