Clinical data

Academic Year: (2019 / 2020)   **Review date: 17/05/2019 16:40:22**

Department assigned to the subject: Bioengineering and Aeroespace Engineering Department

Coordinating teacher: PASCAU GONZALEZ GARZON, JAVIER

Type: Electives ECTS Credits : 3.0

Year : 1 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Biosignals and Bioimages

OBJECTIVES

Basic competences

CB6 Having and understanding the knowledge that provides a basis or opportunity to be original in the development and/or application of ideas, often in a research context
CB7 Students know how to apply their acquired knowledge and problem-solving skills in new or unfamiliar settings within broader (or multidisciplinary) contexts related to their field of study.
CB8 Students are able to integrate knowledge and to face the complexity of making judgments based on information that, being incomplete or limited, includes reflections on the social and ethical responsibilities linked to the application of their knowledge and judgments.
CB9 Students know how to communicate their conclusions and the knowledge and ultimate reasons behind them to specialised and non-specialised audiences in a clear and unambiguous way.
CB10 Students have the learning skills that will enable them to continue studying in a way that will be largely self-directed or autonomous.

General competences

CG2 Ability to apply the knowledge of skills and research methods related to engineering.
CG3 Ability to apply the knowledge of research skills and methods related to Life Sciences.
CG4 Ability to contribute to the widening of the frontiers of knowledge through an original research, part of which merits publication referenced at an international level.
CG5 Ability to perform a critical analysis and an evaluation and synthesis of new and complex ideas.
CG6 Ability to communicate with the academic and scientific community and with society in general about their fields of knowledge in the modes and languages commonly used in their international scientific community.

Specific competences

CE6 Ability to understand the basis of the main technologies involved in biomedical imaging systems.
CE7 Ability to solve a biomedical problem from an engineering perspective based on the acquisition and processing of biomedical images

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction. Network communication protocols.
- TCP / IP and OSI model. IP routing. Port configuration. Common problems in clinical environment.
2. Hospital information systems
- Representation of information in medicine; Standard reference model (HL7, RIM and EN13606); The digital medical history;
- Vocabularies and terminologies (SNOMED); Hospital Information Systems (HIS); Standards for the interoperability of health information systems (HL7, IHE)

3. Integration of medical images in the hospital information systems
- RIS and PACS; The DICOM standard: need, model of information and functionalities, workflow in radiology, DICOM Conformance Statement, practical considerations, application development; Other departmental information systems in the hospital

4. Information systems outside the hospital environment
- Health information systems at regional or national level; Telemedicine and e-health

5. Security, confidentiality, authentication, data protection.

6. Decision Support Systems in clinical environment.

LEARNING ACTIVITIES AND METHODOLOGY

AF3	Theoretical practical classes
AF4	Laboratory practices
AF5	Tutorials
AF6	Team work
AF7	Student individual work
AF8	Partial and final exams

Activity code	total hours number	presencial hours number	% Student Presence
AF3	134	134	100%
AF4	42	42	100%
AF5	24	0	0%
AF6	120	0	0%
AF7	248	0	0%
AF8	16	16	100%
SUBJECT TOTAL	600	184	30,66%

ASSESSMENT SYSTEM

% end-of-term-examination/test: 40

% of continuous assessment (assigments, laboratory, practicals…): 60

SE1	Participation in class
SE2	Individual or team works made during the course
SE3	Final exam

Evaluation systems	Minimum weighting (%)	Maximum Weighting(%)
SE1	0	20
SE2	0	100
SE3	0	60

BASIC BIBLIOGRAPHY

- Editors: Shortliffe, Edward H., Cimino, James J Biomedical Informatics. Computer Applications in Health Care and Biomedicine, Springer-Verlag, 2014

- Oleg S. Pianykh Digital imaging and communications in medicine (DICOM) : a practical introduction and survival guide, Springer, 2012

BASIC ELECTRONIC RESOURCES

- DICOM Library . PACS storage calculator: https://www.dicomlibrary.com/dicom/pacs-storage-calculator/

- HL7 . HL7: http://www.hl7.org/

- IHE . Integrating the Healthcare Enterprise: http://www.ihe-e.org

- Personal Connected Health Aliance . Personal Connected Health Aliance: https://www.pchalliance.org/

- Siemens . Siemens Syngo demo: https://wv2demo2.hipgraphics.com/