Universidad Zaragoza

Academic Year/course: 2022/23

69706 - Modeling the mechanical behaviour of musculoskeletal tissues

Syllabus Information

Academic Year: 2022/23
Subject: 69706 - Modeling the mechanical behaviour of musculoskeletal tissues
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
Degree: 633 - Master's Degree in Biomedical Engineering
ECTS: 3.0
Year:
Semester: Second semester
Subject Type: Optional
Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented towards achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures where the main contents are presented and discussed; lab sessions, practical tasks based on real application, and specific research activities.

Students are expected to participate actively in the class throughout the semester.

4.2. Learning tasks

There will be the following activities:

- **A01 Lectures** (18 hours). The main course contents are presented and student participation is encouraged.
- **A03 Computer lab sessions** (8 hours). Notes for each lab session where the different activities are planned will be available before the session. In the following days after the session, the student should submit a report of the corresponding lab session.
- **A05 Assignments**. Different activities/tasks are proposed related to the main contents of the course.
- **A06 Tutorials**. Students may ask any questions they might have about unclear contents of the course.
- **A08 Assessment** (1 hour). The student will take an exam and submit several reports derived from the computer lab sessions and the practical tasks.
- **Autonomous work**.

Assignments A05, Assessment A08 and autonomous work will account for 48 hours.

4.3. Syllabus

The course will address the following topics:

1. Musculoskeletal system: Computational modeling of the biomechanics and mechanobiology of biological tissues.
2. Bone tissue
3. Dense connective tissue. Ligaments and tendons
4. Musculoskeletal tissue

4.4. Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the EINA website.

4.5. Bibliography and recommended resources

http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=69706