

Biomechanics

Academic Year: (2019 / 2020)

Review date: 04/12/2019 11:55:45

Department assigned to the subject: Mechanical Engineering Department

Coordinating teacher: MUÑOZ ABELLA, MARIA BELEN

Type: Electives ECTS Credits : 3.0

Year : 4 Semester :

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Machine Mechanics
Mechanics of Structures
Mechanical vibrations fundamentals
Strength of Materials

OBJECTIVES

By the end of this subject, students will be able to have:

1. coherent knowledge of biomechanics including some at the forefront of the branch in mechanical engineering.
2. awareness of the wider multidisciplinary context of engineering.
3. the ability to apply their knowledge and understanding to identify, formulate and solve engineering problems of biomechanics using established methods;
4. the ability to apply their knowledge and understanding to develop and realise designs of biomechanics to meet defined and specified requirements;
5. the ability to conduct searches of literature, and to use data bases and other sources of information;
6. the ability to design and conduct appropriate experiments in biomechanics, interpret the data and draw conclusions;

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction to biomechanics
2. Rigid structure of the human body
3. Flexible structure of the human body
4. Anthropometry
5. Occupational Biomechanics
6. Gait biomechanics
7. Impact biomechanics
8. Numerical modeling in biomechanics: constitutive models

LEARNING ACTIVITIES AND METHODOLOGY

Lectures will be explained in big groups, exercises for understanding the lectures will be solved and 3 labs will be carried out.

Lab 1: Anthropometric study

Lab 2: Human gait study

Lab 3: Impact biomechanics applied to car crashes

ASSESSMENT SYSTEM

% end-of-term-examination/test: 60

% of continuous assessment (assignments, laboratory, practicals...): 40

The work done by the student will be evaluated by following the Bologna criteria. The work carried out by each student during the term will be evaluated separately as well as the final exam. Labs are also part of the evaluation of the subject.