

8 Energy and Virtual Work

Thus far in this book, problems have been solved by using a combination of force-equilibrium and kinematics. Here, another approach is explored, in which expressions for work and energy are derived and utilised.

Two important topics are discussed in this Chapter. The first is Energy Methods, which are techniques for solving problems involving elastic materials. Some of these methods, for example Castigliano's second theorem, apply only to linear elastic materials, but most apply to generally non-linear elastic materials.

The second topic is that of Virtual Work. The virtual work approach leads to powerful methods which can be used to solve static or dynamic problems involving any material model.

