Ch. 4c. Environmental Effects / Corrosion

Ref. Callister – Ch.18 or Shakelford – Ch.14 or Askeland – Ch.22

Review various sections on

- Oxidation
- Aqueous Corrosion – Electrochemical Attack
- Galvanic Two-Metal Corrosion
- Galvanized Steel – Zn-coating vs Sn-coating
- Crevice Corrosion
- Pitting
- Intergranular Corrosion
- Erosion – Corrosion
- Effect of Mechanical Stress on Corrosion / SCC
- Stress Cells and Composition Cells
- Methods of Corrosion Prevention

Effect of Corrosion on Mechanical & Fracture Characteristics

Stress Rupture ($\sigma$ vs $\sigma_{\text{SCC}}$)

K$_{\text{ISC}}$ vs K$_I$

Corrosion Fatigue (endurance limit)

$\Delta K_{\text{th}}$