

Academic Year: (2022 / 2023)

Review date: 20-05-2022

Department assigned to the subject: Electronic Technology Department

Coordinating teacher: TORRES ZAFRA, JUAN CARLOS

Type: Compulsory ECTS Credits : 3.0

Year : Semester :

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

- Mathematics
- Physical
- Fundamentals of Electrical Engineering and Electronics
- Sensor Systems

OBJECTIVES

- Understand and manage basic instrumentation systems and techniques common measure.
- Characterize basic electronic and photonic devices (LEDs, laser, optical fiber, etc.)
- Evaluate basic electronic / optical communications systems

DESCRIPTION OF CONTENTS: PROGRAMME

1. Electronic subsystems in instrumentation systems, communications and power
2. Models of electronic subsystems
3. Measuring instruments and measurement techniques
4. Basic photonic devices
5. Electronic / optical characterization of electronic and photonic devices
6. Characterization of basic communications systems E/O
7. Reverse engineering techniques

LEARNING ACTIVITIES AND METHODOLOGY

Of the 3 ECTS of the subject 1.2 ECTS be 100% attendance** (25 hours) devoted to theoretical and practical classes and laboratory classes about equally and 1.8 ECTS are not attended (50 hours) devoted to personal work student in study, work and exams.

The classes will be developed mainly in the electronics laboratory with the support of sessions in the classroom.

Theoretical and practical classes. 12.5 hours. In them the knowledge that students should acquire will be presented, being supplemented by the resolution of exercises by the student as a personal work. They include problems based learning, which case studies are discussed. * These sessions can alternatively take place as online synchronous classes.

Laboratory practices. 12.5 hours. These practices will be conducted in the electronics laboratory in pairs for the basic sessions and organized into teams for the group sessions. *These sessions will be complemented by classroom activities related to the laboratory for students who do not have a laboratory shift.

They are supplemented by calculations and previous designs and analyzes and subsequent reports by the student as part of the personal work.

ASSESSMENT SYSTEM

The evaluation system includes continuous assessment of student work (papers, reports of laboratory tests and evaluation of skills and theoretical knowledge and practical). It consists of the qualification of laboratory practice (30%) and laboratory project (40%), and a final exam (30%).

The final evaluation is through a written exam that will assess comprehensively the knowledge, skills and abilities acquired throughout the course.

The extraordinary call is based on continuous assessment and final exam with the same weights of the ordinary call. Optionally it can only be based on a final exam (100%).

% end-of-term-examination:	30
% of continuous assessment (assignments, laboratory, practicals...):	70

BASIC BIBLIOGRAPHY

- FLOYD, Thomas L. Fundamentos de sistemas digitales, Pearson Prentice Hall.
- FLOYD, Thomas L. Principios de Circuitos Eléctricos, Pearson Prentice Hall.
- FLOYD, Thomas L. Dispositivos Electrónicos, Pearson Prentice Hall.

ADDITIONAL BIBLIOGRAPHY

- Franco Maloberti Understanding Microelectronics: A Top-Down Approach, John Wiley & Sons, 2011
- Paul Horowitz, Winfield Hill. The Art of Electronics Third Edition, Cambridge University Press, 2015