MATH 671

APPROXIMATION THEORY II

SPRING 2010-2011

INSTRUCTOR: Alexey Lukashov

PLACE:F-417

TIMETABLE:Thursday, 08.00 - 11.00

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ASSESSMENT:The course will give an overview of basic approximation theory. Especially, approximation by splines and multivariate polynomial interpolation be considered. Main ingredients include foundations of approximation by splines and multivariate polynomial interpolation. As a result,students understand main ideas of multivariate approximation and interpolation by polynomials and splines and can solve problems which appear in applications of physical applied mathematics

PRE-REQUISITIES:Foundations of Real Analysis

PRINCIPAL TEXTBOOK:B.B. Bojanov, H.A. Hakopian, A.A. Sahakian, Spline functions and multivariate interpolations, Kluwer, 1993

PROGRAMME

WEEKS	**SUBJECTS TO BE COVERED**
1 & 2	Lagrange and Hermite interpolation problems, divided differences; The space of splines
3 & 4	B-splines: definition, basis; Further properties of B-splines
5 & 6	Natural spline functions; Multivariate B-splines and truncated powers
7 & 8	Ridge functions; Multivariate spline functions
Will be announced	**Mid-term Exam**
9 & 10	Multivariate divided differences; Mean value interpolation of Lagrange type
11 & 12	Pointwise multivariate interpolation; Polynomial interpolation by traces on manifolds
13 & 14	Special cases (including finite elements interpolations); Review
Will be announced	**Final Examination**