

ABSTRACT

ANALYSIS OF APPROXIMATION ERROR OF FUNCTIONS BY MINIMUM NORM METHOD IN HILBERT SPACE $C[a, b]$ (STUDI KASUS : FUNGSI POLINOM DAN FUNGSI RASIONAL)

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Usually, approximation of functions used in numerical analysis. Two main reasons for application of approximation of functions are : to give effective approximation of functions, and to simplified complex function. Given a function f , with some or all point are given, we wish to get approximation of spesific function f that can be easier to be analyzed.. For example, we wish to compute

$\int_0^1 e^{-x^2} dx$. Then we approximate its integran by polynomials with n degree (for

large n). Optimization problems, especially good approximation of function that can't get the best solution (for large errors) in real space, it can be solved by mathematics system simplier, by carryng out the problem to abstract space or vector space, especially in Hilbert space $C[a,b]$. The problem known as minimum norm problem in Hilbert Space $C[a,b]$. By minimum norm method we have minimum approximation errors.

Keyword: *Approximation, minimum norm, Hilbert space $C[a,b]$, polynomials, optimal errorl.*