

E-344 Section 3: Metals and Alloys

From:

**“Materials Science and Engineering: An Introduction,” 7th edition
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- 11.2 – Ferrous alloys (skim)
- 11.3 – Nonferrous alloys (skim)
- 11.4 – Forming operations
- 11.5 – Casting (skim)
- 11.6 – Miscellaneous techniques

Crystal Structures

- 3.2 Fundamental concepts
- 3.17 Noncrystalline
- 3.12 Close-packed systems
- 3.3 Unit cells
- 3.4 Metallic crystal structures
- 3.5 Density Computations
- 3.6 Polymorphism and allotropy
- 3.7 Crystal systems
- 3.8 – 3.10 Crystallographic points, directions, and planes
(concentrate on cubic systems: FCC, BCC, SC)
- 3.11 Linear and planar densities

Defects in Crystals:

- Point defects: figure 4.1; figure 4.2
- Line defects: edge dislocation figure 4.3
- Planar defects: grain boundaries figure 4.7; external surfaces section 4.6 paragraph 2.