



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 Introduction to Solid State
Professor(s)
Office hours 48
Course Overview Introduction to basic concepts of material science. Study of thermal and electrical properties of materials and nanostructures. Introduction to the semiclassical and quantum models of dynamics of electrons and phonons.
Topics outline <ul style="list-style-type: none">• Crystalline structure and reciprocal lattice• Lattice vibrations (phonons)• Drude and Sommerfeld models• Electronic band structure• Dynamics of electrons• 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: KITTEL, Charles. Introdução à Física do Estado Sólido . São Paulo: LTC, 2016. REZENDE, Sérgio. M. Materiais e Dispositivos Eletrônicos . São Paulo: Livraria da Física, 2015. SIMON, Steven H. The Oxford Solid State Basics . Oxford: Oxford University Press, 2013. Supplementary bibliography: FOX, Mark. Optical Properties of Solids . Oxford: Oxford University Press, 2001. BLUNDELL, Stephen. Magnetism in Condensed Matter . Oxford: Oxford University Press, 2001. SINGLETON, John. Band theory and Electronic Properties of Solids . Oxford: Oxford University Press, 2001. ASHCROFT, N. W. & MERMIN, N. D., Solid State Physics . Belmont: Brooks Cole, 1976.