Course Unit	Human Movement Study I		Field of study	Physiotherapy

Bachelor in	Physiotherapy		School	School of Health

Academic Year	2023/2024	Year of study	1	Level	1-1	ECTS credits	6.0

Type	Semestral	Semester	1	Code	9504-770-1104-00-23

Workload (hours)	162	Contact hours	T	45	TP	-	PL	30	TC	-	S	-	E	-	OT	20	O	-

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s)	Marisa Filipa dos Santos Lages, Tiago Manuel Cabral dos Santos Barbosa

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. Apply biomechanical principles of human movement;
2. Understand the physiological and accessory movements, the planes and axes of movement;
3. Describe the mechanical response of the biological tissues to the forces applied on them;
4. Understand the mechanism of muscle contraction;
5. Describe the factors that lead to the production of different levels of strength;
6. Understand the terminology of muscle classification according to the type of fibers, contraction and function;
7. Identify and explain the muscles involved, the type of contraction, the stability factors and the accessorymovements of a given physiological movement;
8. Know the components of movement and stability factors of different joints.

Prerequisites

Before the course unit the learner is expected to be able to:
None

Course contents

A) Introduction to kinesiology and biomechanics; B) Basic concepts of linear and angular movement; C) Joint mobility; D) Arthrokinematics; E) Basic biological tissue mechanics; F) The structure and function of skeletal muscle; G) Neuro-musculoskeletal bases of the movement; H) Components of joint motion and stability of the temporomandibular joint, upper and lower extremity, and trunk.

Course contents (extended version)

1. Learning outcome 1 – Module A and B
2. Learning outcome 2 – Module C and D
3. Learning outcome 3 – Module E
4. Learning outcome 4 – Module F and G
5. Learning outcome 5 – Module F and G
6. Learning outcome 6 – Module F and G
7. Learning outcome 7 – Module H
8. Learning outcome 8 – Module H

Recommended reading

1. Hamill, J. , Krutzen, K. M. , Derrick, T. R. (2015) Biomechanical Basis of Human Movement. 4th Edition. Philadelphia: Lippincott Williams & Wilkins
2. Winter, D. A (2004). Biomechanics and Motor Control of Human Movement (3rd ed). John Wiley & Sons, Inc.
3. Hong, Y. & Bartlett, R. (2008). Routledge Handbook of Biomechanics and Human Movement Science (1 st ed). Routledge, New York, NY, USA:
4. Robertson, D. G. E. , Caldwell, G. E. , Hamill, J. , Kamen, G. , & Whittlesey, S. (2013). Research Methods in Biomechanics. Human kinetics. , Champaign, IL.
5. Payton and Bartlett (2008). Biomechanical Evaluation of Movement in Sport and Exercise. The British Association of Sport and Exercise Sciences Guidelines. Routledge, New York, NY, USA:

Teaching and learning methods

Lectures - sharing of the fundamental concepts and theories underlying the topic to be presented Practical sessions - demonstrations and simulated peer practice in pairs and small groups in a laboratory setting Tutorial sessions - support and guidance of students in different tasks and clarifying doubts

Assessment methods

1. End of term - Regular student - (Regular) (Final)
    - Intermediate Written Test - 82% (Two mid-term sit-down tests)
    - Practical Work - 18% (Submission of group projects)
2. End of term - work-study student - (Student Worker) (Final)
    - Final Written Exam - 100% (End-term sit-down test)
3. Resit and Special Examination Periods - (Regular, Student Worker) (Supplementary, Special)
    - Final Written Exam - 100% (Sit-down exam)

Language of instruction

1. Portuguese
2. Portuguese, with additional English support for foreign students.

Electronic validation

Marisa Filipa dos Santos Lages, Tiago Manuel Cabral dos Santos Barbosa	Andre Filipe Morais Pinto Novo	Luis Migue Fernandes Nascimento	Adília Maria Pires da Silva Fernandes
18-01-2024	18-01-2024	18-01-2024	18-01-2024