MM 2060: Phase Transformations
Assignment 1
Due: 07 February 2021, 11:00 PM

You can write as word document or hand write it and upload a scanned copy

1. AK Steel: https://www.aksteel.com, offers five types of stainless steels, namely Ferritic, Austenitic, Martensitic, Precipitation Hardening and Duplex. By looking up the data sheet provide in website of AK Steel, plot ultimate tensile strength (UTS) (MPa), 0.2% yield strength (YS) (MPa) and elongation % in 2" (50.8 mm) as function of typical Cr (%) and C (%), take maximum weight percentage in each case, of following types of steels:
    a. 19D SS
    b. 15-5 PH (H 900)
    c. Type 420 LC
    d. Type 441
    e. Type 301
2. From the plot can you comment on, whether UTS, YS, and elongation depends on percentage of C or Cr alone?
3. Which of the above alloy have highest YS and which have largest elongation?
4. With respect to vedio we saw in class on shape memory alloys, is 25 ^{0}C, high temperature phase or low tempearature phase from the spring?