

## MODULE SPECIFICATION

Module code	
Module title in Polish	<b>Podstawy mostownictwa</b>
Module title in English	<b>Fundamentals of Bridge Construction</b>
Module running from the academic year	<b>2016/2017</b>

### A. MODULE IN THE CONTEXT OF THE PROGRAMME OF STUDY

Field of study	<b>Civil Engineering</b>
Level of qualification	<b>First cycle</b> <i>(first cycle, second cycle)</i>
Studies profile	<b>Academic</b> <i>(academic/practical)</i>
Mode of study	<b>Full-time</b> <i>(full-time / part-time)</i>
Specialism	
Organisational unit responsible for module delivery	<b>The Department of Strength of Materials, Concrete Structures and Bridges</b>
Module co-ordinator	<b>Grzegorz Świt, PhD, Dsc Eng., Professor of the University</b>
Approved by	<b>Marek Iwański, Professor</b>

### B. MODULE OVERVIEW

Module type	<b>Core module</b> <i>(core/programme-specific/elective HES*)</i>
Module status	<b>Compulsory module</b> <i>(compulsory / non-compulsory)</i>
Language of module delivery	<b>English</b>
Semester in the programme of study in which the module is taught	<b>Semester 6</b>
Semester in the academic year in which the module is taught	<b>Summer semester</b> <i>(winter / summer)</i>
Pre-requisites	<b>None</b> <i>(module code/module title, where appropriate)</i>
Examination required	<b>No</b> <i>(yes / no)</i>
ECTS credits	<b>2</b>

Mode of instruction	lectures	classes	laboratories	project	others
<b>Total hours per semester</b>	<b>15</b>			<b>15</b>	

\* elective HES – elective modules in the Humanities and Economic and Social Sciences

### C. LEARNING OUTCOMES AND ASSESSMENT METHODS

<b>Module aims</b>	The aim of the module is to familiarise students with basic skills as regards the organisation, technology, and supervision of building works while constructing road engineering objects. Another aim is to acquaint students with fundamentals skills as regards designing slab as well as beam and slab bridge objects (with maximum three bays).
--------------------	--

Module outcome code	Module learning outcomes	Mode of instruction (l/c/lab/p/ others)	Corresponding programme outcome code	Corresponding discipline-specific outcome code
W_01	A student knows the selected issues concerning a construction norm, i.e. the following Eurocodes: EC0, EC1, EC2, EC3, and EC 4.	l/p	B_W08	T1A_W03 T1A_W07 T1A_W08
W_02	A student knows the fundamentals of designing and analysing bridge objects with slab as well as slab and beam structure.	l/p	B_W10	T1A_W03 T1A_W04 T1A_W05 T1A_W07 T1A_W08
W_03	A student has basic knowledge on the technology of works, realisation, and exploitation of bridge objects.	l/p	B_W12	T1A_W02 T1A_W03 T1A_W04 T1A_W05 T1A_W07
U_01	A student can determine and compare loads interacting with bridge objects with slab as well as slab and beam structure.	l/p	B_U03	T1A_U08 T1A_U13
U_02	A student can prepare and interpret building and constructional drawings as regards bridge engineering.	p	B_U07	T1A_U03 T1A_U05 T1A_U14 T1A_U15 T1A_U16
U_03	A student can design simple structures and elements of reinforced concrete bridges (together with their equipment, i.e. a slab and beams).	l/p	B_U14	T1A_U03 T1A_U04 T1A_U05 T1A_U14 T1A_U16
K_01	A student can work individually.	p	B_K01	T1A_K01 T1A_K03 T1A_K04
K_02	A student is aware of the necessity of raising his/her professional and personal competences.	l/p	B_K03	T1A_K01 T1A_K05 T1A_K06

#### Module content:

##### 1. Topics to be covered in the lectures

No.	Topics	Module outcome code
1.	Introductory information: concepts, classifications, materials, and loads.	W_01 W_02 W_03 U_01 U_03
2.	Timber bridges (basic elements, loads, and structure).	W_01 W_02 W_03

		U_01 U_03 K_02
3.	Culverts (loads, divisions, and technology of realisation).	W_01 W_02 W_03 U_01 K_02
4.	Concrete Bridges (shaping cross sections; slab, rib, beam, and prefabricates bays).	W_01 W_02 W_03 U_01 U_02 U_03 K_02
5.	Steel compound bays (shaping and dimensioning them).	W_01 W_02 W_03 U_01 U_03 K_02
6.	Basic technologies of bridge construction.	W_01 W_03 U_02 K_02
7.	Bridge equipment (types of bearings, dimensioning, dilatations, drainage systems, and insulations).	W_01 W_03 U_02 K_02

2. Topics to be covered in the classes
3. Topics to be covered in the laboratories
4. Topics to be covered in the projects

Project number	Topics	Module outcome code
1.	A project of a bridge: <ol style="list-style-type: none"> <li>1. An initial project (selecting a structure, a cross section, the division into bays, specifying loads)</li> <li>2. Static and strength calculations of a slab or a beam and slab structure</li> <li>3. Working and reference drawings (a general drawing, detailed drawings of the selected elements).</li> </ol>	W_01 W_02 W_03 U_01 U_02 U_03 K_01 K_02

### Assessment methods

Module outcome code	Assessment methods <i>(Method of assessment; for module skills – reference to specific project, laboratory and similar tasks)</i>
W_01	A test and a project
W_02	A test and a project
W_03	A test and a project
U_01	A project
U_02	A project

U_03	A project
K_01	A project
K_02	A test and a project

### C. STUDENT LEARNING ACTIVITIES

ECTS summary		
	Type of learning activity	Study time/ credits
1	Contact hours: participation in lectures	<b>15</b>
2	Contact hours: participation in classes	
3	Contact hours: participation in laboratories	
4	Contact hours: attendance at office hours (2-3 appointments per semester)	<b>2</b>
5	Contact hours: participation in project-based classes	<b>15</b>
6	Contact hours: meetings with a project module leader	<b>3</b>
7	Contact hours: attendance at an examination	
8		
9	<b>Number of contact hours</b>	<b>35</b> <i>(total)</i>
10	<b>Number of ECTS credits for contact hours</b> <i>(1 ECTS credit =25-30 hours of study time)</i>	<b>1.4</b>
11	Private study hours: background reading for lectures	<b>5</b>
12	Private study hours: preparation for classes	
13	Private study hours: preparation for tests	
14	Private study hours: preparation for laboratories	
15	Private study hours: writing reports	
16	Private study hours: preparation for a final test in laboratories	
17	Private study hours: preparation of a project/a design specification	<b>10</b>
18	Private study hours: preparation for an examination	
19		
20	<b>Number of private study hours</b>	<b>15</b> <i>(total)</i>
21	<b>Number of ECTS credits for private study hours</b> <i>(1 ECTS credit =25-30 hours of study time)</i>	<b>0.6</b>
22	<b>Total study time</b>	<b>50</b>
23	<b>Total ECTS credits for the module</b> <i>(1 ECTS credit =25-30 hours of study time)</i>	<b>2</b>
24	<b>Number of practice-based hours</b> <i>Total practice-based hours</i>	<b>30</b>
25	<b>Number of ECTS credits for practice-based hours</b> <i>(1 ECTS credit =25-30 hours of study time)</i>	<b>1.2</b>