



The Faculty of:	Electrical and Computer Engineering
Field of study:	Computer Science
Speciality:	
Study degree (BSc, MSc):	

COURSE UNIT DESCRIPTION

Course title:	Autonomous mobile robots
Lecturer responsible for course: Bogdan Kwolek, Assoc. Prof.	
Contacts: phone: 1592	e-mail: bkwolek@prz-rzeszow.pl
Department : Department of Electrical Engineering and Informatics	

Semester	Weekly load	Type of classes				Number of ECTS credits
		L Lectures	C Theoretical Classes	Lb Laboratory	P Project	
4		30		15		3

Course description
<p>Lecture: Kinematics of mobile robots. Robot Pioneer 2DX. Communication with the master computer, control of the mobile robot. Languages of mobile robot programming, Colbert language. Sensors and devices of the mobile robot Pioneer 2DX. Collision free trajectory planning. Collision detection and avoidance. Navigation of the autonomous mobile robots. Methods of recognition of the environment. Construction of digital images using robot sensors. Data fusion. Image processing and analysis for autonomous navigation and map building. Human-Robot-Communication Map construction. Self-localization of the mobile robot in known and unknown environment. Simultaneous Localization and Map Building (SLAM) Multi-robot systems. Selected applications of mobile robots.</p>
<p>Classes:</p>
<p>Laboratory:</p> <p>Programming, map building, navigation of the Pioneer 2DX mobile robot.</p>
<p>Project:</p>

Objectives of the course
Examination method
Written examination.

Bibliography

Lecturer signature	
Head of Department signature	
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