CHAPTER 7  CONCLUSION

The present work carried out to investigate on Machining in turning operation with use cooling effect of cutting fluid at 20°C to 35°C. The complete experimental set up was as per specified condition. The investigation was carried out for the surface roughness, tool life and change of coolant properties.

A demanding investigation was carried out through a series of experiments. During the experiments the values of various parameters considered within the selected range for temperatures of coolant were 20°C to 35°C. All the experiments were carried out on EN8 material with CVD coated insert.

Based on S/N analysis, the optimum process parameter for surface roughness and material removal rate are follows: cutting speed (v) (225 m/min), feed (f) (0.10 mm/rev) and depth of cut (d) at (0.6 mm).

On above Experiments conclude that as compare in ambient temperature (35° C) condition failure of insert are more compare to below ambient temperature. 22° C to 25° C temperature is more effective for tool life.

Requirement of coolant for machine gets more in ambient temperature compare to when we reduce temperature of coolant while machining.

Below ambient temperature get higher surface finish.

Deviation in dimension are low compare to ambient temperature.

There is no more effect on insert change below 25° C coolant temperature and surface roughness.
It was observed that change in appearance of coolant lower, lower consumption of coolant, higher time duration for coolant pH value change 7 to 8, best for consistency of coolant concentration if temperature of coolant should be set 20°C to 22°C.
Scope for the Future Study

The following are the areas on which the scope for future work based on the present investigation rests:

- Investigation of Coolant properties change at various temperature.
- Investigation of the effect on tool life at lower temperature (5°C to 18°C).
- Investigation of the effect hard machining with use chiller for coolant.
- Investigation of the change of coolant elements at various temperature.
- Investigation of the toxicity in coolant at various temperature.