```
R1=1e3;R2=R1;C1=1e-6;% the circuit parameters
f=1e3;% the frequency in Hz for the input sinewave
T=1/f; % the period of the inpus sinewave in sec.
w=2*pi*f; % the frequency in [rad/sec];
t=0:T/50:12*T; % simulation time basis STRONGLY! connected to T
H=tf(-R2/R1,[R2*C1 1]); % the transfer function
u=sin(w*t); % the input sinewave, or generally the input signal
lsim(H,u,t);% linear simulation of the response
```

**Linear Simulation Results**
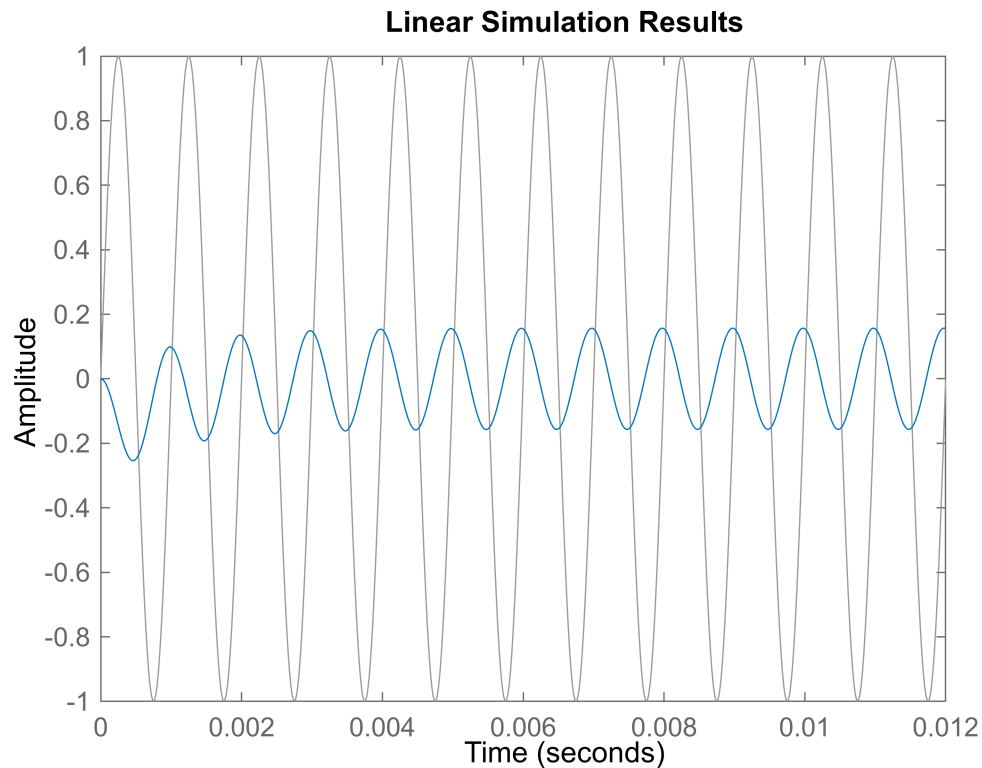


```
y=lsim(H,u,t); % memorize the output signal in y variable
max_amplitude = max(y) % maximum aplitude the y signal has
```

```
max_amplitude = 0.1569
```

```
plot(t,u,'r',t,y,'b');
legend('Input signal','Output signal');
title(['Sinewave response of the FOE: ',num2str(max_amplitude)]);
grid;shg
```

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Sinewave response of the FOE: 0.15689