

Electronic Devices in Circuits Tutorial Sheet

RC Circuit Transfer Functions

Work out the transfer functions, v_o/v_i , of the networks 1 to 12. Manipulate the transfer functions to present them as standard forms and hence identify the two second order circuits concealed amongst the ten first order ones. Write down the corner frequency and frequency independent gain of the first order circuits but leave the second order circuits alone once you have identified them. Sketch the amplitude and phase responses of the first order circuits.

Now sketch the step responses of the first order circuits. If you can identify the starting voltage and finishing voltage of the exponential, the rest is easy! Try and relate your results to the circuit topologies - do they make sense from a physical point of view?

