Lecture Structure

1 Introduction. The idea of FE, FV and FD. The finite element method for one and two spatial dimensions.

2 The theory of the finite element method for linear elliptic boundary value problems of second order.

3 The finite element method for linear parabolic problems. Space-time finite elements.

4 The finite element method for nonlinear elliptic problems.

5 The mixed finite element method. The mixed hybrid finite element method.

6 Domain decomposition methods.

I will mainly use the book [14].

References


