

Name of the course	Biomedical implant materials
Number of instruction hours	20
Outline of course/module content	<p>Objectives of the course: To learn about the properties of metal, ceramic and polymer materials used for biomedical applications. To learn about the processes occurring at the surfaces of these materials and their possible local and systemic effects on human body.</p> <p>Alloys used in biomedical applications: TiAlV, TiAlNb, CoCrMo, FeCrNiMo: Mechanical properties. Physical properties. Corrosion resistance. Clinical applications.</p> <p>Ceramics used in biomedical applications: Al₂O₃, ZrO₂-Y₂O₃, hydroxyapatite: Mechanical properties. Physical properties. Manufacture. Clinical applications.</p> <p>Polymers used in biomedical applications: Polyethylene, teflon, silicon Mechanical properties. Physical properties. Manufacture. Clinical applications.</p> <p>In vitro investigations of biocompatibility. Basic terms. Corrosion research. Tribological research. Immunological research.</p> <p>In vivo investigations of biocompatibility. Tissue response to implant. Corrosion and wear products. Systemic effects. Toxicity and carcinogenicity of metal products.</p>
Description of instruction methods	lectures, seminars, consultations
Description of course/module requirements	continuous evaluation