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 Student can adapt the type of structure to the communication requirements and social expectations - [K_K08] Student can collaborate and work together in a group, is aware of the need for self-education - [K_K01, K_K03] Student complies with the principles of the Polish language and the rules of preparation of technical documentation - 	1. Stuc 2. Stuc 3. Stuc				
3. Student complies with the principles of the Polish language and the rules of preparation of technical documentation -	1. Stuc 2. Stuc 3. Stuc EN - [I	K_U08]			
	1. Stuc 2. Stuc 3. Stuc EN - [I Socia	K_U08] al competencies:		n requirements and social expec	tations - [K_K08]
	1. Stuc 2. Stuc 3. Stuc EN - [I Socia 1. Stuc	K_U08] al competencies: lent can adapt the type	e of structure to the communication		

1. Preparation of the design exercise in accordance with guidelines

2. Ongoing monitoring of the student's knowledge on every part of preparation of the design during the consultation

3. Oral test (talk) on completed design (demonstrating knowledge of issues relating to the formulation and calculation of bridge construction in the technology of post-tensioned concrete)

4. Written test of the student's knowledge in the field of material presented during the lectures

Course description

1. Rules of formation of bridge concrete structures

2. Various assembling systems of concrete bridges

3. Dimensioning rules of simple concrete bridge structures according to the PN-EN code

4. Ultimate and serviceability limit states of concrete bridge structures

5. Basic static-strengths calculations of concrete bridge girders

6. Prestressed concrete structures - pre- and post-tensioned concrete structures in civil engineeging applications, technology, analysis of losses of prestressing force.

7. Concrete slab decks - the static-strength analysis of bridge decks and cantilevers according to the PN-EN code

Basic bibliography:

1. Arkadiusz Madaj, Witold Wołowicki, Mosty betonowe WKŁ 1980/2002/...

2. Arkadiusz Madaj, Witold Wołowicki, Projektowanie mostów betonowych, WKiŁ Warszawa 2010

3. Andrzej Ajdukiewicz, Jakub Mames, Konstrukcje sprężone, Państwowe Wydawnictwo Naukowe, Warszawa 1979

4. Jacek M. Skarżewski, Witold Wołowicki, Krzysztof Sturzbecher, Mosty sprężone, Przewodnik do ćwiczeń projektowych, Wydawnictwo PP, Poznań, 1989

Additional bibliography:

1. Arkadiusz Madaj, Witold Wołowicki, Podstawy projektowania budowli mostowych, WKiŁ Warszawa 2003/2007

2. Andrzej Łapko, Bjarne Christian Jensen, Podstawy projektowania i algorytmy obliczeń konstrukcji żelbetowych, Arkady, Warszawa 2005

3. Włodzimierz Starosolski, Konstrukcje żelbetowe wg PN-B-03264:2002 i Eurokodu 2, Wydawnictwo Naukowe PWN, Warszawa 2009

Result of average student's workload

Activity	Time (working hours)				
1. Participation in lectures		30			
2. Project realization		40			
Student's workload					
Source of workload	hours	ECTS			
Total workload	70	4			
Contact hours	30	2			
Practical activities	20	2			