UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Dental Materials

2627-2-H4602D011

Aims

The aim of the course is to understand the science of biomaterials, from their chemical composition to their physical and mechanical characteristics, and the various applications of dental materials in dentistry.

Contents

Science and technology of dental materials. Recall on matter: composition, structure and state of aggregation. Equilibrium states. Adhesion and Cohesion.
General properties: biological, physical and technological-commodity properties.
Metals: solidification and structure, deformation, hardening, recrystallization and grain growth.
Alloys: constitution and reaction in the solid state. Thermal treatments. Corrosion.
Alloys for amalgams and their structure. Dental amalgams: dimensional variations, resistance, creep (Gold for direct fillings).
Dental cements: classification, composition and structure.
Synthetic polymers: composite materials Enamel-dentin adhesive systems.
Polymerization techniques.
Endodontic materials. Ni-Ti alloys.
Noble metal alloys for casting, non-noble metal alloys for casting, semi-finished noble and base metal alloys. The steels.
Coatings: classification, structure and composition. Solder me and welding procedures.
Gypsum materials: model plasters, impression plasters.
The waxes.
Dental ceramics: classification and their structure.
Synthetic polymers: resins for prosthetics.
Rigid impression materials: thermoplastic pastes, plasters, zinc oxide-eugenol pastes.
Elastic impression materials: irreversible hydrocolloids, reversible hydrocolloids, elastomers.

Detailed program

Applications in dental materials: biocompatibility of dental materials, the physical properties of dental materials, chemical properties. Morphology and classification of teeth: structure and morphology of teeth, signs of histochemistry of teeth, physical and mechanical properties of teeth; classification identification of teeth. Gypsum for dental use: chemical and physical characteristics, handling and properties; applications. Waxes for dental use: the characteristics of wax modeling, composition and properties of waxes; application in dentistry: Covers and refractory materials: types of coating materials and their characteristics; bond acidic materials, materials in phosphate binder, gypsum-bonded materials : Gold and gold alloys: structure and properties of alloys, gold alloys for prosthetic devices. Basic metals and alloy steel: composition, physical and mechanical properties; mergers resin and porcelain. Ceramic materials for dentistry: dental ceramics, and chemical and physical characteristics, classific

Prerequisites

Having passed Chemistry and Physics.

Teaching form

Lessons: in-person delivery method.
Within the single lesson, didactic and interactive teaching will be carried out
30 hours of didactic teaching and 10 hours of interactive teaching

Textbook and teaching resource

Anastasia M. Calderai G. Materiali dentari. Antonio Delfino Editore
Baldoni M. Elementi di clinica Odontoiatrica per il corso di laurea in Odontoiatria e Protesi Dentaria
Publications of the most recent literature relating to dental materials used in dentistry

Semester

I semester

Assessment method

The exam will be oral and will focus on the topics of the program and the topics covered in class.
The knowledge and skills acquired will be evaluated.
There are no ongoing tests

Office hours

monday 8:30-9:30

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | PARTNERSHIPS FOR THE GOALS