האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

TISSUE ENGINEERING - 76107

Last update 21-02-2017

HU Credits: 3

Degree/Cycle: 2nd degree (Master)

Responsible Department: bio-engineering

Academic year: 0

Semester: 2nd Semester

Teaching Languages: English

Campus: E. Safra

Course/Module Coordinator: Prof Yaakov Nahmias

Coordinator Email: ynahmias@cs.huji.ac.il

Coordinator Office Hours:

Teaching Staff:

Prof Yaakov Nahmias

Course/Module description:

Tissue Engineering is a rapidly expanding field of applied biology and biomedical engineering that aims to create artificial organs for transplantation, basic research, or drug development. A fascinating aspect of the field is the fundamental need to integrate knowledge of organic chemistry, cell biology, genetics, mechanics and transport processes to create functional organs. The process uncovers the fascinating complexity of living tissues, and the joy of creation.

Course/Module aims:

This course will review basic cell culture techniques, structure function relationships, cellular communication, natural and artificial biomaterials, and the basic equations governing cell survival and tissue organization.

Learning outcomes - On successful completion of this module, students should be able to:

This course is composed of frontal lectures and is divided into two segments. Class 1 to 5 teach the basic principles of tissue engineering, while Classes 6 to 10 provide practical examples from multiple systems.

Attendance requirements(%):

Teaching arrangement and method of instruction:

Course/Module Content:

Biomaterials
Tissue culture basics
Oxygen transport
Principals of self-assembly
Skin tissue engineering
Cardiovascular tissue engineering
Liver tissue engineering
Stem cells

Required Reading:

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Additional Reading Material:

Course/Module evaluation:
End of year written/oral examination 30 %
Presentation 0 %
Participation in Tutorials 40 %
Project work 0 %
Assignments 30 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information: