



Course Syllabus

Department/Faculty: School of Engineering
Graduate Program: Materials Engineering and Nanotechnology
Degree: <input checked="" type="checkbox"/> Academic Master's <input checked="" type="checkbox"/> Doctorate (PhD) <input type="checkbox"/> Professional Master's
Course Name: Solid State Physics
Professor:
Office hours: 48
Course Overview: Introduction to the basic concepts of materials science. Study of the thermal and electrical properties of materials and nanostructures. Introduction to semiclassical and quantum models of electron and phonon dynamics in matter.
Topics outline: <ol style="list-style-type: none">1. Crystal structure and reciprocal lattice2. Lattice vibrations (phonons)3. Drude and Sommerfeld theories of metals4. Band structure5. Electron dynamics6. Semiconductors
Letter Grade Assignment: Grade A (Excellent) - Grade points between 9 and 10 Grade B (Good) - Grade points between 8 and 8.9 Grade C (Satisfactory) - Grade points between 7 and 7.9 Grade D (Unsatisfactory) - Grade points between 0 and 6.9
Texts, Materials, and supplies: Basic Bibliography: <ul style="list-style-type: none">• KITTEL, Charles. <i>Introduction to Solid State Physics</i>. São Paulo: LTC, 2016. (Portuguese edition)• REZENDE, Sérgio M. <i>Materiais e Dispositivos Eletrônicos</i>. São Paulo: Livraria da Física, 2015. (in Portuguese)• SIMON, Steven H. <i>The Oxford Solid State Basics</i>. Oxford: Oxford University Press, 2013. Supplementary Bibliography: <ul style="list-style-type: none">• FOX, Mark. <i>Optical Properties of Solids</i>. Oxford: Oxford University Press, 2001.• BLUNDELL, Stephen. <i>Magnetism in Condensed Matter</i>. Oxford: Oxford University Press, 2001.• SINGLETON, John. <i>Band Theory and Electronic Properties of Solids</i>. Oxford: Oxford University Press, 2001.• ASHCROFT, N. W.; MERMIN, N. D. <i>Solid State Physics</i>. Belmont: Brooks Cole, 1976.