Quantum technologies and engineering

Academic Year: (2025 / 2026) **Review date: 22/04/2024 13:44:47**

Department assigned to the subject: Electronic Technology Department

Coordinating teacher: ACEDO GALLARDO, PABLO

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

None

OBJECTIVES

This course aims to give an overview of the general situation and most important trends in quantum technologies and quantum engineering through various seminars given by recognized experts in these topics from both the academic and business world.

In addition, and associated with the Sustainable Development objectives, this course will discuss aspects associated with sustainability and climate change, gender equality, equal treatment and non-discrimination and universal accessibility in relation to these new technologies.

DESCRIPTION OF CONTENTS: PROGRAMME

The main aspects to be developed in the different seminars include:
- - Historical evolution of quantum technologies
- - Quantum Revolution 2.0
- - Quantum Technologies and computation
- - Quantum Technologies and communications
- - Quantum Technologies applied to information and cryptography
- - Quantum Technologies and metrology
- - Quantum Technologies and sensing
- - Quantum Technologies and new materials
- - Quantum Technologies and finance
- - Specifically, there will be a seminar that will cover various aspects associated with an SDG/SDGs selected by the professor.
- - Quantum Technologies and space
- - Ethical aspects of Quantum Technologies
- - Research methodologies in the field of Quantum Technologies.

LEARNING ACTIVITIES AND METHODOLOGY

Learning activities:
AF1 Theoretical class
AF7 Individual student work
Teaching Methodology
MD1 Lectures by the professor with the support of computer and audiovisual media, in which the main concepts of the subject are developed and the bibliography is provided to complement the students' learning.

ASSESSMENT SYSTEM

% end-of-term-examination/test:	0
% of continuous assessment (assigments, laboratory, practicals…):	100

Each seminar will have an individual evaluation proposed by the corresponding speaker.

% end-of-term-examination/test:	0
% of continuous assessment (assigments, laboratory, practicals…):	100

Likewise, students of the course will be required to view and write a report of at least one online seminar related to an SDG/SDGs selected by the professor.