

MATERIALS ENGINEERING AND NANOTECHNOLOGY (LM56)

(Lecce - Università degli Studi)

Teaching BIOMATERIALS

GenCod A003986

Owner professor LEONARDO LAMANNA

Reference professors for teaching

SANOSH KUNJALUKKAL
PADMANABHAN, LEONARDO
LAMANNA

Teaching in italian BIOMATERIALS

Teaching BIOMATERIALS

SSD code ING-IND/22

Reference course MATERIALS
ENGINEERING AND

Course type Laurea Magistrale

Credits 9.0

Teaching hours Front activity hours:
81.0

For enrolled in 2021/2022

Taught in 2022/2023

Course year 2

Language ENGLISH

Curriculum MATERIALS FOR
BIOMEDICAL APPLICATIONS

Location Lecce

Semester Second Semester

Exam type Oral

Assessment Final grade

Course timetable
<https://easyroom.unisalento.it/Orario>

BRIEF COURSE DESCRIPTION

The aim of the course is to provide students with basic knowledge on the design of medical devices for given applications, from biomaterial choice to manufacturing technologies. Particular attention is given to the development of the following devices: a) artificial prostheses; b) scaffolds for regenerative medicine and tissue engineering; c) devices for controlled drug release.

REQUIREMENTS

Basic knowledge on polymer science and technology is suggested.

COURSE AIMS

This course aims to highlight the properties of biomaterials affecting their performance as medical implants, scaffolds for tissue engineering and drug delivery devices. At the end of the course, students are expected to:

- understand the physiological response to medical implants;
- know the principles of scaffold design and related manufacturing technologies;
- know the principles of drug delivery design;
- identify the most suitable biomaterial(s) for given applications;
- know the methods for bulk and surface characterization of biomaterials.

TEACHING METHODOLOGY

The course includes lectures, lab experiences and seminars on selected topics.

ASSESSMENT TYPE

Final exam will consists of an oral interview, during which the student is expected to show complete knowledge and comprehension of the topics of the course.

REFERENCE TEXT BOOKS

- [1] Pietrabissa, R. *Biomateriali per protesi e organi artificiali*. Patron Editore.
[2] Yannas I.V. *Tissue and Organ Regeneration in Adults*. Springer
[3] Class notes and slides