

Course description

Course Title Solids and Interfaces Sólidos e Interfaces		
Type/Attendance Time Lecture: 2 hour per week Tutorial: 2 hours per week	Credit points (ECTS) 5	Type of Examination Examination, Exercises
Recommended Prerequisites Statistical Thermodynamics (Lecture)		
Content 1. The bonding strengths in solids Bond types, bonding energy 2. Crystals and crystal lattices Crystal systems, crystal lattices, Miller index, reciprocal lattice, electronic and X-ray diffraction 3. Electrical conductivity and electronic band structure Classical treatment of electrical conductivity, quantum mechanical treatment of electron gases, band structure of solids, semi-conductors 4. Specific heat and lattice vibrations Einstein model, Debye model, theory of lattice vibrations and phonons, specific heat of electrons in metals 5. Surfaces Thermodynamics and energetics of surface processes, surface structure and their determination, chemical reactions occurring at surfaces, heterogeneous catalysis		
Conteúdo 1. Comprimentos de ligações em sólidos; 2. Cristais e retículos cristalinos; 3. Condutividade elétrica e estrutura eletrônica de bandas; 4. Calor específico e vibrações reticulares; 5. Superfícies.		