MAE 3780/3783: Mechatronics
January 24, 2024

Logistics Updates

- Updates to syllabus – to be posted to Canvas asap
  - 6 total slip days for HW assignments, still only 2 slip days per assignment
    - 25% deduction per day on HWs submitted after extended due date
    - 25% deduction per day on HWs submitted late when you have no more slip days
  - NO slip days for labs!
    - You must come prepared and focused to complete the lab within your lab section
  - 25% deduction on labs when you do not complete the pre-lab on time or show up more than 15 minutes late
  - You MUST complete all 4 labs in order to pass this class
- SDS accommodations
- Communication channels

Logistics Updates

- Tentative OH schedule
  - Begins today
  - lab sections this week are also OH
  - when2meet to give feedback/preferences
    - Not a guarantee!

Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9:00				Doris Xu (9:00-11:00)		Jin Ryu (9:00-10:00)	
9:15							
9:30							
9:45							
10:00					YoungJune Park (10:00 - 12:00)		
10:15							
10:30					Jack St. Louis (10:30 - 12:00)		
10:45							
11:00							
11:15							
11:30		Lecture		Lecture		Lecture	
11:45			Austin Townsend (11:45-12:45)				
12:00 PM							
12:15 PM	Jacobo Ospina (12:15-1:45)						
12:30 PM							
12:45 PM							
1:00 PM				Nila Narayan (1:00-2:00)		Nila Narayan (1:00-2:00)	
1:15 PM							
1:30 PM							
1:45 PM					Alex Eagan (1:45-3:15)		
2:00 PM							
2:15 PM							
2:30 PM		Natalie Sun (2:30-4:00)	Hannah Zolock (2:30-4:00)		Hannah Zolock (2:30-4:00)		
2:45 PM							
3:00 PM		Chenxi Ji (3:00-5:00)					
3:15 PM							
3:30 PM							
3:45 PM							
4:00 PM							
4:15 PM							
4:30 PM				Alice Herz (4:30-6:00)	Nila Narayan Alex Eagan Stephan Wagner Julian Prieto (4:30-6:00)	Natalie Sun Alice Herz (4:30-6:00)	
4:45 PM							
5:00 PM			Jacobo Ospina (5:00-6:30)	Jacobo Ospina (5:00-6:30)			
5:15 PM							
5:30 PM							
5:45 PM							
6:00 PM							
6:15 PM							
6:30 PM							
6:45 PM							

Upson 264

TBD

Logistics Updates

- Tentative course schedule

	January				
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
WEEK 1	**22** **FIRST DAY OF CLASS** concept test out HW1 (physics review) out lab sections: pick up kits	**23** concept test due	**24** lecture	**25**	**26** lecture HW1 due
WEEK 2	**29** lecture HW2 (resistors) out Lab 1: Equipment Intro	**30**	**31** lecture	**1**	**2** lecture

Todos for you

- This week – **pick up kit** during the lab sections
- HW 1 (physics review) released on Monday – Due **Friday, January 26, 11 pm**
- Details for **Lab 1** (including pre-lab) to be released before class on Friday
- Fill out when2meet with availability/OH preferences

https://pollev.com/mechatronics24

Recap of Physics*:

- Current I [A]
  measured at a <u>point</u>

  $\uparrow$ current source

- Voltage V [V]
  measured between <u>2 points</u>

  $\pm\frac{1}{\mp}$ $\pm\phi$ ϕ

  DC   AC

- Ground
  reference point
  "zero"

  $\perp$ $\triangledown$ $\overline{/\!/\!/\!/}$

- Power

  $P = I \cdot V$ [W]

  $p > 0$ dissipating
  $p < 0$ generating

- Resistors, Ohm's Law

  R [Ω] $-\!\!\bigvee\!\!\bigvee\!\!-$

  $V = R I$ ohm's law   actual
  $I = \frac{V}{R}$ ideal

  R_1 R_2
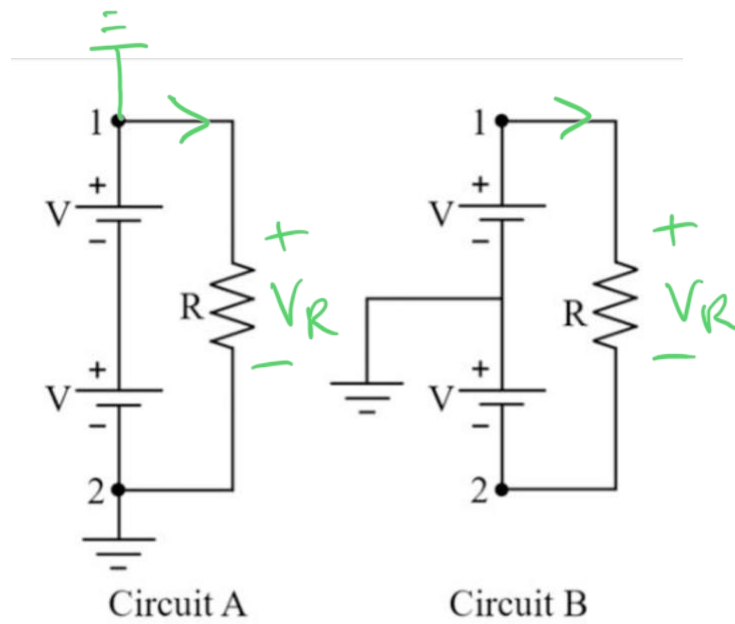 $-\!\!\bigvee\!\!\bigvee\!\!-\!\!\bigvee\!\!\bigvee\!\!-$

  in series: $R_{eq} = \sum_i R_i$

  in parallel: $\frac{1}{R_{eq}} = \sum_i \frac{1}{R_i}$

- Passive sign convention: current flows from high potential (+) to low (-) for all passive elements (not sources) and out of the positive terminal of a voltage source
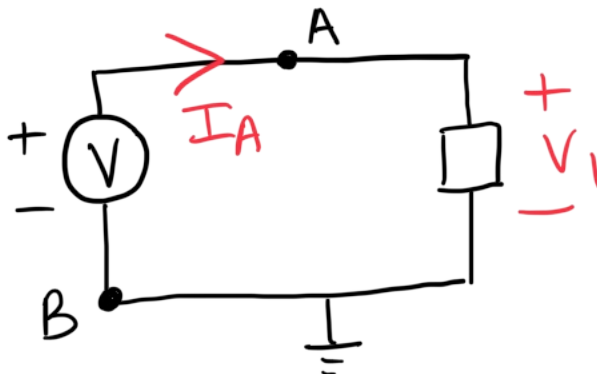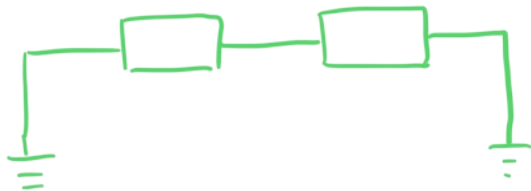
Circuit A   Circuit B

The voltage difference between points 1 and 2 is: $= V_R$

○ greater in Circuit A

○ greater in Circuit B

● the same in both circuits

Circuit A

$=$

Circuit B