



Subject card

Subject name and code	Radiolocalization, PG_00070922						
Field of study	Electronics and Telecommunications, Informatics, Automatic Control, Cybernetics and Robotics						
Date of commencement of studies	October 2024	Academic year of realisation of subject				2025/2026	
Education level	second-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery				at the university	
Year of study	2	Language of instruction				English	
Semester of study	4	ECTS credits				1.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Department of Radiocommunication Systems and Networks -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Jarosław Sadowski					
	Teachers	dr hab. inż. Jarosław Sadowski					
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	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		1.0		9.0	25
Subject objectives	The aim of the course is to familiarize students with radio techniques for determining the position and movement parameters of objects for the purposes of radiolocalization and radionavigation.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W03] knows and understands, to an increased extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum		The student knows the principles of operation of radio navigation and radiolocalization systems and techniques for radio determination of the position and movement parameters of objects.		[SW1] Assessment of factual knowledge		
	[K7_W02] knows and understands, to an increased extent, selected laws of physics and physical phenomena, as well as methods and theories explaining the complex relationships between them, constituting advanced general knowledge in the field of technical sciences related to the field of study		The student knows the physical phenomena occurring in the propagation of radio waves, which can be used for radiolocalization and radionavigation purposes.		[SW1] Assessment of factual knowledge		
Subject contents	Course content – lecture <ul style="list-style-type: none">Objectives of position estimation using radio methods.Quality measures of position estimation.Structures of positioning systems.Measurements of radio signal parameters.Position estimation based on geometrical relationships.Detection of neighborhood and analysis of the environment.Methods and algorithms for calculating position.Examples of radiolocalization and radionavigation systems.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Three short tests during semester		50.0%		100.0%		

Recommended reading	Basic literature	<ol style="list-style-type: none"> 1. Mannings R.: Ubiquitous positioning, Artech House, 2008 2. Zekavat S.A., Buehrer R.M.: Handbook of position location, Wiley, 2012 3. Frattasi S., Della Rosa F.: Mobile positioning and tracking from conventional to cooperative techniques, 2nd edition, Wiley, 2017 4. Samana N.: Global positioning technologies and performance, Wiley, 2008 5. Bensky A.: Wireless positioning technologies and applications, Artech House, 2008
	Supplementary literature	<ol style="list-style-type: none"> 1. Yu K., Sharp I., Guo Y.J.: Ground-based wireless positioning, Wiley 2009 2. Dardari D., Falletti E., Luise M.: Satellite and terrestrial radio positioning techniques, Academic Press, 2012 3. Grewal M.S., Weill L.R., Andrews A.P.: Global positioning systems, inertial navigation and integration, Wiley, 2007 4. Sahinoglu Z., Gezici S., Guvenc I.: Ultra-wideband positioning systems, Cambridge University Press, 2008
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Practical activities within the subject	Not applicable	

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