

The following rod model has loads acting on rigid connectors C and D, as shown.

- Draw a free body diagram of the complete rod (FBD).
- Write down the elemental stiffnesses k_1 , k_2 and k_3 for the rod.
- Write down the strain energy for the complete rod.
- Write down the force potential energy for the loads acting on the rod.
- Write down the total potential energy for the structure.
- Apply the principle of minimum potential energy to set up the algebraic equations for the nodal displacements in the rod.
- Solve for the displacements of connectors C and D.

