ME-550 Numerical Heat Transfer Lab

I) Numerical simulation vadlidated by experiments (commercial software)/FLUENT.

1) Determination of overall heat transfer coefficient of a composite slab.
2) Determination of efficiency and effectiveness of a pin fin.
3) Determination of heat transfer coefficient in forced convection.
4) Determination of heat transfer coefficient in natural convection.
5) Analysis of transient heat transfer in natural convection.

II) Numerical simulation (MATLAB/ c or c^{++}) validated by experiments

1) Determination of overall heat transfer coefficient of a composite slab.
2) Determination of efficiency and effectiveness of a pin fin.
3) Determination of 2-D Laplace heat transfer equation for various imposed boundary conditions.
4) Determination of heat transfer coefficient in forced convection.
5) Determination of heat transfer coefficient in natural convection.
6) Analysis of transient heat transfer in natural convection.

III) Experiments

1) Determination of condenser effectiveness of heat transfer.
2) Determination of thermal conductivity of a nanofluid.