COURSE DETAIL

NUMERICAL ANALYSIS: NUMERICAL APPROXIMATION
Country Sweden
Host Institution Lund University
Program(s) Lund University
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Mathematics
UCEAP Course Number 160
UCEAP Course Suffix
UCEAP Official Title NUMERICAL ANALYSIS: NUMERICAL APPROXIMATION
UCEAP Transcript Title NUMERICAL APPROXMTN
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description
The fundamental problem of approximation theory is to represent a possibly complicated function by simpler, easier to compute functions. In approximation theory it is usually assumed that the values of the function are known. This information is then used to construct an approximant. In numerical computation, information usually comes in a less explicit form. For example, the function may be the solution to a differential equation. Nevertheless, the two subjects of approximation and computation are closely related, and it is impossible to understand fully the possibilities in numerical computation without a good understanding of the elements of constructive approximation. This course gives an overview of basic classical approximation theory, i.e., best and good approximation from a finite family of functions in specific normed linear spaces (such as L1, L2, and C). Minimax approximation and the construction of good approximations (the exchange algorithm) are studied. Also covered are orthogonal polynomials and least squares approximation. The results and techniques from approximation theory and numerical analysis are applied in both the continuous and the discrete cases. The theory is illustrated mainly by considering numerical approximation techniques by polynomials and splines.

Language(s) of Instruction
English

Host Institution Course Number
NUMN19

Host Institution Course Title
NUMERICAL ANALYSIS: NUMERICAL APPROXIMATION

Host Institution Course Details

Host Institution Campus
Science

Host Institution Faculty

Host Institution Degree

Host Institution Department
Mathematics

Course Last Reviewed

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