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Communicating: Document Graphics

Chapter Overview

The adage "a picture is worth a thousand words" is very true in engineering communication. Graphics, when used appropriately in documents or as visual aid to oral presentations, can help you display complex data, explain the relationships and meanings among the data, and convey design, processes, and ideas. Graphics can also be helpful for gathering information and generating ideas.

In engineering documents, graphics are designed to support and reinforce the text and can help improve the overall readability of the document. Today's readers also expect graphics to accompany texts in many types of engineering documents, such as reports and proposals, and it is important to meet this expectation. However, graphics do not replace text. It is more powerful to combine these two modes of information delivery, and some people may prefer texts to graphics.

The textbook gives a number of recommendations on how to use graphics in texts. These includes: [1] refer to all graphics in the text, [2] locate the graphic close to the place in the text where they are mentioned, [3] position graphics vertically when possible, [4] omit unnecessary details, [5] make the graphics clear and self-explanatory, and [6] provide title, labels, notes, and legends. If you are including borrowed information in your document, including both written and graphics, you are obligated to provide references to the source materials.

Depending on the purpose of your communication and the nature of your data, you will make use of many types of graphics, including but not limited to tables, x-y graphs, line graphs, bar graphs, pie charts, flow charts, and Gantt charts. It's important to familiarize yourself with their uses.

Tables are the least "visual" of the commonly used graphical types. In a table, data are listed in columns and rows, denoted by column and row headings. Tables are useful when there is a need

for providing raw data in numerical format, and can be incorporated in your document either on the page where it is first referenced, or provided as an attachment or an appendix.

X-y graphs are commonly used to show the relationship between two variables. In a x-y graph, the independent variable is plotted on the x-axis, and the dependent various on the y-axis. Line charts are similar to x-y graphs but are focused on showing the changes in the value of a single variable. Data in x-y graphs and line charts can be connected with lines to make the trends in the data more visible; different lines representing different data sets can be distinguished with colour, shading, and line style.

Bar charts are often used when comparison between two or several data points are of importance, because it is easy to visibly see the difference between the heights of the bars representing different data points. Bar charts can be designed to contain a lot of information, but they can become confusing when the number of bars becomes too high.

Pie charts are a visually appealing graphical type that focus on showing the parts as a percentage of the whole. Consider using colours and shadings to denote the different parts and include a legend key to make reading easier. Pie charts are best used to illustrate "big picture" points, such as "there's much more A than B." If precise comparison is needed, use a different graphical type or include the percentage information in text format on the pie chart.

Flow charts are used for showing a process. Typically, boxes representing different activities or systems are stringed together with lines and arrows denoting connection and process flow. Lastly, Gantt charts are used to show the timeline and the deadlines of a project for project management purposes.

Learning Objectives

In this chapter, you will:

- learn the importance of graphics;
- learn to use graphics in texts;
- learn to about tables; and
- learn to about x-y graphs, line graphs, bar graphs, pie charts, flow charts, and Gantt charts.