BIOMECHANICS AND KINESIOLOGY I

Course Name	**Code**	**Term**	**Theory (hours/week)**	**Application (hours/week)**	**Laboratory (hours/week)**		**ECTS**
Biomechanics and Kinesiology	**FTR 303**	**2.year/ 1.term Fall**	**3**	**0**	**-**		**2**
Prequisites							
Course language	Turkish						
Course type	Compulsory						
Learning and teaching strategies	Theory						
Instructor (s)							
Course objective(Aim of course)	the students are expected to be fully aware of the relationship between the contents of the course and clinical work. The course aims to give basic knowledge on mechanics/pathomechanics of movement, how to use the knowledge of mechanics to assess the movement, joint-bone-muscle-cartilage and collagen tissues, equilibrium, gravity, coordinates and orientation planes. The course aims to give sufficient knowledge on normal gait, determinants of gait and gait analysis. A student who successfully finishes the course is expected to have acquired the competency to relate clinical situations to movement science.						
Learning outcomes	1. Describes the contents of kinesiology, gains an awareness regarding kinesiology and physiotherapy approaches 2. Classifies the mechanical principles of motion and uses them in motion analyses. 3. Describes mechanics and pathomechanics of bone, muscle, cartilage and the other collagen tissue; questions the potential risks during the exercise applications and gains skill to analyse 4. Knows the mechanics and pathomechanics of the joints and, chooses the knowledge for applications and develops problem solving skills. 5. Defines balance, weight bearing and orientation planes and gains skill to organise and utilise this knowledge in practice. 6. Defines the determinants of normal and pathological gait and analysis, lists the compensatory mechanisms, knows the kinematic and kinetic data to plan the physiotherapy program in gait pathologies						
References	1. Soderberg GL. Kinesiology. Second Edition. William&Wilkins a Waverly Company, Baltimore, 2005. 2. Lippert LS. Clinical Kinesiology and Anatomy. Fourth Edition. F. A. Davis Company, USA, 2006. 3. Levangie PK, Norkin CC. Joint Structure and Function: a Comprehensive Analysis. Fourth Edition. F. A. Davis Company, Philadelphia, 2005.						

Course outline weekly:

Weeks	Topics
1. Week	Movement and mechanical principles
2. Week	Mechanics of bone, laws of bone and loading principles
3. Week	Functional adaptation of bone under normal and pathological conditions
4. Week	Mechanical properties of muscle and contraction of muscle, kinesiology Related Electromyography
5. Week	Fatique and contracture
6. Week	Mechanics and pathomechanics of collagen tissue
7. Week	Mechanics and pathomechanics of cartilage tissue
8. Week	Midterm exam
9. Week	Classification of body joints, sliding and rocking motion
10. Week	Equilibrium and center of gravity, orientation planes and coordinates
11. Week	Normal gait
12. Week	Kinematic and kinetic analysis of gait
13. Week	Pathological gait
14. Week	Midterm Exam
15. Week	FINAL EXAM

ECTS (Student Work Load Table)

Activities	**Number**	**Duration**	**Total Work Load**
Course Duration (X14)	14	3	42

Laboratory			
Practice			
Field Study			
Study Time Of Outside Of Class (Pre-Study, Practice, Etc.)			
Presentations (Video shoot/Poster preparation/Oral presentation, Etc.)			
Seminars			
Project			
Case study			
Role playing, Dramatization			
Writing articles, Critique			
Time To Prepare For Midterm Exam	1	4	4
Final Exam Preparation Time	1	5	5
Total Work Load (hour) / 25(s)	51 / 25 = 2.04		
ECTS	2		

Evaluation System

Mid-Term Studies	**Number**	**Contribution**

Midterm exams	1	%100
Quiz		
Laboratory		
Practice		
Field Study		
Course Internship (If There Is)		
Homework’s		
Presentation and Seminar		
Project		
Other evaluation methods		
Total Time To Activities For Midterm		100
Final works		
Final	1	%50
Homework		
Practice	1	%50
Laboratory		
Total Time To Activities For Midterm		100
Contribution Of Midterm Studies On Grades		%50
Contribution Of Final Exam On Grades		%50
Total		100

The relationship between learning outcomes and the program qualifications of the courses

Program Qualifications		**Learning outcomes**				
	L.O.1	**L.O. 2**	**L.O.3**	**L.O.4**	**L.O.5**	**L.O.6**
1. Sufficient background in basic- clinical medical sciences and physical therapy and rehabilitation discipline; ability to use theoretical and practical skills and knowledge in these fields with analytical thinking	**5**	**5**	**5**	**5**	5	5
2. Ability to determine, define, formulate and solve the factors that affect health; ability to choose and apply evidence based techniques and new methods for this aim.	**5**	**5**	**5**	**5**	5	5
3. Ability to choose and use modern equipments, techniques and modalities for physiotherapy and rehabilitation practices; effectively use the informatique technologies.						
4. Ability to design multidisciplinary research, keep records, collect appropriate data, analysis and interpret results.						
5. Ability to attain new knowledge, make literature reviews, use medical databases and sources of information devoted to medical- health sciences						
6. To work autonomously and effectively in health team and self confidence to take responsibility						
7. To internalize characteristically development, literate and lifelong learning; quality development,to contribute education and promotion programs in field,to internationalize their professional behavior.						
8. To have professional deontology and ethical						

awareness						

Contribution to the level of proficiency: 1. Lowest, 2. Low / Medium, 3. Average, 4. High, 5. Excellent