

**ME 301: HW Assignment 1 – (50 points)**

1. What are the main classes of engineering materials? What are some of the important properties of each of these engineering materials? – (5 + 5)
2. What are the major properties of nickel-base superalloys that make them suitable for applications in the structure of aircraft turbine engines? – (10)
3. A gold wire is 0.70 mm in diameter and 8.0 cm. in length. How many atoms does it contain? The density of gold is  $19.3 \text{ g/cm}^3$ . – (10)
4. What is the chemical formula of an intermetallic compound which consists of 49.18 wt % Cu and 50.82 wt % Au? – (10)
5. Calculate the energy in both joules and electron volts of the photon whose wave length is 303.4 nm. Assume appropriate values of h and c. (5 + 5)