Experiment 2

>> **MATLAB Code**

```
%Variables
syms x;

%Plotting Taylor series expansion upto degree 10
taylor_exp = taylor(sin(x),x,1,'order',11)
taylor_plot = ezplot(x,t)
set(taylor_plot,'color','r');
grid;
hold on;

%Plotting sine function
y = sin(x);
sine_plot = ezplot(x,y)
set(sine_plot,'color','b')
hold off;

%Labeling and giving titles
title('Taylor series');
legend('taylor series','sin(x)');
xlabel('x-axis');
ylabel('y-axis');
```

>> **Command Window**

```
taylor_exp =

sin(1) - (sin(1)*(x - 1)^2)/2 + (sin(1)*(x - 1)^4)/24 - (sin(1)*(x - 1)^6)/720 + (sin ↙
(1)*(x - 1)^8)/40320 - (sin(1)*(x - 1)^10)/3628800 + cos(1)*(x - 1) - (cos(1)*(x - 1) ↙
^3)/6 + (cos(1)*(x - 1)^5)/120 - (cos(1)*(x - 1)^7)/5040 + (cos(1)*(x - 1)^9)/362880


taylor_plot =

  Line with properties:

              Color: [0 0.4470 0.7410]
          LineStyle: '-'
          LineWidth: 0.5000
             Marker: 'none'
         MarkerSize: 6
    MarkerFaceColor: 'none'
              XData: [1×300 double]
              YData: [1×300 double]
              ZData: [1×0 double]

  Show all properties


sine_plot =

  Line with properties:

              Color: [0.8500 0.3250 0.0980]
          LineStyle: '-'
          LineWidth: 0.5000
```

```
              Marker: 'none'
          MarkerSize: 6
     MarkerFaceColor: 'none'
               XData: [1×300 double]
               YData: [1×300 double]
               ZData: [1×0 double]

   Show all properties

>>
```

>> **Graph**