GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Integrated Decision Systems, PG_00047701		
Field of study	Automatic Control, Cybernetics and Robotics		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2025/2026
Education level	first-cycle studies	Subject group	Optional subject group Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Decision Systems and Robotics -> Faculty of Electronics, Telecommunications and Informatics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Michał Czubenko	
	Teachers	dr inż. Michał Czubenko	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	0.0	0.0	15.0	15

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	15	2.0	33.0	50

Subject objectives

The aim of the course is to enable students to independently perform a large system project. The projects are closely related to the fusion of various kinds of measurement data and making decisions based on them. Student groups consist of approximately 8 people. Leader of the group is responsible for the division of labor and group management. Programming code (for different devices) is stored in a control version system.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U03] can design, according to required specifications, and make a simple device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment	The student develops the ability to design integrated systems that make decisions. In particular, it can combine vision systems with control systems, as well as with AVR and VR.	[SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
[K6_U08] while identifying and formulating specifications of engineering tasks related to the field of study and solving these tasks, can:n- apply analytical, simulation and experimental methods,n- notice their systemic and non-technical aspects,n- make a preliminary economic assessment of suggested solutions and engineering work n	The student combines the skills of data analysis and design decision systems. and effectively develops knowledge of high-level programming languages.	[SU1] Assessment of task fulfilment

Subject contents

The course will discussed control version systems and methods of their use, how to manage medium ICT project.

Prerequisites and co-requisites	• Programming languages such as C, C ++, Python, C #. • Knowledge of the signal processing. • Knowledge of sensors and transducers. • Knowledge of embedded system design.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Project	60.0%	30.0%
Leader	60.0%	20.0%
Group	60.0%	50.0%

Recommended reading

Basic literature	Siegwart, R., Nourbakhsh, I. R., & Scaramuzza, D. (2011). *Introduction to autonomous mobile robots*. MIT press.
Supplementary literature	Kerzner, Harold. *Advanced project management: edycja polska*. Ed. Paweł Dąbrowski. Helion, 2005. Liggins II, Martin, David Hall, and James Llinas, eds. *Handbook of multisensor data fusion: theory and practice*. CRC press, 2017.
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	• Street View of WETI corridor using a mobile robot • Solving the problem of rendez-vous in a virtual environment • Integration of sensory data for scheduling trains • Construction and control mobile robot follower for tag • Construction and control of a mobile robot mapping environment
Work placement	Not applicable