Engr 123
Notes on using the *Chart* tool

The *chart* tool in the forms toolbox allows you to plot a variety of charts and set up colors, titles, legends, etc.

To use the chart tool create a forms project in C#. You will find the chart tool in the toolbox under the *Data* heading. Drag the chart tool to your form and size it to the proper size for your plot. Once the chart tool is in place go the *Properties* menu and look for *Titles*. To the right of the *Titles* item you will see a box labeled Collection … Click on the box with the three dots and remove any existing titles from the collection. Do the same for *Series*, *Legends*, and *Chart areas*. Give your chart a name. In the following example the chart is named *chtSin*.

You will need to add the following *using* statement to your code at the top:

```
using System.Windows.Forms.DataVisualization.Charting;
```

The example code on the following page shows how to use the *chart* tool to do a line plot of a sine and cosine on the same graph in two different colors. Once you have created a line chart type you need only add the x and y value in pairs to the series using the Points.AddXY() function like this:

```
sinSeries.Points.AddXY(t, y);
```

This particular example plots a sine and cosine wave from 0 to 4π.

```
private void btnPlot_Click(object sender, EventArgs e)
  {double t, y, tIncr;
     chtSin.ChartAreas.Add("Default");
     // Add a series with some data points.
     Series sinSeries = new Series();
     sinSeries.ChartType = SeriesChartType.Line;
     tIncr = 4*Math.PI/500;
     for (t=0;t<4*Math.PI;t+=tIncr)
        {y = Math.Sin(2*Math.PI*t);
         sinSeries.Points.AddXY(t, y);
        }
     Series cosSeries = new Series();
     cosSeries.ChartType = SeriesChartType.Line;
     tIncr = 4*Math.PI/500;
     for (t=0;t<4*Math.PI;t+=tIncr)
        {y = Math.Cos(2*Math.PI*t);
         cosSeries.Points.AddXY(t, y);
        }
     chtSin.Series.Add(sinSeries);
     chtSin.Series[0].Color = Color.Black;
     chtSin.Series.Add(cosSeries);
     chtSin.Series[1].Color = Color.Red;
     chtSin.ChartAreas[0].AxisX.Title = "Time";
     chtSin.ChartAreas[0].AxisX.LabelStyle.Format = "{0.00}";
     chtSin.ChartAreas[0].AxisY.Title = "Volts";
     chtSin.ChartAreas[0].AxisY.LabelStyle.Format = "{0.00}";
    }
```