

Program	09TT- Engineering in Telecommunication Technologies and Services
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Course number and name	
Number	95000071
Name	Digital Image and Video Processing Tratamiento Digital de Imágenes y Video
Semester	Y4 - S7

Credits and contact hours	
ECTS Credits	6
Contact hours	60

Coordinator's name	Julián Cabrera Quesada
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Specific course information		
Description of course content		
<p>The course introduces the students to multidimensional signals, considering the simplest case (bidimensional, images) and concisely considering the three-dimensional one (video).</p> <p>The fundamentals of image processing are covered along with their application to practical problems. This includes both linear and non-linear techniques, such as image morphology.</p>		
List of topics to be covered		
<ul style="list-style-type: none"> • Introduction to Digital Image Processing • Point-wise image operators • Linear filters • Global image operators • Image restoration • Image morphology • Geometric transformations • Image segmentation 		
Prerequisites or co-requisites		
Signals and Systems, Random Signals, Digital Signal Processing		
Course category in the program		
__ R (required)	__ E (elective)	_X_ SE (selective elective)

Specific goals for the course

Specific outcomes of instruction

- RA1: To know the practical problems that can be addressed with image and video processing techniques.
- RA2: To know the application of image and video processing techniques in communication systems.
- RA3: To be able to apply the mathematical and conceptual tools of digital image and video processing..
- RA4: To be able to apply some fundamental computer tools for the implementation of image and video processing algorithms.
- RA6: To know the theory and applications of linear digital image and video processing algorithms..
- RA7: To know the theory and applications of image processing algorithms based on mathematical morphology.

Student outcomes addressed by the course

CE-SI1, CE-SI5
 CG-2, CG-3, CG-4, CG-5, CG-9, CG-10, CG-12

Bibliography and supplemental materials

Course notes (slides)
 Course Matlab-based laboratory material
 Recommended textbooks:
 R.C. Gonzalez y R.E. Woods, "Digital Image Processing", Prentice-Hall, 2008 (3ª edición).
 B. Jähne, "Digital Image Processing: Concepts, Algorithms and Scientific Applications", Springer-Verlag, 2005 (6ª edición).
 Y. Wang, J. Ostermann y YQ. Zhang, "Video Processing and Communications", Prentice Hall, 2002.

Teaching methodology

<input checked="" type="checkbox"/> lectures	<input checked="" type="checkbox"/> problem solving sessions	<input type="checkbox"/> collaborative actions	<input checked="" type="checkbox"/> laboratory sessions
Other:			