UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Kinesiology 2

2324-1-I0201D129-I0201D187M

Aims

At the end of the course the student should:

- know basic principles of biomechanics and kinesiology
- be able to apply these principles to the assessment of the standing posture and to the analysis of human locomotion
- know the implications of the standing posture on the musculature.

Contents

Principles of biomechanics and kinesiology applied to the analysis of the standing posture and to the analysis of human locomotion.

Detailed program

- Planes and axes of movement
- Articular movements
- Center of gravity: definition and his effect on the body
- Body balance (suspended on a point, placed on a surface)
- Force (force of gravity, muscle force)
- Upright standing: application of biomechanical and kinesiologic issues to a kinesiologic assessment.
- Human locomotion
- Gait phases
- Spatiotemporal gait parameters

- Movements of the center of mass during walking
- Gait kinematics
- Gait kinetics
- Energy expenditure during walking
- Leg muscle activity during walking
- Measuring walking

Prerequisites

Basic concepts of biomechanics (Introduction to kinesiology 1)

Teaching form

Lessons will be provided in-person, subject to different ministerial indications due to the COVID-19 pandemic situation.

Textbook and teaching resource

    - Neumann, D.A. (2016). Kinesiology of the Musculoskeletal System. Foundations for Rehabilitation. (Terza edizione). Ed: Mosby.
- Norkin C. C., D Joyce White D.J., (2016). Measurement Of Joint Motion, A Guide To Goniometry (fifth edition) F. A. Davis Company. Philadelphia, ISBN 080364566X
- Clarkson, HM. (2013). Musculoskeletal Assessment Joint Motion and Muscle Testing, ed 3. Walters Klower Lippincott William and Wilkins, Philadelphia.
- Boccardi S. Lissoni A., Cinesiologia (vol. 2), Società Editrice Universo, 1990
- Le Veau BF, Biomeccanica del movimento umano, Ed. Verduci, 1993
- Judith Burnfield and Jacquelin Perry. (2010). Gait Analysis : Normal and Pathological Function. Second edition.
- Richards & Whittle Levine. (2012). Whittle's Gait Analysis, 5th Edition.
- Slides.
- Scientific papers.

Semester

First semester

Assessment method

Written test with: (i) open questions to evaluate the level of knowledge of the students about the topics covered in the classes; and (ii) problems with multiple-choice questions to evaluate the students' problem-solving skills on

relevant topics.

Office hours

By appointment

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING