

## How the online course is accessible

### Danube Floodplain Online Course

**The online course** is freely available via an invitation link as below:

(<https://edge.edx.org/courses/course-v1:TUMx+FP101+2021/about>) on TUMx EdX platform.



Figure 1. Danube Floodplain Online Course

It is a free, by invitation link accessible online course published on EdX TUMx platform, the dedicated educational platform of the Technical University of Munich. All you need is to register with an email address.


It is a result of cooperation of 21 lecturers from 10 organization and 2 invited stakeholders. It presents results of the Danube Floodplain Project and disseminates them in attractive, accessible and effective way. It addresses young and mid-level professionals from local, regional or national water authorities and disaster risk reduction area, the SMEs working in flood, water management sector, and students – the future managers.



Figure 2. Danube Floodplain Online Course content

The course has consisted of six modules: Introduction, Flood Risk Management, Floodplain Management and lessons learned, Technical aspects of restoration studies, Supporting decisions in floodplain management, Decision support tools, and Conclusion (Figure 2).

Each module had several lecturers and has been coordinated by one or more cooperating partners. Figure 3 lists them in detail. Underlined are the names of the coordinators.



Danube Transnational Programme  
Danube Floodplain

www.interreg-danube.eu/danube-floodplain

### Danube Floodplain Online Course Contributors








 <p><b>Introduction to the Course</b> - Module introduces challenges and importance of floodplain management.</p>	<p>GWP CEE: <u>Sabina Bokal</u>, <u>Anna Smetanová</u> NARW: <u>Cristian Rusu</u>, ICPDR: <u>Igor Liska</u>, BOKU: Bernhard Schober</p>
 <p><b>Flood Risk Management</b> - Module explains flood risk management and different policy frameworks.</p>	<p>TUM: Markus Disse, NARW: <u>Cristian Rusu</u> TUM: <u>Francesca Perosa</u></p>
 <p><b>Floodplain Management and Lessons Learned</b> - Module introduces practical examples of win-win measures.</p>	<p>NIWHM: Andreea Galie, KÖTIVIZIG: Judith Palatinus CUEI: Bernd Cyffka, NARW: Razvan Bogzianu NARW: <u>Cristian Rusu</u>, GWP CEE: <u>Anna Smetanová</u></p>
 <p><b>Technical Aspects of Floodplain Restoration Studies</b> - Module explains technical aspects and concepts of floodplain restoration.</p>	<p>TUM: Markus Disse, BOKU: Christoph Hauer USZ: Tímea Kiss, Péter Szilassi TUM: <u>Francesca Perosa</u>, CUEI: <u>Bernd Cyffka</u> GWP CEE: <u>Anna Smetanová</u></p>
 <p><b>Supporting Decisions in Floodplain Management</b> - Module focuses on planning and decision-making aspects of floodplain management.</p>	<p>GWP CEE: Sabina Bokal, Anna Smetanová, ICPDR: Héléne Masliah-Gilkarov, TUM: Francesca Perosa WWF RO: <u>Camelia Ionescu</u>, WWF HU: Andrea Samu</p>
 <p><b>Decision Support Tools</b> - Module introduces two tools: Floodplain Evaluation Matrix and Floodplain GIS.</p>	<p>BOKU: Helmut Habersack, <u>Markus Eder</u>, USZ: <u>Boudewijn van Leeuwen</u>, Zalán Tobak</p>
 <p><b>Conclusions</b> - Module includes concluding remarks, final test and post-course survey.</p>	<p>GWP CEE: <u>Sabina Bokal</u>, <u>Anna Smetanová</u></p>

Figure 3. Contributors and coordinators (underlined) to the Danube Floodplain Online Course Modules

Each module has an interactive structure within the Online Platform, containing following sections (Figure 4): About, Lectures (3-5), Recommended Learning Materials (publications, videos, websites), Assignments, and Take Home Messages (example, Figure 4)

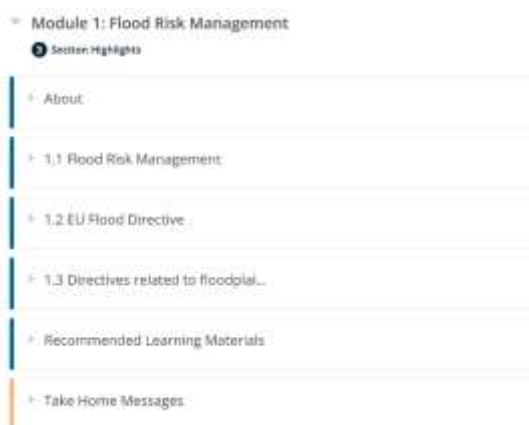


Figure 4. Example of Module structure – module 1.

The About section contained following parts: Introduction, Motivation, Learning Objectives, and presentation of Lectures and Lecturers (example, Figure 4). The 3-5 lectures per module consisted of several video lectures. Table 1 contains the listing of video lectures in the modules.

Table 1 : Video Lectures in Danube Floodplain Online Course

Module	Module Title	Video Lectures
	Introduction to the course	Welcome to the course! Need for Danube Floodplain Project Floodplain Management
1	Flood Risk Management	Flood Risk & Risk Elements Flood Risk Management Cycle Steps of the EU Floods directives Flood hazard and flood risk maps Examples of Flood risk maps Water Framework Directive Other directives related to floodplain management
2	Floodplain Management and Lessons learned	Win-win measures Win-win measures in Bistret Pilot Area Win-Win measures in Tisza Pilot Area Environmental effects of Danube regulation in the past Neuburg restoration project Implemented technical measures Lessons learned: Setting up a restoration project Lesson learned in putting theory to practice
3	Technical aspects of restoration studies	The flood chain and its modelling Hydrological models 1D and 2D hydrodynamic models Theory of habitat modelling and ecohydraulic assessment Efficiency and uncertainties in habitat modelling for large rivers Examples of habitat modelling in practice Effect of vegetation on flood levels Measuring vegetation density and using it as an input data in hydrological modelling The evaluation of the level of biological invasion in floodplains Ecosystem Services – Concept and Valuation Ecosystem services modelling
4	Supporting decisions in floodplain management	Active participation of stakeholders Benefits of participation Stakeholder engagement methods

		Decision-Making and Cost-Benefit Analysis
		Ecosystem Services Evaluation
		Examples of Extended Cost-Benefit Analyses
		Feasibility study of a floodplain restoration
5	Decision support tools	Floodplain Evaluation Matrix for floodplain management
		Scaling approach in FEM
		Parameters in FEM
		Floodplain evaluation in FEM
		Identification of active floodplains
		Identification of potential floodplains
		Floodpeak reduction in floodplains along Danube
		End product of FEM
		FEM-Tool
		Vizualization of Data in Danube Floodplain GIS
		Data in Danube Floodplain GIS
		How Can You Manipulate the Content of DF GIS?
		Danube Floodplain Inventory
		Using Danube Floodplain Data in QGis
		Using Spatial Dataset in QGis Part 1
		Using Spatial Dataset in QGis Part 2
		Using Spatial Dataset in QGis Part 3
		Performing Floodplain Analysis in QGis
		Layer Styling and Map Decoration
		Visualizing Results and Map Layout
	Conclusion	Concluding words

Video lectures were followed by simple quizzes called Progress Check Questions, in which the participants interacted with the lecture and answered questions included in previous video to strengthen their learning (Figure 5). Each lecture contained Summary, in which the main lecture take aways were listed.



Figure 5. Example of a participant interface in Lecture 1.1 Flood Risk Management. Lecture contained videos, progress check questions, and the lecture summary.

Conclusion module had slightly different structure as it contained Conclusions (About and video lecture: Concluding words), final Take Home Messages, Final Exam, Post-course Survey, and final word titled Thank you!

The Danube Online Course is an attractive and appreciated capacity building product.