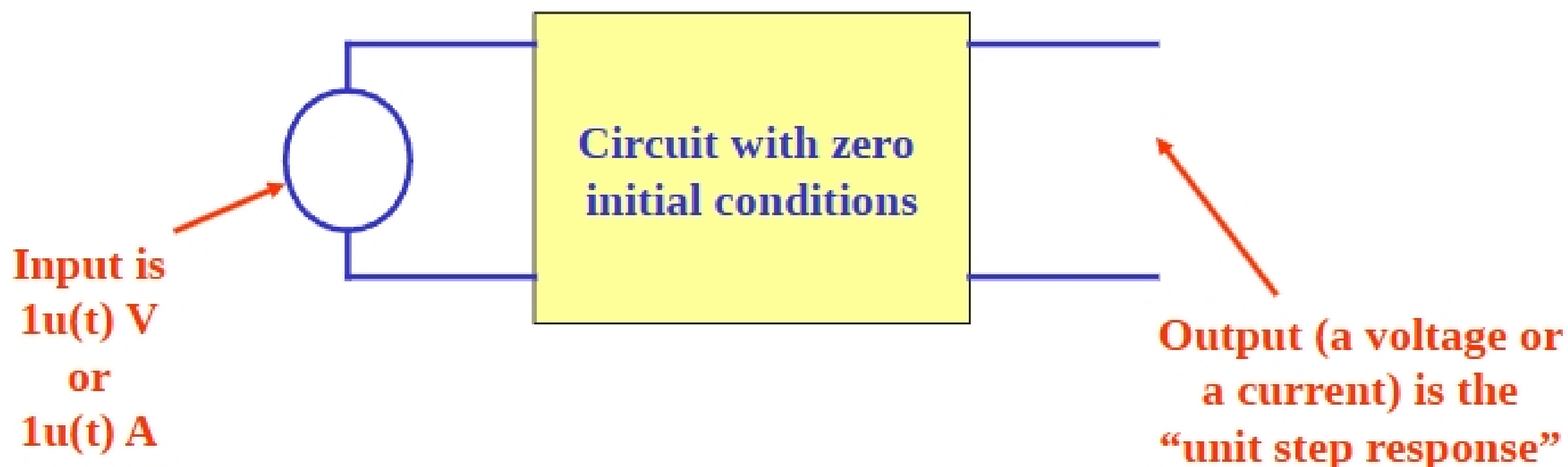


Reading Assignment: Chapter 7 in Electric Circuits, 9th Ed. by Nilsson

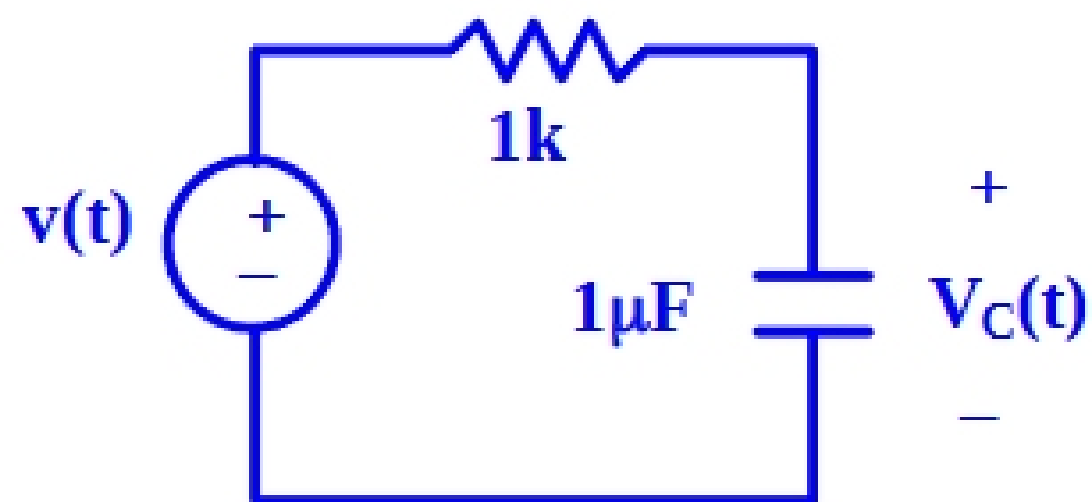
Unit step response to a circuit

Suppose that you wished to compare the outputs of two circuits. It would be misleading to compare them if the circuits had different inputs or different initial conditions. A common way to compare them is to use a unit step input [$1u(t)V$ or $1u(t)A$] and zero initial conditions (or zero initial stored energy).

Unit step response – the output of a circuit where the input is a unit step and there are zero initial conditions.



Example: Find the *unit step response* for $V_C(t)$ in the circuit shown below.



Reading Assignment: Chapter 8 in Electric Circuits, 7th Ed. by Nilsson

Chapter 8 – Second-Order Circuits

Order of
a circuit

=

Order of the differential
equation (DE) required to
describe the circuit

=

The number of independent*
energy storage elements (C's
and L's)

* C's and L's are independent if they cannot be combined with other C's and L's (in series or parallel, for example)

Example: Draw several circuits with C's and L's and identify the order of each circuit.