



## Subject card

|   |  |  |                                     |            |  |  |     |
|---|--|--|-------------------------------------|------------|--|--|-----|
| Subject name and code                       | Ship Theory, PG_00060462   |  |                                     |            |  |  |     |
| Field of study                              | Mechanical and Naval Engineering   |  |                                     |            |  |  |     |
| Date of commencement of studies             | October 2026   | Academic year of realisation of subject  |                                     |            |  | 2027/2028  |     |
| Education level                             | first-cycle studies  | Subject group  |                                     |            |  | Obligatory subject group in the field of study<br>Subject group related to scientific research in the field of study |     |
| Mode of study                               | Part-time studies  | Mode of delivery   |                                     |            |  | at the university  |     |
| Year of study                               | 2  | Language of instruction  |                                     |            |  | Polish   |     |
| Semester of study                           | 4  | ECTS credits   |                                     |            |  | 5.0  |     |
| Learning profile                            | general academic profile   | Assessment form  |                                     |            |  | assessment   |     |
| Conducting unit                             | Institute of Naval Architecture -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology   |  |                                     |            |  |  |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor   | dr inż. Michał Krężelewski   |                                     |            |  |  |     |
|   | Teachers   |  |                                     |            |  |  |     |
| Lesson types                                | Lesson type  | Lecture  | Tutorial                            | Laboratory | Project  | Seminar  | SUM |
|   | Number of study hours  | 18.0   | 18.0                                | 0.0        | 0.0  | 0.0  | 36  |
|   | 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  | 36   | 8.0                                 | 81.0       | 125  |  |     |
| Subject objectives                          | The introduction to the basic issues of the Ship Theory. Uses the laws and methods of Ship Theory and can apply them to practical problems.  |  |                                     |            |  |  |     |
| Learning outcomes                           | Course outcome   | Subject outcome  |                                     |            | Method of verification   |  |     |
|   | [K6_U12] can formulate a simple engineering task and its specification within the range of design, construction and operation of ocean technology objects and systems  | can formulate a simple engineering task and its specification within the range of design and operation of ocean technology objects and systems |                                     |            | [SU3] Assessment of ability to use knowledge gained from the subject |  |     |
|   | [K6_W13] has an organized knowledge on design, construction and operation of ocean technology objects and systems  | has an organized knowledge on design, construction and operation of ocean technology objects and systems                                       |                                     |            | [SW1] Assessment of factual knowledge                                |  |     |
|   | [K6_W12] has a knowledge on hydromechanics, thermodynamics, machine construction, ecology, materials science and electronics necessary to understand the construction and operation principles of ocean technology objects and equipment | has a knowledge on hydromechanics to understand the construction and operation principles of ocean technology objects and equipment            |                                     |            | [SW1] Assessment of factual knowledge                                |  |     |

| Subject contents   | <p>Course content – lecture</p> <p>Lecture:</p> <p>Basic propulsion task.</p> <p>Fundamentals of experiment in shipbuilding.</p> <p>Ship resistance: components of resistance, methods of determination.</p> <p>Fundamentals of wing theory.</p> <p>Ship propulsors. Ideal propeller theory. Geometry of the ship propeller. Hydrodynamic characteristics of the ship propeller.</p> <p>Hull and propeller interaction.</p> <p>Manoeuvring characteristics of a ship. Manoeuvring tests. Steering devices. Selection of the classical rudder.</p> <p>Introduction to seakeeping.</p> <p>Exercises:</p> <p>Ship statics and stability: theory, regulations, practical examples and exercises.</p>  |                               |  |                          |   |                               |                          |  |       |                      |       |       |
|--|---|-------------------------------|--|--------------------------|---|-------------------------------|--------------------------|--|-------|----------------------|-------|-------|
| Prerequisites and co-requisites                                |   |                               |  |                          |   |                               |                          |  |       |                      |       |       |
| Assessment methods and criteria                                | <table border="1"> <thead> <tr> <th data-bbox="453 591 794 622">Subject passing criteria</th> <th data-bbox="799 591 1141 622">Passing threshold</th> <th data-bbox="1145 591 1492 622">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="453 629 794 660">Tutorial - test</td> <td data-bbox="799 629 1141 660">60.0%</td> <td data-bbox="1145 629 1492 660">50.0%</td> </tr> <tr> <td data-bbox="453 667 794 689">Lecture - test</td> <td data-bbox="799 667 1141 689">60.0%</td> <td data-bbox="1145 667 1492 689">50.0%</td> </tr> </tbody> </table>  |                               |  | Subject passing criteria | Passing threshold   | Percentage of the final grade | Tutorial - test          | 60.0%  | 50.0% | Lecture - test       | 60.0% | 50.0% |
| Subject passing criteria                                       | Passing threshold   | Percentage of the final grade |  |                          |   |                               |                          |  |       |                      |       |       |
| Tutorial - test  | 60.0%   | 50.0%                         |  |                          |   |                               |                          |  |       |                      |       |       |
| Lecture - test   | 60.0%   | 50.0%                         |  |                          |   |                               |                          |  |       |                      |       |       |
| Recommended reading  | <table border="1"> <tbody> <tr> <td data-bbox="453 703 794 801">Basic literature</td> <td colspan="2" data-bbox="799 703 1492 801"> Dudziak J. Teoria okrętu, Fundacja Promocji Przemysłu Okrętowego i Gospodarki Morskiej, Gdańsk 2008<br/> Frąckowiak M. Statyka okrętu, skrypt PG, Gdańsk 1983<br/> Wełnicki W. Mechanika ruchu okrętu, skrypt PG, Gdańsk 1989 </td> </tr> <tr> <td data-bbox="453 808 794 1003">Supplementary literature</td> <td colspan="2" data-bbox="799 808 1492 1003"> Wilson P. A. Basic Naval Architecture: Ship Stability, Springer 2018<br/> Rawson K.J. Tupper E.C. Basic Ship Theory, vol. 1 and 2, Butterworth-Heinemann Oxford 2001<br/> Lee B.S. Hydrostatics and Stability of Marine Vehicles: Theory and Practice, Springer 2019<br/> Molland A.F. The Maritime Engineering Reference Book - a Guide To Ship Design, Construction And Operation, Butterworth-Heinemann Oxford 2008 </td> </tr> <tr> <td data-bbox="453 1010 794 1032">eResources addresses</td> <td colspan="2" data-bbox="799 1010 1492 1032"></td> </tr> </tbody> </table> |                               |  | Basic literature         | Dudziak J. Teoria okrętu, Fundacja Promocji Przemysłu Okrętowego i Gospodarki Morskiej, Gdańsk 2008<br>Frąckowiak M. Statyka okrętu, skrypt PG, Gdańsk 1983<br>Wełnicki W. Mechanika ruchu okrętu, skrypt PG, Gdańsk 1989 |                               | Supplementary literature | Wilson P. A. Basic Naval Architecture: Ship Stability, Springer 2018<br>Rawson K.J. Tupper E.C. Basic Ship Theory, vol. 1 and 2, Butterworth-Heinemann Oxford 2001<br>Lee B.S. Hydrostatics and Stability of Marine Vehicles: Theory and Practice, Springer 2019<br>Molland A.F. The Maritime Engineering Reference Book - a Guide To Ship Design, Construction And Operation, Butterworth-Heinemann Oxford 2008 |       | eResources addresses |       |       |
| Basic literature   | Dudziak J. Teoria okrętu, Fundacja Promocji Przemysłu Okrętowego i Gospodarki Morskiej, Gdańsk 2008<br>Frąckowiak M. Statyka okrętu, skrypt PG, Gdańsk 1983<br>Wełnicki W. Mechanika ruchu okrętu, skrypt PG, Gdańsk 1989   |                               |  |                          |   |                               |                          |  |       |                      |       |       |
| Supplementary literature                                       | Wilson P. A. Basic Naval Architecture: Ship Stability, Springer 2018<br>Rawson K.J. Tupper E.C. Basic Ship Theory, vol. 1 and 2, Butterworth-Heinemann Oxford 2001<br>Lee B.S. Hydrostatics and Stability of Marine Vehicles: Theory and Practice, Springer 2019<br>Molland A.F. The Maritime Engineering Reference Book - a Guide To Ship Design, Construction And Operation, Butterworth-Heinemann Oxford 2008  |                               |  |                          |   |                               |                          |  |       |                      |       |       |
| eResources addresses   |   |                               |  |                          |   |                               |                          |  |       |                      |       |       |
| Example issues/<br>example questions/<br>tasks being completed | <p>Why do we design ship propellers to have the highest possible efficiency?</p> <p>List the components of total ship resistance.</p> <p>Why do we consider the theory of the ideal propeller?</p> <p>Basic geometrical parameters of a ship propeller.</p> <p>Hydrodynamic characteristics of the ship propeller.</p> <p>Geometrical characteristics of the ship's rudder.</p> <p>How is the influence of the ship's hull on the operation of the ship propeller taken into account?</p> <p>List the manoeuvring tests whose parameters are standardised by IMO.</p>   |                               |  |                          |   |                               |                          |  |       |                      |       |       |
| Practical activities within the subject                        | Not applicable  |                               |  |                          |   |                               |                          |  |       |                      |       |       |

Document generated electronically. Does not require a seal or signature.