# Exercise

# Fluid Mechanics

**MAZNI BT. MUSTAFA**
**Faculty Industrial Sciences & Technology**
**maznim@ump.edu.my**

# 5.1 Mass and Density

Calculate the volume of water that has the same mass of 100 cm$^3$ of lead? Determine the weight density of lead?

$Ans: 1.13 \times 10^{-3} \ m^3, 1.1 \times 10^5 \ N/m^3$

A bungalow kitchen floor dimensions is 4.50 m length and 3.20 m wide and 2.40 m height. Given the air density in the kitchen is 1.29 kg/m³. Calculate the weight of the air in kitchen? Calculate force exerted on the kitchen floor.

A tuna fish have a density slightly less than that of water. These tuna fish must exert a force (swim) to stay submerged in water. Determine the force must an 85.0 kg tuna fish exert to stay submerged in seawater if tuna fish density is 1015 kg/m$^3$?

8.21 N

A mechanics used a hydraulic press to lift a MyVi car for inspection. A force of 400 N is exert to a 4 cm diameter of a small piston. Calculate the diameter of the large piston the mass of MyVi is 200 kg?

$Ans : 0.088$ cm