Integrative secondary-education programs and research in smart cities context

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Hamburg, 23.06.2016
Agenda

- Smart Cities Education at UAS Technikum Wien
- Master Degree Program - “Integrative Urban Development – Smart City”
- Supporting activities towards Smart City
- Research project „Way2 Smart – Korneuburg“
- Conclusion
UAS Technikum Wien – Facts and Figures

UAS Technikum Wien is the largest purely technical university of applied sciences in Austria

- 13 Bachelor‘s Degree programs
- 17 Master‘s Degree programs
- 15 Departments
- 4 Study centers
- 4107 Students (2014/15)
- 7699 Alumni
- 130 Full-Time lecturers
- 488 Lecturers from the business World
EU-ASCIN – European Academic Smart Cities Network

The EU-ASCIN project provided a solid foundation for Smart Cities deployment through setting up an academic network in the area of Smart Cities.

Main focus on the thematic corner stones

Further information at www.eu-ascin.at
The EU-ASCIN project provided a solid foundation for Smart Cities deployment through setting up an academic network in the area of Smart Cities.

- Internationally coordinated area of studies with focus on smart cities
- International and interdisciplinary projects like a summer school, project workshops, laboratory and internships
- Network is supported by a web-platform where current information about technologies, standards, competences and activities of network partners will be permanently published.
Implementation of the smart cities specialisation

Bachelor’s degree program Renewable Energy Technologies

- Energy Technologies
  PV, solarthermal, heat pumps, windpower

- Power Plants
  Combined heat power, district cooling, grids

- Building-Energy-Design
  passiv-houses, E-Plus buildings

- Smart Cities (new 2015)

Bachelor’s degree program Transport and Environment

- Socio-Technical Aspects of Smart Cities

- Smart City Influencing Factors

- Big Data in Smart Cities
  passiv-houses, E-Plus buildings

- Urban Energy Supply Systems

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Master Degree Program
“Integrative Urban Development – Smart City”

Key Facts

Degree: Master of Science in Engineering
Start: Winter term 2016/17
Students in 1st semester: 28
Language: German
Form: Part-Time
Duration: 4 semesters

Profile of course program by fields of competence

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<tr>
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120 100%

Content: Smart Cities in Mobility, Energy, and ICT context (possibility for many elective courses)
# Smart City Master Program

Module plan of the Master Program Integrative Urban Development – Smart City

| Sem / ECTS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| **Sem 1**  |   |   |   |   |   |   |   |   |   | **Adjustment module** | **Urban Mobility** | **Elective Module 1** | **Project 1** | **Smart City Perspective** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|            | M11 | 6 ECTS | SCG | M12 | 6 ECTS | SMC | M13 | 6 ECTS | SMC | M14 | 6 ECTS | PRA | M15 | 6 ECTS | ST |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Sem 2**  |   |   |   |   |   |   |   |   |   | **Urban Renewable Energy** | **ICT** | **Elective Module 2** | **Project 2** | **Business Cooperation** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|            | M21 | 6 ECTS | SMC | M22 | 6 ECTS | SMC | M23 | 6 ECTS | SMC | M24 | 6 ECTS | PRA | M25 | 6 ECTS | ST |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Sem 3**  |   |   |   |   |   |   |   |   |   | **Urban Planning** | **Simulation** | **Elective Module 3** | **Specialization** | **Business** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|            | M31 | 6 ECTS | SMC | M32 | 6 ECTS | SMC | M33 | 6 ECTS | SMC | M34 | 6 ECTS | WA | M35 | 6 ECTS | WM |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Sem 4**  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|            | M41 | 30 ECTS |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

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Smart City Master – Competences and employment possibilities

Competences to be gained in the new Master Program

Considering the prospective employment possibilities, several key areas could be identified, including:

i) **infrastructure planning implementation and maintenance**, such as city administration,

ii) **management and urban planning** such as city administration,

iii) **industry** such as technology in mobility and energy domains as well as

iv) **services** such as education and consulting
Smart City activities at the UAS Technikum Wien

- **Endowed professorship**
  Relating to the subject of Energy Performance of Buildings Directive (EPBD) which requires that all new buildings to be nearly zero-energy by the end of 2020 (EPBD 2014), the user’s behaviour and diversity are the main foci, which are not yet integrated in the daily building planning process.

- **Smart Cities Competence Team**
  The main objective of the competence team for Intelligent Technologies in Smart Cities (KiTSmart) is to develop smart cities related courses and support scientific dissemination in the research community and considering the gender and diversity aspects.
Demonstration project „Korneuburgs Way2Smart”

Until 2036 the forecasts predict at least **50 % increase in population** of Korneuburg. To meet the needs of a growing city - citizens, politicians and administration - planned Korneuburg's path to 2036: with **ambitious objectives in terms of energy and CO2-saving and concentration on “social togetherness”**.

The three years project is funded by the Austrian Climate and Energy Fund, with a strong consortium composed by

- grid operators,
- energy planners,
- mobility planners
- and architects, but also the municipality of Korneuburg.
Korneuburgs Way2Smart” - Goals

**Rehabilitation** of two municipality-owned **residential buildings**
creation of a **mobility hub** in the area of the rehabilitated objects and thus create alternatives to the use of private cars.

As accompanying measures,
(i) **communications programmes** are to reconcile measures and needs of existing and new tenants on a level-playing field with experts.

(ii) Tenants and other citizens will be informed of and mobilised for the objective of the energy-self-sufficiency of Korneuburg.

(iii) Property developers are involved in the process which is **monitored by social scientists**.
CONCLUSION

- Integration of smart cities into Bachelor degree programs
- An independent smart cities oriented Master’s program starts in September 2016
- The demonstration project “Korneuburgs Way2Smart” as a exemplary of the two buildings offer housing for young people
- Motivated existing and new tenants, enhanced local traffic, documented progress towards achieving the Korneuburg 2036 Vision statement and master plan
ACKNOWLEDGEMENTS

The project Way2Smart Korneuburg is funded by the Austrian Climate and Energy Fund

This project EU-ASCIN is funded by the City of Vienna, department MA23, under the grant number MA23-Project 14-04

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