Digital Urban Simulation

Mondays 14:00 - 18:00
063-1357-16G | 4 ECTS*

Digital Urban Simulation

In this course students analyze architectural and urban design using current computational methods. Based on these analyses the effects of planning can be simulated and understood. An important focus of this course is the interpretation of the analysis and simulation results and the application of these corresponding methods in early planning phases.

The students learn how the design and planning of cities can be evidence based by using scientific methods. The teaching unit conveys knowledge in state-of-the-art and emerging spatial analysis and simulation methods and equip students with skills in modern software systems. The course consists of lectures, associated exercises, workshops as well as of one integral project work.

Where
HIT H 31.4 (Video wall)

Supervision
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Date	Topic
26.09.2016	Introduction into Analysis and Simulation Ex> Tool: Rhino Grasshopper
03.10.2016	Connectivity, Accessibility, Spatiality (shortest or other Path Distance Detection), Urban Networks. Ex> Tool: Rhino Grasshopper + Cheetah ConfigUrbanist addon
10.10.2016	Visibility: Space Syntax, Isovist Analysis, Urban Attractors Ex> Tool: Rhino Grasshopper + SmartSpaceAnalyzer ad-don (or DecodingSpaces)
17.10.2016	Urban Pattern Formation: Behavioural Patterns, Bottom-up Patterns, Urban Graininess Ex> Tool: Rhino Grasshopper + Elk	Heron + Processing examples (Agents, EmCity tool)
24.10.2016	Seminar Week
07.11.2016	Urban Climate I Ex>Tool: Rhino Grasshopper + LadyBug
14.11.2016	Urban Climate II Ex>Tool: Rhino Grasshopper + HoneyBee
21.11.2016	Energy Simulation Ex>Tool: Rhino Grasshopper + HoneyBee + LadyBug
28.11.2016	Digital Parametrics Workshop
05.12.2016	Optimization processes	Evolutionary Algorithms Ex>Tool: Rhino Grasshopper + Galapagos	Octopus
12.12.2016	Guest Lecture
19.12.2016	Final consultation Project Presentations, Final Critiques

*Total 120 h = 4 ECTS
6 Exercises 25% (documentations)
Presentation 25% (project at the end)
Written documentation 50%

The most recent outline will be found on www.ia.arch.ethz.ch

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