



## Subject card

|                                             |                                                                                                                                                                                                    |                                                          |                                                                            |                                     |         |                                                                                                       |     |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------|---------|-------------------------------------------------------------------------------------------------------|-----|
| Subject name and code                       | , PG_00069428                                                                                                                                                                                      |                                                          |                                                                            |                                     |         |                                                                                                       |     |
| Field of study                              | Materiały drogowe                                                                                                                                                                                  |                                                          |                                                                            |                                     |         |                                                                                                       |     |
| Date of commencement of studies             | October 2022                                                                                                                                                                                       |                                                          | Academic year of realisation of subject                                    |                                     |         | 2025/2026                                                                                             |     |
| Education level                             | first-cycle studies                                                                                                                                                                                |                                                          | Subject group                                                              |                                     |         |                                                                                                       |     |
| Mode of study                               | Part-time studies                                                                                                                                                                                  |                                                          | Mode of delivery                                                           |                                     |         | at the university                                                                                     |     |
| Year of study                               | 4                                                                                                                                                                                                  |                                                          | Language of instruction                                                    |                                     |         | Polish                                                                                                |     |
| Semester of study                           | 7                                                                                                                                                                                                  |                                                          | ECTS credits                                                               |                                     |         | 2.0                                                                                                   |     |
| Learning profile                            | general academic profile                                                                                                                                                                           |                                                          | Assessment form                                                            |                                     |         | assessment                                                                                            |     |
| Conducting unit                             | Department of Transportation Engineering -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology                                                         |                                                          |                                                                            |                                     |         |                                                                                                       |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                 |                                                          | dr hab. inż. Piotr Jaskuła                                                 |                                     |         |                                                                                                       |     |
|                                             | Teachers                                                                                                                                                                                           |                                                          |                                                                            |                                     |         |                                                                                                       |     |
| Lesson types                                | Lesson type                                                                                                                                                                                        | Lecture                                                  | Tutorial                                                                   | Laboratory                          | Project | Seminar                                                                                               | SUM |
|                                             | Number of study hours                                                                                                                                                                              | 10.0                                                     | 0.0                                                                        | 10.0                                | 0.0     | 0.0                                                                                                   | 20  |
|                                             | E-learning hours included: 0.0                                                                                                                                                                     |                                                          |                                                                            |                                     |         |                                                                                                       |     |
|                                             | eNauczanie source address: <a href="https://enauczanie.pg.edu.pl/2025/course/view.php?id=2449">https://enauczanie.pg.edu.pl/2025/course/view.php?id=2449</a>                                       |                                                          |                                                                            |                                     |         |                                                                                                       |     |
| 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                                                                                                                                                                              | 20                                                       |                                                                            | 2.0                                 |         | 28.0                                                                                                  | 50  |
| Subject objectives                          | To learn principles of material's type, laboratory testing and quality control of highway materials.                                                                                               |                                                          |                                                                            |                                     |         |                                                                                                       |     |
| Learning outcomes                           | Course outcome                                                                                                                                                                                     |                                                          | Subject outcome                                                            |                                     |         | Method of verification                                                                                |     |
|                                             | [K6_W06] Demonstrates practical knowledge and understanding of materials, devices and tools, processes and technologies in the field of civil engineering (and their limitations).                 |                                                          | Classifies and tests aggregates, bituminous binders, and asphalt mixtures. |                                     |         | [SW2] Ocena wiedzy zawartej w prezentacji                                                             |     |
|                                             | [K6_U06] Conduct engineering activities in civil engineering subject area, using and applying practical knowledge and understanding of materials, equipment and tools, processes and technologies. |                                                          | Assessment of road pavements. Modern road materials.                       |                                     |         | [SU1] Ocena realizacji zadania                                                                        |     |
|                                             | [K6_K01] Is aware of the key aspects of professional, ethical and social responsibility related to management, business operation, decision making and opinion formulation in civil engineering.   |                                                          | Knowledge of construction contract requirements.                           |                                     |         | [SK2] Ocena postępów pracy                                                                            |     |
|                                             | [K6_U07] Design and build engineering structures in a sustainable manner, with care for the natural environment and a minimum carbon footprint                                                     |                                                          | Assessment of road pavements. Modern road materials                        |                                     |         | [SU1] Ocena realizacji zadania<br>[SU5] Ocena umiejętności zaprezentowania wyników realizacji zadania |     |
|                                             | [K6_W07] Understand the investment's impact on the environment and the interrelationships and dependencies between the building structure and the natural environment                              |                                                          | Can use recycling materials.                                               |                                     |         | [SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym                                     |     |

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| Subject contents                                               | Course content – lecture<br>Course content lecture                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                            |                               |
|                                                                | Classification and tests of aggregates. Bituminous binders: types, classification and tests. Types of asphalt mixtures and their applications. Asphalt mixture design and tests. Small size elements: kerbs, concrete paving blocks. Alternative materials, types and applications. Road pavement tests. Modern road materials. |                                                                                                                                                                                                                                                                                                                                                                                                            |                               |
|                                                                | Course content – laboratory<br>Course Content - Laboratory                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                            |                               |
|                                                                | Soil and mineral aggregate testing. Asphalt binder testing. Bearing capacity test. Design and testing of asphalt mixtures.                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                            |                               |
| Prerequisites and co-requisites                                |                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                            |                               |
| Assessment methods and criteria                                | Subject passing criteria                                                                                                                                                                                                                                                                                                        | Passing threshold                                                                                                                                                                                                                                                                                                                                                                                          | Percentage of the final grade |
|                                                                | passing                                                                                                                                                                                                                                                                                                                         | 55.0%                                                                                                                                                                                                                                                                                                                                                                                                      | 100.0%                        |
| Recommended reading                                            | Basic literature                                                                                                                                                                                                                                                                                                                | 1. Piłat J., Radziszewski P., Nawierzchnie asfaltowe, WKŁ, 2004<br><br>2. Szydło A., Nawierzchnie drogowe z betonu cementowego, Polski Cement, 2004<br><br>3. Błażejowski K., Styk S., Technologia warstw asfaltowych, WKŁ, 2005<br><br>4. Edel R., Odwodnienie dróg, WKŁ 2002<br><br>5. Rolla S., Badania materiałów drogowych, WKŁ, 1985<br><br>6. Nowości techniki zagranicznej, zeszyty IBDiM Warszawa |                               |
|                                                                | Supplementary literature                                                                                                                                                                                                                                                                                                        | 7. The Asphalt Handbook, AI, 1989<br><br>8. Lilley, A Handbook of Segmental Paving, 1991                                                                                                                                                                                                                                                                                                                   |                               |
|                                                                | eResources addresses                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                            |                               |
| Example issues/<br>example questions/<br>tasks being completed |                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                            |                               |
| Practical activities within the subject                        | Not applicable                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                            |                               |

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