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MATRIC NUMBER: 17/ENG02/040
DEPARTMENT: COMPUTER ENGINEERING
COURSE: ENG342

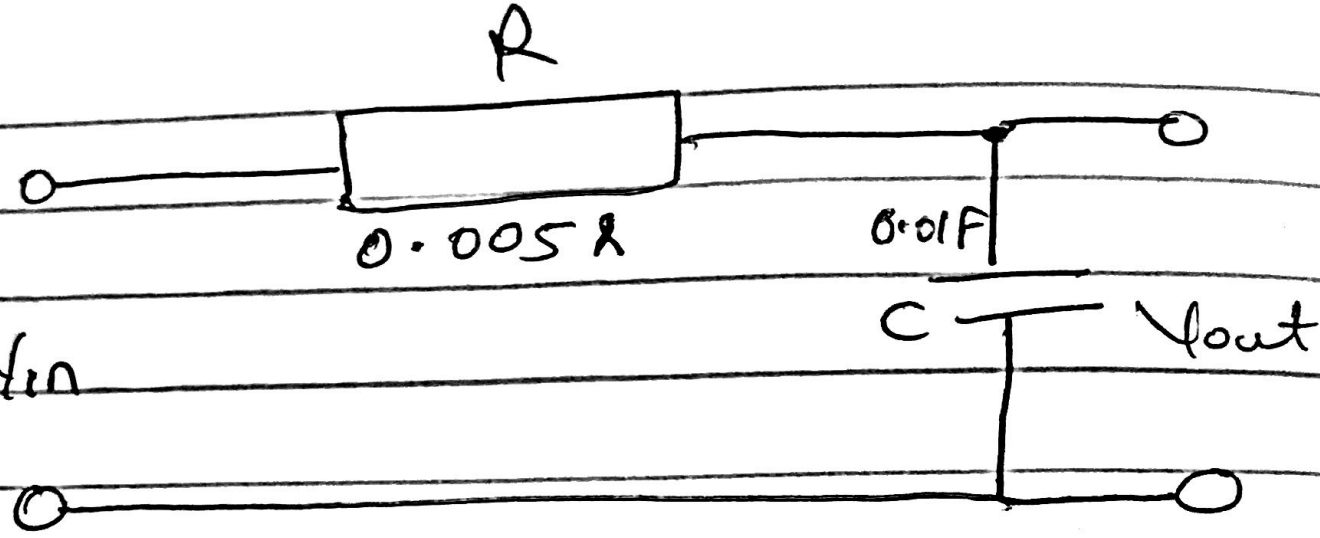
1-Radio communications: Filters enable radio receivers to only "see" the desired signal while rejecting all other signals (assuming that the other signals have different frequency content).

2-DC power supplies: Filters are used to eliminate undesired high frequencies (i.e., noise) that are present on AC input lines. Additionally, filters are used on a power supply's output to reduce ripple.

3-Audio electronics: A crossover network is a network of filters used to channel low-frequency audio to woofers, mid-range frequencies to midrange speakers, and high-frequency sounds to tweeters.

4-Analog-to-digital conversion: Filters are placed in front of an ADC input to minimize aliasing.

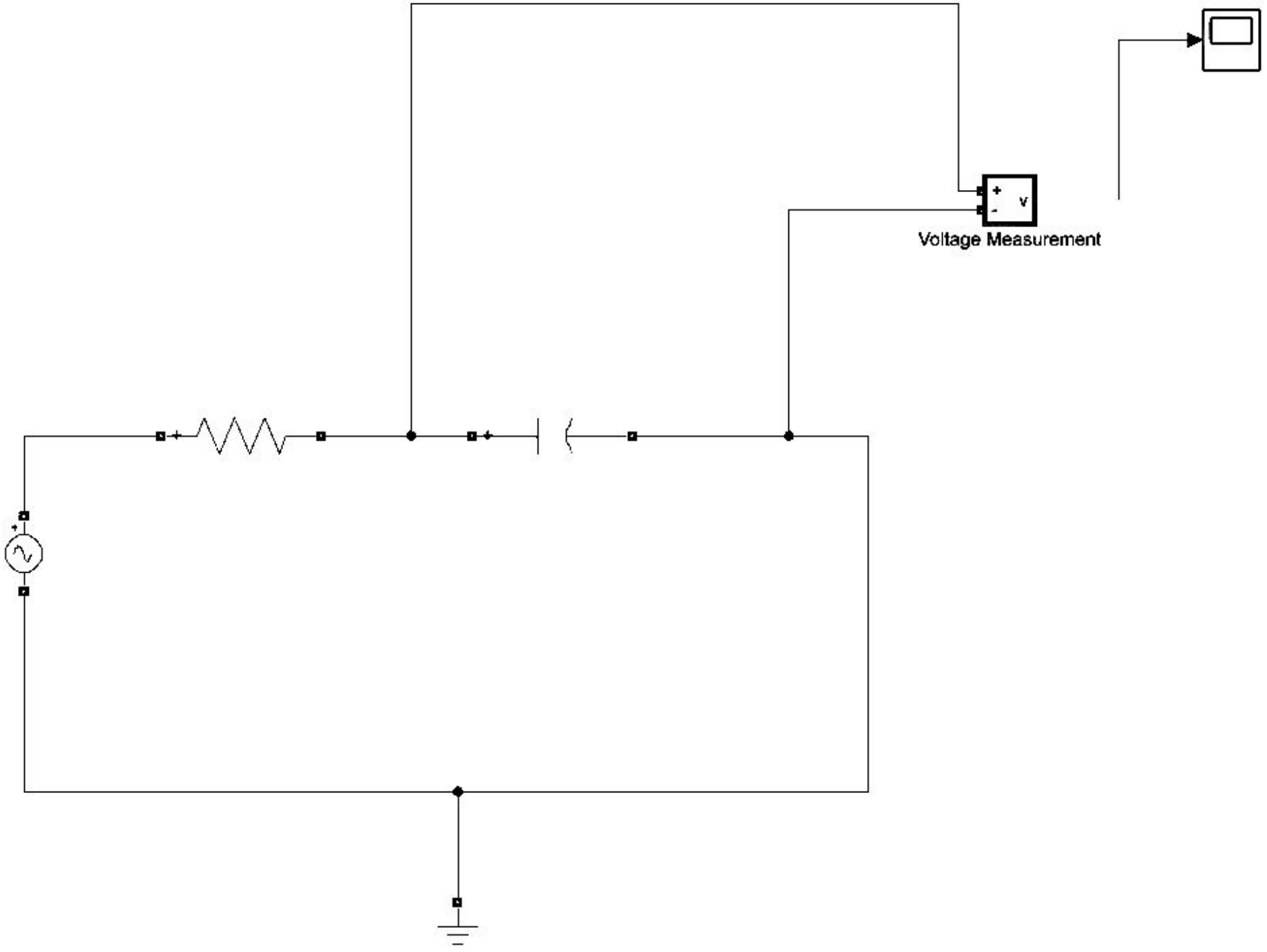
B)

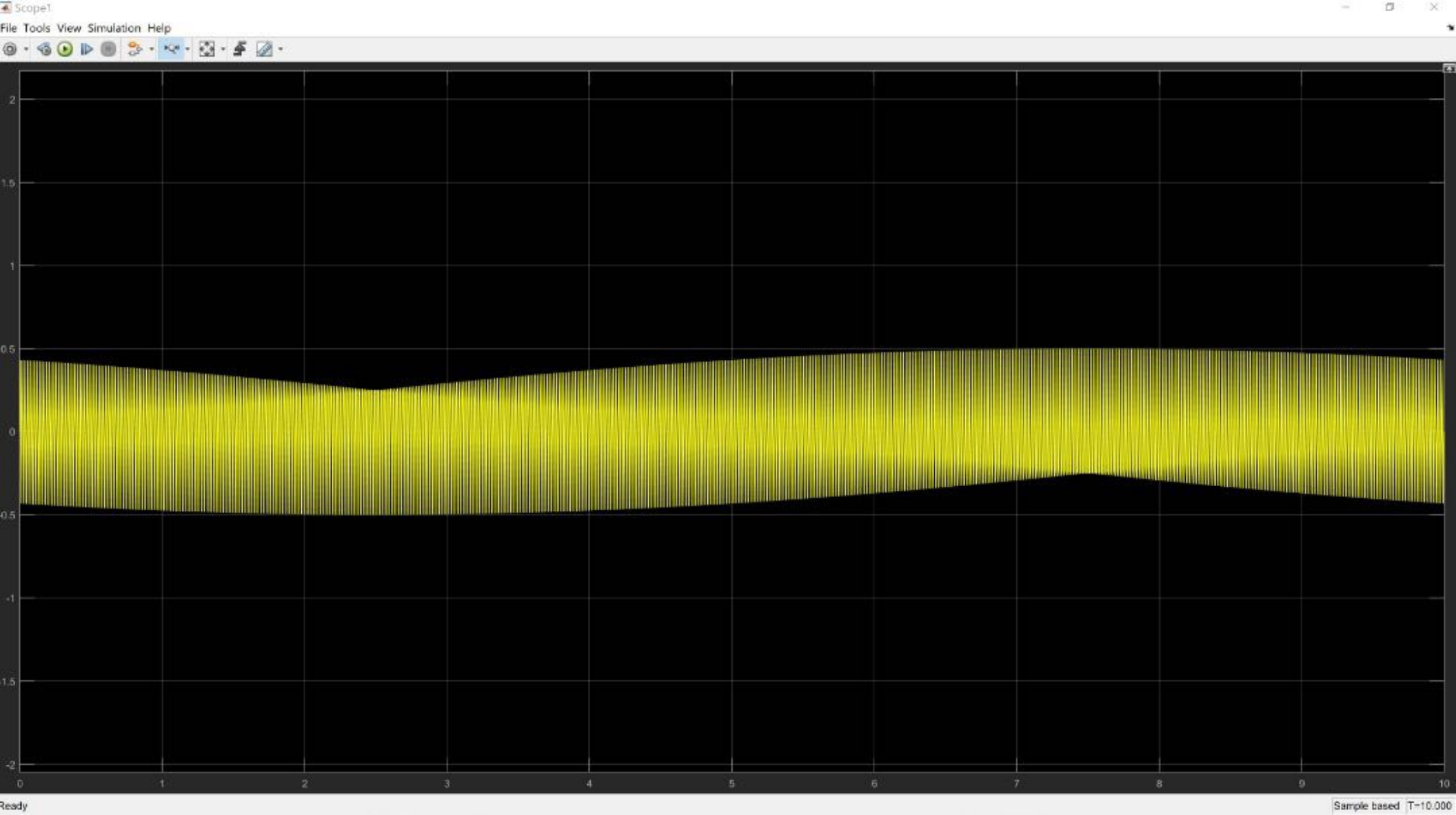


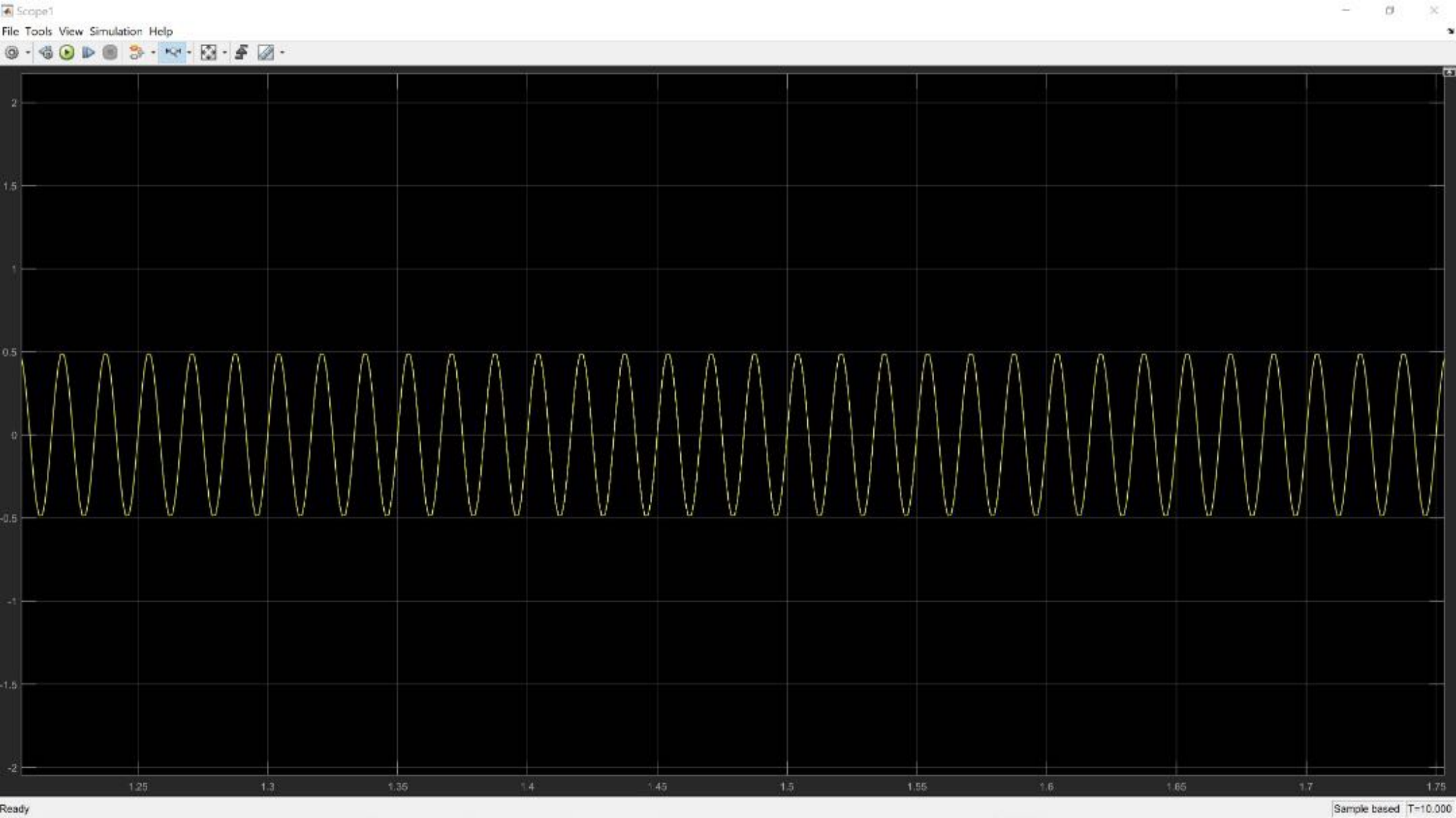
$$f_c = \frac{1}{2\pi RC}$$

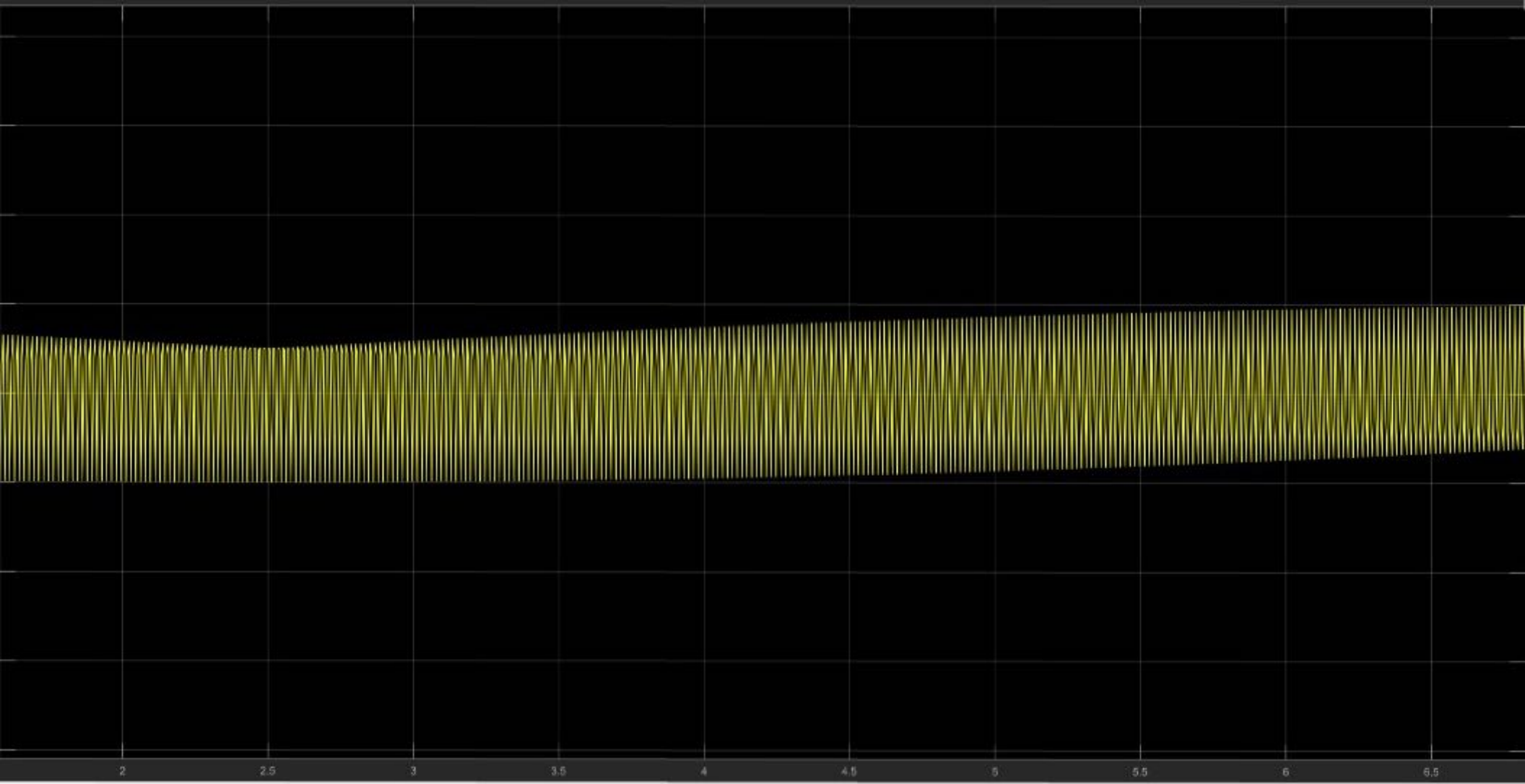
$$= \frac{1}{2 \times \pi \times 0.005 \times 0.01}$$

Cut off frequency = 3183.099 Hz


+
v
-
Voltage Measurement


Scope1
File Tools View Simulation Help
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
0
1
2
3
4
5
6
7
8
9
10
Ready
Sample based
T=10.000


Scope1
File Tools View Simulation Help
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
1.25
1.3
1.35
1.4
1.45
1.5
1.55
1.6
1.65
1.7
1.75
Ready
Sample based
T=10.000


2
2.5
3
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4
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5.5
6
6.5