AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Joint Biomechanics								
Course Code	FZ211		Couse Level	Short Cycle (Associate's Degree)					
ECTS Credit	2	Workload	50 *(Hours)*	Theory	2	Practice	0	Laboratory	0
Objectives of the Course	Understanding of biomechanical properties of joints and physics law related with joints								
Course Content	Introduction to biomechanics, moment and leverage systems, general properties of joint biomechanics, degrees of freedom of simple joints, general properties and leverage system of muscle and skeleton system, force-velocity relations, length-strength relations, electromechanical delay, stretching-contraction loop, calculation of joint forces, mechanical advantage, biomechanics of joint motion, jaw joint, elbow joint, foot joint, hip joint, effect of usage of walking stick on biomechanics of hip joint, biomechanics of standing on two feet: weight distribution on vertebrae.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Case Study								
Name of Lecturer(s)	Ins. Müge DERELİ								

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	70

Recommended or Required Reading	
1	Lecture notes

Week	Weekly Detailed Course Contents	
1	Theoretical	Principles of biomechanics
2	Theoretical	Principles of biomechanics
3	Theoretical	Principles of biomechanics
4	Theoretical	Principles of biomechanics
5	Theoretical	Bone tissue biomechanics
6	Theoretical	Muscle tissue biomechanics
7	Theoretical	Biomechanics of collagen tissue
8	Intermediate Exam	Exam
9	Theoretical	Ligament biomechanics
10	Theoretical	Tendon biomechanics
11	Theoretical	Contractor
12	Theoretical	Cartilage tissue biomechanics
13	Theoretical	Balance
14	Theoretical	joints
15	Theoretical	Final preparations

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	1	2	42
Midterm Examination	1	2	2	4
Final Examination	1	2	2	4
			Total Workload (Hours)	50
			[Total Workload (Hours) / 25*] = **ECTS**	2
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	Understanding the difference between biomechanica and joint biomechanics
2	Evaluate moment and leverage system in humans

3	Understanding the biomechanics of standing on two feet, jaw, elbow, foot, hip
4	Learn the basic mechanical properties of tissues that make up the musculoskeletal system.
5	Learn the relationship between central and peripheral nervous system and musculoskeletal system.

Programme Outcomes *(Physiotherapy)*	
1	To be able to recall the information of research methods and statistics so as to follow the developments, monitor and interpret scientific literature
2	To have the appropriate knowledge of basic sciences at the level of interest, to use specific medical terms and terminology of physical therapy
3	To be able to recall knowledge of the general structure and proporties of musculoskeletal system and the joints and to evaluate the story of musculoskeletal diseases.
4	To be able to comprehend the methods of measurement of the range of motion of joints and to measure it.
5	To be able implement a general evaluation of posture analysis and gait analysis.
6	To be able to recall the knowledge about general characteristics of musculoskeletal diseases, osteoporosis, osteoarthritis, rheumatoid arthritis, ankylosing spondylitis, especially rheumatic diseases, mechanical low back and neck pain, disc herniation, soft tissue disorders and to apply appropriate physiotherapy.
7	To be able to recall the knowledge and gain skills about the devices and the agents of heater used in physical therapy, indications and contraindications of using, and the necessary information about how to apply on patients.
8	To be able to recall the knowledge of the electromagnetic field.
9	To be able to recall what Elektroakapunktur, Laser, Biofeedback, cervical and lumbar traction systems, pneumatic compression therapy are, and how to apply them, which one is applicable to patients.
10	To be able to recall what manipulation-mobilization is and which patients are suitable for this application.
11	To be able to recall what massage and hydrotherapy treatments are and which patients are suitable for these applications.
12	To be able to gain the professional and ethical awareness, apply gained knowledge and skills in reallife situations and transfer gained knowlegde to individuals around her/his environment, and improve behavior of life-long learning.
13	To gain knowledge about methods of diagnosis, protection and treatment of diseases
14	To be able to recall the knowledge and gain skills about physical therapy and rehabilitation methods to be applied to neurological disorders.
15	To be able to recall the knowledge and gain skills about physical therapy and rehabilitation methods to be applied to cardiopulmonary disorders.
16	To be able to recall the knowledge and gain skills about physical therapy and rehabilitation methods to be applied to pediatric patients.
17	To be able to gain knowledge about the effects of fitness and exercise on metabolism and responses of body systems to them.
18	To have knowledge about rehabilitation services
19	To become individuals who can do interdisciplinary team work, with a sense of social responsibility and entrepreneur.
20	To be able to recall the knowledge about Ataturk's Principles and the History of Turkish Revolution.
21	To be able to gain the knowledge and ability to become contemporary individuals who can use Turkish language grammar well and know a foreign language knowledge necessasary to follow the developments in the profession.

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

	L1	L2	L3	L4	L5
P3	5	5	5	5	5
P4	5	5	5	5	5
P5	5	5	5	5	5