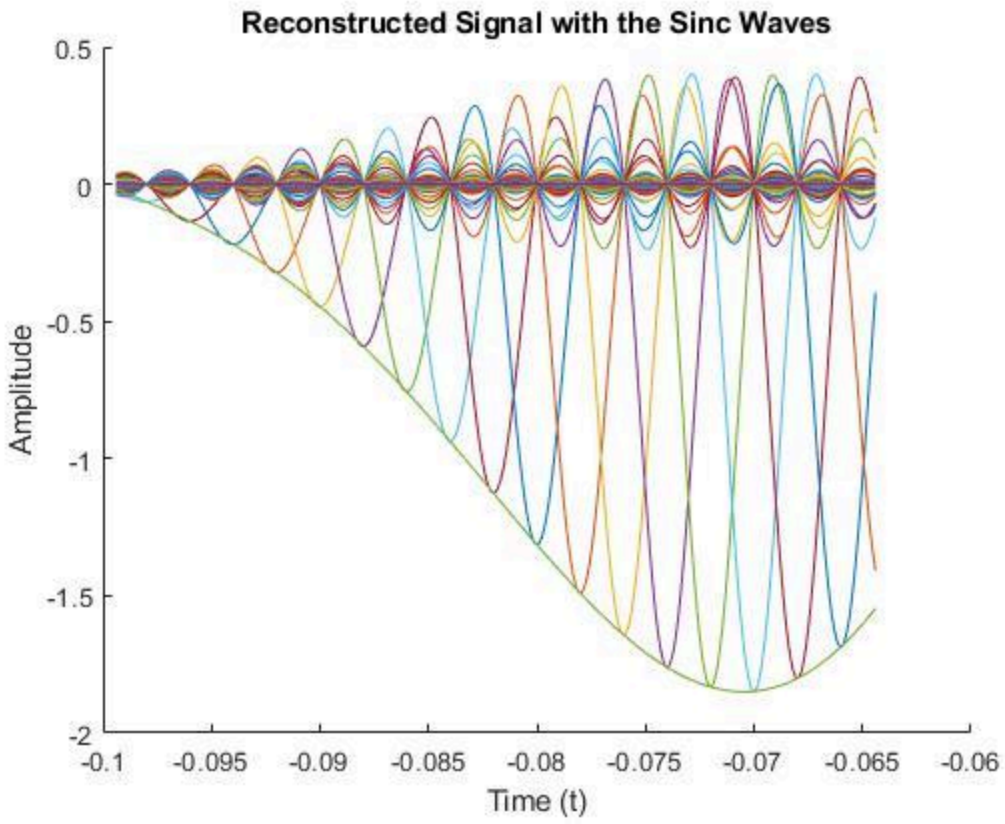
ECE 316 Project #1 Question #4

```
Ts = 1/500;
Tc = 1/10000;
tmax = 0.5;
tmin = -0.5;
start = 4007;
tsum = tmax-tmin;
t = (tmin:Tc:tmax);
t1 = (tmin:Ts:tmax);
SampledSignal = sin(40*pi*t1)-sin(20*pi*t1)+sin(30*pi*t1);
%plot(SampledSignal);
ReconstructedSignal = zeros(1,10001);
Sincs = zeros(1,(tsum/Tc)+1);
plottedTime = t(start:350+start);
%Equation to Reconstruct Signal
for i = 1:1:1/Ts+1
    %Calculates the Sinc Signals for different i values
    SINC = SampledSignal(i)*sinc((1/Ts)*(t-(i-((0.5/Ts)+1))/(1/Ts)));
    ReconstructedSignal = ReconstructedSignal + SINC;
    %Takes a 35 milli-second segment of the Sinc Waves
    plottedSINC = (SINC(start:350+start));
    figure(1)
    hold on;
    %Plots the Sinc Waves for all the i values
    plot(plottedTime,plottedSINC);
    %plot(SINC);
end
%Plots the segment of the Reconstructed Wave
    %Takes a 35 milli-second segment of the Reconstructed Wave
    plottedReconstructedSignal = ReconstructedSignal(start:350+start);
    %plot(ReconstructedSignal);
    plot(plottedTime,plottedReconstructedSignal);
    hold off;
    xlabel("Time (t)");
    ylabel("Amplitude");
    title("Reconstructed Signal with the Sinc Waves");
```



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