University of Gdańsk

Subject card

Subject name and code	Navigation - ECDIS course - classes, PG_00198838						
Field of study	Marine Hydrography						
Date of commencement of studies	October 2026		Academic year of realisation of subject	2027/2028			
Education level	Bachelor's studies		Subject group	Obligatory subject group in the field of study Optional subject group Subject group related to practical vocational preparation			
Mode of study	full-time studies		Mode of delivery	at the university			
Year of study	2		Language of instruction	Polish			
Semester of study	4		ECTS credits	1.0			
Learning profile	practical		Assessment form	credit			
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Krzysztof Naus				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	10.0	0.0	0.0	0.0	10
	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	10		1.0		14.0	25
Subject objectives	Gaining knowledge and skills in using ECDIS for safe navigation, including voyage planning with consideration of potential navigational hazards, available sources of navigational and weather warnings.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[HML3-W16] knows and understands engineering standards and norms specific to the field of study, in particular those recommended by IHO and IMO	knows standards and norms for ECDIS systems recommended by IHO and IMO	[SW4] test/exam - oral or written
	[HML3-W05] knows and understands, at an advanced level, map construction and its symbolism	knows the structure of an electronic map and its symbols	[SW4] test/exam - oral or written
	[HML3-W06] knows and understands, at an advanced level, principles of operation and use of navigation devices and systems and issues related to the determination of the position of the object using all available methods	knows the principles of operation and use of the ECDIS system	[SW4] test/exam - oral or written
	[HML3-W09] knows and understands, at an advanced level, issues related to route planning, safe route determination and monitoring in accordance with international regulations, including sources of information on navigational hazards and ways of obtaining it	knows the issues related to voyage planning, determining a safe route, and monitoring it in accordance with international regulations, including sources of information on navigational hazards and methods for obtaining it	[SW4] test/exam - oral or written
	[HML3-U19] is able to plan and implement independent learning and improvement of his/her professional competences	is able to plan and carry out self-directed learning and improve their professional skills	[SU4] test/exam - oral or written
	[HML3-U16] is able to prepare in Polish and foreign language a study of a problem in the field of study with documented conclusions, supported by a report and a multimedia presentation	is able to prepare, in Polish and a foreign language, a research paper on a topic related to their field of study, including documented conclusions, supported by a report and a multimedia presentation	[SU4] test/exam - oral or written
	[HML3-U15] is able to communicate using a variety of techniques, including non-verbal and different technical means in the professional environment and in other environments	is able to communicate using various techniques, including nonverbal communication and various technical aids, in professional and other settings	[SU4] test/exam - oral or written
	[HML3-U13] is able to determine the technical condition of navigation and hydrotechnical infrastructure, as well as maintain navigation and hydrographic equipment and systems, both on board and on shore	is able to assess the technical condition of navigational and hydro-technical infrastructure, as well as maintaining navigational and hydrographic devices and systems, both onboard and shore-based	[SU4] test/exam - oral or written
	[HML3-U12] is able to use engineering standards and norms and apply technologies specific to the field of study	is able to apply engineering standards and norms and use technologies relevant to their field of study	[SU4] test/exam - oral or written
	[HML3-U11] is able to use navigation devices, means of technical observation and communication as well as measuring instruments, as well as apply in practice various techniques of measurement and observation in the field of professional activity related to the field of study	is able to use navigational devices, technical observation and communication means, and measuring instruments, as well as practically applying various measurement and observation techniques in professional activities related to the field of study	[SU4] test/exam - oral or written
	[HML3-U07] is able to effectively use information and communication techniques, including utility programs to solve professional problems	is able to effectively use information and communication technologies, including software applications, to solve professional problems	[SU4] test/exam - oral or written

Subject contents	Geographic Information Systems (GIS). Legal aspects and standardization of ECDIS systems. Characteristics of the basic types of electronic chart systems (ECDIS, RCDS, and ECS). Database creation for ECDIS needs (WEND, RECC centers). Basic navigational functions of ECDIS. Presentation of ECDIS data (ENC/SENC and RNC/SRNC). Devices and sensors compatible with ECDIS. Planning, monitoring, and recording voyages in ECDIS systems. Display and presentation functions of additional navigational information. Data updating, recording navigational data, checking the correct operation of ECDIS, backup functions. ARCS, AVCS, TADS services. Alarms, warnings, and misinterpretation of presented data. Pilot navigation using ECDIS.

<table>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Colloquium</td><td>51.0%</td><td>100.0%</td></tr>
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<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. BOWDITCH N.: American Practical Navigator. 2002. (Chapter 14 Electronic Charts).</td></tr>
<tr><td>Supplementary literature</td><td>1. Navi-Sailor 4100 User Manual.
2. NMEA Interface Standard 0183 v.3.01 (Severna Park, MD, National Marine Electronic Association, 1/2002).
3. SOLAS Convention, Regulations V/19, V/20 and V/27 as amended 2009, IMO Res. MSC 282(86).</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>1. What is GIS and what are its main functions in navigation?
2. What are the basic legal regulations governing the operation of ECDIS?
3. Explain the differences between ECDIS, RCDS, and ECS systems.
4. What is the WEND database and what is its significance for ECDIS?
5. What are the key navigational functions available in the ECDIS system?
6. What monitoring and recording functions does ECDIS offer for voyages?
7. What are the procedures for updating data in ECDIS?
8. What are the most common causes of misinterpretation of data presented by ECDIS?
9. What are the advantages of using ECDIS in pilot navigation?</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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