

Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	532 - Master's in Industrial Engineering
ECTS	6.0
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 teaching process will be developed in five main levels:

- Lectures: In the lectures the theoretical basis of the subject will be presented, illustrated with examples.
- Resolution of cases: Problems related to the contents of the subject will be developed.
- Practical student project: learning activities will be carried out, supervised by teachers, and performed throughout the semester. In the work, students will apply their knowledge and skills with gradual increase of difficulty to be useful as training and self-evaluation.
- Laboratory: laboratory practices will be developed in small groups supervised by teachers. They gradually apply their theoretical knowledge.
- Individual study by the students.

60822 - Computer Vision and Robotics

5.2.Learning activities

There will be the following activities:

Work developed in the classroom or laboratories:

- 1) Theoretical classes where the theoretical components of the course will be explained and discussed.
- 2) Problem solving sessions: during these sessions there will be problems and examples proposed, discussed and solved.
- 3) Laboratory sessions: Different lab sessions are carried out.

Independent student work:

- 4) Practical student project supervised by the professor to apply the different topics learned.
- 5) Individual study devoted to study theoretical contents, to make self-evaluation exercises and prepare the laboratory sessions.

5.3.Program

Syllabus

1. Image acquisition.
2. Basic Image processing.
3. Feature and detection and matching.
4. Contour and region segmentation.
5. Visual Recognition
6. 3D Vision
7. Image alignment.
8. Structure from motion.
9. Perception for Robotics
10. Applications: visual inspection and 3D vision for robotics

Laboratory sessions:

1. Image processing
2. Feature detection and matching
3. Image segmentation and Recognition
4. Camera calibration.
5. Two-view geometry.
6. 3D reconstruction.
7. Visual servoing.

5.4.Planning and scheduling

The different lectures and laboratory sessions will be held as established by the official schedule of the "Escuela de Ingeniería e Arquitectura" (EINA), available on its website.

The office hours of the faculty from the Departamento de Informática e Ingeniería de sistemas are available at:
<http://diis.unizar.es/ConsultaTutorias.php>

The rest of activities will be planned and announced in advance during the lectures and will be updated accordingly at the course website (<http://add.unizar.es>).

5.5.Bibliography and recommended resources

