

PENS-219

Hidden rivers

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Cursus	Sem.	Type
Design Together ENAC	BA4	Opt.

Contact language	English
Credits	4
Withdrawal Session	Unauthorized Summer
Semester	Spring
Exam	During the semester
Workload	120h
Weeks	
Hours	48 weekly
Lecture	4 weekly
Exercises	22 weekly
Project	22 weekly
Number of positions	

Summary

Hidden Rivers aims at fulfilling the need for an interdisciplinary understanding of the problematics surrounding urban streams, through ecological, hydrological, and spatial relationships found in riverscapes.

Content

Hidden Rivers addresses the challenge faced by river courses across urbanized territories. Historically rivers marked the centers of a new civilization, whereby its natural fluvial sources nourished the land with biodiverse ecosystems. However today these watercourses no longer serve as the vital link between inhabitants and natural environments, in fact, they have become increasingly exploited and fragmented across the landscape. As a consequence of the push towards rapid urbanization and industrialization, riverways have become gradually canalized, channeled underground, exploited, and reconstructed. Subsequently stripped from its natural ecologies, as an infrastructurally controlled water resource managed for various use in urban, agriculture, and other industrial purposes including energy.

The modification of river courses into more hydraulic states of infrastructure has not only disconnected water streams from natural water ecosystems functions but also resulted in water management being less transparent in society. Thus, our unawareness of how current-day rivers are transformed for different water controls has resulted in the degradation of the ecological states of water ecosystems, paradoxically resulting in worsened flooding events, pollution, and more severe climate change impacts.

The workshop shall investigate the natural ecosystems, cultural landscapes, and hydraulic infrastructures surrounding contemporary watercourses through interdisciplinary dialogues between city experts, ecologists, engineers, and urbanists. The aim of *Hidden Rivers* is to understand the current rationale behind the constructed state of urban rivers by building knowledge about different procedures taken by water actors (in urban water management, the agriculture industry, energy generation) and to post rationalize on existing water systems by answering the following question, "how could the relationship of urban rivers be reconsidered between humans and nature?"

To answer the question, we shall explore multifunctional ecosystems design, the workshop activities shall take place across the multidisciplinary analysis of an urban river, with a focus on drawing the river, its hydraulic systems, and surrounding ecologies.

Keywords

urban river; water system; interdisciplinary; water infrastructure; cultural landscape; ecosystem; hydrological issues; river renaturalization; urbanistic practice

Learning Outcomes

By the end of the course, the student must be able to:

- Analyze urban rivers
- Elaborate interdisciplinary river analysis
- Contextualise river ecological, hydrological and territorial issues
- Create innovative ways of conceiving the space of metropolitan rivers

Transversal skills

- Use a work methodology appropriate to the task.
- Communicate effectively with professionals from other disciplines.
- Demonstrate the capacity for critical thinking
- Access and evaluate appropriate sources of information.

Teaching methods

A theoretical and practical overview about contemporary rivers shall be introduced by professionals in the field of urbanism, environmental engineering and civil engineering. A combination of lectures and on-site workshops shall be undertaken between experts and students to build different analytical skills.

Each student teams shall be multi-disciplinary with the goal of encouraging exchange and understanding between fields of expertise. Fieldwork and analysis shall be undertaken across designated urban river territories to generate a better understanding and new ideas.

Assessment methods

Assessment will be made on the basis of the final presentation as well as project materials submitted - including but not limited to, findings from fieldwork, site analysis, and idea/ proposal.

Supervision

Office hours	No
Assistants	No
Forum	No

Resources

Virtual desktop infrastructure (VDI)

No

Moodle Link

- <https://go.epfl.ch/PENS-219>

Videos

- <https://www.youtube.com/watch?v=XrYWVJKjvRU>
- <https://www.youtube.com/watch?v=x-kObFqAhic>