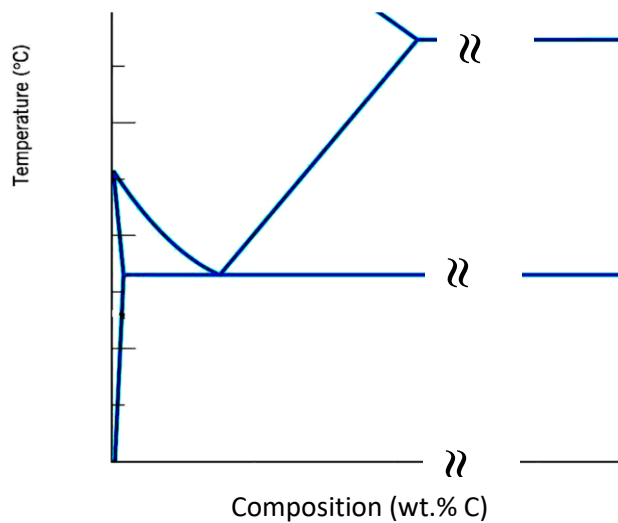


MSE 426
Heat Treatment of Materials
(2024-2025 SPRING)
 Assignment 5

- 1- Label all the critical temperatures, compositions and phase regions for portion of iron-iron carbide phase diagram given below.



- 2- Choose the correct order of hardness values for the following annealed plain carbon steels
- ☐ Hypoeutectoid steel > Eutectoid Steel > Hypereutectoid Steel
 - ☐ Eutectoid Steel = Hypoeutectoid steel < Hypereutectoid Steel
 - ☐ Hypereutectoid Steel > Hypoeutectoid steel > Eutectoid Steel
 - ☐ Hypereutectoid Steel > Eutectoid Steel > Hypoeutectoid steel
 - ☐ Hypereutectoid Steel = Eutectoid Steel > Hypoeutectoid steel
- 3- Which phases are present in the annealed microstructure of hypoeutectoid steel
- ☐ Primary (proeutectoid) ferrite (α) + pearlite
 - ☐ Only pearlite
 - ☐ Only Primary (proeutectoid) ferrite (α)
 - ☐ Primary (proeutectoid) cementite (Fe_3C) + pearlite
 - ☐ None of them
- 4- Pearlite is a phase mixture of ferrite(α) and cementite (Fe_3C)..... **T** **F**
- 5- Annealed hypereutectoid steel contains both primary cementite and secondary cementite in pearlite ... **T** **F**
- 6- Hypereutectoid steels are never annealed industrially to prevent primary cementite formation along grain boundaries..... **T** **F**