



Master Integrated In Pharmaceutical Sciences

Course Title:

Medical Devices

ECTS: 4

Course contents

1. Biomaterials (6h):

- a. Introduction to Biomaterials: History and development of Materials Science; concept of biomaterial and biocompatibility.
- b. Classes of Materials used in Medicine: metals; ceramics; polymers (biodegradable, hydrogels) and composites.
- c. Mechanical and Surface properties of biomaterials.
- d. Interaction aspects between biomaterials and host: degradation of materials in the biological environment and host reaction to biomaterials (biological response to an implant: inflammation, foreign body reaction, angiogenesis, scar formation, toxicology, thrombogenicity, infection).
- e. Application of Biomaterials in Medicine: Orthopedics; Ophthalmology; sutures, burn dressings and skin substitutes; dental medicine; cardiovascular medical devices; drug delivery systems.
- f. Investigation in Biomaterials Science.

2. Medical Device's Regulatory frame (6h):

- a. New Approach, definitions, classification and frontiers. Examples and requisites for placing on the market.
- b. The role of the main actors: competent authorities, notified bodies, manufactures and distributors.
- c. Conformity assessment: procedures, essential requirements, clinical evaluation.
- d. Vigilance and post-market surveillance.
- e. Medical devices risk management.

Teaching methods

Theoretical classes (2 h per week);

Practical classes (1 h per week): Evaluation of practical examples of application of MD.

Some classes will be given by renowned medicals and pharmaceuticals where MD are applied in various areas of medicine.

Assessment methods

Presentation of an oral review related to a relevant topic in the area (40%) and final examination (60%).

