



HUNGARIAN UNIVERSITY OF
AGRICULTURE AND LIFE SCIENCES
INSTITUTE OF LANDSCAPE
ARCHITECTURE, URBAN PLANNING
AND GARDEN ART

Address: 1118 Budapest, Villányi str. 29–43.

COURSE CATALOGUE for Exchange students

Urban Systems Engineering MSc

for 2026/27 Spring Semester

The Institute of Landscape Architecture, Urban Planning and Garden Art of MATE at Buda Campus is currently offering the following core courses for the Spring semester of 2026/27 academic year. **Additional courses may be announced** at the start of the semester, providing a wider range of courses to choose from.

Exchange students attend classes alongside full-degree international students. To avoid timetable conflicts, please select your subjects **solely from this catalogue**.

2026/27 Spring semester Academic Calendar:

Lectures: from early February to mid May.

Exams: mid May to late June

2026/27 Spring semester

SUBJECT CODE	SUBJECT NAME	ECTS Credits
MATER013N	Decision Support Methods in Urban Planning	2
TETTD037N	Architectural Design 2	3
TETTD048N	Sustainable Urban Environment	2
USINM111N	Administrative Law	2
TETTD153N	Urban Planning 2	6
TETTD167N	Regional, Urban and Property Development	3
TETTD179N	Urban Morphology and Design	4
TETTD182N	Urban Transportation and Road Planning 2	2
TETTD183N	Urban Ecology	3
	TOTAL	27

Course name: Decision Support Methods in Urban Planning

Subject code: MATER013N

ECTS: 2

Course description:

This course provides students with essential analytical and statistical methodologies to support urban planning decisions. By integrating quantitative analysis, predictive modeling, and spatial data processing, students will develop a deep understanding of evidence-based urban development strategies.

Urban planning in the modern world requires data-driven approaches to address complex challenges such as sustainability, infrastructure development, population dynamics, and climate adaptation. Throughout the semester, students will engage with various analytical frameworks that allow them to assess urban phenomena scientifically. The course emphasizes both theoretical foundations and practical applications, equipping students with industry-standard methods for urban analytics.

Key topics include statistical techniques for spatial and demographic analysis, GIS-based urban modeling, predictive analytics for city planning, and machine learning applications in urban studies. Students will learn how to collect, process, and interpret urban datasets to generate insights that improve planning efficiency and policy-making. Additionally, the course introduces advanced decision-support methodologies such as multi-criteria analysis (MCA), data visualization techniques, and real-time monitoring systems for urban development.

Beyond technical skills, the course encourages critical thinking and problem-solving in urban contexts. Students will analyze real-world case studies, work on practical assignments using statistical software, and develop projects where they apply decision-support models to contemporary urban challenges. By the end of the course, students will have the analytical proficiency necessary to contribute to data-informed urban planning initiatives.

Grading system: Assignments and presentations

Required or recommended literature:

Timmermans, H. (Ed.). (1993). *Decision Support Systems in Urban Planning*. Springer.

Geertman, S., & Stillwell, J. (Eds.). (2009). *Planning Support Systems: Best Practice and New Methods*. Springer.

Timmermans, H. (Ed.). (2004). *Decision Support Systems for Sustainable Urban Planning*. Routledge.

Course name: Architectural Design 2

Subject code: TETTD037N

ECTS: 3

Course description:

The theoretical part of the course takes a look at the most important types of public buildings, placing them in their historical context and discussing the significance of contemporary spatial characteristics of the building type, as well as contemporary examples.

The main goal of this course is to see these various buildings as dominant elements of public space, to understand how they connect or limit spatial use and how they change their environment just by their existence. Also it is important to learn how to calculate the capacity of needed access points and connections as a tool for designing better public spaces.

In the practical sessions, students will learn about the characteristics of urban situated developments, mainly by residential buildings. At the beginning of the semester, a conceptual design for a real site will be prepared in a group, followed by the architectural design of an independent apartment building at the schematic level in the second half of the semester.

Grading system: assignment (urban and architectural plans) – presentations

Required or recommended literature:

David Levitt: Housing Design Handbook

Ernst Neufert: Architect's data

Kenneth Frampton: Modern Architecture: A Critical History

Course name: Sustainable Urban Environment

Subject code: TETTD048N

ECTS: 2

Course description:

The aim of the course is to provide students with an understanding of the challenges related to the environmental status of settlements and the issues of urban sustainability. The course will assess both the environmental status of settlements and the challenges of sustainability in a global and local context in order to find sustainable solutions to as many problems as possible.

The course will cover the pillars of sustainability, the urban dimension of the Sustainable Development Goals of the UN SDGs, the environment and sustainability in relation to each other. The course is complemented by a practical assignment, which students will complete in groups.

Grading system: Assignments and presentations, exam

Required or recommended literature:

<https://sdgs.un.org/goals>

<https://www.oecd.org/en/topics/sustainable-urban-development.html>

Rachel Carlson: The silent spring, 1962

Al Gore: The future, Six Drivers of Global Change, 2013

Al Gore: An Inconvenient Truth, 2006.

Implementing Sustainable Cities, Edited By Sylvie Albert, Jeremy Millard, Manish Pandey Copyright 2025

The Sustainable City, Steven Cohen and Guo Dong, Columbia University Press

Course name: Administrative Law

Subject code: USINM111N

ECTS: 2

Course description:

The course covers the fundamental terms of law and public administration; the structure of the state; the sources of law; the organisation, functions and personnel of public administration as well as the general rules of administrative proceedings.

The aim of the course is to provide a basic understanding of administrative law and public administration and such a knowledge that makes students capable of knowing their way about public administration as well as identifying and finding the solution of a legal problem related to public administration.

Grading system: Tests, exam

Required or recommended literature:

Patyi, András; Rixer, Ádám; Koi, Gyula (ed.) Hungarian Public Administration and Administrative Law. Passau, Schenk Verlag, (2014), 16 p. (ISBN: 978-3-944850-12-2)

Course name: Urban Planning 2

Subject code: TETTD153N

ECTS: 6

Course description:

The subject deals with areas of urban planning with outstanding importance: the possibilities of urban planning in sustainable development and climate protection integrated urban strategies, city marketing and urban regeneration, which ranges from urban reconstruction through various forms of urban rehabilitation to revitalisation. Lectures will present and analyse the context of planning theories, international cases and contemporary experiences in Hungary.

Practical lessons, supported by theoretical lectures, will reinterpret the built elements, green spaces and transport areas of the blocks of the neighbourhood under study, while preserving the valuable built environment.

The creation of new green and pedestrian connections will be emphasised, with the aim of improving the quality of the urban human environment. Projects will also seek to address the social issues in these areas using urban planning instruments and urban design tools. We will prepare urban design proposals that express the contemporary values of urban life with the necessary demolitions and transformations.

Grading system: assignment (urban and architectural plans) – presentations

Required or recommended literature:

Kovács, Zoltán (2012): *Urban Renewal in the Inner City of Budapest: Gentrification from a Post-socialist Perspective*

Urban Studies, Vol. 49(1), pp. 237–253.

<https://doi.org/10.1177/0042098012453856>

Hegedüs, József & Tosics, Iván (1994): *Urban Regeneration in the Post-Socialist Context: Budapest and the Search for a Social Dimension*

In: P. Balchin (ed.), *Housing Policy in Europe*. [ResearchGate link](#)

Christopher Cadell, Nicholas Falk and Francesca King (2008) *Regeneration in European cities – Making connections URBED 2008*

https://urbed.coop/sites/default/files/get_binary_doc_object_1.pdf

Anna König & Christian Kühn (2022): *Sponge Cities in Europe: Vienna's Response to Climate Resilience – Time Magazine*, special climate issue

<https://time.com/6222020/sponge-city-vienna-climate-change>

Salamin, G., Kohán, Z., Dobozi, E., & Péti, M. (2011). *Climate-friendly cities: a handbook on the tasks and possibilities of European cities in relation to climate change. Budapest, Ministry of Interior–VÁTI.*

Roggema, R. (2014). *The Use of Spatial Planning to Increase the Resilience for Future Turbulence in the Spatial System of the Groningen Region to Deal with Climate Change*. In: *Swarm Planning*. Springer Theses. Springer, Dordrecht.

Fioretti, C., Pertoldi, M., Busti, M., & Van Heerden, S. (2020). *Handbook of sustainable urban development strategies (No. JRC118841)*. Joint Research Centre.

The New Leipzig Charter. *The Transformative Power of Cities for the Common Good*; EU2020.de. European Commission: Brussels, Belgium, 2020;

Glaeser, E. (2011). *Triumph of the city. How urban spaces make us human*. Pan Macmillan.

Course name: Regional, Urban and Property Development

Subject code: TETTD167N

ECTS: 3

Course description:

The aim of the course is to make students able to identify, describe and analyse the spatial dimensions of current economic and social processes and relations, based on the learning and usage of fundamental theoretical models. An overview of general urban development and real estate development processes using case studies from the European context is provided. An understanding of locational aspects, methods and tools employed when carrying out development potential assessment, concept development, appraisal, market research, contracting, marketing and the relationships between developers, local, regional and national governments, occupiers, the investors, financiers and the many professions that contribute the development project are discussed. Students are introduced to the concept of 'the urban product' as an approach for real estate and urban development to model the market sectors of housing, retail, business accommodation (office and warehousing), hotels and mix-use projects.

A number of case studies will be used as illustrations and also to trigger discussion. Lessons learned from the past 25 years of market transformation in the CEE region will be discussed together with innovative approaches and prospects for real estate (and related urban) development during the times of global economic uncertainty. Particular attention is paid to the exploring and learning of future tendencies and their expected spatial effects (e.g. AI, automation, Industry 4.0, autonomous vehicles).

Grading: Exam

Required or recommended literature:

Wilkinson, S. and Read, R. (2008). Property Development (5th Edition). Routledge (e-book available:

<http://www.ebookstore.tandf.co.uk/moreinfo.aspx?BookId=536958231>)

Nozeman, E. F. and Van der Vlist, A. J. (Eds.): European Metropolitan Commercial Real Estate Markets, Springer (2014)

Squires, G. and Heurkens, E.: International Approaches to Real Estate Development, Routledge (2014)

Squires, G.: Urban and Environmental Economics: An Introduction, Routledge (2013)

DiPasquale, D., Wheaton, W. C.: Urban Economics and Real Estate Markets, Prentice Hall (1996)

Carn, N., Rabianski, J., Racster, R., Seldin, M.: Real Estate Market Analysis, Techniques and Applications, Prentice-Hall, 1988

Cash flow forecasting, RICS Guidance note, First edition (2012)

Financial Viability in Planning, RICS Professional Guidance, England, first edition (2012)

Besussi, E.: Fiscal arrangements and planning decisions in Italy, the UK and the Netherlands, RICS Research (2012)

Beaman, M.: Delivery Strategies for Masterplans and Area Action Plans, RICS Planning and Development Faculty briefing paper (2008)

Course name: Urban Morphology and Design

Subject code: TETTD179N

ECTS: 4

Course description:

The subject explores the sub-theme of urban design, focusing on the design of both the interior and exterior visual aspects of the city. Throughout the semester, we will study the principles of urban design and the structural patterns of its elements—specifically, exterior spaces. Lectures will introduce a range of urban design approaches and methodologies, which will be applied in practical projects.

A portion of the semester will be dedicated to the history of urbanism in the twentieth century as well as contemporary urban development. The course examines the form of the modern city through various contexts and explore the creation of new urban morphologies in response to the ecological crisis. Additionally, morphological and climatic relationships will be analysed through various modeling tasks.

Grading system: Assignments and presentations

Required or recommended literature:

Kropf, K. (2017) *The handbook of urban morphology*. Chichester: Wiley (The Urban Handbook series). Available at: <https://doi.org/10.1002/9781118747711>.

Oliveira, V. de (2022) *Urban morphology: an introduction to the study of the physical form of cities*. Second edition. Cham: Springer (The urban book series).

Schenk, L. and Fritz, O. (2013) *Designing cities: basics - principles - projects ; [urban design: the arrangement of structures, systems, components, and spaces]*. Basel: Birkhäuser.

Kostof, Spiro (1993): *The City Shaped: Urban Patterns and Meanings Through History*. Boston: Little, Brown.

Course name: Urban Transportation and Road Planning 2

Subject code: TETTD182N

ECTS: 2

Course description:

The subject deals with the elements and scaling of urban transport, from the level of the urban structure plan to the regulatory plan. The practical exercise is linked to the theoretical lectures.

The base of urban planning, the types of transport problems occurring in urban management, their solutions. Parking solutions, conflict analysis. Opportunities for sustainable transport in urban planning. Traffic safety, traffic management.

Grading system: Assignments and presentations

Required or recommended literature:

https://www.london.gov.uk/who-we-are/what-mayor-does?__cf_chl_tk=E5KA8tVja6GyKdmZfkGdPesZADjHiRdq59dXJVVum.w-1748798640-1.0.1.1-MDh8qZeBE1BRRm9b57f6zAdadhDMlptDiR3aCDVUgDQ

https://transport.ec.europa.eu/transport-themes/urban-transport/sustainable-urban-mobility-planning-and-monitoring_en

Actual studies, case studies, SUMP studies from Hungary

BudaPest transport development strategy

KSH database (accident data)

Course name: Urban Ecology

Subject code: TETTD183N

ECTS: 3

Course description:

The course typically explores the complex interactions between urban environments and ecological systems. It integrates principles from ecology, urban planning, environmental science, sociology, and geography to examine how cities impact natural ecosystems and how sustainable urban design can mitigate environmental degradation. Students study topics such as urban biodiversity, ecosystem services, climate resilience, green infrastructure, and environmental justice. The curriculum often includes both theoretical coursework and hands-on fieldwork or research projects, equipping students with analytical, technical, and policy-making skills to address ecological challenges in rapidly urbanizing areas.

Grading system: Assignments and presentations, exam

Required or recommended literature:

Journal of Urban Ecology – Published by Oxford University Press

Urban Ecosystems – Published by Springer

"Urban Ecology: Science of Cities" by Richard T. T. Forman (2014)

"Urban Ecology: Patterns, Processes, and Applications" edited by Jari Niemelä et al. (2011)