

## MULTIMEDIA AND LABORATORIES SOLUTION FOR BIOMECHANICS & HEMODYNAMICS TEACHING IN BIOMEDICAL ENGINEERING AT FCT UNL

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Biomedical engineering has only recently emerged as its own discipline, compared to many other engineering fields. Biomedical Engineering is the application of engineering principles and design concepts to medicine and biology. This field seeks to close the gap between engineering and medicine: It combines the design and problem solving skills of engineering with medical and biological sciences to improve healthcare diagnosis, monitoring and therapy.

Biomechanics and Hemodynamics (BH) is one of the key disciplines in Biomedical Engineering curricula, which combine the knowledge from interdisciplinary fields, such as physics, mathematics, anatomy, physiology and biology. An original program for BH teaching is implemented at Faculty of Science and Technology of University Nova of Lisbon (FCT UNL) since 2005. This implies a combination of multimedia facilities with elements of classical lectures and practical experimental laboratorial activities of Biomedical Engineering students. They focus on particular objectives in order to improve teaching and learning. Among them are:

1. Supporting the construction of mental models and connecting abstract concepts with examples from reality;
2. Using illustrations to structure knowledge;
3. Using special features to assist the development of "cognitive flexibility";
4. Offering additional knowledge of physical phenomena by laboratorial in-vivo experimentation.

Findings from our experience will be presented and discussed, showing factors and conditions that are important to reach the best results. Also it will be discussed the use of this tools in e-learning format for teaching and learning the BH in Biomedical Engineering.



Figure 1 – In the Laboratories of Biomechanics and Hemodynamics at FCT UNL