



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Cartilage Bone Tissue and Cell Culture Methods							
Course Code		BYK621		Course Level		Third Cycle (Doctorate Degree)			
ECTS Credit	5	Workload	125 (<i>Hours</i>)	Theory	2	Practice	2	Laboratory	0
Objectives of the Course		Cell-based approaches, biocompatible materials and their designs, tissue architecture and keystones, characteristics of cells, role of stem cells in this process, applications of current field and ethical approaches in the production of tissue engineering products are discussed.							
Course Content		Identification of bone and cartilage in vitro cell culture systems and their applications, Cartilage and bone cell and tissue culture methods, Tests for identification of phenotypic and genotypic specifications of bone and cartilage cells and applications, Mediators required for cell proliferation, development, differentiation and matrix synthesis.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Experiment, Demonstration, Discussion, Individual Study					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	Bone and Cartilage Engineering
2	Fundamentals of Tissue Engineering and Regenerative Medicine

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction to cell and tissue engineering
2	Theoretical	Cell-based therapeutic approaches and ethical debates
3	Theoretical	Analysis of tissue dynamics, tissue and cell homeostasis,
4	Theoretical	Identification of signaling mechanisms of cellular components
5	Theoretical	Use of extracellular matrix elements (ECM) and similar materials in tissue engineering
6	Theoretical	Definition of extracellular matrix elements and biocompatible materials
7	Theoretical	Identification of cell sources, cell culture techniques and cell differentiation
8	Intermediate Exam	Cartilage Bone Tissue and Cell Culture Methods Midterm Exam
9	Theoretical	Importance of 2D and 3D culture types in tissue engineering
10	Theoretical	Demonstration of the utility of stem cells in potential tissue engineering
11	Theoretical	Tissue engineering architecture I
12	Theoretical	Tissue engineering architecture II
13	Theoretical	Cartilage tissue engineering I
14	Theoretical	Cartilage tissue engineering II
15	Theoretical	Bone Tissue Engineering
16	Final Exam	Cartilage Bone Tissue and Cell Culture Methods Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0.5	1	21
Lecture - Practice	10	0.5	4	45
Laboratory	6	3	5	48
Midterm Examination	1	4	1	5



Final Examination	1	5	1	6
Total Workload (Hours)				125
[Total Workload (Hours) / 25*] = ECTS				5
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Tissue dynamics analysis, tissue and cell homeostasis.
2	To examine the clinical orthopedics in terms of bioengineering.
3	To have general information about cartilage-bone tissue
4	To have general knowledge about bone cell mechanics
5	To have knowledge about 2D and 3D culture types.

Programme Outcomes (Biochemistry (Medical) Doctorate)

1	To have basic theoretical knowledge about biochemistry and to help understanding biochemistry
2	To have the basic laboratory knowledge, apparatus and methods used in biochemistry
3	Analysis: To be able to analyze information critically
4	Synthesis: To be able to synthesize and adapt the knowledge in the field from different directions
5	Evaluation: To critically evaluate research in the field

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5
P1	5	5	5	5	5
P2	4	4	5	4	4
P3	5	5	4	5	5
P4	4	4	5	5	4
P5	5	5	4	4	5

