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|---|---|---|---|---|---|---|
| Study programme | MEDICAL STUDIES IN ENGLISH | | | | | |
| Cycle | INTEGRATED | Type | UNIVERSITY | | | |
| Study track | - | Module | - | | | |
| Year of study | 1 | Semester | II | | | |
| Course title | How to construct your own organ | Course code | MFMSEI02 | | | |
| ECTS | 1 | Status | ELECTIVE | | | |
| Teaching hours | | | Lectures | Exercises | Seminars | Practice |
| | | | 8 | 10 | 7 | - |
| Teachers | Sandra Kostić, PhD, associate professor | | 8 | 10 | 7 | - |
| Course objectives | The objective of this course is to provide the student with knowledge about the procedures of tissue engineering and the production of regenerative biological materials. | | | | | |

| Course learning outcomes | Learning outcome (LO)<br>Student: | Course learning outcome code | LO code at the study program level |
|---|---|---|---|
| | - Describes and analyses the main areas in biotechnology | IU-MFMSEI-1 | IU-MSE7 |
| | - Describes and explains the basic characteristics of medical biotechnology using examples within this field | IU-MFMSEI-2 | IU-MSE1 |
| | - Describes and analyses the process of tissue engineering: selection of cells, bioreactors and scaffolds necessary for bioengineering of tissues and organs | IU-MFMSEI-3 | IU-MSE2 |
| | - Explains the positive and negative sides of using stem cells in tissue engineering | IU-MFMSEI-4 | IU-MSE2 |
| | - Explains the ethical problems related to bioengineering of tissues and organs | IU-MFMSEI-5 | IU-MSE12 |

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|---|---|---|
| Prerequisites for the course enrolment | In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar | |
| Course content | Week / shift | Topic |
| | Lectures | (L1) Introduction to biotechnology<br>(L2) Introduction to tissue engineering<br>(L3) Stem cells in tissue engineering<br>(L4) 3D printers in biotechnology |
| | Seminars | (S1) Main principle of tissue engineering: selection of cells, carriers, bioreactor<br>(S2) Tissue engineering of specific organs<br>(S3) The most important achievements in the field of artificial bioengineering<br>organs and their therapeutic potential |
| | Exercises | (E1) Tissue engineering of specific organs |
| Language | English | |
| E-learning | Classes are conducted in person. If necessary, lectures, seminars and exercises can be combined (in person and online) or completely online via e-learning platforms (Google-Meet). | |
| Teaching methods | Teaching, interactive | |

| Types of assessment (indicate - **Bold**) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Type of pre-examination obligation | | | | | Type of exam | | |
| midterm | **seminar paper** | essay/report | practical/project task | other | **written exam** | oral exam | practical |

| Allocation of ECTS credits and share in the grade | | | | |
|---|---|---|---|---|
| Student obligations | Learning outcome code | Hours of workload | Share in ECTS | Share in grade |

| | | | | |
|---|---|---|---|---|
| Class attendance | | 25 | 0.8 | |
| Seminar paper | IU-MFMSEI-3<br>IU-MFMSEI-4<br>IU-MFMSEI-5 | 2 | 0.1 | |
| Written exam | IU-MFMSEI-1<br>IU-MFMSEI-2<br>IU-MFMSEI-3<br>IU-MFMSEI-4<br>IU-MFMSEI-5 | 3 | 0.1 | |
| In total | | 30 | 1 | 100 % |

Method of calculating the final grade

The final grade is descriptive, pass/fail. After completing the seminar work and the written exam, student will pass the course.

| Literature (indicate) | Title (title, author, year) | Edition | | Language | | | | Type of literature | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | own | other | croatian | english | other | multilingual | book | article | script | other |
| Compulsory | Tissue Engineering: Toward a New Era of Medicine. Shafiee A, Atala A. Annu Rev Med. 2017. | | x | | x | | | | x | | |
| | Tissue engineering: from the bedside to the bench and back to the bedside. Sahakyants T, Vacanti JP. Pediatr Surg Int. 2020. | | x | | x | | | | x | | |
| | Materials (presentations) | x | | x | x | | | | | | |
| Additional | Meyer U, Meyer TH, Handschel J, Wiesmann HP (2009) Fundamentals of Tissue Engineering and Regenerative Medicine, Springer, New York. | | x | | x | | | x | | | |
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Additional course information