CHAPTER 6

SCOPE FOR FURTHER STUDY

- In the present study, the analysis of as-cast, modified and heat treated alloy A357.0 (Al-7.0Si-0.6Mg) were made to determine the effect of modification, heat treatment variables such as, aging times etc., on the mechanical properties, wear behaviour and corrosion characteristics. Research can be further extended to study the following.

- The study of the mechanical properties, wear behavior and corrosion characteristics of the alloys heat treated to different tempers such as T4, T5 can be made and compared with alloys treated to T6 temper.

- The effect of amount of modifier on microstructure and mechanical properties can be studied and optimized.

- Mechanical, wear and corrosion characteristics of the alloy subjected to multiple aging treatments involving several days at room temperature followed by one or two periods at elevated temperatures can be tried.

- Effect of plastic deformation such as hot extrusion, hot rolling can be tested for mechanical properties, wears behaviour and corrosion resistance.

- Software can be developed to obtain the optimal properties of the alloy. Properties of the alloy for varied composition of the constituents within the allowable range can be studied for better results. For minimizing the ductility loss that is inevitably associated with the age hardening treatment, a kinetics model is needed to quantify the effects of age hardening or modification on microstructures of A 357 aluminum alloys. These
quantitative criteria can then be implemented in real-time computer control of the heat treatment. This is the most effective way for process optimization and quality assurance.