Please contact Professor S. K. Aggarwal for more details about these projects or programs.

Program 1

This program computes the transient temperature distribution for the cross section of an oven wall when there is a sudden temperature change on one side. The program first determines the steady state solution along six nodal points in the wall insulation. The solution is then solved using an explicit and implicit finite difference method.

Project 1:

Write a computer program to compute droplet Dynamics in a specified gas flow.

Project 2

Consider the unsteady flow between two infinite plates as discussed on p. 141 of the textbook.

Write a computer program that gives a numerical solution of the governing equation (Eq. 3.105 in White's book). Validate this solution by comparison with the analytical solution.

Project 3

Consider the starting flow in a circular pipe. Write the governing equations for this flow, and write a computer program that gives a numerical solution of the governing equations. Validate the numerical solution by comparison with the analytical solution.

Project 4

Consider a plane stagnation flow. Solve numerically the appropriate equation (Falkner-Skan Equation) and compare your solution with the analytical solution. Plot the non-dimensional velocity components versus η in the boundary layer. Also obtain boundary layer thickness $\delta(x)$ from the numerical solution.