

4

Deflection and Stiffness

Chapter Outline

- 4-1** Spring Rates **148**
- 4-2** Tension, Compression, and Torsion **149**
- 4-3** Deflection Due to Bending **150**
- 4-4** Beam Deflection Methods **152**
- 4-5** Beam Deflections by Superposition **153**
- 4-6** Beam Deflections by Singularity Functions **156**
- 4-7** Strain Energy **162**
- 4-8** Castigliano's Theorem **164**
- 4-9** Deflection of Curved Members **169**
- 4-10** Statically Indeterminate Problems **175**
- 4-11** Compression Members—General **181**
- 4-12** Long Columns with Central Loading **181**
- 4-13** Intermediate-Length Columns with Central Loading **184**
- 4-14** Columns with Eccentric Loading **184**
- 4-15** Struts or Short Compression Members **188**
- 4-16** Elastic Stability **190**
- 4-17** Shock and Impact **191**