

Information Architecture and Future Cities

Mondays 9:00 – 13:00
063-1357-11 L 6 ECTS*

New Methods In Urban Simulation And Modelling

The course consists of lectures and exercises of state-of-the-art and emerging simulation methods that can assist urban planners, architects and landscape planners in the design process. The simulations are based on the stocks and flows model and include parameters such as density, transportation, materials, capital, sustainability and visualization. Topics include but are not limited to the teaching of GIS based city modeling, recent urban growth prediction systems, pattern-based modeling in City Engine, building simulation, visualization and the prototyping of large scale city models. This course will start with a case-study introduction, present design pattern recognition and implementation into urban models. The course continues with techniques for energy simulation on an urban scale and introduces methods for the real time visualization of urban scenarios.

Analyzing the example of Altstetten (Zurich) the important tools and methods for the modeling, simulation, visualization and analyses of the large scales urban models will be introduced and trained.

The course is structured into nine lectures, including one guest lecture, nine exercises, individual coaching hours every Thursday and independent work. Working in groups is a core part of the didactic concept.

The course is coordinated with "Simulating Urban Design Futures".

Lecture, HIT F22 - Value Lab
Exercise, HIT H12

Supervision:

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- 26.09.2011 **L1 - Introduction**
Course outline, presentation of case study area, Altstetten, Zurich.
E1 - CityEngine Tutorial - Part 1
- 03.10.2011 **L2 - Smart Code**
How to transact and classify a city?
E2 - CityEngine Tutorial - Part 2
- 10.10.2011 **L3 - Collaborative City Design**
Modes of participation in urban planning.
E3 - Creating a Smart Code catalog for Altstetten, Zurich.
- 17.10.2011 **L4 - The Art of Procedural Modelling**
Rule-based modelling and its applications.
E4 - Determining urban rules for Altstetten, ZH.
- 24.10.2011 **Seminar week - no lecture**
- 31.10.2011 **L5 - Urbanism, systems and models**
A primer for an understanding of urban systems and their use in urban planning and urban design.
E5 - Simulating development goals, economic growth and congestions.
- 07.11.2011 **L6 - Geographic Information Systems for City Modeling**
An introduction to GIS and its applications in urban planning and urban design.
E6 - Using GIS for procedural modelling and as a data warehouse.
- 14.11.2011 **L7 - Methods for the analysis of urban performance**
Evaluation and simulation on urban scale.
E7 - Simulating and optimizing solar loads on block level.
- 21.11.2011 **L8 - Visualization of large-scale urban environments**
Realistic city models and revealed information as interactive as they can be.
E8 - Creating a web-based interactive model of Altstetten.
- 28.11.2011 **L9 - Exploration Parcours - Timo von Wirth**
Prediction of social behavior in urban environments
E9 - Performance of an Exploration Parcours.
- 05.12.2011 **Final presentation of student works and the virtual model of Altstetten**
- 12.12.2011 **Oral Examination**

* Total 180 h = 6 ECTS
Lectures 22 h | Exercises 101 h | Project Work 41 h
Test incl. preparation 6 h | Presentation 10 h

The most recent outline will be found on the website of the Chair for iA.