Name of the course	**New ceramic materials and ceramic processing**
Number of instruction hours	20
Outline of course/module content	Physico-chemical principles. The position of ceramics in materials science. Raw materials. Synthetic materials and processing methods. Rheological behavior of slurries and pastes. Suspensions. Sterical and electrosterical stabilization of suspensions. Viscosity. Colloids. Plasticity. Forming processes, pressing., casting processes, plastic-forming processes. Molecular polimerization forming. Sol-gel methods. Gelation. Processing additives. Drying. Sintering. Structure of sintered bodies. Structure of porous ceramics. Thin ceramic films. Fibers. Dopands. Ceramics composites New processing methods. Hydrothermal synthesis. Chemical vapor deposition (CVD) Flame pyrolysis, Plasma pyrolysis.. Epitactic growth. Silicate ceramics. Oxide ceramics (Al_2O_3, ZrO_2, mullite ZrO_2 and stabilized ZrO_2). Non-oxide ceramics (Si_3N_4; SiC, AlN, sialons).Propertiesofceramics: thermalproperties, electricalproperties, corrosion, wear, density, porosity, strength (bending, compressionandtensilestrength), elasticproperties, hardness (Vickers, Knoop i Rockwell). Ceramography.Bioceramics, biocompatibleandbioactive materials. Nano-particles and nano-composites. Viskers. Technical ceramics. Structural ceramics. Electronic and optoelectronic ceramics. Translucent ceramics.
Description of instruction methods	Lectures, consultations.
Description of course/module requirements	Seminar, oral exam.