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**Academic Year: ( 2019 / 2020 )****Review date: 04-01-2020**

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**Department assigned to the subject: Department of Electronic Technology****Coordinating teacher: GARCIA SOUTO, JOSE ANTONIO****Type: Compulsory ECTS Credits : 3.0****Year : 4 Semester : 1**

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## STUDENTS ARE EXPECTED TO HAVE COMPLETED

Electronic Instrumentation

## COMPETENCES AND SKILLS THAT WILL BE ACQUIRED AND LEARNING RESULTS.

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

Noise and interference in electronic instrumentation systems.

Specific modulation and signal conditioning techniques for different transducers.

Data acquisition systems, architectures and standards, communication interfaces and industrial buses.

Introduction to virtual instrumentation and its software tools.

## 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

## ASSESSMENT SYSTEM

**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.

**% end-of-term-examination:** 60

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

#### BASIC BIBLIOGRAPHY

- . LabVIEW Core 1 Course Manual, National Instruments Corporation, 2012
- Clyde F.Coombs Jr Electronic Instrument Handbook, McGraw-Hill Professional, 2000
- M.A. Perez Garcia, J.C. Alvarez Anton, J.C. Campo rodriguez, G.J. Grillo Ortega Instrumentacion Electronica, Thomson Paraninfo, 2003