



Numerics of Partial Differential Equations – Tutorial 6

Exercise 6.1 [Algorithmic details of the FEM]

We will take a look at some of the algorithmic details of the finite element method (see. LN 8.5), namely:

- Assembly of the local integrals on each cell
- The application of numerical quadrature to 'automate' the assembly
- The use of so called master elements

Exercise 6.2 [Code: 2D Poisson]

We will have a look at a the complete algorithm in its simplest form and corresponding Python code to solve the Poisson Problem in 2D. The code can be found here:

<http://julianroth.org/documentation/fem/>

If there is some time and interest we can also discuss where certain extensions would be inserted, i.e. time stepping, nonlinear solvers, etc.