

Name of the course: 3D Computer Vision	Total credits: 2+2+1=5
IPM-18AUTCVEG	
Type: Obligatory	
Total hours of per semester: lecture: 26 practice: 26 consultation: 13 Other: projects	
Type of testing: exam Other: project	
Semester: 2nd	
Description	
Camera models. Feature detection in images. Pattern matching. Camera calibration. Stereo vision. Monocular vision. Simultaneous localization and mapping. Case studies in several application fields of computer vision.	
Literature	
<p>Compulsory</p> <ul style="list-style-type: none"> Richard Hartley, Andrew Zisserman. Multiple View Geometry 2nd edition, Cambridge University Press, 2004. ISBN: 05215405182 <p>Recommended</p> <ul style="list-style-type: none"> Yi Ma, Stefano Saototo, Jana Kosecka, S. Shankar Sastry. An Invitation to 3-D Vision. Springer-Verlag, New York, November 2003 Marc Pollefeys. Visual 3D Modelling from Images.(tutorial) http://www.cs.unc.edu/~marc/tutorial/ 	
Competencies	
<p>Knowledge</p> <ul style="list-style-type: none"> Possession of complex and up-to-date knowledge in computer vision, regarding the design, implementation, operation and computer vision systems. Detailed and expert-level knowledge of the technical terms and expressions of computer vision in English. <p>Competencies</p> <ul style="list-style-type: none"> Expertise in design, development, operation and management tasks in the domain of complex computer vision systems. Skills for cooperation and team work, and ability to take leading role. Ability for written and oral communication in English, using the technical terms and expressions of computer vision. Ability to argue, to prepare reports, to read, understand and exploit scientific and technical material (e.g. books and papers). Expertise in utilizing sources of technical information, their critical interpretation and evaluation, and the extraction of information relevant to the solution of a specific problem. Ability to perform supervised scientific research, and skills required for post-graduate studies. Ability to apply knowledge in a diverse and multidisciplinary environment. 	

Attitude

- Attends professional, technological development related to their qualification.
- Commitment to critical feedback and self-assessment.
- Commitment to lifelong learning and receptivity to new IT competencies.
- Adopts and coordinates the ethical principles of work, organizational culture and research.
- Shares professional knowledge, mediates professional results.
- Commitment to quality standards and its IT tools.
- Open to initiate collaboration with IT and other specialists.

Autonomy and responsibility

- Takes responsibility for his professional decisions taken during his professional activities.
- Takes responsibility for observing and enforcing deadlines.
- Takes responsibility for own and fellow workers' work.
- In the case of operational critical IT systems, he/she can be assigned responsibility for development and operation, according to his/her professional competencies.