

ENGR 335

KEY WORDS AND STUDY QUESTIONS FOR CH 3

hydrostatics	manometer	Archimedes' principle
	inclined manometer	hydrometer
absolute pressure	Bourdon tube gage	center of gravity
gage pressure	pressure transducer	centroid of volume
vacuum pressure		center of buoyancy
	centroid of area	
	center of pressure	stable
uniform density fluid	area moment of inertia	neutral
piezometric head	parallel axis theorem	unstable
piezometric pressure	pressure pyramid	
datum	pressure distribution	

1. Give the differential equation that governs pressure distribution in a static fluid. Describe the meaning of each variable. What types of fluids are applicable? What kind of fluid and gravity field allows a simple solution to the equation?
2. Under what conditions is piezometric pressure constant?
3. Why would an engineer want to know the center of pressure on a submerged surface?
4. Give two limiting conditions under which the centroid and center of pressure are at the same point.
5. The only component of stress present in a static fluid is the _____ component.