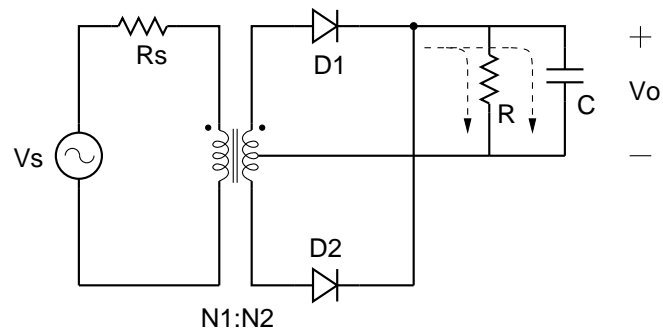# rectifier_tap_1.sqproj

Shown in the figure is a centre-tapped full-wave diode rectifier with an output filter. The polarity of the diodes ensures that the current through the load resistor always flows in the same direction for both positive and negative half cycles of the input voltage. The capacitor serves to hold the output voltage nearly constant.

Exercise Set

1. For $V_m = 169\,V$, $R_s = 0.5\,\Omega$, $R = 200\,\Omega$, $C = 520\,\mu F$, $N_1 : N_2 = 14 : 2$,

    (i) What is the expected output voltage?

    (ii) What is the ripple voltage?

    (iii) What is average current through D_1 and D_2?

    (iv) What is the peak current through D_1 and D_2? (Assume the diodes to be ideal, with an on voltage of $0\,V$).

    (v) What is the maximum reverse voltage appearing across each of the diodes?

    Verify your results with simulation.

2. Repeat 1 for $C = 260\,\mu F$.

3. How will the results change if the diode on voltage is $0.7\,V$?