ME 503 Technical Writing
Practice Sheet MATLAB

Instructions:

- Use **Times New Roman** as a font style in Y-axis labeling with font size of 14 pt.
- Use ***Latex interpreter*** in X-axis with font size of 16 pt.
- Legend should be **Times New Roman, bold and 14 pt.**
- All the fonts in the axis should be **black and bold**.
- Box Styling (**Border**) Line width as **1.5 pt**.
- Use the line color specifically in the wavelength of dark **blue**, **red, Magenta**. Don't use the color wavelength in the range of green and yellow. Use **1 pt. as line width**.
- Save the image at **600 dpi in TIFF format and paste the same in word file.**
- **Copy the vector image and paste in word file (.doc).**
- Copy the MATLAB code and paste in word file (.doc).
- Use major tick marks at data point.
- Use "Property inspector and Property editor" in view command to edit the image.
- Enter title of your graph as your Name as given in example figure.
- Include legend for all the figure as shown in example figure.
- Use excel to calculate the average and standard deviation.
- **Submit your .m files, .fig files and .doc file in MS Teams**
- **Name your .doc file with your Roll number_MATLAB**

Question 1: Write a single MATLAB program for creating subplot of the following

a. The vector 'X' varies from 1 to 9, with step size 1; Consider integers in **your roll number** (e.g., 213603111) as 'Y1' vector (e.g., 2,1,3,6,0,3,1,1,1). Increase the value of each integer by 1 and construct second vector 'Y2' (e.g., 3,2,4,7,1,4,2,2,2) and repeat the step once again to construct third vector 'Y3' (e.g., 4,3,5,8,2,5,3,3,3). Use the line type and marker for the vector as follows: Solid (-) type for vector 'Y1' with **blue** colour, dashed (--) type for vector 'Y2' with **red** colour, marker square (6 pt) for 'Y3' filled with **Magenta** colour. Represent maximum value in the plot using circle and text as shown in Figure 1. **subplot (1,3,1)→ use this function.**

b. Calculate the average of vectors Y1, Y2, Y3 for each value in 'X' vector. Plot the average value of 'X' versus 'Yavg' graph using line (black) connecting discrete data and Use the red-faced square marker (8 pt) to represent the data points. ***Show the error bar at the data points*** (error cap should be in back colour). **Subplot (1,3,2) → use this function.** Use curve fitting toolbox to fix this data with polynomial curve of 2nd order and display the equation and corresponding R^2 value using text box (Note: Don't have to show the polynomial curve in the plot, only equation is mandatory)

c. Consider the average vector 'Yavg' calculated in 1.b and plot the bar chart with error bar. Use **blue color for bars** and **black color for error bar with 1 pt**. Don't include minor tick marks. *Special Instructions:* write the syntax with, bar(x,y) command along with errobar(x,y,err) with hold on and hold off function to plot. Line style should be none for errorbar data. **Subplot (1,3,3) → use this function**

Special Instructions: The x-label and y-label names as mentioned in figure 1. Write your roll number, Arrow mark, Equation as mentioned in figure 1.

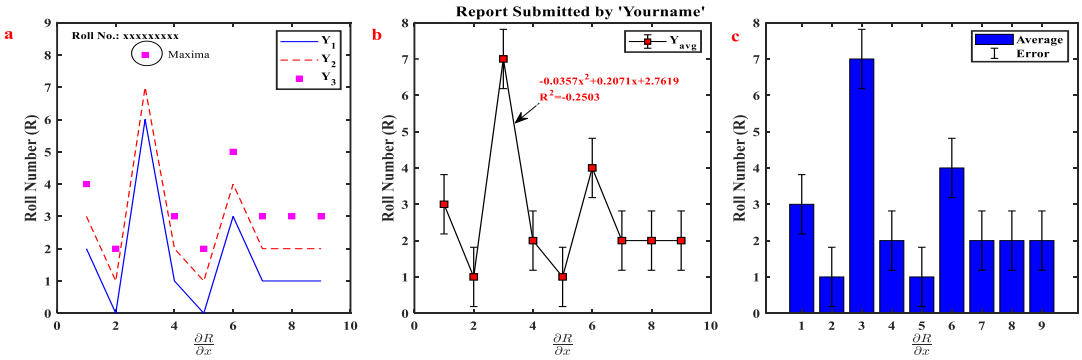

Figure 1: Example figure.