. Objectives

- Primary parameters that determine the single phase and two-phase operating regimes are heat flux through the channel wall and coolant flow rate.

- Improved heat transfer, heat transfer system size reduction.
  - To determine the overall heat transfer coefficient for assessing the performance of the heat exchanger. Any deviation from the design heat transfer coefficient will indicate occurrence of fouling.
  - To determine the heat duty (amount of energy to be transferred), temperature changes within the exchanger, and pressure drops.

- To check the performance of shell and tube exchanger & compact heat exchanger with available blends.

- To study the performance of shell and tube heat exchanger with NANO particles input with available blends.

- To validate the performance of shell and tube exchanger by mathematical modelling approach with more percentage of NANO fluid blends.

- To compare economical viability and application comparison with NANO fluid blends.