

# Controllability and Stability Results for Fractional Differential Systems of Order $1 < \alpha < 2$



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## Project Description:

Due to its applicability in different fields of technology and science, by doing research in this field one can make significant contributions in a number of important application areas via physical, biological, and engineering sciences. The significance of the project is to extend the present results to the existence and controllability results with available techniques or introduce a new technique for proving the considered system.

The topic of fractional differential equations was initiated in 1695 by Newton and Leibnitz when L'Hospital pointed out the problem of the derivative  $1/2$ . The investigation of derivatives of fractional orders is covered in the area of mathematics known as fractional calculus. Since it has developed into a potent instrument with more exact and effective outcomes in modelling a variety of complex problems in many apparently different and broad areas of science and engineering, fractional calculus has been a tool of many researchers throughout the past centuries. The primary benefit of FDE is that the memory and inherited characteristics of many different objects and activities may be described using its derivatives.

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**Name of the Funding Agency**

Science and Engineering Research  
Board

**Name of the Scheme**

Mathematics Research Impact Centric  
Support (MATRICS)

**Sanctioned Amount (in Rupees)**

Rs. 6,60,000

**Duration of the Project (years)**

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