Incoming student mobility

UNIOS University Unit: SCHOOL OF APPLIED MATHEMATICS AND INFORMATICS

COURSES OFFERED IN FOREIGN LANGUAGE
FOR ERASMUS+ INDIVIDUAL INCOMING STUDENTS

Department or Chair within the UNIOS Unit	School of Applied Mathematics and Informatics

Study program	Graduate university study programme in mathematics (Master level) Branch: • *Mathematics and Computer Science*

Study level	Graduate (master)

Course title	Intelligent Robotic Systems
Course code (if any)	I066
Language of instruction	English
Brief course description	Syllabus. 1. Introduction. Localization. Legged mobile robots. Wheeled mobile robots. Aerial mobile robots. 2. Kinematics. Kinematic models and constraints. Maneuverability. Actuators. Control of robot systems by using PID controller. 3. Perception of mobile robots. Sensors used in mobile robotics. Computer vision in the context of mobile robotics. 4. Localization. Bayes' rule and estimation theory for robotic systems. Environment mapping. Probabilistic localization in environment map by using Kalman filter and particle filter. Simultaneous localization and mapping 5. Path planning with graph algorithms. Path planning using potential field. Obstacle avoidance. Robot navigation.
Form of teaching	
Form of assessment	Lectures and exercises are obligatory. The exam consists of a written and an oral part. Upon completion of the course, students can take the exam. Successful midterm exam scores replace the written exam. Exercises are partially auditory and partially laboratory. In order to gain outcome, students can write homework and/or a seminar paper.

Number of ECTS	8
Class hours per week	3+2+1
Minimum number of students	
Period of realization	Winter semester
Lecturer	Zoran Tomljanović