# STUDY MODULE DESCRIPTION FORM

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|---|---|---|
| Name of the module/subject<br>**Technology of Bridge Construction** | | Code<br>**1010102131010121017** |
| Field of study<br>**Civil Engineering Second-cycle Studies** | Profile of study (general academic, practical)<br>**(brak)** | Year /Semester<br>**2 / 3** |
| Elective path/specialty<br>**Railways** | Subject offered in:<br>**Polish** | Course (compulsory, elective)<br>**obligatory** |
| Cycle of study:<br>**Second-cycle studies** | Form of study (full-time,part-time)<br>**full-time** | |
| No. of hours<br>Lecture: **2** Classes: **-** Laboratory: **-** Project/seminars: **2** | | No. of credits<br>**6** |
| Status of the course in the study program (Basic, major, other)<br>**(brak)** | (university-wide, from another field)<br>**(brak)** | |
| Education areas and fields of science and art<br>**technical sciences**<br>**Technical sciences** | | ECTS distribution (number and %)<br>**6 100%**<br>**6 100%** |

**Responsible for subject / lecturer:**

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## Prerequisites in terms of knowledge, skills and social competencies:

| | | |
|---|---|---|
| 1 | **Knowledge** | Construction of bridge abutments, bridge superstructures of concrete and steel<br>Static work of bridge structures, distributions of internal forces, materials for construction of bridges |
| 2 | **Skills** | Supports the initial design and construction of concrete bridge superstructures and steel |
| 3 | **Social competencies** | Awareness of the need to acquire and extend knowledge |

## Assumptions and objectives of the course:

- Knowledge of construction methods bridges and scaffolding and formwork
- Understanding the basics of scaffolding projketowania
- Mastering the practical skills to prepare concrete plan and its implementation
- The impact of construction technology on design requirements abutments,
- Installation of equipment
- Construction of bridges while maintaining traffic

## Study outcomes and reference to the educational results for a field of study

### Knowledge:

1. Erections methods of bridge construction - [-]
2. Construction equipment elements of bridges - [-]
3. Erections of concrete bridges - [-]
4. Basic principles of structural analysis of scaffolding - [-]
5. Technological requirements for the construction of abutments - [-]

### Skills:

| |
|---|
| 1. choose the method of installation or construction of the proposed bridge - [-] |
| 2. pre-design stage and formwork for the concrete bridge - [-] |
| 3. Perform a concreting plan - [-] |
| 4. design a scaffold for the assembly of the multi span steel bridge - [-] |
| 5. design formwork for bridge concrete deck - [-] |
| 6. knowledge of bridge equipment - [-] |
| **Social competencies:** |
| 1. Student understands the need for continuous improvement of knowledge on the subject - [-] |
| 2. Student understands the significance and importance of technology in the construction of the final technical effect and scheduled appointments - [-] |
| 3. Student understands the dangers arising from poor construction formwork and scaffolding - [-] |

| **Assessment methods of study outcomes** |
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| The written examination consisting of draw and discuss the tasks of construction methods, construction scaffolding and formwork |
| Design exercises together with gauges on the individual steps performed exercises |
| **Course description** |
| Necessary technical documentation to carry out the works |
| construction of concrete bridges with a discussion of the Help Us methods: |
| on the scaffolding of fixed, sliding or pivot on the ground, sliding on the basis of support |
| construction of concrete bridge spans using a cantilever assembly, concrete cantilever |
| construction method of moving the cross |
| construction of road to rail or road construction bridge spans with precast |
| staking out an object on the ground, trenches and their protection and drainage, installation of the reinforcement and prestressing tendons, preparation of concrete, concrete technology and compaction of concrete, |
| building support with the design of scaffolding and formwork, |
| cap construction paving, installation of drainage, waterproofing and paving exercise |
| installation of curbs, barriers and railings |
| construction of abutments, drainage and backfilling abutments |
| installation of bearings and expansion joints, |
| installation of curbs, barriers and railings,construction of abutments, drainage and backfilling abutments |
| installation of bearings and expansion joints, |
| construction scaffolding and formwork for stationary superstructure concrete bridge |
| methods of construction steel bridges (assembly) using cranes road and rail, the method of fitting the area and with the help of temporary supports and bargs. |
| supports construction scaffolding, steel structure bridge zerspolonego wieloprzęsłowego, bridge formwork panels, |
| Erection of cable-stayed bridge and hanging bridges |
| **Basic bibliography:** |
| **Additional bibliography:** |

**Result of average student's workload**

| Activity | Time (working hours) |
|---|---|
| 1. Participation in lectures | 30 |
| 2. Prticipation in exercise | 30 |
| 3. Homework design exercise | 40 |
| 4. Preparing for exam | 20 |

**Student's workload**

| Source of workload | hours | ECTS |
|---|---|---|
| Total workload | 110 | 6 |
| Contact hours | 32 | 4 |
| Practical activities | 10 | 2 |