

Slovenski naslov: Tehnologija materialov
Letnik, semester: 2. letnik VSP Aplikativna elektrotehnika (ETAP),
3. semester
Št. predmeta: 29

Title: Technology of Materials

Lecturer: Prof. dr. Danjel Vončina

Aim of course:

The course gives an overview of electrical properties of materials and technologies.

Required (pre)knowledge:

Fundamentals of physics

Contents:

Classification of electrotechnical materials. Determination of material properties. Fundamentals of crystallography. Selected crystal structures of metals. Synthesis and properties of alloys. Thermoelectrically effects of metal junctions, electrical contacts. Electrochemical principles and reactions, batteries and fuel cells. Materials for resistors. Superconductivity. Soldering alloys and fluxes. Soft and permanent magnet materials. Properties of isolation materials, Thermoplastic and duroplastic materials.

Selected references:

E. Ivers-Tiffée, W. von Munch: Werkstoffe der Elektrotechnik, Teubner, 2004
Hoogers G.: Fuel Cell Technology, CRC Press, USA, 2003
Larminie J., Dicks, A.: Fuel Cell System Explained, John Wiley&Sons, Chichester, West Sussex, England, 2003
P. Campbell: Permanent Magnet Materials and their Application, Cambridge University Press, 1994.
E. Steingroever, G. Ross: Magnetization, Demagnetisation and Calibration of Permanent Magnet Systems, Magnet-Physik, Köln, 1997.
C. P. Poole: Handbook of Superconductivity, Academic Press, 2000
D. Pletcher, F. C. Walsh: Industrial Electrochemistry, Blackie Academic & Professional, Glasgow, UK, 1993.
Carl H. Hamann, Andrew Hamnett, Wolf Vielstich: Electrochemistry, Wiley-VCH, Weinheim, 1998.
Michaeli, Greif, Wolters, Vossebürger: Technologie der Kunststoffe, Carl Hanser Verlag München, 1998.