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**Academic Year: ( 2023 / 2024 )****Review date: 19-04-2023**

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**Department assigned to the subject: Electronic Technology Department****Coordinating teacher: SANCHEZ PENA, JOSE MANUEL****Type: Electives ECTS Credits : 3.0****Year : 2 Semester : 1**

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**REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)**

Not applicable

**OBJECTIVES**

The main goals for students in this subject are the following:

- Ability to design and evaluate electronic and photonic systems to support disability.
- Application of the requirements of Design for All (DpT) to the design of products and systems to support the disabled.
- Ability to develop an individual work on a product or electronic and / or photonic system for a specific disability profile meeting specific technical requirements.
- Ability to apply the acquired knowledge and solve problems in new environments within broader (or multidisciplinary) contexts related to their area of study in order to transfer them to the field of disability support systems.

**DESCRIPTION OF CONTENTS: PROGRAMME**

M0: Overview of Disability: Current Status and Challenges

- 0.1 Definitions of impairment / disability.
- 0.2 Geographical distribution of disability in the World / Spain. Guidelines and rules
- 0.3 accessible / universal design. Description of the principles of universal design. Example of practical application

M1: Evaluation of technical aids: standards and best practices.

- 1.1 Overview of national reglamentation related to disability

M2: Evaluation of support products: standards and best practices

- 21: Classification of SPs
- 22: Classic Technology vs Current Technology

M3: Products supporting for the visually impaired.

- 31: Anatomy of the eye.
- 32: Low vision
- 33: Assistive products for low vision

M4: Motor Disability

- 4.1: Introduction and motor disability issues
- 4.2: Technical Aids for motor disability

M5: Intellectual Disability.

- 5.1: Causes of intellectual disability
- 5.2 AAC Systems

M6: Hearing impairment

- 6.1: Ear anatomy
- 6.2: Causes of hearing impairment
- 6.3 Audiovisual Accessibility
- 6.4 Tecnical Aids

## LEARNING ACTIVITIES AND METHODOLOGY

### LEARNING ACTIVITIES

Masterclass  
Theoretical and practical class  
Tutorials  
Group work  
Individual work of the student

### METHODOLOGY

Presentations in the classroom by the professor, with audiovisual support, in which the main concepts of the subject will be exposed, and the bibliography to support students learning will be presented.

Questioning reading of the professor recommended texts: press articles, manuals, papers, in order to discuss in the classroom or to increase and strengthen the acquired knowledge.

Aula Global debate forum.

Work and reports preparation, both held in group or individual format.

## ASSESSMENT SYSTEM

Following Bologna methodology, the students will construct their own knowledge. Thus, part of the assessment will be performed continuously throughout the course:

- contributions to Aula Global debate forums and learning constructions proposed in the web along the course (25 %).
- an individual work about a technical aid, a proposal for a new technical aid or the state-of-the-art research about the technology for a specific assistive technology, exposed by both a document and a presentation and debate in the classroom (75 %).

<b>% end-of-term-examination:</b>	0
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	100

## BASIC BIBLIOGRAPHY

- A. Mittal and S. Sofat Sensors and Displays for Electronic Travel Aids: A Survey, International Journal of Image Processing, 5, 1-14., 2010
- Eds.: M. A. Hersh and M. Johnson Assistive Technology for Visually Impaired and Blind People, , Springer. ISBN 978-1-84628-867-8, 2008
- Eds.: W.Barfield and T.Caudell Fundamentals of Wearable Computers and Augmented Reality., Mahway, NJ, US.: Lawrence Erlbaum Associate, 2001
- Eds.:Maria Manuela Cruz-Cunha, Isabel Maria Miranda and Patricia Gonçalves Handbook of Research on ICTs for Human-Centered Healthcare and Social Care Services (2 Volumes) , DOI: 10.4018/978-1-4666-3986-7,ISBN13:9781466639867, ISBN10: 1466639865, EISBN13: 9781466639874, 2014
- Georgios Kouroupetroglou Assistive Technologies and Computer Access for Motor Disabilities, IGI Global. ISBN-10:\*1466644389\*ISBN-13:\*978-1466644380 , 2013
- Reiner Wichert, Birgid Eberhardt Ambient Assisted Living: 5. AAL-Kongress 2012 Berlin, Germany, January 24-25, 2012 , Springer. \*ISBN-10:\*3642440460\* ISBN-13:\*978-3642440465 , 2014