

## INTISARI

### ANALISIS SISTEM PERSAMAAN DIFERENSIAL FRAKSIONAL

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Persamaan diferensial fraksional merupakan persamaan diferensial dengan order bilangan real positif. Pada penelitian ini, dibahas eksistensi dan ketunggalan solusi masalah nilai awal sistem persamaan diferensial fraksional dalam bentuk umum dan Caputo. Selanjutnya dalam bentuk Caputo, eksistensi dan ketunggalan solusi masalah nilai awal sistem persamaan diferensial fraksional bentuk *autonomous* linear diselidiki dengan menggunakan keistimewaan matriks persegi, serta dibahas pula bentuk solusi masalah nilai awal sistem persamaan diferensial fraksional dalam fungsi Mittag-Leffler. Lebih lanjut, diselidiki kestabilan solusi sistem persamaan diferensial fraksional bentuk Caputo.

## **ABSTRACT**

### **ANALYSIS OF A SYSTEM OF FRACTIONAL DIFFERENTIAL EQUATIONS**

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A fractional differential equation is a differential equation whose order is a positive real number. In this thesis, we analyze existence and uniqueness of a solution of an initial value problem for a system of fractional differential equations in general form as well as the Caputo form. In the Caputo form, we investigate existence and uniqueness of a solution of an initial value problem for an autonomous linear system of fractional differential equations by using a square matrix and express the solution in term of Mittag-Leffler function. Further we investigate stability of a solution for a system of fractional differential equations in the Caputo form .