MODULE SPECIFICATION

Module code	
Module title in Polish	**Podstawy Budownictwa Przemysłowego**
Module title in English	**Fundamentals of Industrial Construction**
Module running from the academic year	**2016/2017**

A. MODULE IN THE CONTEXT OF THE PROGRAMME OF STUDY

Field of study	**Civil Engineering**
Level of qualification	**First cycle** *(first cycle, second cycle)*
Studies profile	**Academic** (*academic/practical)*
Mode of study	**Full-time** *(full-time / part-time)*
Specialism	**Building Structures**
Organisational unit responsible for module delivery	**The Department of Strength of Materials and Concrete Structures**
Module co-ordinator	**Artur Wójcicki, PhD, Eng.**
Approved by	**Marek Iwański, Professor**

B. MODULE OVERVIEW

Module type	**Core module** (*core/programme-specific/elective HES*)*
Module status	**Compulsory module** *(compulsory / non-compulsory)*
Language of module delivery	**English**
Semester in the programme of study in which the module is taught	**Semester 7**
Semester in the academic year in which the module is taught	**Winter semester** *(winter / summer)*
Pre-requisites	**None** (*module code/module title, where appropriate)*
Examination required	**Yes** *(yes / no)*
ECTS credits	**3**

Mode of instruction	**lectures**	**classes**	**laboratories**	**project**	**others**
Total hours per semester	**30**			**15**	

* elective HES − elective modules in the Humanities and Economic and Social Sciences

C. LEARNING OUTCOMES AND ASSESSMENT METHODS

Module aims	The aim of the module is to familiarise students with basic knowledge on the following: factors determining designing the selected industrial objects and the stages of designing them resulting from the applied technology; basic background on how to prepare design assumptions for structural analyses of the selected, most common objects in industrial engineering.

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 basic factors which determine designing the most common industrial objects.	l/p	B_W09 B_W10	T1A_W03 T1A_W05 T1A_W07 T1A_W08
W_02	A student knows basic specificity of special industrial objects which are the most common.	l/p	B_W09 B_W10	T1A_W03 T1A_W05 T1A_W07 T1A_W08
W_03	A student knows basic range and the specificity of special issues connected with the method of loading and exploiting the most common industrial objects.	l/p	B_W19 B_W20	T1A_W05 T1A_W07 T1A_W08
W_04	A student knows basic principles of designing main bearing structures of the selected most common industrial objects (monolithic and prefabricated).	l/p	B_W06 B_W09 B_W10	T1A_W03 T1A_W05 T1A_W07 T1A_W08
U_01	A student can determine and take into consideration basic technological factors while designing the selected industrial objects.	l/p	B_U1 B_U22	T1A_U05 T1A_U11 T1A_U13 T1A_U14 T1A_U15 T1A_U16
U_02	A student can determine the range and values of basic static and dynamic loads interacting with the selected industrial objects.	l/p	B_U12 B_U22	T1A_U07 T1A_U11 T1A_U16
U_03	A student can determine and take into consideration other interactions than gravitational and static (i.e. temperature, differences in temperature values, dynamic forces) occurring during the exploitation of the selected special objects in industry.	l/p	B_U12 B_U22	T1A_U07 T1A_U11 T1A_U13 T1A_U14 T1A_U16
U_04	A student can correctly determine local and global geometry of the elements concerning structure bearing elements as regards the selected industrial objects.	l/p	B_U01 B_U06 B_U12 B_U22	T1A_U05 T1A_U07 T1A_U11 T1A_U13 T1A_U14 T1A_U16
K_01	A student can work individually. A student can organise the work and order in terms of task realisation.	p	B_K01	T1A_K03
K_02	A student is responsible for the reliability of the obtained results.	p	B_K02 B_K03 B_K07	T1A_K05 T1A_K06 T1A_K07
K_03	A student can formulate conclusions and appropriately apply the results of the conducted calculations and analyses.	p	B_K04 B_K07	T1A_K01 T1A_K07

Module content:

1. Topics to be covered in the lectures

No.	Topics	Module outcome code
1.	Discussing the issues and the recommended literature on the subject. Introductory informations: historical conditions, the most common types of industrial objects. General issues, assumptions determining the selection of technologies of realizing industrial objects.	W_01 W_02 W_03 U_01
2.	Technological processes which determine designing industrial objects: the phases of design; preparing project assumptions; selecting location; constructional solutions in special objects; accompanying objects.	W_01 W_02 W_03 W_04 U_01 U_02
3.	Systems in industrial construction: the unification and prefabrication in industrial engineering; the applied systems.	W_04 U_02 U_04
4.	Industrial chimneys (functions and division of industrial chimneys).	W_01 W_02 W_03 U_04
5.	Factors influencing the design of industrial chimneys.	W_01 W_02 W_03 W_04 U_01 U_02
6.	The scope and specification of static calculations and constructing the structure of industrial chimneys.	W_02 W_03 W_04 U_01 U_02 U_03 U_04
7.	The specificity of foundations as regards industrial chimneys.	W_01 W_02 W_04 U_01 U_04
8.	Foundations concerning industrial machines (their division and requirements).	W_01 W_02 W_03 W_04 U_01
9.	The classification of industrial machines.	W_02 W_03 U_01
10.	Dynamic loads interacting with industrial machine foundations (their values and types).	W_01 W_02 W_03 U_01 U_02
11.	The models of soil subgrades applied for calculating dynamic foundations for industrial machines.	W_02 W_03 W_04

		U_04
12.	The principles of foundation concerning industrial machines.	W_02 W_03 U_04

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.	Determining assumptions for shaping the coating of a reinforced industrial chimney.	W_01 U_04 K_01 K_02 K_03
2.	Initial determining constructional layers of chimney coating and internal structural elements. Division into segments.	W_04 U_04 K_01 K_02 K_03
3.	Determining the geometry of inner supports, head as well as the area of inlet and geometry of a joint with a flue.	W_02 U_04 K_01 K_02 K_03
4.	Checking the distribution of temperature values for exploitation interaction in winter and summer seasons. Determining a final thickness of thermoinsulating layer.	W_03 U_03 K_01 K_02 K_03
5.	Dimensioning reinforcement against thermal impacts.	W_04 U_04 K_01 K_02 K_03
6.	Constructing reinforcement of internal structural elements and a head.	W_04 U_04 K_01 K_02 K_03
7.	Determining minimum necessary amount of circumferential reinforcement as well as its system.	W_04 U_03 U_04 K_01 K_02 K_03
8.	Defending a project.	K_01 K_02 K_03

Assessment methods

Module outcome code	Assessment methods *(Method of assessment; for module skills − reference to specific project, laboratory and similar tasks)*

W_01	An examination and a project
W_02	An examination and a project
W_03	An examination and a project
W_04	An examination and a project
U_01	An examination and a project
U_02	An examination and a project
U_03	An examination and a project
U_04	An examination and a project
K_01	A project
K_02	A project
K_03	A project

C. STUDENT LEARNING ACTIVITIES

ECTS summary		
	Type of learning activity	**Study time/ credits**
1	Contact hours: participation in lectures	**30**
2	Contact hours: participation in classes	
3	Contact hours: participation in laboratories	
4	Contact hours: attendance at office hours (2-3 appointments per semester)	**3**
5	Contact hours: participation in project-based classes	**15**
6	Contact hours: meetings with a project module leader	**3**
7	Contact hours: attendance at an examination	**2**
8		
9	**Number of contact hours**	**53** *(total)*
10	**Number of ECTS credits for contact hours** *(1 ECTS credit =25-30 hours of study time)*	**2.1**
11	Private study hours: background reading for lectures	**3**
12	Private study hours: preparation for classes	
13	Private study hours: preparation for tests	**5**
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	**10**
18	Private study hours: preparation for an examination	**5**
19		
20	**Number of private study hours**	**23** *(total)*
21	**Number of ECTS credits for private study hours** *(1 ECTS credit =25-30 hours of study time)*	**0.9**
22	**Total study time**	**76**
23	**Total ECTS credits for the module** *(1 ECTS credit =25-30 hours of study time)*	**3**
24	**Number of practice-based hours** *Total practice-based hours*	**31**
25	**Number of ECTS credits for practice-based hours** *(1 ECTS credit =25-30 hours of study time)*	**1.2**