

Specification for the book of courses

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|--|--|--|--------------------------------|----------------------|
| Study program | Electronics and Microsystems | | | |
| Module | Electronics and Microsystems | | | |
| Type and level of studies | Master studies | | | |
| The name of the course | Video Signals Processing | | | |
| Lecturer (for lectures) | Nikolić V. Saša | | | |
| Lecturer/associate (for exercises) | Cvetković S. Stevica | | | |
| Lecturer/associate (for OFE) | Cvetković S. Stevica | | | |
| Number of ECTS | 5 | Course status (obligatory/elective) | Elective | |
| Prerequisites | | | | |
| Course objectives | Present the basic algorithms for digital video processing: video enhancement, sharpening, filtering, segmentation, object detection etc.. Using of mathematical algorithms for operation in digital video processing. Software implementation of presented algorithms in Matlab. | | | |
| Course outcomes | To enable students to understand and implement alone the basic operations of digital video processing in MATLAB. | | | |
| Course outline | | | | |
| Theoretical teaching | Removing noise in the video signal. Superresolution - improving the resolution of video. Stabilization of video sequences. Creating of panorama images based on video. Automatic detection and tracking of moving objects. Detection and extraction of key frames. Content based video browsing. Video watermarking. | | | |
| Practical teaching (exercises, OFE, study and research) | Exercises on the computer in the MATLAB. The practical implementation of algorithms for digital video processing presented in lectures. | | | |
| Textbooks/references | | | | |
| 1 | Oge Marques, Practical image and video processing using Matlab, Wiley, 2011. | | | |
| 2 | Y. Wang, J. Ostermann, Y. Zhang, Video Processing and Communications, Prentice Hall, 2002. | | | |
| 3 | Rafael C. Gonzalez, Richard E. Woods, Digital Image Processing, 3rd edition, Prentice-Hall, 2008 | | | |
| 4 | | | | |
| 5 | | | | |
| Number of classes of active education per week during semester/trimester/year | | | | |
| Lectures | Exercises | OFE | Study and research work | Other classes |
| 2 | 1 | 1 | | |
| Teaching methods | Lectures, exercises, laboratory exercises, homework, course project, consultations | | | |
| Grade (maximum number of points 100) | | | | |
| Pre-exam duties | Points | Final exam | Points | |
| Activity during lectures | 5 | Written exam | 20 | |
| Exercises | 15 | Oral exam | 20 | |
| Colloquia | 20 | | | |
| Projects | 20 | | | |