ME333
HW for Class 14

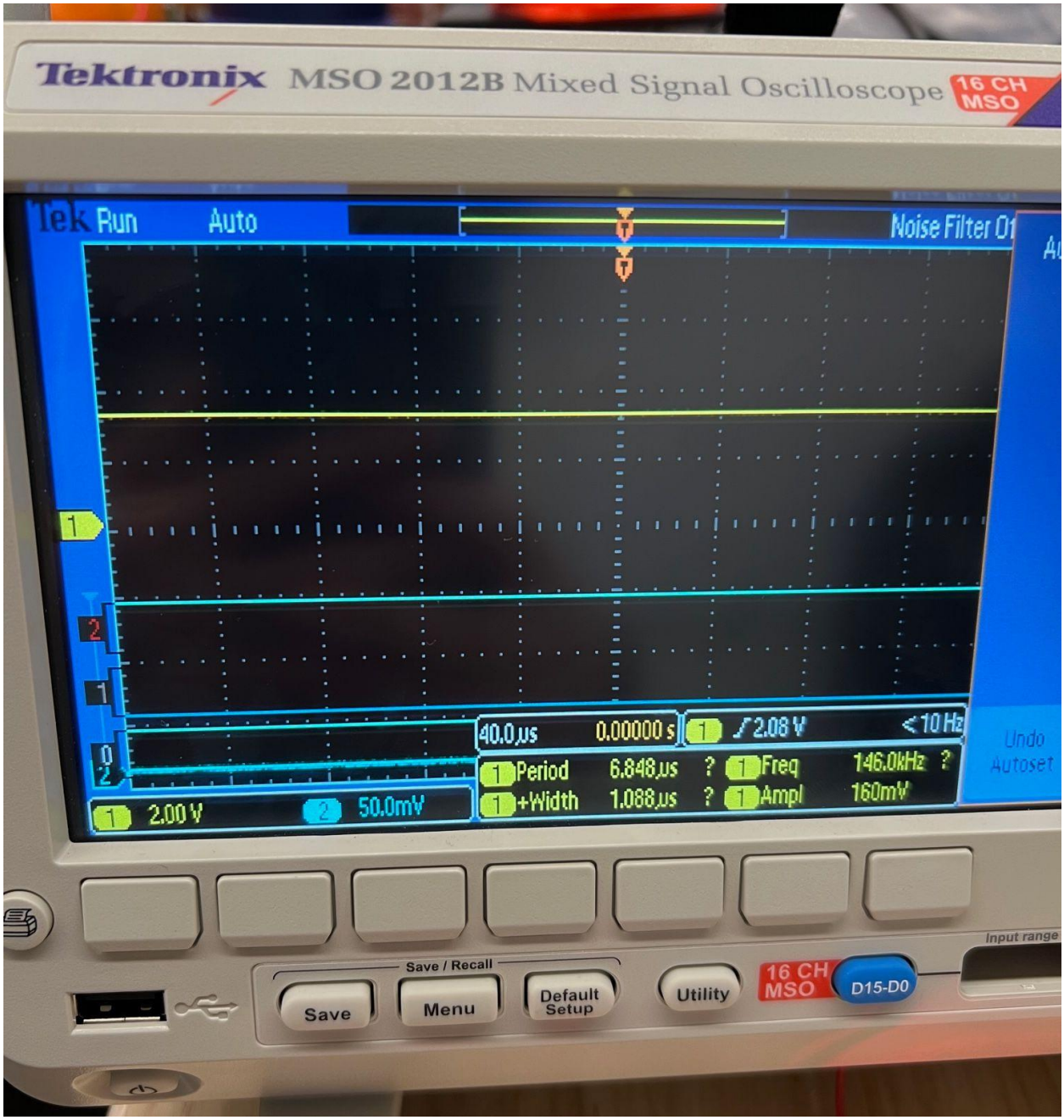
<u>Chapter 24</u>
24.1.2
I chose R = 10k ohms.

24.2.1
PWM = 20,000 Hz → period = 50,000 ns
Period = (PR3 + 1) * N * 20.833 ns
50,000 ns = (PR3 + 1) * 1 * 20.833 ns
PR3 = 2399 ns

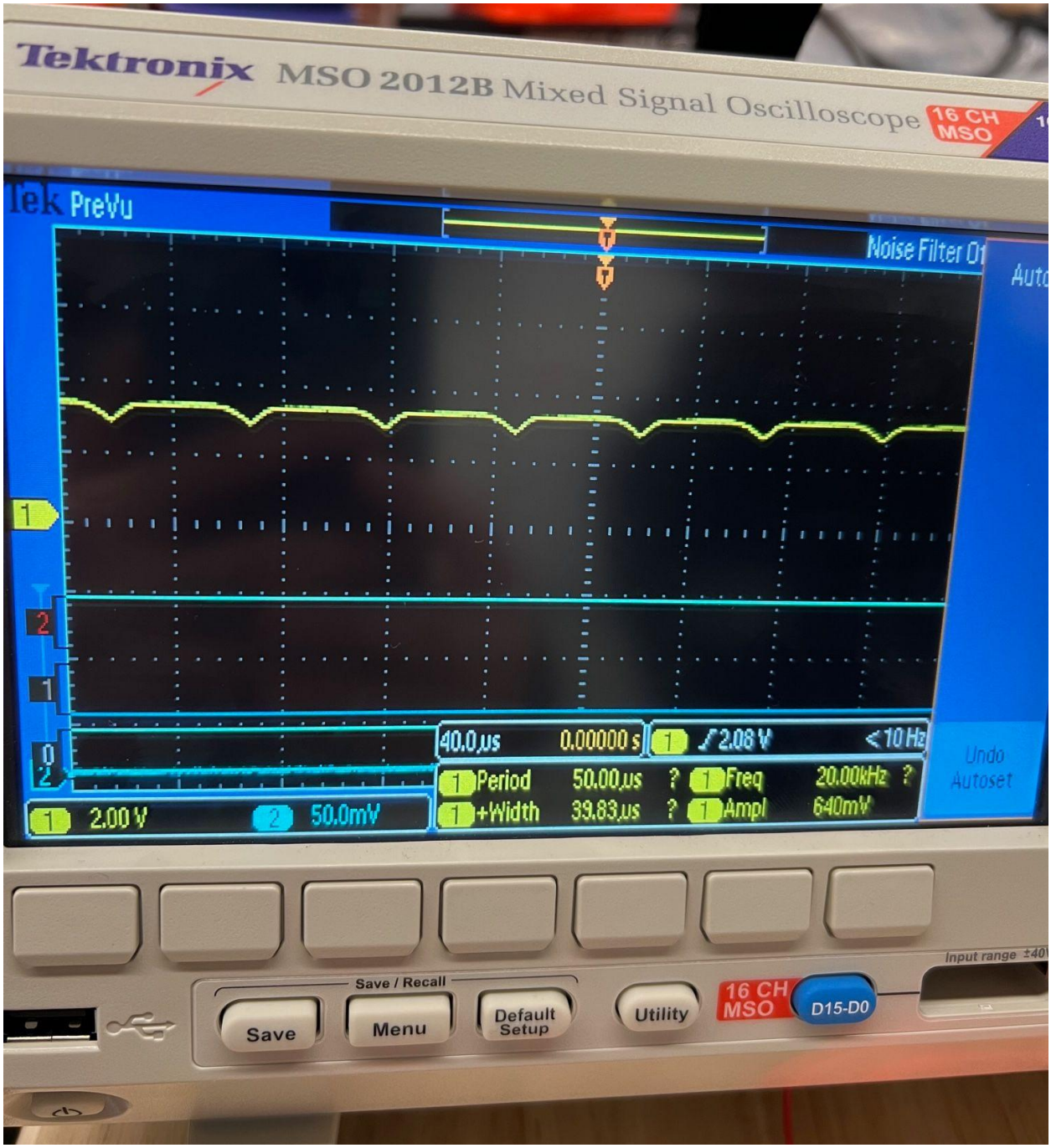
24.2.2
OC_PWM.c attached.

a. OC1 waveform. This matches my expectations of seeing a modulating voltage with a high of about 3.3V.

b. Sensor voltage V_{out} = ~3.3V

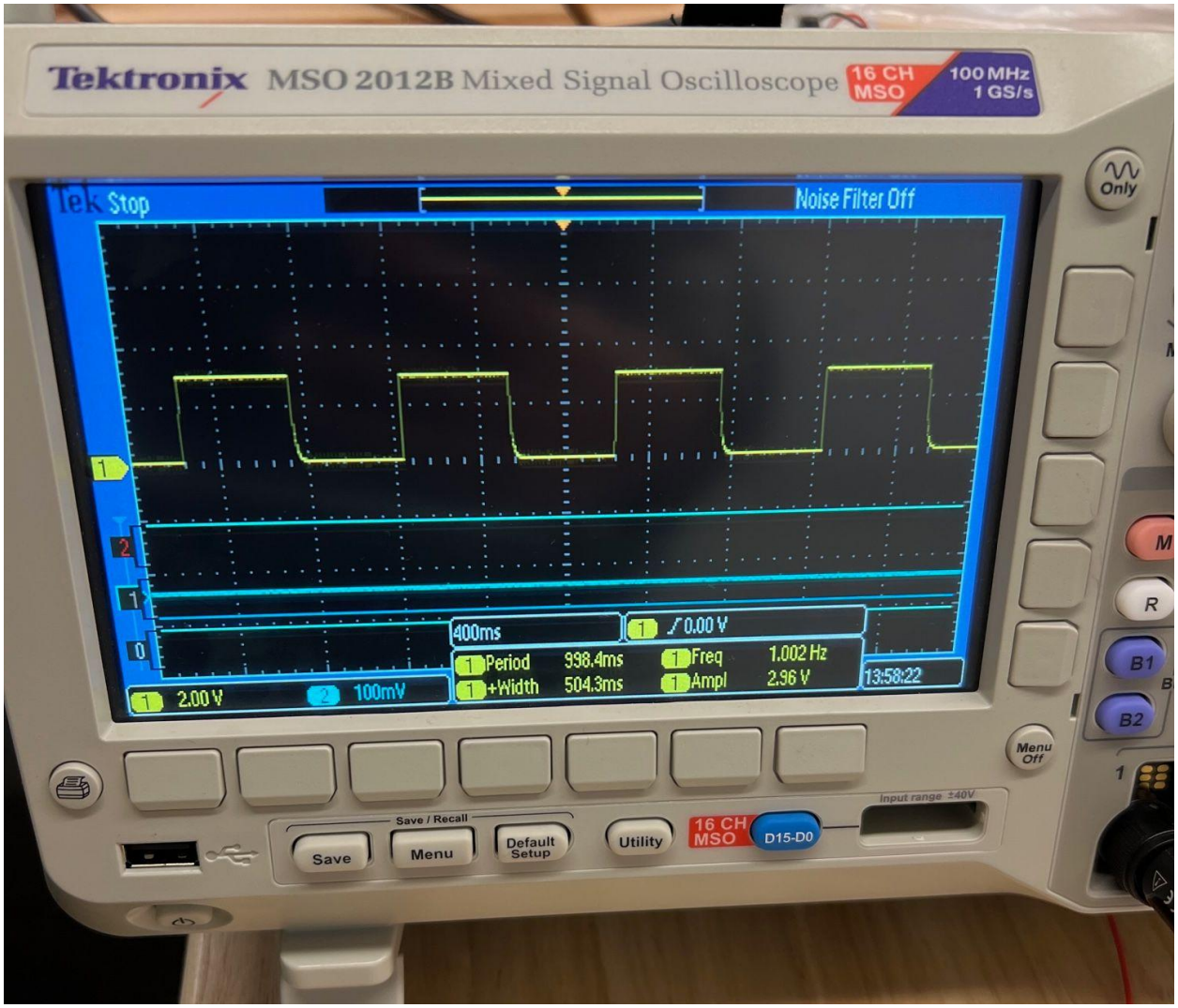


c. Difference w/out capacitor



After removing the 1 uF capacitor, V_{out} is less smooth.

24.3.1



24.3.2

PWM_Waveform.c attached.