

Academic Year: (2019 / 2020)

Review date: 03/01/2020 10:57:09

Department assigned to the subject: Electronic Technology Department

Coordinating teacher: GARCIA SOUTO, JOSE ANTONIO

Type: Compulsory ECTS Credits : 6.0

Year : 3 Semester : 2

OBJECTIVES

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

1. A systematic understanding of the key aspects and concepts of their branch of engineering in electronic instrumentation.
2. A coherent knowledge of their branch of engineering including some at the forefront of the branch in electronic instrumentation.
3. The ability to apply their knowledge and understanding of electronic instrumentation to identify, formulate and solve engineering problems using established methods.
4. The ability to apply their knowledge and understanding to develop and realise designs to meet defined and specified requirements.
5. An understanding of design methodologies, and an ability to use them in the design of electronics instrumentation systems.
6. Workshop and laboratory skills.
7. The ability to select and use appropriate equipment, tools and methods.
8. The ability to combine theory and practice to solve problems of electronic instrumentation.
9. An understanding of applicable techniques and methods in electronic instrumentation, and of their limitations.

DESCRIPTION OF CONTENTS: PROGRAMME

Introduction to electronic instrumentation, metrological characteristics and measurement errors.

Signal conditioning for electronic sensors: circuits, amplifiers and introduction to modulation techniques.

Electronic sensors for the measurement of different physical magnitudes, their characteristics and conditioning circuits.

Applications of A / D conversion, D / A conversion and introduction to data acquisition in instrumentation systems.

LEARNING ACTIVITIES AND METHODOLOGY

The teaching methodology will include:

Magisterial Classes, where the students will be presented with the basic knowledge they must acquire. Students will be supplied with lecture notes and key reference texts which will enable them to complete and acquire a more in depth knowledge of the subject.

Problems Classes, these are aimed at the solving of exercises and examples within the context of real case studies. These classes will be complimented with the resolution of practical exercises on behalf of the student.

Laboratory Practical Sessions

Group tutorials

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ASSESSMENT SYSTEM

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

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

FINAL EXAM. Global assessment of knowledge, skills and capacities acquired throughout the course.

CONTINUOUS EVALUATION. Assesses papers, projects, class presentations, debates, exercises, internships and workshops throughout the course.

BASIC BIBLIOGRAPHY

- Clyde F.Coombs Jr Electronic Instrument Handbook, McGraw-Hill Professional, 2000
- García M. A. Pérez Instrumentación Electrónica, Thomson, 2004
- R. Pallás Areny O. Casas Sensores y acondicionadores de señal, Mancorbo, 2003
- U.A.Bakshi, A.V.Bakshi Electronic Instrumentation, Technical Publications, 2009

ADDITIONAL BIBLIOGRAPHY

- Bannister B. R. Whitehead D.G Instrumentación Transductores e Interfaz, Addison-Wesley Iberoamericana, 1994
- Lázaro A.M. Problemas resueltos de instrumentación y medidas eléctricas, Marcombo, 1998
- Pallás Areny R.. Sensores y acondicionadores de señal: Problemas Resueltos, Marcombo, 2008