

BIOMECHANICS AND MOTION ANALYSIS IN HEALTH-ENHANCING PHYSICAL ACTIVITY

Prof. Arnold Baca – Dr. Philipp Kornfeind

Preparatory activities:

Learning objectives (200 characters max): To recapitulate elementary mechanical principles and get an understanding of fundamentals and recent developments of the measuring techniques kinemetry and dynamometry

Online learning resources: Baca A. "Mechanical principles" (presentation)

Reading material:

Educational videos (Project Smart sport)

Access: <http://moodle.schmelz.univie.ac.at>

User: hpa_student

Password: smartSport#2020

Motion tracking and analysis - Single person

a) Software for motion analysis

01) Introduction 02) Kinovea

c) Marker-based and markerless systems

01) Introduction 02) Technology 03) Application

e) Full-body suits

01) Introduction 02) Applications in sports

Digital assistance systems - Smart textiles

b) Shoe insoles and force plates

01) Introduction 08) Force Platform

Core activities:

Learning objectives (200 characters max): To understand the principles of 2D and 3D-motion analysis and of inverse dynamics

Learning resources: Face-to-face classroom

Online learning resources:

Lecturers' presentation (Baca A. "Motion analysis – theory and practice"; to be provided)

Web resources (link): <http://www.clinicalgaitanalysis.com/teach-in/inverse-dynamics.html>