



MODULE SPECIFICATION

Module code	
Module title in Polish	Nowoczesne rurociągi z tworzyw sztucznych
Module title in English	Modern Plastic Pipelines
Module running from the academic year	2016/2017

A. MODULE IN THE CONTEXT OF THE PROGRAMME OF STUDY

Field of study	Environmental Engineering
Level of qualification	first cycle (first cycle, second cycle)
Programme type	academic (academic/practical)
Mode of study	full-time (full-time/part-time)
Specialism	Sanitary Pipelines and Systems; Water Supply, Treatment of Wastewater and Solid Waste
Organisational unit responsible for module delivery	Department of Piped Utility Systems
Module co-ordinator	Urszula Kubicka, PhD, Eng.
Approved by:	Prof. Andrzej Kulickowski, PhD hab., Eng.

B. MODULE OVERVIEW

Module type	Programme specific module (core/programme-specific/elective HES*)
Module status	optional module (compulsory/optional)
Language of module delivery	English
Semester in the programme of study in which the module is taught	semester 5
Semester in the academic year in which the module is taught	winter semester (winter semester/summer semester)
Pre-requisites	None (module code/module title, where appropriate)
Examination required	No (Yes/No)
ECTS credits	3

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

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



C. LEARNING OUTCOMES AND ASSESSMENT METHODS

Module aims	Acquaintance with the opportunities of using plastic pipes in underground infrastructure. Presentation of the range, types and basic technical requirements connected with plastic pipelines.
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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 most commonly used materials in the networks, installations, and objects concerning environmental engineering (together with their properties and connection methods).	I	IŚ_W06	T1A_W03 T1A_W04 T1A_W05 T1A_W07
W_02	A student has basic knowledge as regards materials strength.	I	IŚ_W14	T1A_W02 T1A_W06
W_03	A student knows exploitation conditions concerning plastic pipelines.	I	IŚ_W09	T1A_W03 T1A_W04 T1A_W05 T1A_W06 T1A_W07
U_01	A student can obtain information from the literature covering plastic pipelines, integrate the obtained information, and interpret them.	I	IŚ_U02	T1A_U01 T1A_U05 T1A_U07
U_02	A student has the ability of communicating (and reading with comprehension) in a foreign language (together with the knowledge of the elements of technical language as regards environmental engineering).	I	IŚ_U06	T1A_U01 T1A_U02 T1A_U03 T1A_U04 T1A_U05 T1A_U06
U_03	A student can select appropriate materials which are applied to construct network, installations, and environmental engineering objects.	I	IŚ_U15	T1A_U07 T1A_U10 T1A_U14 T1A_U15
K_01	A student is aware of the responsibility for his/her own work; a student is also ready to comply with the principles of teamwork and bear responsibility for the realised project tasks.	I	IŚ_K05	T1A_K03 T1A_K04
K_02	A student understands the necessity of technical progress and implementing new technical solutions in environmental engineering.	I	IŚ_K09	T1A_K02

Module content:

1. Topics to be covered in the lectures

No.	Topics	Module outcome code
1.	The types of plastic pipes used in underground infrastructure. The main features of plastic.	W_01 U_01 U_02 K_02
2.	Methods of PE, PVC, PP, GRP pipes production. Basic characteristics of the properties of plastic pipes.	W_02 W_03 U_02 K_02
3.	Specific phenomena connected with plastic, like slow crack growth propagation and rapid crack growth.	W_01 U_02
4.	The examples of plastic pipes application in water conduits.	W_01 U_02



5.	The examples of plastic pipes application in gas and sewerage. Plastic pipes in domestic use.	U_03 W_01 U_02 U_03
6.	Structural plastic pipes – the areas of application.	W_02 U_02 K_01
7.	Non typical plastic constructions. Examples of the interesting field application.	W_01 U_02 K_01

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
W_02	A test
W_03	A test
U_01	A test
U_02	A test
U_03	A test
K_01	A test. Observation of students work during the classes
K_02	A test. Discussion during the classes

D. STUDENT LEARNING ACTIVITIES

ECTS summary		
	Type of learning activity	Study time/ credits
1	Contact hours: participation in lectures	15
2	Contact hours: participation in classes	
3	Contact hours: participation in laboratories	
4	Contact hours: attendance at office hours (2-3 appointments per semester)	5
5	Contact hours: participation in project-based classes	
6	Contact hours: meetings with a project module leader	
7	Contact hours: attendance at an examination	
8		
9	Number of contact hours	20 <i>(total)</i>
10	Number of ECTS credits for contact hours <i>(1 ECTS credit = 25-30 hours of study time)</i>	0.8
11	Private study hours: background reading for lectures	30
12	Private study hours: preparation for classes	
13	Private study hours: preparation for tests	25
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	
18	Private study hours: preparation for an examination	
19		
20	Number of private study hours	55 <i>(total)</i>
21	Number of ECTS credits for private study hours <i>(1 ECTS credit =25-30 hours of study time)</i>	2.2
22	Total study time	75
23	Total ECTS credits for the module <i>(1 ECTS credit =25-30 hours of study time)</i>	3
24	Number of practice-based hours <i>Total practice-based hours</i>	
25	Number of ECTS credits for practice-based hours <i>(1 ECTS credit =25-30 hours of study time)</i>	

E. READING LIST

References	<ol style="list-style-type: none">1. Willoughby David A.: "Plastic Piping Handbook", McGraw-Hill, 2002,2. Dickenson Christopher T.: "Valves, Piping and Pipelines Handbook, 3rd Edition", Elsevier Science, 1999,3. Farshad Mehdi "Plastic Pipe Systems. Failure Investigation and Diagnosis", Swiss Federal Laboratories for Materials Testing and Research, Elsevier, 2006,4. Burstall Tim "Bulk Water Pipelines", Telford Thomas, 1997
Module website	