GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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|---|---|---|---|
| Subject name and code | Bridges and Tunnels, PG_00048197 | | |
| Field of study | Civil Engineering | | |
| Date of commencement of studies | October 2023 | Academic year of realisation of subject | 2026/2027 |
| 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 | 6.0 |
| Learning profile | general academic profile | Assessment form | exam |
| Conducting unit | Department of Engineering Structures -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | mgr inż. Maciej Malinowski | |
| | Teachers | | |

**Lesson types**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 20.0 | 0.0 | 0.0 | 20.0 | 0.0 | 40 |

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 | 40 | 5.0 | 105.0 | 150 |

**Subject objectives**

- acquainted with basic principles of designing, shaping, calculation of bridge structures,
- acquainted with basin informations of building of bridges,
- acquainted with basic methods of diagnosis of brridges,

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|

**Subject contents**

Course content – lecture

Subject contents Lecture:
1. Basic information about bridges, definitions.
2. Classification of bridge structures.
3. History of bridges.
4. Catastrophes of bridges.
5. Loads and interactions.
6. Basic information about beam, plate, frame, arch, truss, suspension, cable-stayed, movable bridges and footbridges.
7. Basic information about foundation, supports and bridge equipment.
8. Bridge building technology.
9. Basic information about tunnels and culverts.
10. Diagnostics of bridge structures.

Designing:
Project of a beam railway bridge with an open road

**Prerequisites and co-requisites**

Strength of materials.

Building mechanics.

**Assessment methods and criteria**

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| projects | 80.0% | 50.0% |
| lectures | 51.0% | 50.0% |

**Recommended reading**

Basic literature


1. Malinowski M, Banaś A., Wasilewski B., Materiały do wykładu z Mostów i Tuneli electronic version platform: eNauczanie..
2. Malinowski M, Szafrański M., Materiały pomocnicze do projektowania mostów metalowych #1 electronic version platform: eNauczanie..

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|---|---|---|
| | Supplementary literature | 1. Ryżyński A., Wołowicki W., Skarżewski J., Karlikowski J.: Mosty stalowe, PWN, Warszawa Poznań, 1984.<br>2. Szczygieł J.: Mosty z betonu zbrojonego i sprężonego. WKiŁ, Warszawa 1974 (1972).<br>3. Karlikowski J., Sturzbecher K.: Mosty stalowe. Mosty belkowe i zespolone. Przewodnik do ćwiczeń projektowych Politechnika Poznańska, Poznań, 2003.<br>4. Karlikowski J.,Madaj A., Wołowicki W.: Mostowe konstrukcje zespolone stalowo-betonowe. WKŁ, Warszawa 2007r.<br>5. Czudek H.: Podstawy mostownictwa metalowego, Politechnika Warszawska, Warszawa, 1997.<br>6. Hydzik J.: Mosty kolejowe, WKŁ, Warszawa, 1986.<br>7. Danielski L.: Mosty metalowe, Politechnika Wrocławska, Wrocław, 1983.<br>8. Cholewo J., Sznurowski M.: Mosty kolejowe i fundamentowanie ,WKŁ, Warszawa, 1965.<br>9. Korelewski J.: Mosty stalowe, Politechnika Krakowska, Kraków, 1980.<br>10. Szelągowski F.: Mosty metalowe, WKŁ, Warszawa, 1966.<br>11. Pszenicki A.: Mosty stalowe nitowane, Wydawnictwa Komunikacyjne, Warszawa, 1954.<br>12. Leonhardt F.: Podstawy budowy mostów betonowych. WKiŁ, Warszawa 1982.<br>13. Madaj A., Wołowicki W.: Mosty betonowe. WKiŁ, Warszawa 1998.<br>14. Madaj A., Wołowicki W.: Budowa i utrzymanie mostów. WKiŁ, Warszawa 1995.<br>15. Furtak K.: Mosty Zespolone. PWN, Warszawa 1999.<br>16. Siwowski T.: Projektowanie mostów według Eurokodów. Elamed 2016.<br>17. Siwowski T.: Zastosowanie Eurokodów w projektowaniu mostów. Oficyna Wydawnicza Politechniki Rzeszowskiej, 2016.<br>18. Siwowski T., Turoń B.: Projektowanie mostów zespolonych według Eurokodu 4. Oficyna Wydawnicza Politechniki Rzeszowskiej, 2016.<br>19. Karlikowski J., Madaj A., Wołowicki W.: Mosty zespolone stalowo-betonowe. Zasady projektowania wg PN-EN 1994-2. WKŁ 2016.<br>20. Machelski Cz.: Ruchome obciążenia obiektów mostowych. Dolnośląskie Wydawnictwo Edukacyjne 2015. |
| | eResources addresses | |
| Example issues/ example questions/ tasks being completed | | |
| Practical activites within the subject | Not applicable | |

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