Differential form of governing equations

Scalar, vector and tensors in fluid mechanics. Continuity scalar equation. Navier-Stokes vector equation: body, pressure and shear forces, Newtonian fluid, local and convective accelerations,. Energy scalar equation. The governing equations for cartesian, cylindrical and spherical coordinate systems. Boundary and initial conditions, steady state, solving coupled and uncoupled governing equations. Poiseuille flow (viscous): pressure deference causes fluid motion between stationary surfaces. Couette flow (viscous): moving surface imparts a motion to the rest of the liquid. Limiting case Energy eq( no fluid motion): Laplace equation, Finite differences Solution using Excel sheet.