## Module title
Biofabrication

## Abbreviation
03-BIOFAB-152-m01

## Module coordinator
holder of the Chair of Functional Materials in Medicine and Dentistry

## Module offered by
Faculty of Medicine

## ECTS
5

## Method of grading
numerical grade

## Only after succ. compl. of module(s)
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## Duration
1 semester

## Module level
graduate

## Other prerequisites
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### Contents
Definitions within biomaterials, tissue engineering and biofabrication, overview of medical device regulations and practices, description of extracellular matrix, bioprinting, continuous liquid interface polymerisation, two-photon polymerisation, fused deposition modelling, inorganic powder printing, stereolithography, selective laser sintering, melt electrospinning writing, self-healing hydrogels, polymers in 3D printing, introduction to rheology, scientific method and reproducibility, digital signal generation and quality control.

### Intended learning outcomes
Students gain a thorough appreciation of the different additive manufacturing (3D printing) technologies available in the context of biofabrication. This includes how the polymers are processed and how each class of 3D printer works, with its strengths and weaknesses. A holistic view of biofabrication is taught, with an understanding of scientific methodology for each stage and the different regulations governing medical devices. Students will acquire the necessary skills to critique and develop opinions on the 3D printing industry and the resulting biomedical applications.

### Courses
(V (2) + Ü (1))
Module taught in: V, Ü: English

### Method of assessment
(a) written examination (approx. 90 minutes) or (b) oral examination of one candidate each (20 minutes) or (c) talk (30 minutes)
Language of assessment: English

### Allocation of places
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### Additional information
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### Referred to in LPO I
(examination regulations for teaching-degree programmes)
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### Module appears in
Master's degree (1 major) Biofabrication (2015)
Master's degree (1 major) Functional Materials (2016)