



Annex to the “visiting professors” programme

Proponent from WUT	
Title and degree	DSc PhD Eng
Name and surname	Agnieszka Dąbska
Faculty	Building Services, Hydro and Environmental Engineering
E-mail address in the WUT domain	agnieszka.dabska@pw.edu.pl
Phone number	+48 22 234 74 53

The person proposed as a visiting professor	
Title and degree	Prof., Ing., CSc.
Name and surname	Jaromir Riha
Exact affiliation	Brno University of Technology, Faculty of Civil Engineering, Czech Republic
E-mail address	Jaromir.Riha@vutbr.cz
Description of achievements (1/2-1 page)	<p>PUBLICATIONS: author or co-author of:</p> <ul style="list-style-type: none">- more than 70 professional and scientific papers in journals, 44 indexed in Scopus (h index = 12), 38 in WOS (h index = 10)- 26 monographs, textbooks and guidelines- more than 200 conference papers and contributions <p>PROJECTS author or co-author of:</p> <ul style="list-style-type: none">- more than 150 research (basic and applied) reports- about 60 technical studies and designs <p>EXPERT ASSESSMENTS author or co-author of:</p> <ul style="list-style-type: none">- more than 600 expert assessments- 51 forensic judgements <p>MEMBERSHIPS</p> <ul style="list-style-type: none">- International Association for Hydro-Environment Engineering and Research (IAHR)- International Committee on Large Dams (ICOLD)- Czech Committee on Large Dams (ICOLD) <p>FACULTY POSTS</p> <ul style="list-style-type: none">- member of scientific committee (since 2005)- member of curriculum committee (2004 - 2010)- member of faculty scientific board (2004 - 2008)- member of committee for Ph.D. (since 2002, in 2004-2014 chairperson) <p>TEACHING (since 1987)</p> <ul style="list-style-type: none">- more 60 diploma graduates in BSc and MSc degrees- supervisor of 12 finished Ph.D. students



Code of the course	4606-VP-ES-00016	Name of the course	Polish	Powódź jako zagrożenie urbanizacji		
			English	Flood as a threat to urbanisation		
Type of the course	Speciality subject					
Course coordinator	Prof. Jaromir Riha		Course teacher	Prof. Jaromir Riha		
Implementing unit	Faculty of Building Services, Hydro and Environmental Engineering	Scientific discipline / disciplines*	Architecture and urban planning Civil engineering and transport Environmental engineering, mining and energy Physical sciences			
Level of education	Doctoral School	Semester	Summer (stationary)			
Language of the course	English					
Type of assessment	Pass or Fail	Number of hours in a semester	30	ECTS credits	2	
Minimum number of participants	12	Maximum number of participants	100	Available for students (BSc, MSc)	Yes	
Type of classes		Lecture	Auditory classes	Project classes	Laboratory	Seminar
Number of hours	in a week	-	-	-	-	-
	in a semester	30	-	-	-	-

* does not apply to the Researcher's Workshop

1. Prerequisites
<p>1. Knowledge:</p> <ul style="list-style-type: none"> - in mathematics, statistics - some knowledge in water management and urban planning, <p>2. Skills:</p> <ul style="list-style-type: none"> - good command of English in speaking and understanding, - use of computers.

2. Course objectives
<ol style="list-style-type: none"> 1. Provide the students with the river engineering, basics of open channel and floodplain hydraulics. 2. Understand the philosophy of flood protection, tools used in practice (structural, organisational). 3. Apply various flood protection measures and discuss their use. 4. Understand explanation of DIRECTIVE 2007/60/EC on the assessment and management of flood risks (Floods directive). 5. Demonstrate flood hazards and consequences on practical examples.

3. Course content (separate for each type of classes)
Lecture
<ol style="list-style-type: none"> 1. Introduction, definitions and terminology in river basin and open channel engineering. 2. Basics of open channel and floodplain hydraulics. 3. Flood modelling, 1D, 2D models, hydraulic structures, flood zones. 4. The level of flood protection, criteria for the decision. 5. Implementation of the DIRECTIVE 2007/60/EC on the assessment and management of flood risks (Floods directive). 6. Flood protection measures. 7. Risk analysis in the flood protection, hazard and risk mapping. 8. Groundwater related issues in flood protection. 9. Demonstration of individual methods, practical examples, case studies.
Laboratory



-

4. Learning outcomes			
Type of learning outcomes	Learning outcomes description	Reference to the learning outcomes of the WUT DS	Learning outcomes verification methods*
Knowledge			
K01	Acquisition of knowledge about the river engineering and related hydraulic structures.	SD_W1, SD_W2, SD_W3	Active participation during classes
K02	Acquisition of knowledge about the flood protection measures.	SD_W1, SD_W2, SD_W3	Active participation during classes
K03	Acquisition of knowledge about the risk based methods in flood protection and implementation of Flood directive 2007/60/EC	SD_W1, SD_W2, SD_W3	Active participation during classes
Skills			
S01	Ability of formulating flood protection criteria	SD_U1, SD_U2, SD_U3, SD_U4	Active participation during classes
S02	Ability of the proposal appropriate flood protection measures	SD_U1, SD_U2, SD_U3, SD_U4	Active participation during classes
S03	Ability to implement Flood directive 2007/60/EC	SD_U1, SD_U2, SD_U3, SD_U4	Active participation during classes
Social competences			
SC01	Ability to work in a team and international collaboration. Ready to think and act in a creative and entrepreneurial way to identify the flood hazards and to propose appropriate flood protection measures.	SD_K2, SD_K4	Active participation during classes

*Allowed learning outcomes verification methods: exam; oral exam; oral test; project evaluation; report evaluation; presentation evaluation; active participation during classes; homework; tests

5. Assessment criteria
Grading (pass or not) based upon presence on the classes and oral examination (interview).

6. Literature
<p><u>Primary references:</u></p> <p>[1] DRÁB, A., ŘÍHA, J. An approach to the implementation of European Directive 2007/60/EC on flood risk management in the Czech Republic. <i>Nat. Hazards Earth Syst. Sci.</i>, 10, 1977–1987, 2010.</p> <p>[2] DIRECTIVE 2007/60/EC on the assessment and management of flood risks (Floods directive).</p> <p>[3] DUCHAN, D., JULÍNEK, T., ŘÍHA, J. 2022. Multicriterial analysis used for the optimisation of dike system management. <i>Journal of flood risk management</i>. Volume15, Issue 4. DOI10.1111/jfr3.12829.</p> <p>[4] ŘÍHA, J., JULÍNEK, T., DUCHAN, D., 2023. Quantification of Groundwater Hazards Related to Fluvial Floods via Groundwater Flow Modelling: A Review. <i>WATER</i>. Volume15, Issue 6. DOI10.3390/w15061145.</p> <p>[5] Mitigate Flooding. https://www.epa.gov/green-infrastructure/mitigate-flooding.</p> <p>[6] JAIN, SC. 2000. <i>Open Channel Flow</i>. John Wiley & Sons, New York, 328 p.</p> <p><u>Secondary references:</u></p> <p>[1] Flood Control and Disaster Management. https://www.iwapublishing.com/news/flood-control-and-disaster-management.</p> <p>[2] Protecting property from flooding. https://www.metoffice.gov.uk/weather/warnings-and-advice/seasonal-advice/your-home/protecting-your-property-from-flooding.</p>



7. PhD student's workload necessary to achieve the learning outcomes**		
No.	Description	Number of hours
1	Hours of scheduled instruction given by the academic teacher in the classroom	30
2	Hours of consultations with the academic teacher, exams, tests, etc.	10
3	Amount of time devoted to the preparation for classes, preparation of presentations, reports, projects, homework	15
4	Amount of time devoted to the preparation for exams, test, assessments	5
Total number of hours		60
ECTS credits		2

** 1 ECTS = 25-30 hours of the PhD students work (2 ECTS = 60 hours; 4 ECTS = 110 hours, etc.)

8. Additional information	
Number of ECTS credits for classes requiring direct participation of academic teachers	2
Number of ECTS credits earned by a student in a practical course	-