TESTING OF ROADS AND BRIDGE STRUCTURES

Course code: **06.4--WILŚ- BUD- BDM- DC10**

Type of course: obligatory

Language of instruction: Polish

Director of studies: dr hab. inż. Adam Wysokowski, prof. UZ
Department of Road and Bridges

Name of lecturer: dr hab. inż. Adam Wysokowski, prof. UZ
mgr inż. Włodzimierz Dyszak

Form of instruction	Number of teaching hours per semester	Number of teaching hours per week	Semester	Form of receiving a credit for a course	Number of ECTS credits allocated
Full-time studies					3
Lecture			II		
Class	15	1		grade	
Laboratory	30	2		grade	
Seminar					
Workshop					
Project					
Part-time studies					
Lecture			III		
Class	10	1		grade	
Laboratory	20	2		grade	
Seminar					
Workshop					
Project					

COURSE AIM:
The aim of the course is to introduce students to the issues connected with tests of roads and bridges. These tests relate both the materials and engineering structures in the process of construction and maintenance.

ENTRY REQUIREMENTS:
Basics of bridge engineering and road engineering, basis in mechanics and strength of materials.

THEMATIC SCOPE OF COURSE:

Exercises:
The specificity of road tests. Specificity testing of bridges . Overview of the various types of road tests. Acceptance tests of roads. Overview of the various types of testing of bridge (bridges, steel and concrete). Overview of load test design and testing of bridges soil - steel for the construction of culverts and bridges, and go for animal research examples of roads and bridges in the real objects.

Laboratory:
Testing equipment to testing the construction of roads. Testing equipment to testing the construction of bridges. Lab demonstration of the various equipment. Laboratory testing demonstration road and bridge construction in the laboratory scale.

LEARNING OUTCOMES:

Knowledge
The student has a basic knowledge of the specific testing of roads and bridges, specific testing, testing equipment used in the study of construction of roads and bridges (K_W01). It also has a knowledge of the ways of acceptance tests (K-W02). Has knowledge about the types of testing of bridge in both steel and concrete (K-W03). He has knowledge of the test load testing of bridges and construction of ground-coating. It also has the knowledge of the latest types of equipment for research and research in the field of road engineering and bridge construction (K_W07).

Skills
Students can schedule testing a road structures, as well as perform it (K_U03). In addition, is able to design and carry out a load test of the bridge. Knows how to interpret the results obtained in testing (K_U04).

Social competence
Student is able to think and act in an entrepreneurial manner, he can search for the information needed to solve the tasks carried out on the Internet and literature (K_K01). Is aware of the limitations of computer software (K_K02).

LEARNING OUTCOMES VERIFICATION AND ASSESSMENT CRITERIA

Exercises:
Warunkiem zaliczenia jest regularne uczęszczanie na zajęcia i uzyskanie pozytywnej oceny z kolokwium zaliczeniowego.

Laboratory:
Condition for passing grade is a regular attending in laboratory classes, as well as getting a positive grade from the final laboratory task

Student workload:

Contact with the lecturer	15ex+30lab+10cons	55 h
Preparing for the laboratory classes		20 h,
Preparing for the colloquium		15 h,
Total	55+20+15	90 h,
Number of ECTS credits allocated	90/30	3 ECTS.

RECOMMENDED READING:

1. Ryżyński. A., *Badania konstrukcji mostowych*. WKiŁ, 1983r.
2. Błażejowski K., Styk S., *Technologia warstw bitumicznych*. WKiŁ Warszawa 2000r.

3. Szydło A., *Nawierzchnie z betonu cementowego*. Polski Cement Sp. z o.o.
4. Moczko A. Rajski O. Tłustochowski J. Wodyński R. Wysokowski A. *Zalecenia dotyczące oceny jakości betonu in-situ w nowobudowanych konstrukcjach obiektów mostowych.* GDDP-IBDiM Żmigród 1998
5. Moczko A. Rajski O. Tłustochowski J. Wysokowski A. *Zalecenia dotyczące oceny jakości betonu in-situ w istniejących konstrukcjach obiektów mostowych.* GDDP-IBDiM Żmigród 1998

OPTIONAL READING:

1. Czudek. H, Wysokowski A., *Trwałość mostów drogowych*. Wyd. WKiŁ Warszawa 2005r
2. Zobel. H., Alkhafaji T., *Mosty drewniane*. WKiŁ, Warszawa 2006r.
3. Janusz L., Madaj A., *Obiekty inżynierskie z blach falistych. Projektowanie i wykonawstwo.* WKiŁ Warszawa 2007r
4. Praca zbiorowa. *Podbudowy drogowe. Zeszyt 59.* Wydawnictwo IBDiM, 2007r
5. Nita P., *Budowa i utrzymanie nawierzchni lotniskowych.* WKiŁ Warszawa
6. Praca zbiorowa. *Zalecenia dotyczące doboru mostowych urządzeń dylatacyjnych oraz ich wbudowywania i odbioru.* Wydawnictwo IBDiM, 2007r
7. Kalabińska M., Piłat J., Radziszewski P., *Technologia materiałów i nawierzchni drogowych.* Politechnika Warszawska, 2003.
8. Błażejowski K., Styk S., *Technologia warstw asfaltowych*. WKiŁ Warszawa 2004r
9. Piłat J., Radziszewski P., *Nawierzchnie asfaltowe.* WKiŁ Warszawa 2004r.
10. Bieżąca prasa naukowo-techniczna.