Seminarankündigung Master (Modulnr. 0060)

Polynomial interpolation is Sobolev spaces

Viele Probleme in Technik und Naturwissenschaften führen auf gewöhnliche und partielle Differentialgleichungen (PDE). Die numerische Loesung der entsprechenden PDE's erfolgt dabei meist mit der Finite-Elemente-Methode (FEM). Für die Konvergenzuntersuchungen der FEM spielen dabei Abschätzungen zu Interpolationsfehlern in Sobolevräumen eine wesentliche Rolle.

Im Rahmen des Seminars sollen dabei zwei Zugänge untersucht werden, die Approximation mittels gewichteter Taylor-Polynome sowie der Clement-Interpolator.

Many problems in natural sciences and engineering can be described by means of partial differential equations (PDE's). The FEM is one of the most powerful method in order to solve such PDE's. In order to obtain convergence results, one needs interpolation error estimates in Sobolev spaces.
The aim of this seminar is to investigate two techniques for interpolation error estimates, namely the approximation by means of averaged Taylor polynomials and the Clement interpolant.

Weitere Informationen/ Further informations:

Leader of the seminar: Prof. Dr. Sven Beuchler, Tel 762-19973, room b412.

Date of the seminar: Mo, 10-12 am, room c311.

Literature: Brenner/Scott: The mathematical theory of Finite-Element-Methods
         Clement: Approximation by finite element functions using local approximation.

Preliminaries: obligatory lectures of the Bachelor's programme and numerical methods for partial differential equations

Target audience: students of mathematics (Master)

Registration: by e-Mail to beuchler@ifam.uni-hannover.de until 1.4.19

Language: german or english if required.