- A cantilever beam having a square cross-section of edge length equal to 0.2 m and length 2m made of isotropic material with E = 75 GPa and ν = 0.33. The structure is loaded by a vertical force equal to −50 N at the centre of the free tip (0,L,0) in the negative Z-direction. (Taken form the book - Finite Element Analysis of Structures through Unified Formulation by Professor carrera)

- Lagrange polynomials(L4) have been chosen for the expansion across the cross section.

- A B3(quadratic) element has been chosen for the axis of the beam (Y axis).

- Two point gauss quadrtaure has been chosen for both the beam axis(Y) and the cross section(X,Z)

- So Each B3 element will have 12 nodes with 36 displacement variables.