ECE 656: Week 1 References
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For a review of semiconductor fundamentals, see:


For a discussion of band structure, phonons and phonon dispersions, Brillouin zones, etc.,
consult a solid-state physics textbook such as:

1976.

The classic treatment of electrons and phonons in solids is the text by Ziman.


For a clear, succinct treatment of electron and phonon dispersions, see:


For a good, thorough introduction to energy band theory, see Chapters 1-4 in the text below.
For an introduction to phonons, see Chapter 6, and for a treatment of semiclassical electron
dynamics see Chapter 5. Quantum wells and superlattices are discussed in Chapter 12.

Mildred Dresselhaus, Gene Dresselhaus, Stephen B. Cronin, and Antonio Gomes Souza Filho,

A list of band gaps, effective masses, and related parameters for several semiconductors are
listed in Table 2.1, page 56 of:

Lino Reggiani, “General Theory,” Chapter 2 in *Hot Electron Transport in

The treatment of warped energy bands (e.g. the valence bands of common semiconductors)
is described in this paper.

Nicholas A. Mecholsky, Lorenzo Resca, and Ian L. Pegg, “Theory of band warping and
its effects on thermoelectronic transport properties,” *Physical Review B*, vol. 89,
155131, 2014