



Subject card

| | | | | | | | |
|---|--|--|---|-------------------------------------|--|------------|-----|
| Subject name and code | Non-metallic materials, PG_00058492 | | | | | | |
| Field of study | Transport and Logistics | | | | | | |
| Date of commencement of studies | October 2022 | | Academic year of realisation of subject | | 2022/2023 | | |
| Education level | first-cycle studies | | Subject group | | | | |
| Mode of study | Full-time studies | | Mode of delivery | | at the university | | |
| Year of study | 1 | | Language of instruction | | Polish | | |
| Semester of study | 1 | | ECTS credits | | 4.0 | | |
| Learning profile | general academic profile | | Assessment form | | assessment | | |
| Conducting unit | Department of Theory and Ship Design -> Faculty of Mechanical Engineering and Ship Technology | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr hab. inż. Lech Rowiński | | | | |
| | Teachers | | dr inż. Mohamed Behilli | | | | |
| | | | mgr inż. Piotr Bela | | | | |
| | | | dr hab. inż. Lech Rowiński | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 15.0 | 0.0 | 15.0 | 15.0 | 0.0 | 45 |
| | 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 | 45 | | 0.0 | | 0.0 | 45 |
| Subject objectives | Provide basic knowledge regarding organic synthetic materials (plastics) that are utilized in machine and boat building as well as principles of selection of materials for structures, glues and surface coats. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [K6_U05] can formulate a simple engineering task and its specification within the range of design, construction and operation of means and systems of transport | | Is able to define selection procedure of material for indicated mechanical element | | [SU2] Assessment of ability to analyse information | | |
| | [K6_W03] has a basic knowledge on hydromechanics, thermodynamics, machine construction, ecology, materials science and electronics necessary to understand the construction and operation principles of means of marine transport | | Is able to describe influence of material parameters of an mechanical element on properties of this element and propose means of procurement of such an element | | [SW1] Assessment of factual knowledge | | |
| Subject contents | Basic definitions and nomenclature (monomers and polymers); Review of non-metallic materials - natural and synthetic (cellulose, proteins, natural caoutchouc); Material characteristics for different application areas; Thermoplastics and elastomers. Mechanical and thermal properties of thermoplastics. Duromers and their chemistry. Resins and reinforcements for marine application. Technological process of reinforced structures. Technological process of a large structural element of reinforced synthetic resin. | | | | | | |
| Prerequisites and co-requisites | Basic chemistry. Basic mechanical properties of materials | | | | | | |
| Assessment methods and criteria | Subject passing criteria | | Passing threshold | | Percentage of the final grade | | |
| | Short test during every lesson | | 60.0% | | 50.0% | | |
| | Laboratory raport | | 80.0% | | 50.0% | | |

| | | |
|--|--------------------------|---|
| Recommended reading | Basic literature | 1.Dobrosz K.,Matysiak A.,Tworzywa sztuczne Warszawa WSZIP 1985 2.Kłosowska-Wońkiewicz Z.,Królikowski W.,Penczek P.,Żywice i laminaty poliestrowe. Warszawa WNT 1980 3.Kozłowski J.,Wilczopolski M..Materiałoznawstwo okrętowe czIII Okrętowe Tworzywa Polimerowe. Gdynia WSMW 1982 4.Królikowski W., Tworzywa wzmocnione i włókna wzmacniające,Warszawa WNT 1988 5.Żuchowska D.,Polimery konstrukcyjne. Warszawa WNT 1995 |
| | Supplementary literature | 1. Błędzki A.K. i inni: Recykling materiałów polimerowych, Wydawnictwa Naukowo Techniczne, Warszawa, 1997. 2. Composites World (https://www.compositesworld.com) |
| | eResources addresses | Adresy na platformie eNauczanie: |
| Example issues/ example questions/ tasks being completed | | |
| Work placement | Not applicable | |

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