

Academic Year: ( 2022 / 2023 )

Review date: 31-05-2022

Department assigned to the subject: Systems Engineering and Automation Department

Coordinating teacher: MARTINEZ DE LA CASA DIAZ, SANTIAGO

Type: Electives ECTS Credits : 3.0

Year : 1 Semester : 2

## OBJECTIVES

The objectives of the subject are:

- Acquire basic knowledge of the theoretical foundations of both industrial and service processes, as well as communications.
- Acquire the ability to model, identify basic requirements and analyze various processes. This objective will be achieved through the virtual design of automatic process systems (production machinery, transport and storage systems and quality control), the interconnection between its different modules (industrial protocols) and intelligent control.
- Apply AI technologies to adapt to changes in requirements associated with new products, new specifications and environments

## LEARNING RESULT

After completing this subject matter, the student will be able to:

- Design a digital Smart Factory
- Use distributed industrial communications
- Manage the production and the supply with IA

## DESCRIPTION OF CONTENTS: PROGRAMME

1) Smart Factories models and structures:

- Definitions.
- Fundamental objectives
- Main structures
- Organizational models
- Main applications and examples

2) Industrial production technologies:

- Structures of production systems
- Industrial sensors and actuators
- Industrial communications
- Control of industrial systems

3) Virtual design of automated systems

4) Application of artificial intelligence in production systems

## LEARNING ACTIVITIES AND METHODOLOGY

- 1) Theoretical and practical classes will be held so that the student applies the concepts explained
- 2) The concepts explained will be put into practice through a personalized individual work
- 3) Tutorials will be held at the request of the student

## ASSESSMENT SYSTEM

Individual work will be carried out taking into account the development milestones detailed in the calendar of activities

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