EMERGING TECHNOLOGIES IN MEDICAL ELECTRONICS

Mestrado em Engenharia Eletrónica e de Computadores

Code: 26802

Main Scientific Area: Electronics and Instrumentation

Lecturer: Vitor Hugo Mendes da Costa Carvalho

Language of Instruction: Portuguese

Regime: S1

Contact Hours: 30h Total Workload: 138h

ECTS: 6,0

Objectives

Advances in emerging technologies of healthcare can have dramatic impacts in terms of efficiency and effectiveness

in health care with major implications for clinical quality and costs. This course introduces students to a range of

emerging technologies and medical devices. In addition, this curricular considers the challenges that the health sector

has in terms of planning, implementation and adoption of new technologies.

Learning Outcomes

At the end of this course the student will

be able to:

Understand the current state of electronic technologies in health; Discuss future trends in Emerging Technologies in

Medical Electronics and its implications for the challenges of technological innovation; describe challenges / issues

that concern Emerging Technologies in Medical Electronics including cost, adoption of regulations / safety; apply the

content of other curricular units for in-depth analysis of specific electronic technologies in health.

Course Contents

Electronic open-source platforms

Mobile computing in medical electronics

wireless wearable systems of medical electronics

Robotic systems in medicine

Nanotechnology in medical electronics

Implantable medical devices

Electronic devices in surgery

Advances in Medical Imaging

Patient-machine interfaces and brain-computer

Recommended Bibliography

Principles of Medical Electronics and Biomedical Instrumentation, C. Raja Rao, Sujoy K. Guha, 2001, UniversitiesPress.

Learning and Teaching Methods

The syllabus of this curricular unit covers a number of emerging technologies enough for students to understand the

current state of electronic technologies in health, discuss future trends in electronic technologies in health, describe

challenges / issues that concern electronic technologies in health, apply the content of other CUs cycle studies for indepth

analysis of specific electronic technologies in health.

Assessment Methods

Learning

outcomes will be assessed individually through written exams and practical work, including:

40% in tests (theoretical or practical)

60% in practical work (research and development)