



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Prosthetic and Laboratory Technologies

2526-3-H4601D015-H4601D041M

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#### Aims

Provide students with knowledge of the technologies used in dentistry and dental technology, including new CAD/CAM technologies, new technologies for occlusion assessment, new surface electromyography technologies, and new technologies for the construction of custom medical devices. Furthermore, the course provides the basis for the economic evaluation of manufacturing processes. Examine the main materials used in prosthetics and clinical practice with new technologies.

#### Contents

Review of craniofacial and dental anatomy, with particular attention to anatomical, aesthetic, and phonetic aspects. In-depth study of the main physical, biological, and mechanical properties of materials commonly used in prosthetic and clinical dentistry and their correlation with the different types of prosthetic devices.

Analysis of the different types of prosthetic devices.

Principles of traditional construction of custom-made medical devices.

Digital techniques in the design and manufacturing of custom-made medical devices, with an emphasis on the different types of materials and the main economic measures of companies and production processes.

#### Detailed program

Review of dental anatomy and the temporomandibular joint

- Introduction to masticatory biomechanics
- Fundamentals of dentolabial aesthetics and phonetics and their correlation to the spatial position of teeth
- Analysis of the main physical, chemical, biological, and mechanical properties of materials

- Heat treatments used for the construction of DMMs
- Practical application of different properties to the different types of materials used in prosthetics
- Traditional and CAD/CAM (dental) manufacturing phases of custom-made medical devices
- Analysis of the types of dental prostheses and their clinical indications
- Preliminary guidelines for the preparation of traditional and CAD/CAM prosthetic designs
- Load cell and surface electromyography technologies for assessing occlusion
- Creation of dental element tables following the orthogonal projection scheme
- Modeling of soap teeth at a 4:1 scale
- General principles of business economics, Revenue and financing of healthcare services provided under the National Health Service (SSN), Cost analysis and margin evaluations, Programming and control tools (outline)

## **Prerequisites**

Knowledge of dental anatomy and the stomatognathic system.

Knowledge of the fundamental properties of materials commonly used in dentistry.

Having passed the General and Special Anatomy, Chemistry, Physics, and Biology of Dental Materials exams.

Admission to the third year of the program

## **Teaching form**

Lessons: In-person delivery.

Each lesson will include both hands-on teaching and interactive teaching.

Laboratory activities using concrete or simulated cases in interactive, in-person mode.

## **Textbook and teaching resource**

Title: Aesthetic Rehabilitation in Fixed Prosthetics

Lecture Notes

Author: Fradeani Mauro - Barducci Giancarlo

Publisher: Quintessenza

Title: Aesthetics and Precision. Clinical and Laboratory Procedures

Author: Massironi Domenico - Pascetta Romeo - Romeo Giuseppe

Publisher: Quintessenza

Title: Dental Materials Technology

Author: Simionato Francesco

Publisher: Piccin-Nuova Libreria

## **Semester**

Second Semester

## **Assessment method**

The exam will be oral and will cover the topics covered in class.  
The knowledge and skills acquired will be assessed.  
There are no ongoing tests.

## **Office hours**

Monday 8:30-9:30 by appointment

## **Sustainable Development Goals**

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION

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