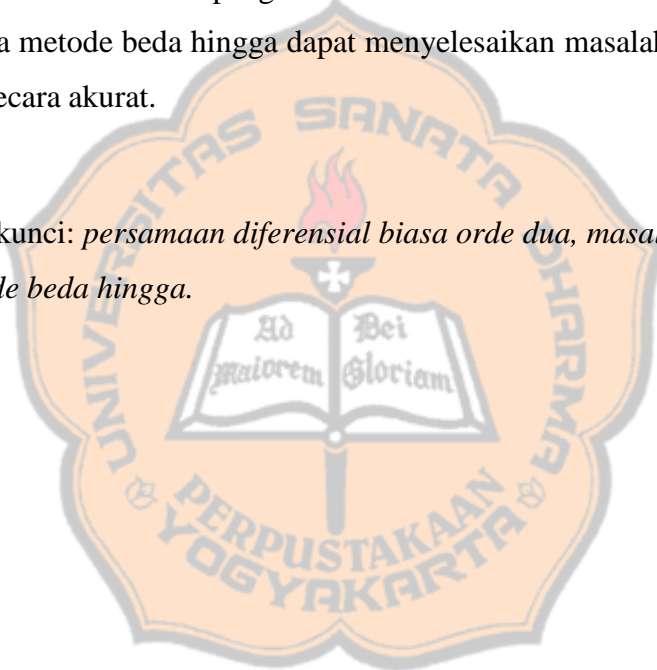# ABSTRAK

Masalah nilai batas banyak muncul dalam bidang teknik, misalnya teknik sipil terkait bentuk dan kekuatan bangunan. Tugas akhir ini membahas masalah nilai batas yang berupa persamaan diferensial biasa orde dua, yang selanjutnya disebut masalah nilai batas orde dua. Masalah tersebut diselesaikan secara numeris menggunakan metode beda hingga. Skema numeris beda hingga dan hasil-hasil perhitungannya disajikan. Dari hasil pengamatan error metode beda hingga, diperoleh bahwa metode beda hingga dapat menyelesaikan masalah nilai batas orde dua secara akurat.

Kata kunci: *persamaan diferensial biasa orde dua, masalah nilai batas, metode beda hingga.*

ABSTRACT

Boundary value problems often arises in the field of engineering, for example, civil engineering related to the shape and strength of buildings. This final project discusses boundary value problems in the forms of second-order ordinary differential equations, hereinafter referred to as second-order boundary value problems. The problems are solved numerically using a finite difference method. The finite difference numerical scheme and the results of its calculations are presented. From the observation of the finite difference method errors, it is found that the finite difference method solves second-order boundary value problems accurately.

Keywords: *Second-order ordinary differential equations, boundary-value problems, finite-difference methods.*