

Discretization methods for Engineering Assignment 4: Mixed methods and locking

Problem 1. Modify the file `el_elasticity.m` in `matfem` to incorporate selective reduced integration. Hand in:

- a) The code of the modified file.
- b) A patch test with the new formulation (with Matlab's plots), showing that your formulation reproduces exactly linear polynomials.
- c) An example showing that your formulation does not lock. Use a distorted mesh of quadrilaterals and $\nu \rightarrow 0.5$ to show that the standard formulation gives very small displacements, as compared with the reduced integration one, when subjected to a point force.