1. Can write force balance on a fluid system
   1. Linear momentum principle
      1. dM **v** = rho **v** dV
      2. D/Dt integral (Vm(t)) rho **v** dV = integral (Vm(t)) rho **g** dV + integral (Am(t)) t(n) dA
      3. Time rate of change of momentum = body force + surface force
      4. Fluid at rest: D/Dt part = 0
2. Use components of forces in a given scenario
   1. 0 = rho **g** deltaV - **n** <pn> deltaAn + **i** <px> deltaAx + **j** <py> deltaAy + **k** <pz> deltaAz
3. Pressure calculations in case of barometer and manometer
   1. Lecture 5
4. Be able to write momentum transport components in a given situation of fluid  
   flow. Know all the expressions of momentum components (𝜙 = 𝑃 + 𝜏 + 𝜌 𝑣⃗𝑣⃗)
5. Be able to apply shell momentum balance. Derive velocity profiles and solve for  
   max velocity, mass flow rate and forces on the solid by the fluid in Cartesian (Channel, Slit, plate geometry problem) and cylindrical coordinates (Tube problem)
   1. September 11th and 13th lecture
   2. Only for one velocity component
   3. laminar/rectilinear flow only
   4. Flux will only be in one direction (not in direction of flow)