

# Course Specifications

Valid in the academic year 2023-2024

# **Biomedical Product Development (E092802)**

Course size	(nominal values; actual value	es may depend on pro	gramme)		
Credits 6.0	Study time 18				
Course offerings and	teaching methods in academic y	ear 2023-2024			
A (Year)	English	Gent	lecture		
B (Year)	Dutch	Gent			
Lecturers in academic	: year 2023-2024				
Vansteenkiste, Ewout			WE05	lecturer-in-charge	
Crispeels, Thoma	9S		VUB	co-lecturer	
Vandemeulebrou	ucke, Jef		VUB	co-lecturer	
Offered in the following programmes in 2023-2024				crdts	offering
Master of Science in Biomedical Engineering				6	В
Master of Science in Biomedical Engineering				6	А
Master of Science in Industrial Design Engineering Technology				6	А

# **Teaching languages**

English, Dutch

# Keywords

Innovation, Product Development, Business Development, Creativity

#### Position of the course

The aim of the course is to present students an overview of all steps required to solve a biomedical problem by designing a product prototype. Students will be taught how to apply a methodical way of designing a product, which should lead to enhanced product quality. By creating several possible solutions to a problem the chance to find the optimal solution is enlarged. All parts of the methodical design process will be practiced as group assignments (groups of 5 to 6 students). Since group work is very important part of product development, this will also be taught and practiced. In addition, lectures will be given on aspects of intellectual property rights (patenting), quality assessment and assurance, patient safety regulations, business development, green product developments. Lectures will also include presentations and testimonies from biomedical engineers in SME startup companies.

# Contents

Designing biomedical products requires a specific methodical design process because of the diversity of the stakeholders, the different background of the project participants, the limitation of the amount of background information, and the complexity of the working environment. During this course tools are taught about:

- the methodical design process
- teamwork
- · communication methods for a good cooperation between medical and technical
- experts
- application of selection processes
- project management
- intellectual property
- quality assurance, notified bodies
- basic financing

#### • business plan

#### Initial competences

#### **Final competences**

- 1 Being capable to analyse, synthesize and manage an innovation process.
- 2 Being capable to implement a feasibility study.
- 3 Being capable to write a business plan.
- 4 Being capable of presenting and defending a project.
- 5 Having no fear to start an innovation project (spin-in, spin-off or start-up).
- 6 The students are evaluated according to their knowledge, comprehension and skills.

# Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

#### Conditions for exam contract

This course unit cannot be taken via an exam contract

#### **Teaching methods**

Lecture, Independent work

#### Extra information on the teaching methods

Weekly plenary followed by weekly reporting, intermediate reporting trough presentations at week 12 and week 24. Team work on a 2-weekly basis around 1 novel medical device

# Learning materials and price

Syllabus + lecture notes

# References

#### Course content-related study coaching

2-weekly feedback on project status, 15 minutes per group on average

#### Assessment moments

continuous assessment

# Examination methods in case of periodic assessment during the first examination period

#### Examination methods in case of periodic assessment during the second examination period

#### Examination methods in case of permanent assessment

Oral assessment, Participation, Peer and/or self assessment, Assignment

#### Possibilities of retake in case of permanent assessment

examination during the second examination period is not possible

# Extra information on the examination methods

The assessment is based upon the written report, presentation, and the operation within the group. In addition to a description of the designed product and the road to the final design, the report will also include the results of patent search study as well as a business feasibility plan for a small company around a biomedical product of choice.

# Calculation of the examination mark

20% innovation, 80% process (operation - permanent evaluation, presentation, written report)