DEDICATION

To my father ....

Mother ...

Brothers...

Sisters....

To my best friends and my best teachers

ACNKNOLEDGMENT

My gratefully thanked to:

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Abstract:

In this thesis we studied systems of differential equations .Chapter one deal with systems of differential equations of first order by different methods, also we studied the existence and uniqueness of the solutions.

In chapter two we studies solutions of homogeneous and nonhomogeneous linear systems of differential equations (first order) using different methods.

In chapter three deals with Lyapunov stability theory we studied Lyapunov stability and stability in the first approximation.

الخلاصة:

لقد تناولنا فى هذا البحث دراسة أنظمة المعادلات التفاضلية فى الباب الأول تناولنا حلول أنظمة المعادلات التفاضلية من الرتبة الأولى بعدة طرق وكذلك دراسة الوجود والوحدانية لحلول المعادلات.

فى الباب الثانى درسنا الحلول لأنظمة المعادلات التفاضلية الخطية من الرتبة الأولى المتجانسة وغير المتجانسة ذات المتغيرات الثابتة بعدة طرق.

فى الباب الثالث درسنا إست قرار لايبنوف لحلول أنظمة المعادلات الخطية ثم قمنا بدراسة انواع من ن قاط الرجوع وإستخدمنا طريقة دوال لايبنوف لدراسة الإست قرار وكذلك درسنا التقريب الأول للإست قرار.

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