

CHAPTER I

INTRODUCTION

The purpose of this thesis is to simplify the proof of Runge's Theorem.

Chapter II of the thesis is concerned with Integration theory, the definitions and notations needed in this thesis.

Chapter III we study the proof of the Riesz Representation Theorem for bounded linear functionals on the Banach space of continuous functions on a compact set and the Riesz Representation Theorem for bounded linear functionals on an arbitrary Hilbert Space. We also study about a Theorem concerning the Riemann sum of the integral.

Finally in Chapter IV introduces the proof of Runge's Theorem in three different ways. First the proof of Runge's Theorem by Walter Rudin which uses the Riesz Representation Theorem for bounded linear functionals on the above Banach space and the other proofs of Runge's Theorem which do not use this theorem and are simpler to prove.