

Subject card

Subject name and code	Navigational equipment - course ARPA, PG_00131526						
Field of study	Marine Hydrography						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2026/2027		
Education level	Bachelor's studies	Subject group			Optional subject group		
Mode of study	full-time studies	Mode of delivery			at the university		
Year of study	3	Language of instruction			Polish		
Semester of study	5	ECTS credits			2.0		
Learning profile	practical	Assessment form			credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Artur Makar				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	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	30	1.0		20.0	51	
Subject objectives	Teaching the principles of operation, operation and effective use of ARPAs, paying attention to their limitations, accuracy and specifications for displaying navigation information						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[HML3-W16] engineering standards and norms specific to the field of study, in particular those recommended by IHO and IMO		knows: - IMO requirements for radar equipment and ARPA, and the dangers of overreliance on ARPA data.		[SW4] test/exam - oral or written		
	[HML3-W07] principles of operation and use of measuring instruments used in professional activities related to the field of study, including the principles of their calibration and assessment of accuracy		Knows: - Principles of operation and maintenance of navigation radars. - Principles of radar plotting. - Principles of operation of ARPA devices and their possible use in planning anti-collision maneuvers.		[SW4] test/exam - oral or written		
Subject contents	IMO technical and operational requirements for radar equipment. Basic phenomena and problems in radiolocation. Construction and operation of marine navigation radar. Interpretation of radar images. Errors and accuracy of radar measurements. Diagnostics of radar performance and preliminary fault location. Digital processing of echoes and its impact on radar imaging. Devices interoperating with navigation radar. Preparing a radar plot - radar report, planning and monitoring the effectiveness of anti-collision maneuvers. Using radar equipment to determine and control a vessel's position. EPA and ATA plotting aids - principle of operation and possible applications. Principle of operation, basic functions, and operation of ARPA. Interpretation of information obtained from ARPA. Testing, errors, and limitations of ARPA equipment. ECDIS-AIS-ARPA interoperability. Using radar equipment in accordance with MPDM regulations to prevent collisions and close approaches.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
			51.0%		100.0%		

Recommended reading	Basic literature	<ol style="list-style-type: none"> 1. JANUSZEWSKI J., KON W., WIĘCKOWSKI J.: Praktyka radarowa na małych statkach. Tom I i II. Wydawnictwo Trademar, Gdynia 1997. 2. KON W.: Wykorzystanie radaru do zapobiegania zderzeniom. 1983. 3. WAWRUCH R.: Radar jako pomoc w zapobieganiu zderzeniom na morzu. 1994. 4. WRÓBEL F.: Vademecum oficera wachtowego. Trademar, Gdynia 1999.
	Supplementary literature	<ol style="list-style-type: none"> 1. BOLE A. G., DINELEY W. O.: Radar and ARPA Manual. 1998. 2. COCKCROFT A. N., LAMEIJER J.: Collision Avoidance Rulet (fifth edition). 2001.
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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