FTR303 - Biomechanics And Kinesiology I

Course Name	Code	Term	Theory (hours/week)	Application (hours/week)	Laboratory (hours/week)		ECTS
Biomechanics and Kinesiology	FTR 303	3. Semester/1.term Fall	3	0	-		2

Prequisites	
Course language	Turkish
Course type	Compulsory
Learning and teaching strategies	Lecture
Instructor (s)	
Course objective(Aim of course)	To explain the movement and the structures and mechanics that play a role in the movement, to explain the responses and pathological changes of the tissues to stress, to interpret the relationship between mechanical principles and movement, to explain the normal gait properties and analysis, to list and distinguish the changes observed in the pathological gait.
Learning outcomes	1.Classifies the mechanical principles of motion and uses them in motion analyses. 2.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 3.Knows the mechanics and functions of the joints, interprets the mechanisms of joint problems and chooses the knowledge for applications and develops problem solving skills. 4.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	-Gül Şener ; Fatih Erbahçeci. Kinezyoloji ve biyomekanik. Ankara : Hipokrat Kitabevi, 2016 -N.Ekin Akalan, Yener Temelli. Temel kinezyo-mekanik : klinik örnekli anlatım. İstanbul : İstanbul Tıp Kitabevleri, 2017

Course outline weekly:

Weeks	Topics
1. Week	Movement and mechanical principles
2. Week	Mechanics of bone, laws of bone and loading principles
3. Week	Adaptation of bone to pathological conditions
4. Week	Mechanical properties of muscle and contraction of muscle, principles of 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	Protective motions in the joint, classification of joints
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	Pathological gait
15. Week	An overview

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.)	1	2	2
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	2	2
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	%90
Quiz		
Laboratory		
Practice		
Field Study		
Course Internship (If There Is)		
Homework's	1	%10
Presentation and Seminar		
Project		
Other evaluation methods		
Total Time To Activities For Midterm		100
Final works		
Final	1	%100
Homework		
Practice		
Laboratory		
Total Time To Activities For Midterm		100
Contribution Of Midterm Studies On Grades		%40
Contribution Of Final Exam On Grades		%60
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**
1-Acquire proficient infrastructure related to the field of Physiotherapy and Rehabilitation, gain the ability to use theoretical and practical knowledge and skills in this field.	**5**	**5**	**5**	**5**
2-Identify, define the factors affecting health and gain problem-solving skill by using the information they have; plan and implement a treatment and exercise program with appropriate evidence-based methods and new techniques.	**5**	**5**	**5**	**5**
3-Gain the ability to use information technologies effectively, as well as the ability to select and use modern tools, techniques and agents necessary for physiotherapy and rehabilitation applications.				
4-Design individual and multidisciplinary research, keep records, prepare reports, analyze and interpret results for quality service and research in health sciences.				
5-They conduct a literature search to access the information by using evidence-based databases and information sources.				
6-Gain autonomy in interdisciplinary and individual studies, ability to work effectively and take responsibility and awareness of the universal and social effects of their professional practice.				
7-Adopt life-long learning; contribute to quality improvement, field-related training and introductory programs and exhibit their professional behavior at national and international level.				
8-Have deontological and ethical awareness in professional researches and applications.				

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