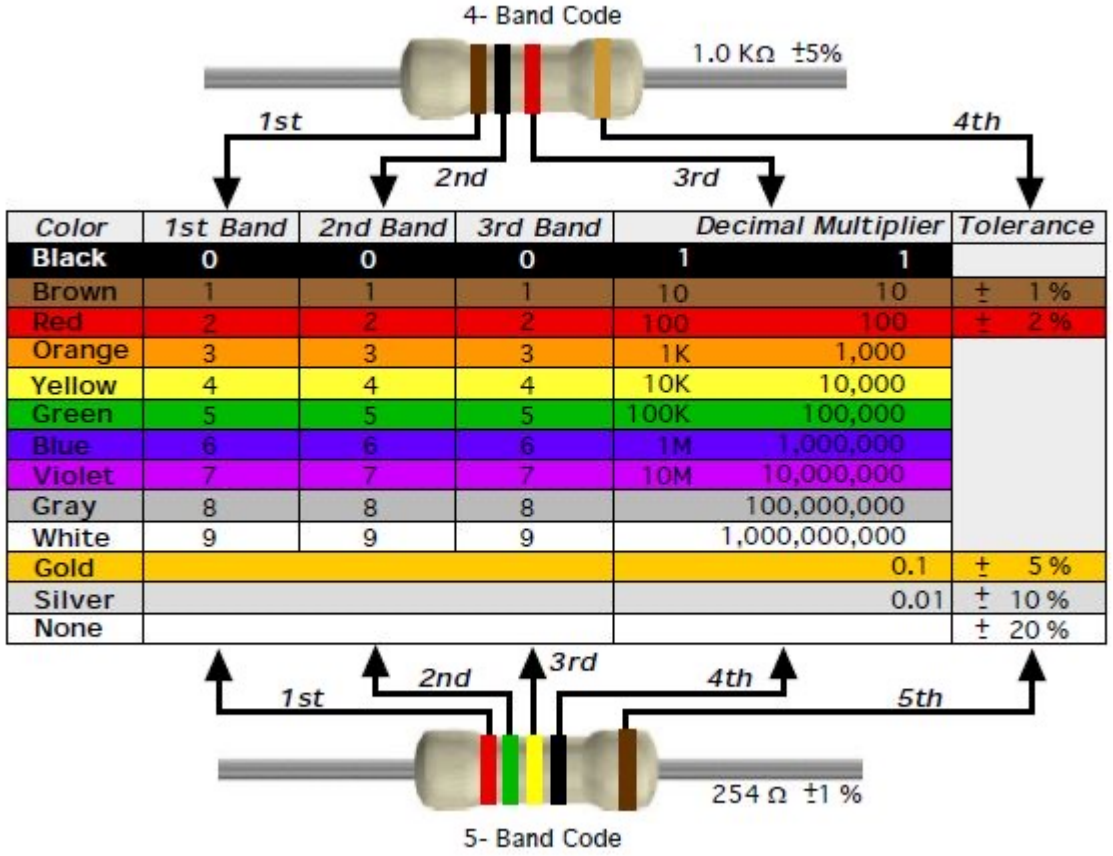
EE200 CIRCUIT LABORATORY

2021-2022 SPRING

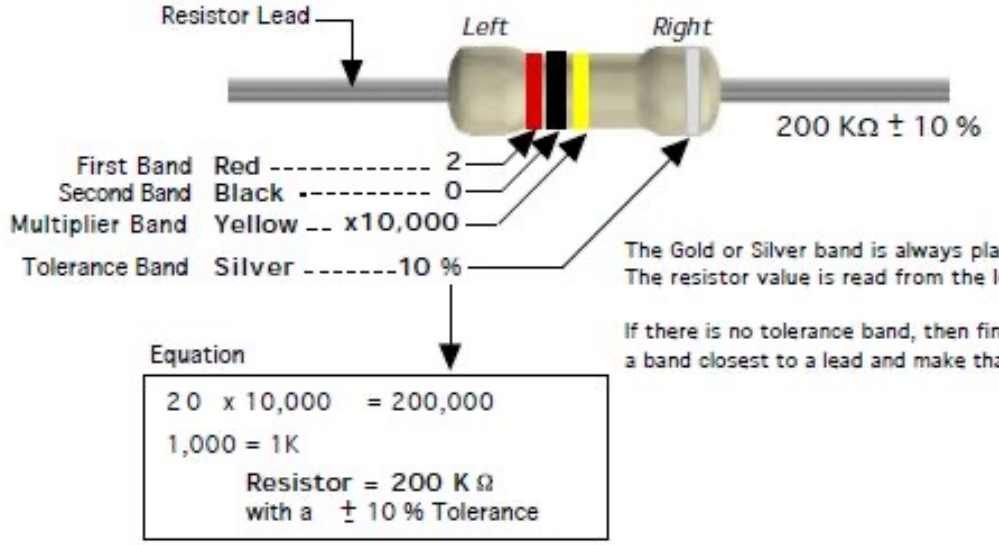
DEPARTMENT OF ELECTRICAL-ELECTRONICS ENGINEERING

RES. ASST. ÖNEM YILDIZ

Resistor Color Code and Resistance Calculation



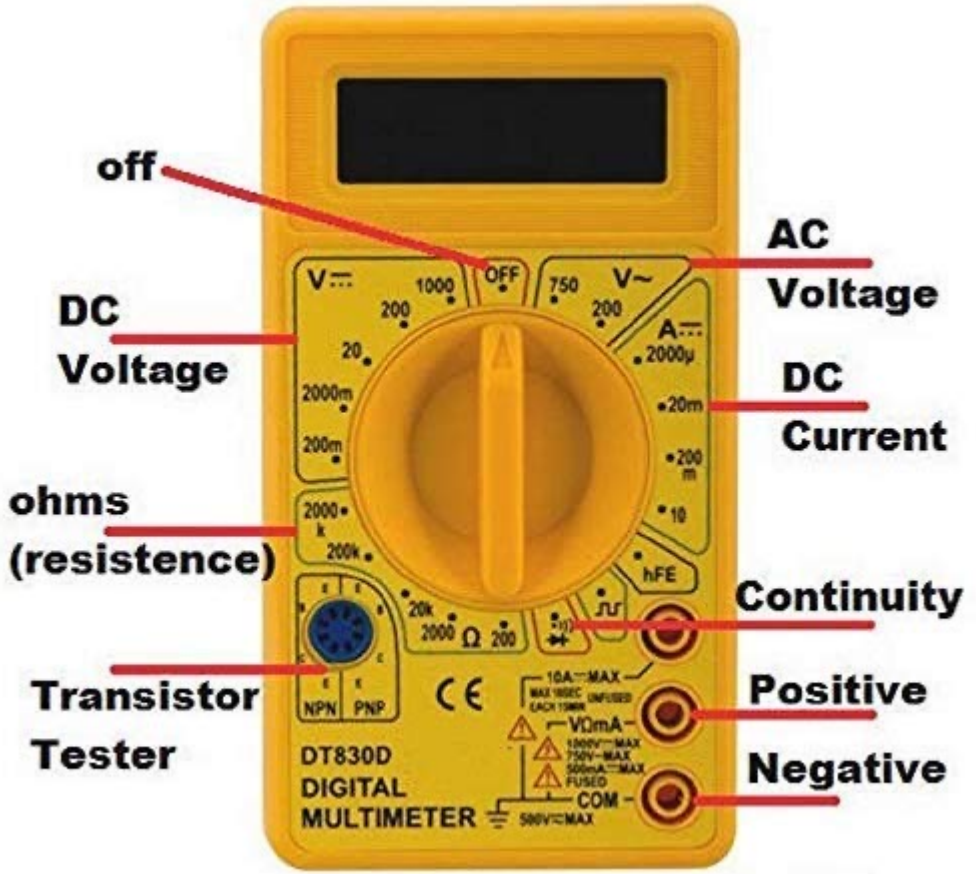
Color	1st Band	2nd Band	3rd Band	Decimal Multiplier		Tolerance
Black	0	0	0	1	1	
Brown	1	1	1	10	10	± 1 %
Red	2	2	2	100	100	± 2 %
Orange	3	3	3	1K	1,000	
Yellow	4	4	4	10K	10,000	
Green	5	5	5	100K	100,000	
Blue	6	6	6	1M	1,000,000	
Violet	7	7	7	10M	10,000,000	
Gray	8	8	8		100,000,000	
White	9	9	9		1,000,000,000	
Gold					0.1	± 5 %
Silver					0.01	± 10 %
None						± 20 %



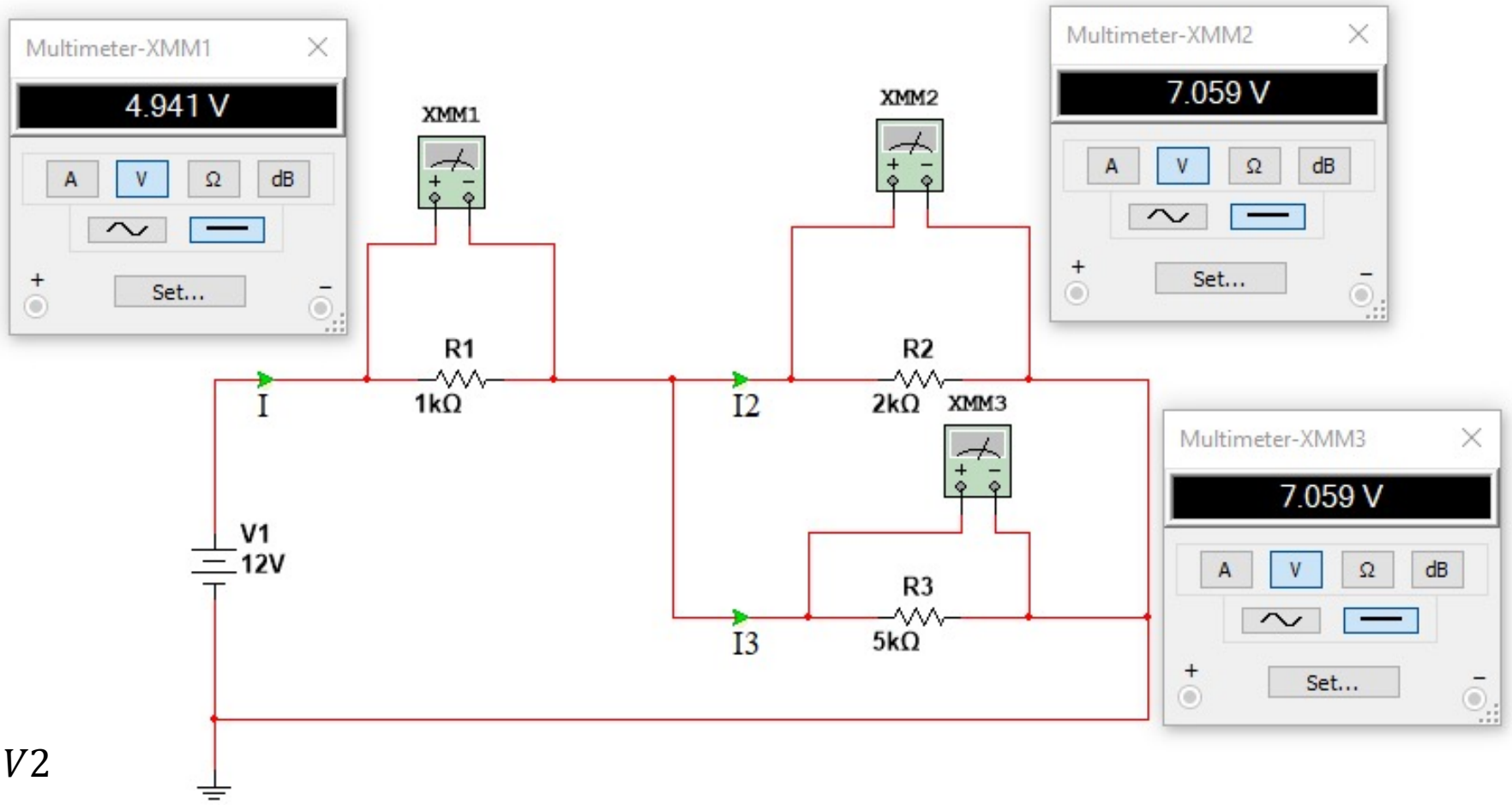
Multimeter

- Multimeter is an instrument designed to measure electric current, voltage, and usually resistance, typically over several ranges of value.

- On the right side, DT830D multimeter functions can be seen.



Voltage Measurement



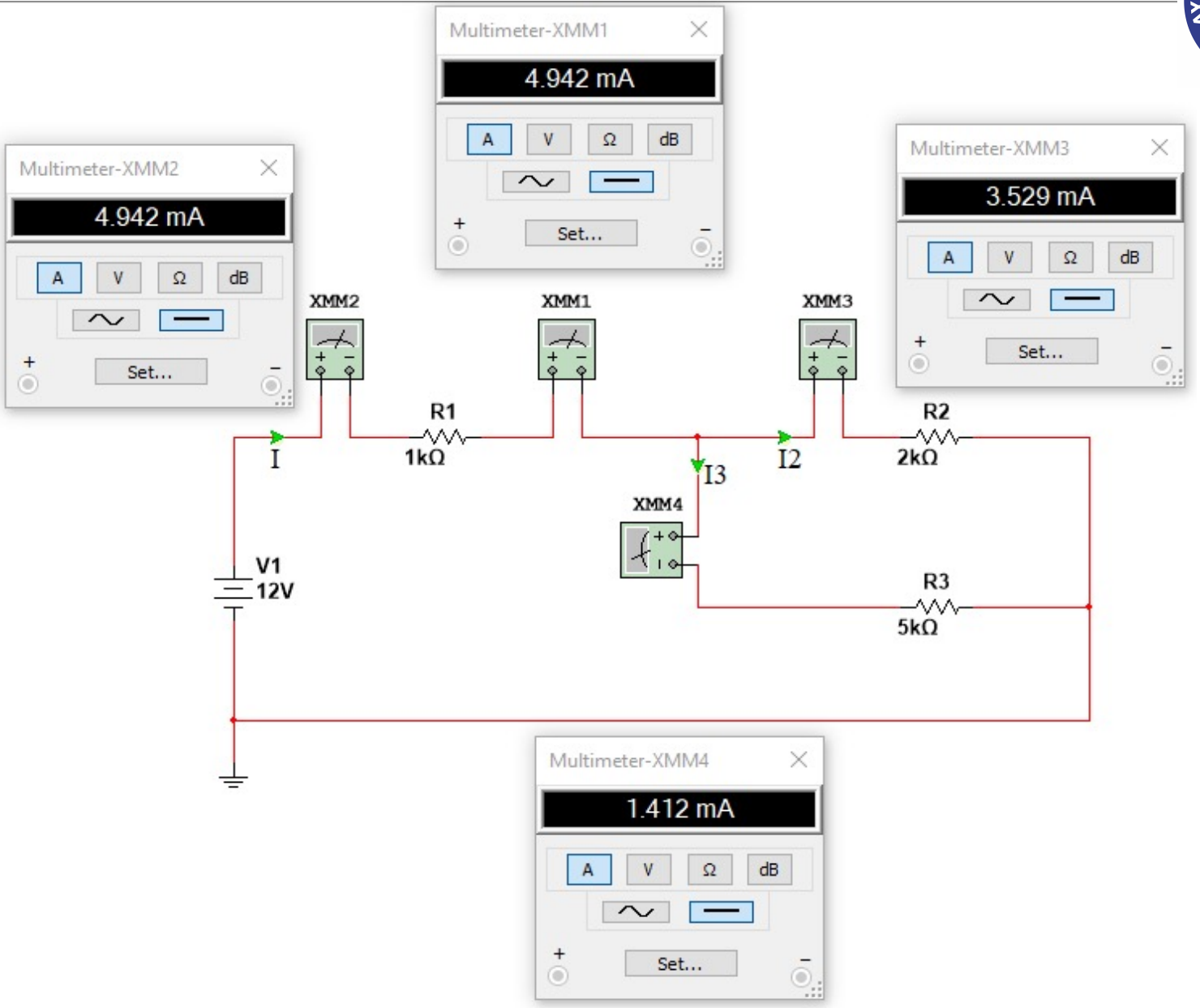
$$V2 = V3$$

$$Vin = V1 + V2$$

or

$$Vin = V1 + V3$$

Current Measurement



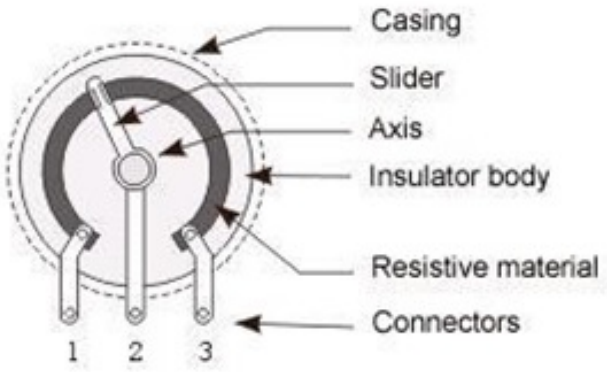
$$I = I2 + I3$$

Potentiometer

Resistance between Leg 1 and Leg 3 = Total resistance value of the potentiometer

If you want to use the potentiometer as a variable resistor, you can use Leg 1 and Leg 2 or Leg 2 and Leg 3.

For example; assume that you have an 1 kohm potentiometer.
If you adjust the resistance value between Leg 1 and Leg 2 as 300 ohm (0.3 kohm) by using slider, the resistance value between Leg 2 and Leg 3 equals to 700 ohm (0.7 kohm).





THANKS

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