

## Biomedische productontwikkeling (E092802)

**Cursusomvang** *(nominale waarden; effectieve waarden kunnen verschillen per opleiding)*

**Studiepunten 6.0** **Studietijd 180 u**

### Aanbodsessies en werkvormen in academiejaar 2023-2024

A (Jaar)	Engels	Gent	hoorcollege
B (Jaar)	Nederlands	Gent	

### Lesgevers in academiejaar 2023-2024

Vansteenkiste, Ewout	WE05	Verantwoordelijk lesgever
Crispeels, Thomas	VUB	Medelesgever
Vandemeulebroucke, Jef	VUB	Medelesgever

### Aangeboden in onderstaande opleidingen in 2023-2024

	stptn	aanbodsessie
<a href="#">Master of Science in Biomedical Engineering</a>	6	A
<a href="#">Master of Science in de industriële wetenschappen: industrieel ontwerpen</a>	6	A
<a href="#">Master of Science in de ingenieurwetenschappen: biomedische ingenieurstechnieken</a>	6	B

### Onderwijstalen

Engels, Nederlands

### Trefwoorden

Innovation, Product Development, Business Development, Creativity

### Situering

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.

### Inhoud

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

### Begincompetenties

## **Eindcompetenties**

- 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.

## **Creditcontractvoorwaarde**

Toelating tot dit opleidingsonderdeel via creditcontract is mogelijk mits gunstige beoordeling van de competenties

## **Examencontractvoorwaarde**

Dit opleidingsonderdeel kan niet via examencontract gevolgd worden

## **Didactische werkvormen**

Hoorcollege, Zelfstandig werk

## **Toelichtingen bij de didactische werkvormen**

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

## **Leermateriaal**

Syllabus + lecture notes

## **Referenties**

## **Vakinhoudelijke studiebegeleiding**

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

## **Evaluatiemomenten**

niet-periodegebonden evaluatie

## **Evaluatievormen bij periodegebonden evaluatie in de eerste examenperiode**

## **Evaluatievormen bij periodegebonden evaluatie in de tweede examenperiode**

## **Evaluatievormen bij niet-periodegebonden evaluatie**

Mondelinge evaluatie, Participatie, Peer en/of self assessment, Werkstuk

## **Tweede examenkans in geval van niet-periodegebonden evaluatie**

Examen in de tweede examenperiode is niet mogelijk

## **Toelichtingen bij de evaluatievormen**

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.

## **Eindscoreberekening**

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