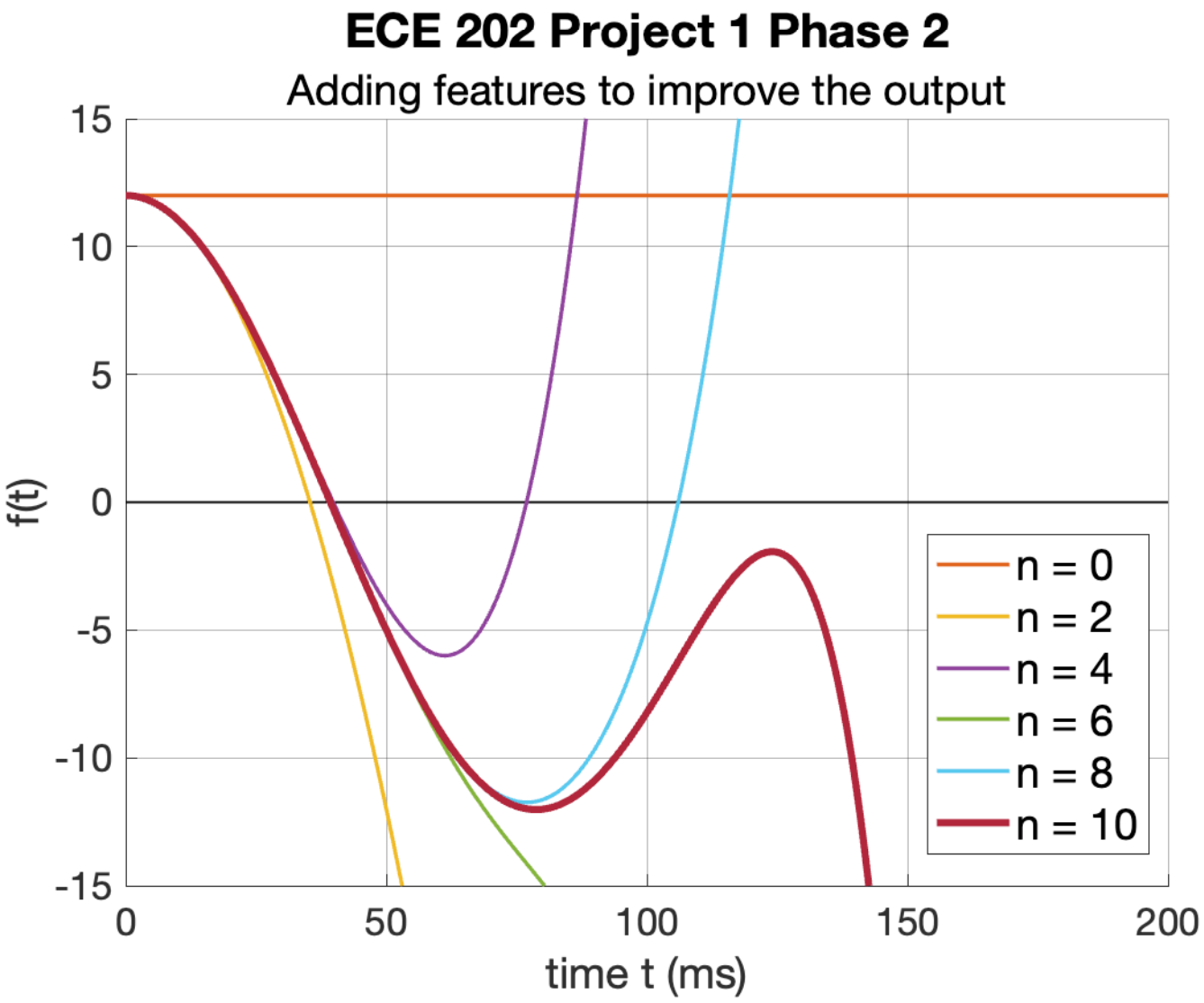
```
% Kavya Manchanda
% 11/1/2022
% ECE 202: Project 1 - Power Expansion Series: Phase 2
% Adding features to improve readability and output

clear; clf;
format shortG;

tmin = 0;
tmax = 0.2; % in s
N = 400;      % intervals

t = linspace(tmin, tmax, N+1);  % time in s
tms = t.*1000;                  % time in ms
n = 0:2:10;  % number of terms

% The angular frequency in rad/s
an = (12.*(-1).^(n./2).*40.^n)./factorial(n);

table(n.',an.','VariableNames',{'n', 'aₙ'})

f1 = an(1)*t.^n(1);      % first sum (ie. first term) in the power series
f2 = f1 + an(2)*t.^n(2); % sum of first two terms
f3 = f2 + an(3)*t.^n(3); % sum of first three terms
f4 = f3 + an(4)*t.^n(4); % sum of first four terms
f5 = f4 + an(5)*t.^n(5); % sum of first five terms
f6 = f5 + an(6)*t.^n(6); % sum of first six terms

%----- plotting the graph and its attributes -----
hold on

plot([0,200],[0,0], 'k', 'LineWidth', 1);
p1 = plot(tms,f1,tms,f2,tms,f3,tms,f4,tms,f5,'LineWidth',1.6);
p2 = plot(tms,f6,'LineWidth',3);
legend([p1;p2],"n = " + n,"FontSize",18,"Location","best")

ax = gca;
ax.GridAlpha = 0.4;
ax.FontSize = 16;
xlabel('time t (ms)','FontSize',18);
ylabel('f(t)','FontSize',18)
ylim([-15,15])
title("ECE 202 Project 1 Phase 2","FontSize",20)
subtitle("Adding features to improve the output")

grid on
hold off
```

```
>> project1phase2

ans =

  6×2 table

    n          a_n
    __    ___________

     0              12
     2           -9600
     4         1.28e+06
     6    -6.8267e+07
     8     1.9505e+09
    10    -3.4675e+10

>>
```


ECE 202 Project 1 Phase 2
Adding features to improve the output
15
10
5
0
-5
-10
-15
f(t)
0
50
100
150
200
time t (ms)
n = 0
n = 2
n = 4
n = 6
n = 8
n = 10