

62235 - Bioinspired models for Complex Systems Engineering

Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	534 - Master's in IT Engineering
ECTS	3.0
Course	2
Period	First semester
Subject Type	Optional
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

The learning process design of this subject is based on the following:

The orientation of this subject is mainly practical. The proposed activities are focused on the learning based on the experience. The most suitable teaching strategies for relating theory and practice, resolution of problems and laboratory practices. The learning process of the course is based on:

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- Presentation of theoretical aspects.
- Personal study by the students.
- Development of practical assignments

5.2.Learning activities

The program is offered to assist students in achieving the intended learning objectives. It includes the following activities:

- Interactive lectures: The goal of the interactive lectures is to provide the necessary bases to understand the relevance of some theoretical aspects that cannot be learned in other activities.
- Resolution of problems: Some exercises will be solved, for applying the concepts and techniques introduced.
- Practical activities: The aim of practical activities is to apply the different techniques in developing bioinspired systems and engineering of complex artefacts.

5.3.Program

"Bio-inspired systems and engineering of complex systems": the most outstanding techniques used for artificial life, adaptive systems and evolutionary processes are provided. Some of the most relevant contents will be:

- Artificial Life: Models and algorithms
- Mathematical and computational models for designing complex systems
- structural properties in complex organizations
- Adaptive behavior and evolutionary computation
- Dynamics in complex systems and emergent processes
- self-organizing systems: minimal and large-scale examples
- Engineering applications in biology, social systems, economical studies, technology, etc.

More information in: <http://sistemica.unizar.es>

5.4.Planning and scheduling

The calendar of the subject will be determined by the academic calendar of the corresponding course in each of the centers where this subject is taught. The face-to-face sessions will have an estimated duration of 60 hours distributed between lectures, resolution of problems, and laboratory practice. The timetables of all the class hours and practical sessions will be announced with enough time in advance through the website of the center and the web page of the subject.

5.5.Bibliography and recommended resources