CHAPTER I

INTRODUCTION

A well-known theorem on space curves is the Fundamental Theorem. This theorem states that if two real-valued functions

$$k_1 = k_1(s) > 0 \ , \quad k_2 = k_2(s) \geq 0$$

defined on an interval $[0,L]$ are given, where the function k_1 is of class C^1 and the function k_2 is of class C^0, then there exists a space curve for which k_1 is the curvature and k_2 is the torsion, and s is the arc length measured from some suitable base point. Such a curve is uniquely determined up to a Euclidean motion.

In this study we shall extend this theorem to curves in Euclidean n-space.

Chapter II deals with the relevant definitions and some important theorems of vector calculus needed in our study. Chapter III deals with Euclidean n-space, linear varieties, and Euclidean motions of R^n. We characterize the Frenet-frame and the curvatures of curves in Euclidean n-space in Chapter IV. Chapter V states and proves Fundamental Existence Theorem for curve in Euclidean n-space.