UNIVERSITEIT GENT

Studiefiche

Vanaf academiejaar 2020-2021

Polymeren voor bio-gerelateerde toepassingen (C002959)

Wegens Covid19 kan mogelijk afgeweken worden van de onderwijs- en evaluatievormen. Dergelijke afwijkingen zullen via Ufora worden gecommuniceerd.

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

Studiepunten 3.0 **Studietijd** 87 u **Contacturen** 21.0 u

Aanbodsessies en werkvormen in academiejaar 2020-2021

A (semester 2)	Engels	Gent	hoorcollege	15.0 u

Lesgevers in academiejaar 2020-2021

Dubruel, Peter	WE07	Verantwoordelijk lesgever

Aangeboden in onderstaande opleidingen in 2020-2021	**stptn**	**aanbodsessie**
Master of Science in Chemistry	3	A

Onderwijstalen

Engels

Trefwoorden

Polymer materials, bio-related applications, techniques for the production, modification and characterisation of polymer materials

Situering

The course unit, which is part of the Master's programme in Chemistry, aims to introduce the students into the wide spectrum of bio-related applications of polymer materials (biomaterials, biosensors, biofiltration,...). During the course, a wide range of topics will be discussed to enable the student to master the current applications, production- and analysis techniques of this class of materials. In addition, the advantages, disadvantages and limitations of the current generation polymer materials will be summarised. Finally, an overview will be given of some examples where the combination of polymer materials with other materials leads to more performing materials.

Door de nieuwe structuur van de Master Chemie zal het opleidingsonderdeel niet gedoceerd worden tijdens het AJ 2020-2021. De studenten kunnen aansluiten bij cursussen van de vernieuwde masteropleiding. Details hierover zullen gecommuniceerd worden, via Ufora

Inhoud

- Overview of bio-related applications of polymers: biomaterials, biofiltration,... Synthesis of starting polymers for bio-applications
- Production techniques for polymer materials: solvent casting, photo polymerisation, rapid prototyping, electrospinning, ...
- Surface characterisation of polymer materials for bio-applications: surface composition (XPS, IR imaging), surface topography/roughness (AFM, SEM), surface energy (DCA, SCA).

Begincompetenties

In the Bachelor's programme, the student has been introduced into the concepts of general chemistry, organic chemistry, physico-chemistry, cell biology and polymer chemistry. These courses are the basis to master a wide range of bio-related applications of polymers.

Eindcompetenties

1 A detailed understanding and knowledge on the wide spectrum of bio-related applications of polymers. Understanding of structure-property relations of different

polymer classes.
2 Knowledge of classical and more recent techniques to produce polymers for bio-related applications.
3 Knowledge of techniques for the surface characterisation of polymer materials for bio-related applications.

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

Leermateriaal

The English course material will be provided to the students at the beginning of the course. Syllabus available via Ufora.

Referenties

Biomaterials Science, Second Edition: An Introduction to Materials in Medicine, Buddy D. Ratner, Allan S. Hoffman, Frederick J. Schoen, Jack E. Lemons.

Vakinhoudelijke studiebegeleiding

The students permanently have the possibility to raise questions, either during the lessons or on a scheduled moment.
An example of an exam of one of the previous academic years is provided during the course unit.

Evaluatiemomenten

periodegebonden evaluatie

Evaluatievormen bij periodegebonden evaluatie in de eerste examenperiode

Schriftelijk examen, mondeling examen

Evaluatievormen bij periodegebonden evaluatie in de tweede examenperiode

Schriftelijk examen, mondeling examen

Evaluatievormen bij niet-periodegebonden evaluatie

Tweede examenkans in geval van niet-periodegebonden evaluatie

Examen in de tweede examenperiode is mogelijk

Toelichtingen bij de evaluatievormen

The evaluation includes an oral exam with written preparation on the content of the course and lectures.

Eindscoreberekening

The final score is based on a combination of the written part and the oral part of the exam. In the latter, items not covered by the student in the written part will be discussed.