

		Course title: <i>Digital image processing</i>		
Course code	Course status	Semester	Number of ECTS credits	Lecture hours
<i>PA2103</i>	Mandatory	<i>I</i>	6	3+1

Study program: Graduate academic studies, ELECTRICAL ENGINEERING, study program: Electronics, Telecommunications and Computer engineering (studies last for 4 semesters, 120 ECTS credits).	
Prerequisites: No prerequisites required.	
Course aims: Students will be introduced with a very applicable issues that represent theoretical background for numerous for numerous disciplines and in multimedia systems, industrial applications, shape recognition, medicine etc.	
Teacher(s) first and last names: <i>Ph.D. Igor Đurović</i>	
Studying method: Lectures, exercises, laboratory exercises, individual work on practical tasks, consultations.	
Course synopsis:	
Preliminary week	Preparation and semester enrolment.
I week	Development of digital image analysis. Frequency region of image origination. Basic acquisition.
II week	Human visual system. Noises within images. Color models.
III week	Histogram. Operations with a point and histogram. Geometrical transformation and interpolation.
IV week	2D Fourier transform. 2D DFT. 2D FFT algorithms. Convolution and 2D DFT.
V week	I colloquium
VI week	2D DCT. Radon transform. Image in spectral domains.
VII week	Free week
VIII week	Generalized sinusoidal and square image transformations. Image basis. Wavelet and applications.
IX week	Digital image filtering in spatial and frequency domain. Linear and non-linear filters.
X week	Filtering of color images. Image reconstruction. Inverse filtering.
XI week	Half-toning and dithering. Pseudocoloring.
XII week	Edge detection. Masks in edge detection. Determining the threshold for edge detection. Edge tracking.
XIII week	II colloquium
XIV week	Seminar works presentations (miniprojects) I dio
XV week	Seminar works presentation (miniprojekts) II dio
XVI week	
Final week	Administrative procedures.
XVIII-XXI week	Additional lessons, correction of the final exam and administrative procedures.
STUDENT WORKLOAD	
<u>per week</u>	<u>per semester</u>
Working hours: 6 credits x 40/30 = 8 hours.	Teaching and the final exam: (8hours) x 16 = 128hours.
Working hours structure:	Necessary preparation (before semester): 2 x (8hours) = 16hours.
3 hours for teaching	Total work hours for the course: 176hours
1 hour for exercises	Additional hours for preparing correction of the final exam, including the exam taking: up to 36hours.
4 hours for individual work, including consultations.	Work hours structure:
	128hours (lectures) + 16hours (preparation) + 36hours (additional work)
Lessons attendance is mandatory for students, as well as doing homeworks and seminar works, etc.	
Literature: Igor Đurović: Digital image processing, lecture notes.	
The forms of knowledge testing and grading:	
- Home exercises carry 5x2 points.	
- I colloquium carries 20 points; II colloquium carries 30 point (50 points total).	
- Seminar work carries 40 points	
Student gets the passing grade by collecting 50 points at least.	
Special remarks for the course : If needed, the course can also be taught in English.	
Teacher(s) who provided the information: <i>Ph.D. Igor Đurović</i>	
Note: www.obradaslike.cg.ac.yu.	