

Due to the COVID-19 crisis, the information below is subject to change, in particular that concerning the teaching mode (presential, distance or in a comodal or hybrid format).

3 credits	30.0 h	Q1
-----------	--------	----

Teacher(s)	Detrembleur Christine ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	<i>The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.</i>
Main themes	The main themes to achieve these objectives are : - biomechanics of the muscle, - electromyography and kinesiology, - strength of biological material like bones, tendons and ligaments
Aims	<p>1 The aim of this course is to apply the principles of biomechanics in physiotherapy. Using these principles, the student will be able to identify the mechanical causes of several pathologies of the locomotory system, et de justifier therapeutic design from a biomechanical point of view.</p> <p>-----</p> <p><i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i></p>
Evaluation methods	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change. CONTINUOUS ASSESSMENT/ NO IN-SESSION REVIEW</p> <p>Attendance at all courses is MANDATORY whether the course is given in person or via TEAMS depending on the evolution of the health crisis. Students who do not come to the first theoretical course (or are not on TEAMS) cannot present the project because they do not have the theoretical background, have not received the explanatory information of the project and are not integrated in a group.</p> <p>There is no possibility to take an exam because the subject is worked on for one month in a group. Students must then re-register the following year. The exam consists of an oral presentation of the project in a group.</p>
Teaching methods	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change. REVERSE CLASS - TEAMWORK</p> <p>Students come to the course during the month assigned to them by the secretariat between October and January. Project work in reverse class.</p> <p>A theoretical presentation is made by an expert at the beginning of the month in which the student is to participate in the project. The basic notions are given to him/her. Then, the students are divided into teams of 5-6 students and choose a given theme on which they will work together for 2 to 3 weeks. The project consists in carrying out a bibliographical research, having a meeting with a company, a meeting with patients or professionals, doing a research on adhoc websites. The students have to make a presentation of their results at the end of the month of 10 minutes. This presentation is their exam mark.</p> <p>The course will be given either face-to-face or on TEAMS depending on the instructions received due to the health crisis.</p>
Content	<p>- Notion of tribology (how to study the mechanical properties of biological structures: static sollicitation (creep, stress - strain diagram, stress relaxation...) dynamic sollicitation (effect of speed on the visco-elastic properties of biological structures, resonant frequency...), fatigue test. - Rheological properties of bone tissues, effect of growth and aging on these properties, effect immobilization and of exercise on these properties, mechanical properties of osteo-synthesis materiel... - Rheological properties of cartilage, wear of cartilage, effect of immobilization and exercise on these properties. - Rheological properties of ligaments et tendons, effect of immobilization and exercise on these properties. - Biomechanical properties of muscle, effect of exercise and immobilization on these properties. - Muscular reinforcement: isotonic reinforcement, isometric reinforcement, isokinetic reinforcement, the stretching. - Electromyography (EMG), origin and characteristic of the signal, electrodes, treatment of the signal, effect of force, length, speed and fatigue of the muscle on the EMG.</p>
Inline resources	<p>The theory given in the first course is on Moodle, as are the presentations made by the students.</p> <p>The list of students who are expected to attend the course during the adhoc month is put on moodle at the beginning of the month.</p>

Other infos	Prerequisites: LIEPR1011, LIEPR1012, LKINE1005, LKINE1006 Evaluation : Continuous Evaluation - Working in teams of 5-6 students, preparation of a project Support : Scientific articles - instructions - websites Supervision: Chairholder(s) and invited experts
Faculty or entity in charge	FSM

Force majeure

Teaching methods	TEAMS ONLY
Evaluation methods	All presentations are done on TEAMS until the end of the quadrimester

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Bachelor in Physiotherapy and Rehabilitation	KINE1BA	3	LIEPR1011 AND LIEPR1012 AND LKINE1005 AND LKINE1006	