



## Visualization Chapter 15

# Technical Graphics

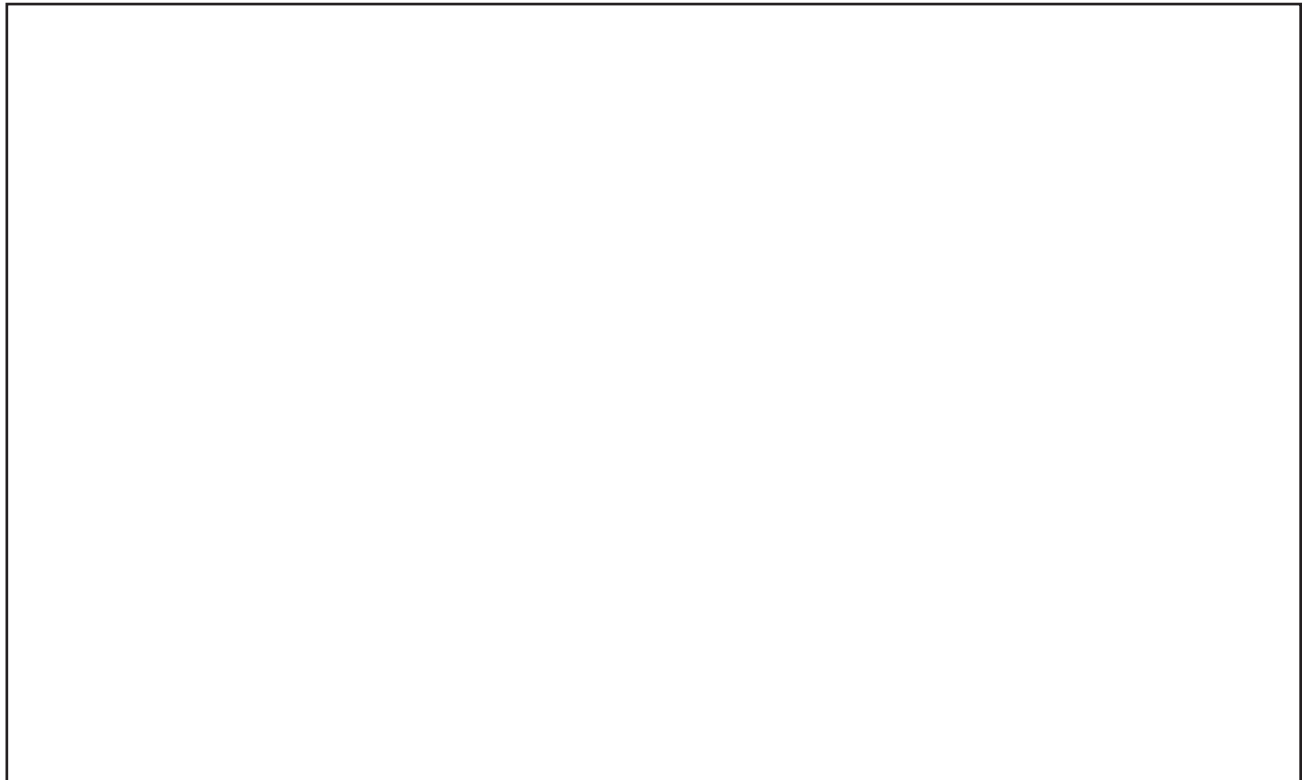
The visualization skills you have been practicing (making charts and graphs that represent data sets, using mental pictures to help you create 2D and 3D sketches, imagining what objects look like in different orientations in space, and estimating size and scale) are skills that make a good engineer. These skills are also applicable to related fields including mathematics, biology, chemistry, physics, computer graphics, and industrial design.

The technical graphics that are created by people in these fields can be implemented in many situations beyond production drawings. Artistic renderings and animations can be used to show customers what a final project will look like. They can also be used in advertising and sales. 3D models with mass properties can be used in virtual testing situations, such as determining the functionality of an artificial hip joint or the aerodynamics of an airplane wing.

### Exercises

In the exercises you will be using many of the visualization skills you have practiced so far to sketch missing views and plan the creation of 3D models.

**Exercise 1** Without using grid paper, sketch the missing view of objects as assigned by your instructor. Pay attention to size and proportion, since you do not have grid paper or dimensions to guide you. Do not forget that the views must line up top to bottom and side to side.





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(A) Completion Test – Top Views: The Front and Side Views Below are Complete. Draw the Top Views.		
1	2	3
(B) Completion Test – Side Views: The Top and Front Views of the Objects Below are Complete. Draw the Side Views.		
4	5	6
(C) Completion Test – Front Views: The Top and Side Views of the Objects Below are Complete. Draw the Front Views.		
7	8	9
(D) Completion Test – Missing Views: One of the Views of Each of the Objects is Missing. Draw the Missing Views.		
10	11	12

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**Exercise 2** After sketching the missing view of a given object, use the completed views to help you sketch a 3D isometric view of the same object.

**Exercise 3** When you have completed your 3D sketch, write down the steps you would take to create the object with 3D modeling software.

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