The purpose of this thesis was to design and construct a cooling tower in order to find the relationships between the water flow rate, the temperature range of entering and leaving water, and the wet-bulb temperature, the water flow rate varied from 1.4 - 2.1 $m^3/hr.$, the temperature range of entering and leaving varied from 1.3 - 7.9 °C, and the wet-bulb temperature varied from 18.7 - 27.5 °C. The outcome from the experiment was used to formulate mathematical models which were compared with the theoretical results. The mathematical analysis assumed the enthalpy of saturated air in term of the basic equation as a function of temperature and mean driving force equaled to the arithmatic mean driving force. The mathematical models were compared satisfactorily with experimental result by the coefficient of multiple correlation (R^2) > Ø.997 .

A variety of mathematical models showing various relationships between the variables above as thus obtained, it was found that the mathematical models obtained from the experimental outcome correspond closely with commercial cooling tower technical performance which commonly used in the market; in comparison showing the value of the coefficient of multiple correlation (R2) > Ø.952 , thus they could be valuable for the design and development of the cooling tower in future.