INFORMATION ARCHITECTURE OF CITIES

Information Architecture and Future Cities

Understanding a city is fundamental for the meaningful design and management of a city. “Information Architecture and Future Cities” opens a holistic view on existing and new cities, with focus on Asia. The goal is to better understand the city by going beyond the physical appearance and by focusing on different representations, properties and impact factors of the urban system. We explore the city as the most complex human-made organism with a metabolism that can be modelled in terms of stocks and flows. We investigate data-driven approaches for the development of the future city, based on crowd sourcing and sensing. You will learn to see the consequences of citizen science and the merging of Architecture and information space. The course describes origins, state-of-the-art, and applications of information architecture and simulation. Both rapidly gain importance in the design of buildings, cities and territories. As course requirement, there will be three short exercises.

Where

HIT F 22 (Value Lab)

Supervision

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Denise Weber denise.weber@arch.ethz.ch
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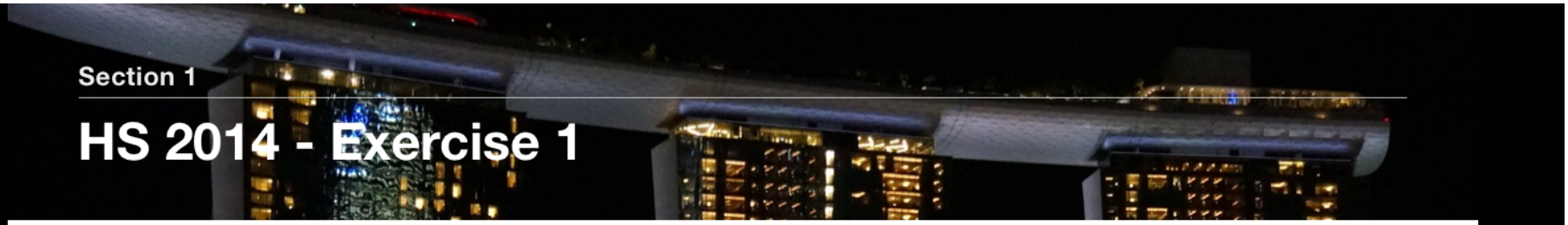
22.09.2014	**Einführung und Überblick.** Introduction and Overview
29.09.2014	**Das System Gebäude – Klima.** Building as a System - Climate (Guest Lecture by Estefania Tapias)
06.10.2014	**Das System Gebäude - Konstruktion.** Building as a System - Habitat (Guest Lecture by Prof. Dirk Hebel)
13.10.2014	**Das System Gebäude – Energie & Habitat.** Building as a System - Energy & Habitat
20.10.2014	Seminar week (No lecture)
27.10.2014	**Das System Stadt - Soziologie.** City as a System - Social Science (Guest Lecture)
03.11.2014	**Stocks & Flows - Wasser & Material.** Stocks & Flows - Water & Material
10.11.2014	**Das System Stadt - Entwurf.** City as a System - Design
17.11.2014	**Stocks & Flows - Menschen & Informationen.** Stocks & Flows - People & Information (Guest Lecture by Matthias Standfest)
24.11.2014	**Das System Territorium - Mobilität.** Territory as a System - Mobility
01.12.2014	**Das System Territorium - Organisation.** Territory as a System - Organization (Guest lecture by Prof. Dirk Hebel)
01.12.2014	**Final iA critique** **Combined critique with the other iA courses** (14:00 - 18:00)



Section 1

HS 2014 - Exercise 1

BUILDING SCALE - MAKING THE INVISIBLE VISIBLE

Clients increasingly ask architects and planners about the sustainability of a construction. Architects and planners must give answers on the basis of their knowledge. What do we know about a construction and its materials? What do we know about the influence of the users?

Buildings contain information we do not see, but which can be made visible. This information might be important. It could, for example, tell us about the energy embodiment of the material, its toxic components, the energy needed to mine the materials, to ship them, to process them, and to assemble them into components for a building.

The exercise will reveal how much we know about the materials we are using in design, and how the building works as a system. This may explain the discrepancies between projection and reality, important for your future work.

Making the invisible visible - Information

In this exercise you will learn (1) to make use of previous research, (2) to apply it to a specific case, and (3) to understand the building as a system of material, infrastructure and people. Specifically,

- Part 1: Read the documentation for the Minergie Standard and for the LEED Standard.
- Part 2: Study the HIT building as a system and give a qualitative assessment on the sustainability of its design, its construction, its materials, and its performance in the ETH Hönggerberg campus system, according to the two standards, LEED and Minergie.
- Part 3: Depict and explain why there is a discrepancy between the projected energy consumption of the building and its actual consumption.

Hand in until October 27 to shin@arch.ethz.ch and denise.weber@arch.ethz.ch

▼ Exercise 1	29. Oktober 2014 06:36	--	Ordner
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Berchtold Coralie <coralibe@student.ethz.ch>.pdf	28. Oktober 2014 09:00	53 KB	PDF-Dokument
Cebulla Tobias Lukas <tobias.cebulla@epfl.ch>.pdf	27. Oktober 2014 14:40	601 KB	PDF-Dokument
Depallens Tania <detania@student.ethz.ch>.PDF	28. Oktober 2014 09:00	18 KB	PDF-Dokument
Düvenci Burak <burakd@student.ethz.ch>.pdf	27. Oktober 2014 14:38	306 KB	PDF-Dokument
Emile Corthay <milourse2@hotmail.fr>.pdf	28. Oktober 2014 09:00	126 KB	PDF-Dokument
Giovanni Leuzinger.pdf	27. Oktober 2014 14:37	41 KB	PDF-Dokument
Gormsen Camilla <cgormsen@student.ethz.ch>.pdf	27. Oktober 2014 14:37	52 KB	PDF-Dokument
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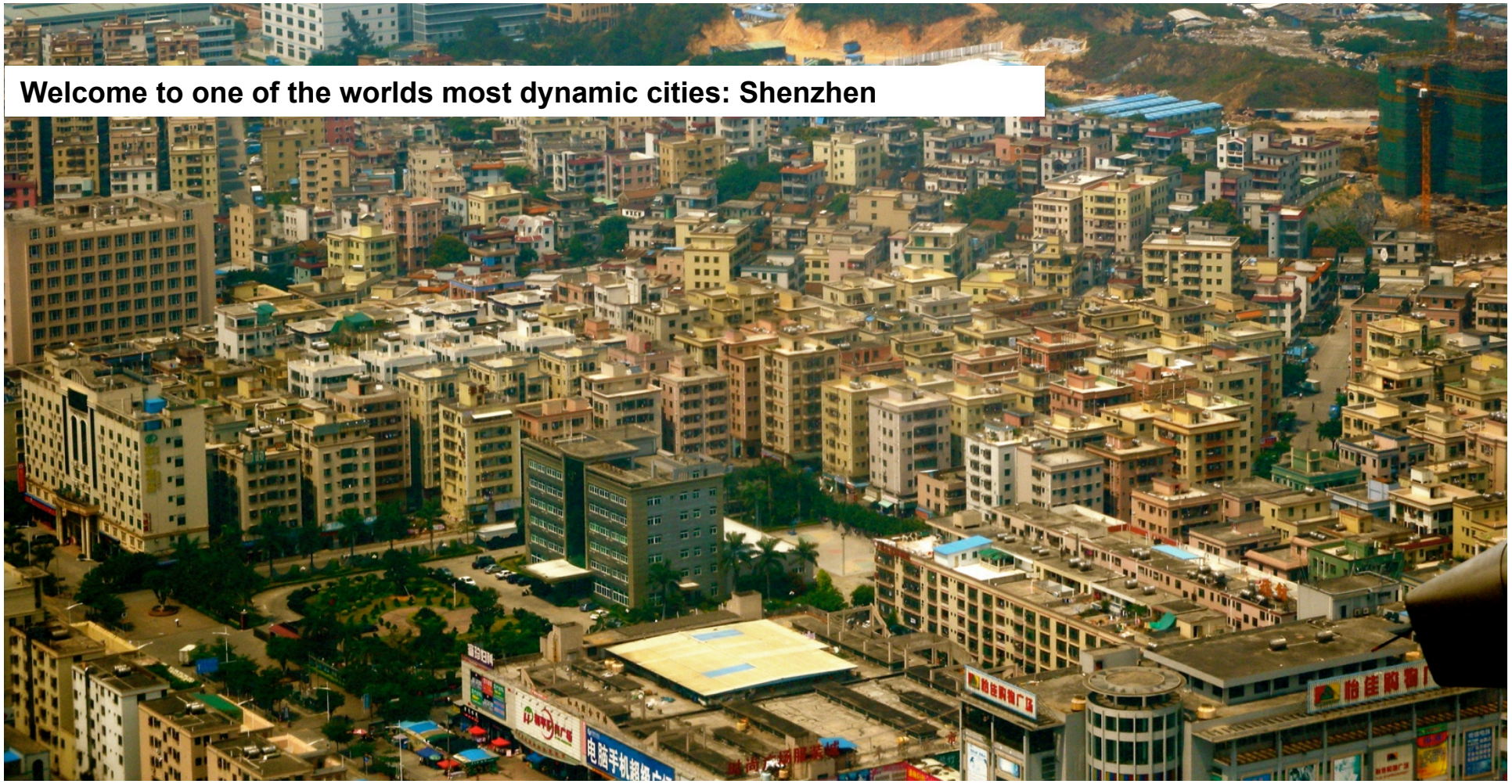
Tan Wei Ming <wtan@student.ethz.ch>.pdf	29. Oktober 2014 06:35	123 KB	PDF-Dokument
Vincenzi Aramis <aramisv@student.ethz.ch>.pdf	28. Oktober 2014 13:44	256 KB	PDF-Dokument
Woo Jie Kai <jwoo@student.ethz.ch>.docx	29. Oktober 2014 06:31	2.7 MB	Wort

Welcome to an urban system we can learn from most: Lake Inle, Myanmar

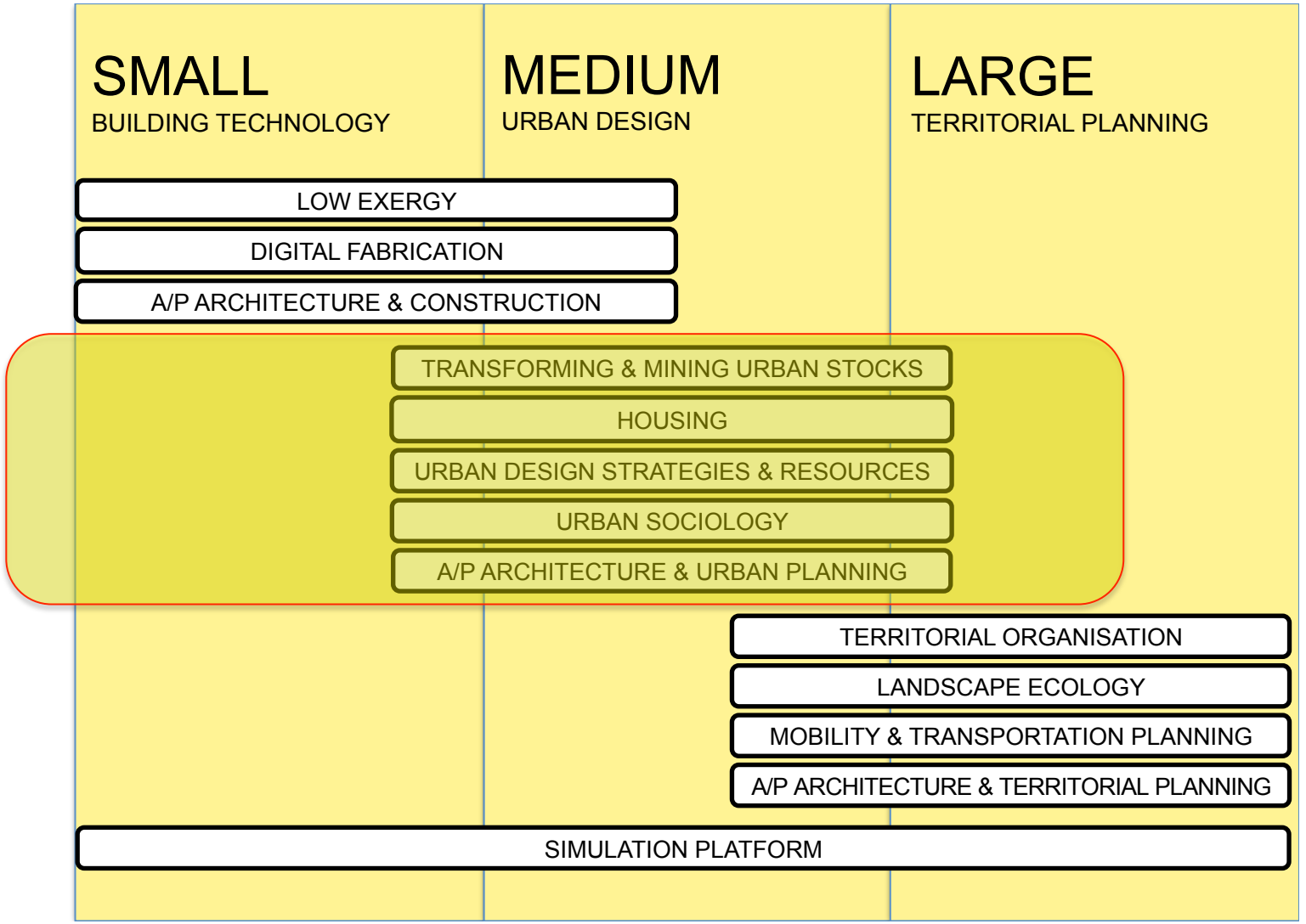
Welcome to one of the worlds most dynamic cities: Rio de Janeiro

Welcome to one of the worlds most dynamic cities: Shenzhen



Scales, Stocks and Flows

SPACE
ENERGY
MATERIALS
PEOPLE
CAPITAL
WATER
INFORMATION



Welcome to one of the world's most liveable cities: Geneva

Welcome to one of the world's most liveable cities: Zürich

Section 2

HS 2014 - Exercise 2

URBAN DESIGN SCALE

The liveability of a city is one of its most crucial qualities. Factors at the building scale and the urban design scale, and to some degree at the territorial scale determine the liveability of a city. International organisations have established criteria that measure and compare cities and their liveability. Examples are:

- **The Global Liveable Cities Index**
- **The EIU's Global Liveability Report**
- **Mercer's Quality of Living Survey**
- **Monocle's Most Liveable Cities Index**
- Ranking the Liveability **oft the World's Major Cities**

Factors of liveability

At the beginning of the 21st century, liveability has developed into one of the most important competitive advantages of a city. It is therefore a key quality that every city and urban system government is struggling for. In order to understand what this means in practice, you will identify your personal preferences. This exercise has 3 parts:

Part 1: List the most liveable cities that you know, building on your own experience and judgement, with the most liveable city at the top of the list

Part 2: Describe in your own words 5 characteristics defining the livability of a city and order them with the most important at the top of the list. Also state the motto of the city, if available.

Part 3: For each of the cities you select (or for the respective countries, if city data are not available), identify the Gini Coefficient, the GDP, the form of governance of the city and the surrounding country, the latitude and the mean annual temperature.

You do not have to follow the official rankings for the livability of cities, but you should know the criteria they apply. Hand in until November 17, 2014 to shin@arch.ethz.ch, with cc: to denise.weber@arch.ethz.ch

Map of Existing and Potential Future Liveable Cities

By following the link below, you get access to the map of “Existing and potential Future Liveable Cities”. This map gives you the possibility to explore and get informed of both today’s most liveable cities and the fastest growing cities in the world. On the one hand the map shows the most liveable cities in the world, according to four official rankings (Monocle´s Most Livable Cities Index, The EIU´s Liveability Ranking and Overview, Mercer Quality of Living Survey, The Global Liveable Cities Index), where liveability is defined by a number of criteria, the weighted sum of which in the end characterizes a city as liveable or not. On the other hand, the fastest growing mega-cities are also presented on the map. This way, the user is able to detect the differences among these cities and the previous ones, derived from the comparison of their Factors of Liveability characteristics, and in the end recognize which of these cities can eventually become liveable, and how this goal can be achieved.

http://www.n.ethz.ch/~gkonosc/Layout/Layout.html

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Section 3

HS 2014 - Exercise 3

TERRITORIAL SCALE

Territories contain cities, cities contain buildings. Yet they do not form a hierarchical system, as the interaction between buildings influences the city as much as the interaction between cities influences the territory. Rather, territories interact with cities and urban systems, if we consider them as entities with a metabolism and that they are functioning in the analogy to the stocks and flows model.

In this exercise you are encouraged to question the traditional definitions and roles of buildings, cities and territories, as novel non-urbanised high-density settlements will significantly influence our future habitat, as well as the architectural and urban design profession.

Non-urban Information Cities

In the past, there were strong boundaries between the city and its surrounding territory, the so-called hinterland. The separation between the city, the villages and the countryside was clear, and so was the hierarchy between them. This situation has changed drastically with the ubiquitous distribution of information technology, particularly the mobile phone and its associated services. The possibility to work at home or from home has changed the life of Swiss citizens, as well as Indian or Brazilian citizens. As the boundaries of the city disappear, urbanized systems, high-density settlements and new forms of habitat - Information Cities - are emerging rapidly throughout the world. Identify and prepare the following:

- Identify and describe two attractive non-urban, non-city settlements which nevertheless show characteristics of an urban settlement
- Identify and describe the most important stocks and flows entering, staying in, and eventually leaving this area
- Describe two approaches how buildings in urban sprawl areas could be transformed from a perceived liability into an asset for the resilience of future cities

Hand in until December 1, 2014 to shin@arch.ethz.ch, with cc to denise.weber@arch.ethz.ch

Information Architecture of Cities - Support

- The MOOC – Massive Open Online Course
  - https://www.edx.org/course/ethx/ethx-fc-01x-future-cities-1821
- The BOOK – Basic Open Offline Knowledge
  - Information Cities