CHAPTER 3

OBJECTIVES OF THE PRESENT STUDY

The review of literature clearly indicates that aluminium strip production is currently through traditional rolling process. Very low production is there on the production of aluminium strips through twin roll casting. The available literature is insignificant as far as the twin roll casting process is concerned. In our country there is no manufacturer of twin roll casting machine where can produce thin aluminium strips. But only for steel strips considerable amount of data is available on continuous casting. But there is lack of standardization of the process especially with respect to the production of aluminium and aluminium alloys strips using twin roll casting. In fact not much attention is paid in the area of development of the equipment required for producing the aluminium strips by twin roll casting route. In the available literature on the factors that affect the quality of the aluminium alloys strips and on the optimization of the parameters to produce a strip of required quality have the least informations. Another fact is that no attention is there for developing of the aluminium-silicon carbide composites strips using the twin roll casting process. There is no study on the evaluation of the properties of the metal matrix composites especially on the aluminium-SiC composites strips which are twin rolled. In other words a systematic investigation of the effects of the operational parameters on strip castability as not has been done. This is essential to establish better understanding of the principles and the problems and to widen the application of the process. So effort has been made in this research work to address these problems. Thus the aim of the research has been the following.
Objectives of the present Study

1. Design and development of the vertical twin roll caster unit with enhanced capability to produce twin roll cast aluminium alloy and its metal matrix counterpart.

2. Develop liquid vertical entry and inclined strip exit setup.

3. Study and optimization of various process and equipment parameters to produce twin roll strip made out of aluminium alloy 2025.

4. Study and optimization of various process and equipment parameters to produce aluminium matrix composite 2025-SiC.

5. Evaluation of mechanical properties of the aluminium matrix composite Al 2025-SiC produced under objectives 2 and 3.

6. Arriving at optimal process parameters for the production of aluminium alloy 2025 and Al 2025-SiC composite strips.