

FEDERAL UNIVERSITY OF SÃO CARLOS FOUNDATION

GRADUATE PROGRAM IN PHYSIOTHERAPY – PPGFt/CCBS/R

COURSE CHARACTERIZATION FORM

Graduate Program: Physiotherapy

Course Code: FIT-216

Credits: 4

Course Title: Human Movement Analysis

Start of Validity: 2025 – 2nd Semester

Justification

This course was created to meet CAPES guidelines regarding instrumental disciplines, with a focus on applied technical training and the use of biomechanical technologies in Physiotherapy.

Course Workload

Theoretical Classes: 15 hours

Practical Classes: 30 hours

Exercises/Seminars: 15 hours

Course Syllabus

In-depth approach to the fundamentals and applications of human movement analysis methods in clinical and functional contexts.

Study of biomechanical principles governing kinematics, kinetics, and surface electromyography, focusing on the assessment of motor and functional performance of different body segments.

Discussion of acquisition, processing, and interpretation of biomechanical data in motor tasks relevant to physiotherapy practice.

Practical applications using motion capture systems, force platforms, and electromyography systems, integrating qualitative and quantitative analyses.

Development of technical competencies for the critical use of these tools in research, therapeutic monitoring, and clinical decision-making.

Nature of the Course

Elective course for both Master's and Doctoral programs.

Main Bibliography

De Luca C. The use of surface electromyography in biomechanics. Journal of Applied Biomechanics. 1997.

Danion F, Latash M. Motor Control: Theories, Experiments, and Applications. Oxford University Press, 2010.

Neumann DA. Kinesiology of the Musculoskeletal System. Elsevier, 2017.

Richards J. The Comprehensive Textbook of Clinical Biomechanics. Elsevier, 2018.

Main Responsible Faculty

Natalia Duarte Pereira – Permanent Faculty

Fábio Viadanna Serrão – Permanent Faculty

Ana Beatriz de Oliveira – Permanent Faculty

Paula Rezende Camargo – Permanent Faculty

Approval

Approved at the 294th Ordinary Meeting of the PPGFt Graduate Program Committee on June 13, 2025.

São Carlos, June 16, 2025.

Prof. Dr. Anielle Cristhine de Medeiros Takahashi

Chair of the PPGFt Graduate Program Committee and Coordinator of the PPGFt – UFSCar