Democritus University of Thrace, Kavala, Greece
School of Science
Department of Informatics

Department of European and International Programmes – Erasmus+
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Proposed Course for incoming Erasmus students[1]

Responsible for the course (lecturer) (name, phone number, e-mail address)	Professor George A. Papakostas 0030 2510 462 321 gpapak@cs.duth.gr
Title of the Course	**INTRODUCTION TO COMPUTER VISION**
ECTS credits	5
Short contents of the course	1. Basic concepts of human vision function. 2. Sensors and imaging. 3. Basic concepts of computer vision. 4. Computer vision in 2 and 3 dimensions (2-D and 3-D). 5. Stereoscopic vision. 6. Object detection. 7. Motion analysis. 8. Scene understanding. 9. Distributed camera networks. 10. Analysis and use of image depth. 11. Image segmentation. 12. Feature detection and identification (SIFT, SURF, etc). 13. Visual analysis of people (face recognition, expressions, etc.). 14. Feature extraction. 15. Applications of computer vision. 16. Familiarity with OpenCV library.
Aim of the course and target audience	• The course aims to familiarize students with the basic principles of computer vision as well both theoretically and practically. The primary objective of the course is the promotion the importance of the research topic of computer vision and the role it has in the modern world. This goal is pursued through parallelism with the abilities of human vision. Within this course, several processing stages are presented that are required to achieve the vision function of a system computer - camera. It is very important to emphasize that the main objective of the course is the analysis and implementation of algorithms that support a typical artificial vision system. • Target audience: Undergraduate students of Informatics/ Computer Science
Teaching Methods duration and Evaluation	Lectures: 52 hours Hands-on exercises: 26 hours Project: 26 hours Evaluation: 100% Individual AND/OR Group Assignments
Offered Period	Fall semester

Indicative bibliography	1. R. Szeliski, "Computer Vision: Algorithms and Applications", 1st Edition, Springer, 2011. 2. D. Forsyth and J. Ponce, "Computer Vision: A Modern Approach", 2nd Edition, Prentice Hall, 2011. 3. G. Bradski and A. Kaehler, "Learning OpenCV: Computer Vision with the OpenCV Library", 1st Edition, O'Reilly Media, 2008.

[1] Could be easily used and offered for TS movement to our Erasmus partners