2d.7 (1/2) | Reactive components

stuff

Because capacitors take time to charge, and inductors produce Back EMF, **changes in voltage and current not instant**

Time constant = τ is used to calculate how long changes will take

All real circuits will include some resistance

Rise and fall of V & I related to inductance or capacitance and resistance

2 Formula in EX309:

- $\tau = C \times R$
- $\tau = L \div R$

Note 1: *τ is time taken to reach about 66% of rise, or fall*

Note 2: *maximum, or zero, only reached after 5 x τ!*

2d.7 (2/2) | Reactive components

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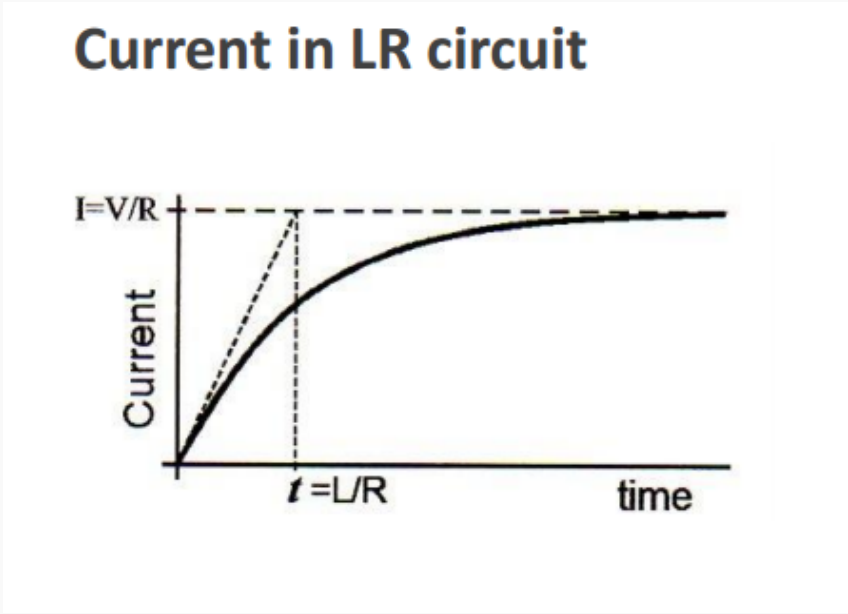

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Voltage in CR Circuit

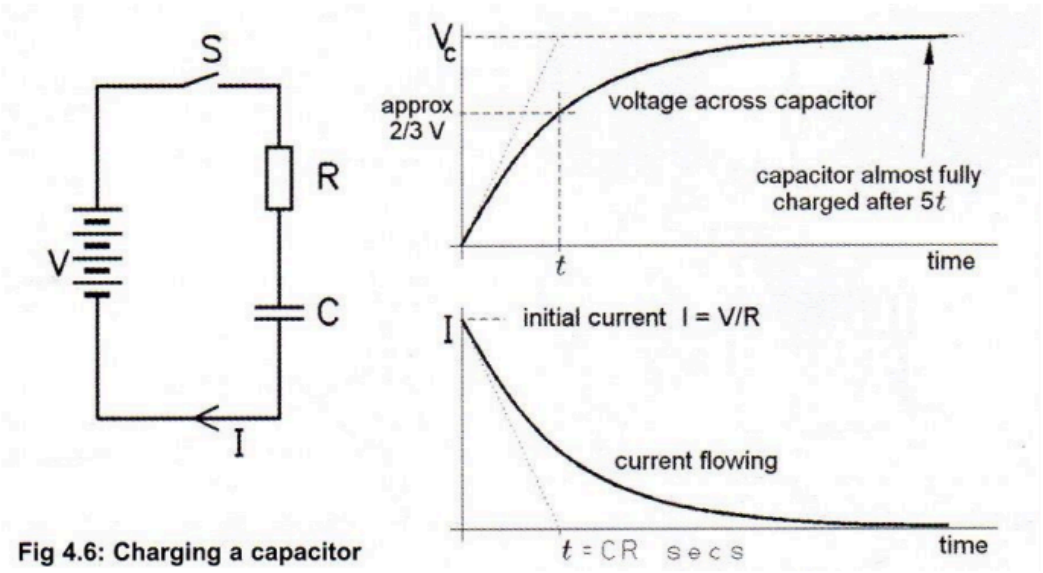

Fig 4.6: Charging a capacitor