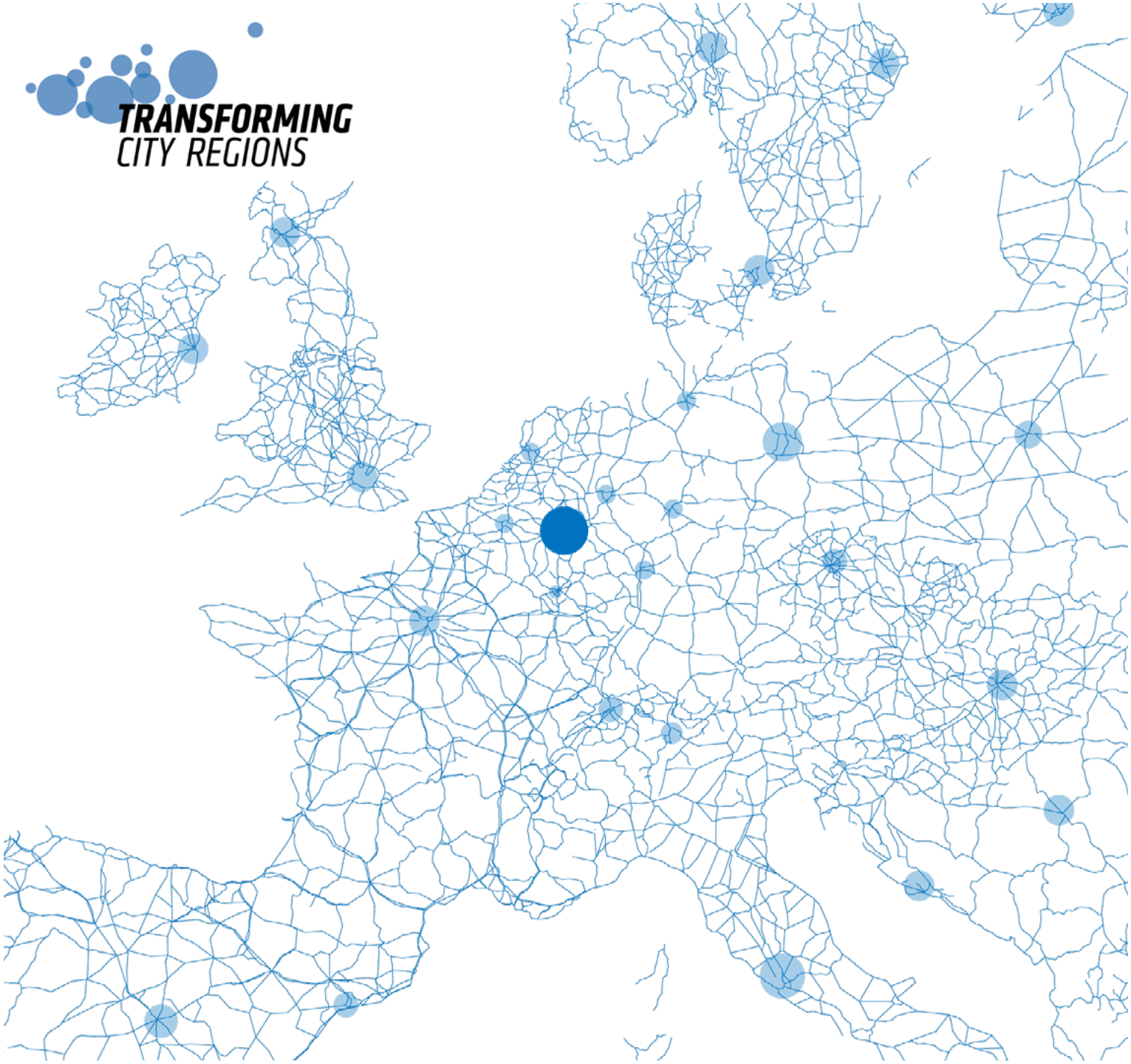
TRANSFORMING CITY REGIONS



European Master

Transforming City Regions

Summer Semester 2022 Handbook

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Table of Contents

Preamble

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Dear Reader,

The English taught master programme “TRANSFORMING CITY REGIONS” at RWTH Aachen University was launched in the winter semester 2019/20. The high demand from students from Germany, Europe and, last but not least, the whole world shows that the content orientation of the degree programme towards international transformation processes was well-chosen. Students from the disciplines of architecture, urban planning, landscape planning, civil engineering, geography, and cultural studies have been very successful in the past semesters in dealing with concepts and strategies in urban design and in neighbourhood, city and regional development.

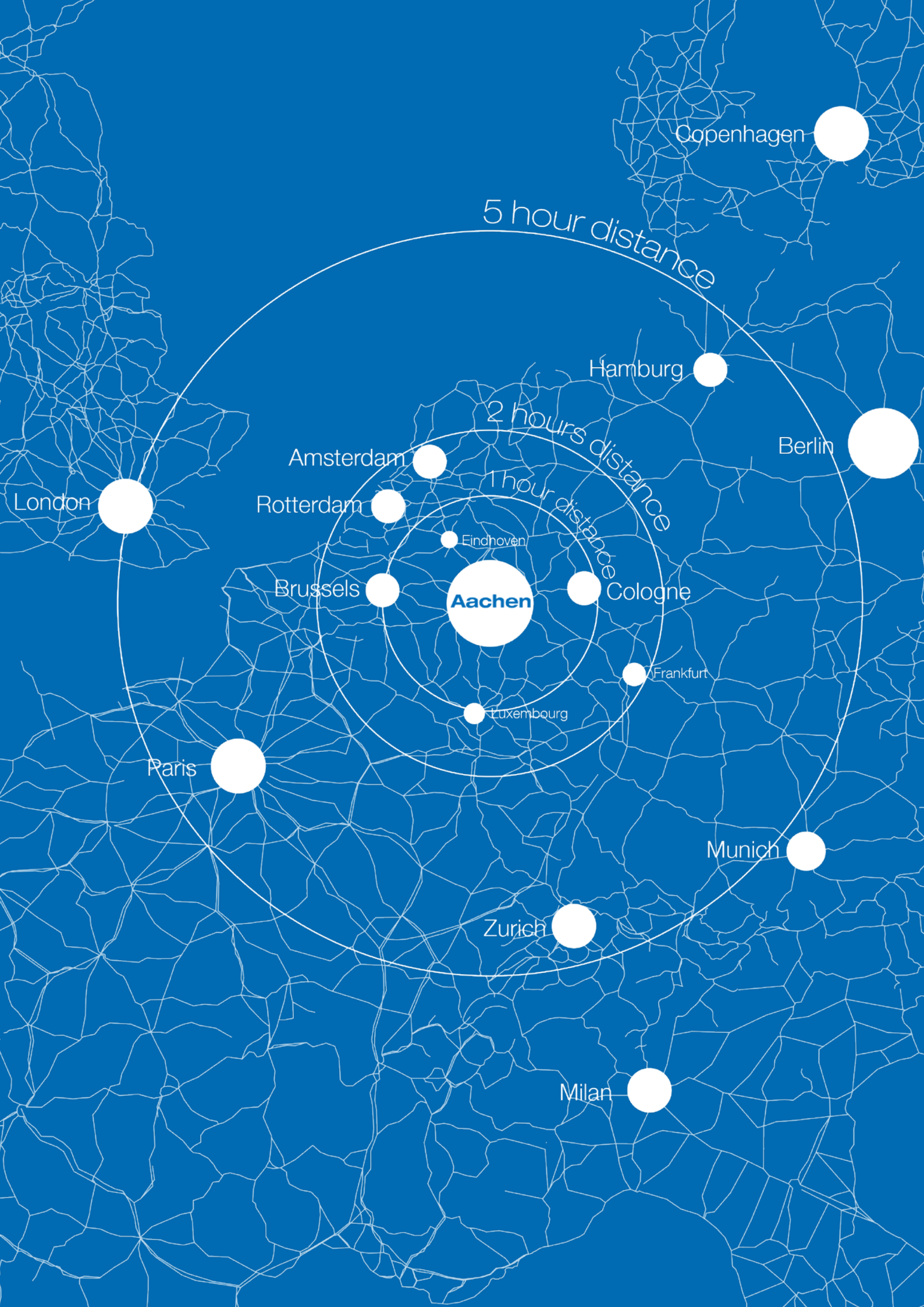
This has involved an intensive examination of the major challenges of transformation – urbanisation in the form of reurbanisation and suburbanisation as well as the reshaping of entire regions, such as the lignite mining region in the Rhineland. Above all, there is agreement that transformation processes can only be successfully mastered if the right instruments, concepts and strategies are applied. And many of these challenges and questions for the future can no longer be answered by looking at the local context, but require an international exchange of experience, as is taking place within the framework of the English taught master programme “TRANSFORMING CITY REGIONS” (TCR).

In times of globalisation and increasing networking, knowledge in dealing with international transformation processes is more important than ever. It not only opens up new career prospects for graduates, but also qualifies them in every respect for the future challenges in the broad field of urban and regional planning.

The teaching results presented in the following show how students have dealt with transformation processes at the various spatial scales and levels - from the neighbourhood, to the city, to the region - and how the spatial level can be successfully linked with the strategic level.

I hope you enjoy exploring these projects.

Prof. Christa Reicher
Head of the international TCR programme


Copenhagen
5 hour distance
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Frankfurt
Luxembourg
Paris
Munich
Zurich
Milan

Enrolled Students: Nationality

Enrolled Students: Field of Studies

People

The international teaching and research network Transforming City Regions is based at RWTH Aachen University and led by Prof. Christa Reicher, head of the Chair and Institute of Urban Design at the Faculty of Architecture. The network includes partners from academia and practice and aims to advance the level of knowledge of regional transformation processes in post-industrial areas within the framework of an international comparative action.

Coordination

Univ.-Prof. Dipl.-Ing. Christa Reicher

Programme leader

reicher@staedtebau.rwth-aachen.de

Fabio Bayro Kaiser

Programme coordination and departmental advisor

bayrokaiser@staedtebau.rwth-aachen.de

Dr. ir. Ceren Sezer

Programme coordination

sezer@staedtebau.rwth-aachen.de

Sebastian Beisel

Student assistant

beisel@staedtebau.rwth-aachen.de

Eva Hoppmanns

Student assistant

hoppmanns@staedtebau.rwth-aachen.de

Seher Ulusoy

Student assistant

ulusoy@staedtebau.rwth-aachen.de

Teaching Core

Prof. Dr. Jakob Beetz
Chair for Design Computation (DC)
Module(s): Territorial analysis and digital tools

j.beetz@caad.arch.rwth-aachen.de

Prof. Dr. Stefan Böschen
Chair of Society and Technology (SoTec)
Module(s): Changing Societies and Economies

stefan.boeschen@humtec.rwth-aachen.de

Prof. Dr. Sigrid Brell-Cokcan

Chair for Individualized Production (IP)
Module(s): Elective courses

brell-cokcan@ip.rwth-aachen.de

Dr. Stefano Cozzolino

Chair for Sustainable Housing Development (ILS)
Modules: Planning and design for changing cities, Elective courses

stefano.Cozzolino@ils-forschung.de

Prof. Dr. Agnes Förster

Chair for Planning Theory (PT)
Module(s): Multiple scales of urban planning and design, Elective courses, Impromptu courses

foerster@pt.rwth-aachen.de

Prof. Dr. Tobias Kuhnimhof

Chair and Institute of Urban and Transport Planning (ISB)
Module(s): Research Module in urban and regional transformation

Kuhnimhof@isb.rwth-aachen.de

Prof. Dr. Michael Leuchner

Physical Geography and Climatology (GEO)
Module(s): Elective courses

michael.leuchner@geo.rwth-aachen.de

Prof. Dr. Frank Lohrberg

Chair for Landscape Planning (LA)
Module(s): Evolving environment. Transforming landscapes

lohrberg@la.rwth-aachen.de

Jun. Prof. Dr. Carola Neugebauer

Juniorprofessur für Sicherung kulturellen Erbes (SKE)
Module(s): European urban policies and territorial governing structures

carola.neugebauer@rwth-aachen.de

Jun. Prof. Dr. Jan Polívka

Chair for Sustainable Housing Development (NWB)
Module(s): Planning and design for changing cities, Elective courses

jan.polivka@ils-forschung.de

Prof. Dipl.-Ing. Christa Reicher

Chair of Urban Design and Institute for Urban Design and European Urbanism (STB)
Module(s): Integrated Project I-III, Urban transformation, Elective courses, Impromptu courses, Field trip, Research module in urban and regional transformation

reicher@staedtebau.rwth-aachen.de

Transforming City Regions

is a European master programme that integrates many disciplines in order to educate professionals being able to respond to the challenges of evolving European territories of different scales with respect for the environment, using the technical excellence and a solution-oriented approach, understanding the economic efficiency and respecting social needs.

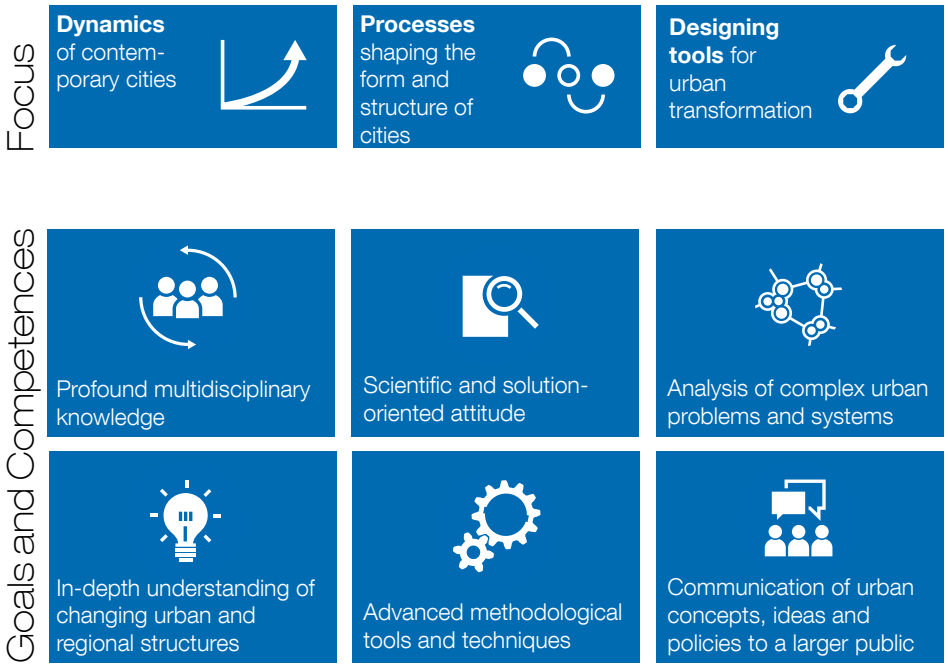
Transforming City Regions University (M. Sc. RWTH)

Porgramme information and curriculum framework

Transforming City Regions (TCR) is a unique, multidisciplinary master programme with a strong focus on the European dimension of territorial development. The degree programme is taught in English and is designed to respond to the environmental, social, technological, and economic challenges which European cities and regions are facing. TCR takes a technically advanced and solution-oriented approach so that you can understand economic efficiency and identify societal needs.

The TCR programme is one of the few programmes that have been newly designed at RWTH Aachen University to respond to European territorial challenges. The special focus is on a project and design-oriented education that equips graduates not only with up-to-date and solid knowledge, but also with the tools and methods to help them tackle the problems of Europe's changing cities and regions. Despite its clear multidisciplinary orientation, the engineering and design-oriented profile of the graduates is deeply rooted in the tradition of the Faculty of Architecture at RWTH Aachen University and also gives the programme a strong identity.

The degree programme is structured in 4 semesters, with the last semester being dedicated to the Master thesis. The core of the master programme is formed by three major integrated project works during the first three semester. The increasing territorial complexity and issues with different structural and content-related priorities and the link with the foundations of other disciplines should lead to integrative and conceptual thinking. These projects are characterised by a broad spectrum of methodological, procedural, morphological, landscape architectural, ecological, legal, and economic aspects. The remaining ECTS CP are available through compulsory modules, elective courses, research modules, field trips/impromptu courses and transit courses.



If you have a degree in urban design, urban planning, urban studies, spatial planning, regional planning, landscape architecture, architecture, transport planning, environmental engineering, urban geography, urban ecology or urban governance, this degree programme is particularly suitable for you.

Key Facts

Degree:
Master of Science

Start of Studies:
Winter Semester, Summer Semester
As of winter semester 22/23 start only in the winter semester

Standard Period of Studies:
4 semesters

ECTS Credits:
120

Language:
English

Check out our website!

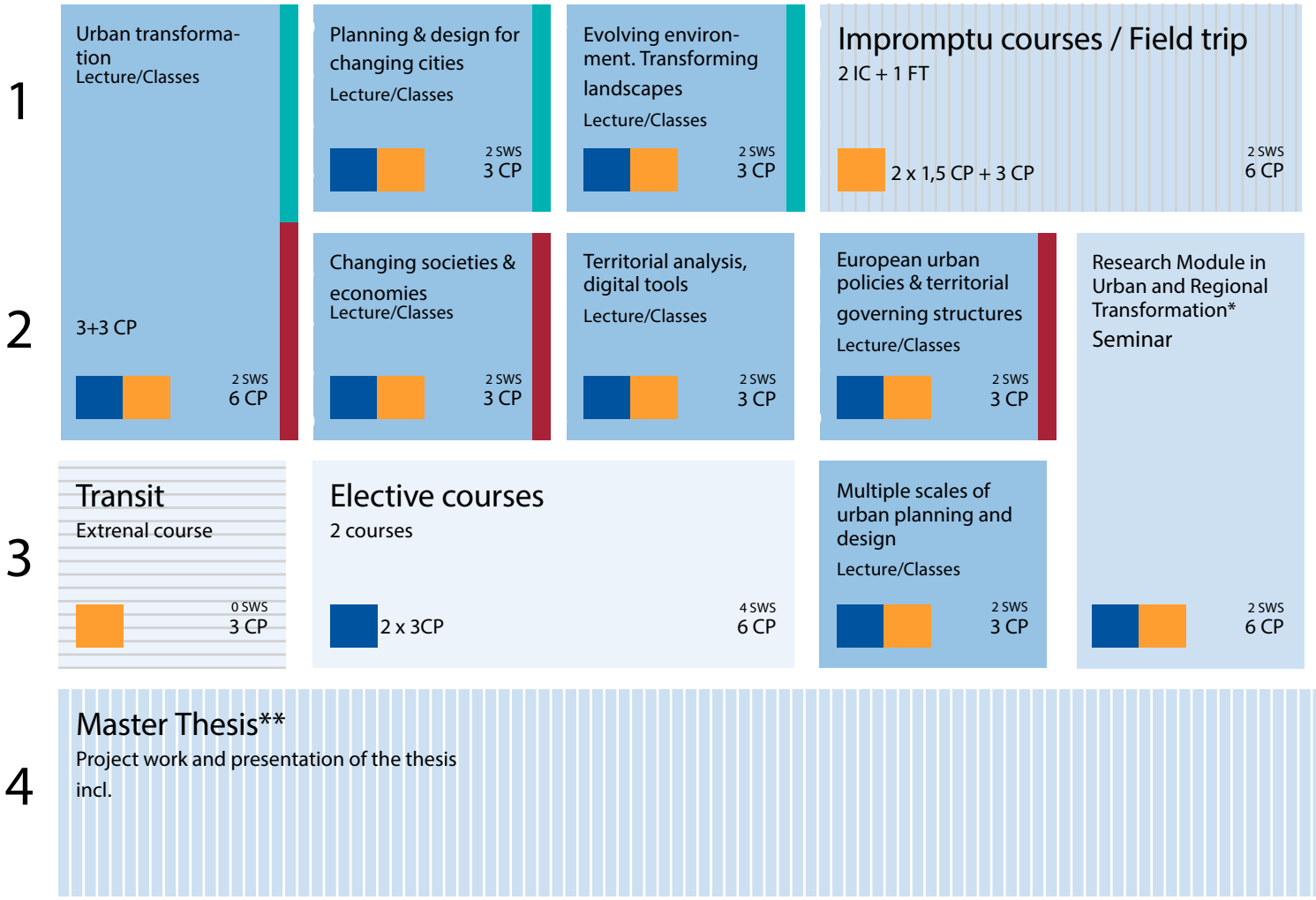
Course registration procedure

Important semester dates

RWTH Corona Blog for regular updates

Transforming City Regions University (M. Sc. RWTH) Curriculum Framework

According to RWTH's comprehensive examination regulation
and TCR's examination regulation



* Depending on the field of study this course can last 1 or 2 semesters. In any case it is 6CP. Two semesters are recommended.

** Master thesis shall be prepared within one semester time. The presentation and defence of the thesis will take place at the end of the 4th semester.
The module component „Scientific Integrity" (Start of studies from WiSe 2020/21) must be submitted by the time of admission to the master's thesis at the latest

Theoretical and methodological seminar for the Integrated Project I

Integrated Project I: Transforming urban structure
Design / Project Studio

Theoretical and methodological seminar for the Integrated Project II

Integrated Project II: Evolution of Functional Urban Areas
Design / Project Studio

Theoretical and methodological seminar for the Integrated Project III

Integrated Project III: Networked urban systems in Europe
Design / Project Studio

Start in the winter semester

RWTH Partners
External Partners
External course
Projects

Core courses - compulsory modules
Elective compulsory modules
Elective modules

Winter semester only
Summer semester only

Compulsory Modules

The compulsory modules or core courses focus on dynamics of contemporary cities, the processes shaping the form and structure of cities, and designing tools for urban transformation. The knowledge provided by a multidisciplinary teaching staff provides knowledge, tools, and methodologies to respond to challenges of evolving European territories while being aware of different spatial aspects such as social, economic, and ecological ones.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トレーディングカードゲーム アメニティードリーム 秋葉原店
AMENITY DREAM
まんが喫茶 ゲラゲラ
BanG Dream!
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そんなひどい…
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Urban Transfomation II

Module responsible:
Prof. Dipl.-Ing. Christa Reicher

Teaching staff:
Dr. Ceren Sezer (STB)
Seher Ulusoy (STB)

Semester:
Summer Semester

Course content and structure
This course provides a theoretical discussion describing the different but intimately related dimensions of urban design and planning from neighbourhood scale to regional scale. It takes a holistic approach; it synthesises and integrates ideas, theories of urbanism from a wide range of key sources of the existing literature and research. The module is organised in three parts. It begins with a broad discussion of the context in which urban design and planning take place. The second part focuses on urban design dimensions, including morphological, perceptual, visual, functional and temporal aspects. The final part covers the discussions on the implementation and delivery mechanisms of urban design and planning.

Assessment
The assignment for this module is a 1000-words book review from the selected reading list. The students will consult their book selection with the course lecturer and receive brief workshop/feedback sessions on writing a book review.
The deadline to submit this assignment is due 20 July 2022.

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Changing Societies and Economies

Socio-technical change and transformation dynamics

Course content and structure

This seminar offers a variety of theoretical concepts to describe different forms of socio-technical change and its related transformative dynamics. For example, Digitization is aligned with fundamental changes in socio-technical arrangements. But there are at the same further relevant dynamics, like transition processes, interacting moreover with each other. Thus, the different forms and mechanisms of these has to be analysed theoretically and has to be explored in their empirical heterogeneity. This seminar will present (1) fundamentals in theory to analyse socio-technical change and transformation processes, (2) different empirical cases which are instructive for transformation dynamics and their couplings, (3) selected forms of real-world experiments and real-world labs as means for inspire and realize transformative change.

Learning objectives

The main objective of the module is to give students deeper insights into specific sociological analytics to think differently about technology and socio-technical change. To do so, this seminar is divided in two steps. The first step is getting an introduction into fundamentals of socio-technical thinking which in the last decade performed an ‘experimental turn’. This will be done in the form of a literature course, reading and discussing relevant papers. The second step consists in a small case study selected and conducted by yourself. This is to use the intellectual tools offered in the course and thereby understanding their importance as well as their limits.

Module responsible:

Prof. Dr. Stefan Böschen (SoTec)

Teaching staff:

Prof. Dr. Stefan Böschen (SoTec)

Semester:

Summer Semester

European Urban Policies and Territorial Governing Cultures

Module responsible:
Dr. Carola Neugebauer (SKE)

Teaching staff:
Dr. Carola Neugebauer (SKE)

Semester:
Summer Semester

Course content and structure

This module elaborates the European Institutions, their frameworks and programmes towards cities and regions. This includes the main documents defining European urban policies such as European Urban Agenda, Leipzig Charta and Toledo Declaration as well as global official reports such as the UN Habitat's Sustainable Development Goals and New Urban Agenda. Additionally, the governing cultures across Europe and the transformation of the models of urban governance are examined and evaluated. Finally, the module gives an overall view of the tools and instruments of urban governance and urban development across Europe.

Learning objectives

The main objective of the module is to give students insights into the European policies towards cities and regions, and the ways they respond to global change and fit into the global urban agenda. In this module, the students learn the political aspect of design and planning and recognize and evaluate the territorial governing models and their relations to urban and regional transformation.

Territorial Analysis and Digital Tools

Course content and structure

Meaningful maps are based on a solid foundation of information. But what does this look like? Data formats such as CSV, JSON or GeoPackage help to store information in a structured way, but how is it best processed? OpenStreetMap offers a wealth of geoinformation, but how can this information be accessed and easily processed?
Beyond applications like QGIS (GIS Basics), information can be customized, adapted, visualized and analysed by using Python programming. In this course, we show the basics of object-oriented modelling as well as different data formats. We also deal with data transformation and scripting, data modelling and work out basic algorithms of spatial analysis. We will query OSM for information and create simple analysis maps and graphs. The aim is to understand the structure and composition of spatial data in order to be able to process and analyse it.

The course includes video readings for theoretical content and Jupyter Notebooks for practical application of data processing.
Students submit a small programming task as a Jupyter Notebook for exam admission. The course is completed by passing an online written exam (Dynexite). For support, 3 Q&A appointments and one exam preparation appointment are offered during the semester, participation is voluntary.

Module responsible:

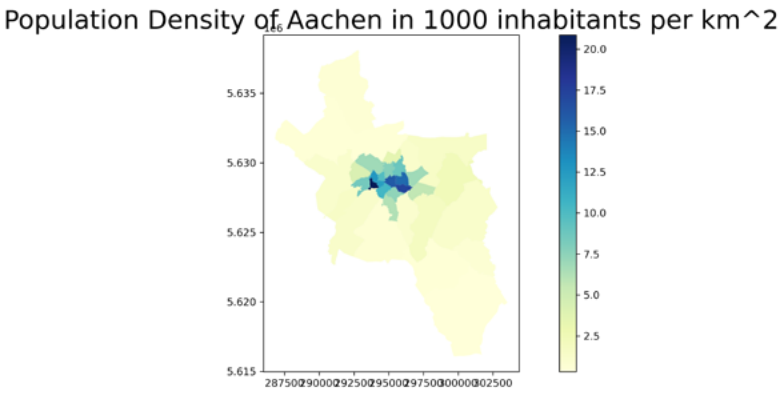
Prof. Dr. Jakob Beetz (DC)

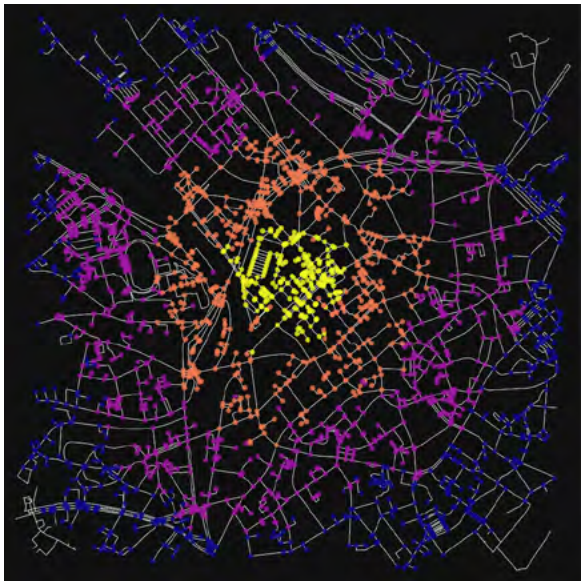
Teaching staff:

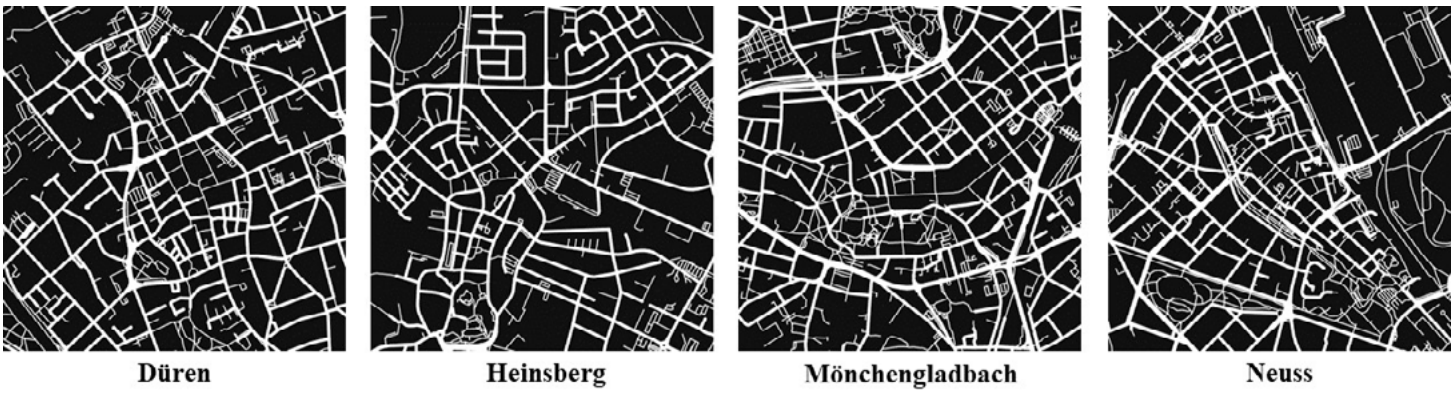
Noemi Kremer (DC)

Semester:

Summer Semester







Curriculum Framework

Multiple Scales of Urban Planning and Design

GIS-Box: Project and Reflection

Module responsible:
Prof. Dr. Agnes Förster (PT)

Teaching staff:
Prof. Dr. Agnes Förster (PT)
Martin Bangratz (PT)

Semester:
Summer Semester

Course content and structure

This module is part of the GIS-Box, which collects and provides knowledge, resources and tools to visualize and analyze spatial data. In the GIS Project, students will apply their knowledge and skills in mapping specific issues on different spatial scales. What parts of a neighborhood, city, or region are undergoing rapid changes? What is immutable? Mapping physical, functional and procedural dimensions of space will help students to visualize and analyze processes of transformation. The Rhenish lignite mining area will serve as a common spatial point of reference. While much of the content will be for self-study, there will be opportunities to engage in a discourse with peers and scholars. In the end, students will present maps and write essays that showcase both their technical abilities and their collective knowledge of the region.
Students who take this course will have access to other content of the GIS-Box (video lectures and tutorials), even if they are not registered for them.

Learning objectives

- Understanding processes of transformation on multiple scales
- Finding and managing spatial data
- Using basic functions of the software QGIS

By Amal Al Balushi, Sophie Knoop, Yongwei Li and Stephanie Tanneberger

Elective compulsory modules

The increasing territorial complexity and issues with different structural and content-related priorities and the link with the foundations of other disciplines should lead to integrative and conceptual thinking. The elective compulsory courses are characterised by a broad spectrum of methodological, procedural, morphological, landscape architectural, ecological, legal, and economic aspects.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Integrated Project I:

Seville harbour redevelopment: Betis 2.0

Module responsible:
Prof. Dipl.-Ing. Christa Reicher (STB)

Teaching staff:
Fabio Bayro Kaiser (STB)
Canan Çelik (STB)
Caner Telli (STB)
Javier Ostos Prieto (STB)

Semester:
Summer Semester 2022

Course content and structure

Seville has the only river port in Spain, which is a strategic port for Europe, as it is a node within the Core Network of the Trans-European Transport Network (TEN-T). Furthermore, the port provides a multi-modal logistics platform with good sea and land connections, and the port is expected to operate as a logistical and industrial cluster with high potential for urban (re)development. Urban nodes bundle uses, functions, and infrastructure and, as such, can potentially contribute to three pressing issues in urban areas: sustainability, spatial quality, and spatial capacity. But how can such nodes be developed to maintain a high quality of life under changing climate conditions while the population is growing and its demographics are changing?
In collaboration with the University of Seville, the “Integrated project I: Transforming urban structure” aims to propose redevelopment concepts for the Port of Seville, focusing on the west waterfront of the Tablada neighbourhood alongside the Guadalquivir River. The functional relevance, the proximity to the historic city centre as well as to the campus district Reina Mercedes, and the proximity to green and blue infrastructure make this particular site an ideal testing ground for innovative and future-proof neighbourhood concepts. Urban design proposals for Betis 2.0 should address quality of life, climate, demographic, mobility, economic and participation issues, and they should consider densification, adaptive re-use, and sustainability strategies.

Learning objectives

The aim of the module is to equip students with the design and solution-oriented skills that can assist them in redesigning the urban structure at the neighbourhood/district level, which is the easiest to grasp spatially and will therefore help them to identify the very essence of urban dynamics. Students will demonstrate that they are able to conceptualise the problem, analyse a real case study, apply appropriate methods and design techniques, develop scenarios for future transformation and produce designs that can help to implement this scenario. Another aim is to prepare students for teamwork while taking individual responsibility for a specific task. As a result of the module, students should be able to give a convincing public presentation of their project and discuss their solution with the audience.

A selection of current and past projects can be found on our website

Curriculum Framework


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Integrated Project II:

Reclaimed Landscapes, Istanbul/Çatalca Studio

Module responsible:
Prof. Dipl.-Ing. Christa Reicher (STB)

Teaching staff:
Dr. Ceren Sezer (STB)
Prof. Zeynep Günay (Istanbul Technical University)
Prof. Imge Akcakaya Waite (Istanbul Technical University)

Semester:
Summer Semester 2022

Course content
In the 2022 Summer Semester, the theme of the Project is “Reclaimed (land)scapes: Post-industrial urban quarries in Istanbul, Çatalca peninsula”. We will be dealing with one of the most destructive and visible interventions of human beings on the planet earth in the age of anthropocene, the post-industrial landscapes, more particularly the mining and extractive industries.

Course Structure
TCR Integrated Project II (IP II) has an interdisciplinary approach covering multi-layered domains of natural, physical and socio-economic data in our cities and urban settlements. Project is structured to comprise of [1] obtaining data in selected thematic frameworks and case studies through the project objectives, [2] holding case-specific research (and data analysis) related to different disciplines according to these data, [3] evaluating future estimations and objectives together with the sectoral, spatial and demographic projections to form planning strategies. Course outcome is indicated as alternative schema (scenarios) for regional design and planning in diverse scales of responding spatial organization and report explaining the planning decisions.

Learning objectives
- to discuss the relations of social, economic, cultural and spatial impacts on “environmental risks, climate change”
- to develop students’ ability to understand urban, natural, social and cultural change “in a critical discussion of growth and de-growth dilemma”
- to gain applicable and legal planning understanding with a “spatial and critical thinking” ability “in an evidence-based and site-specific approach”.

A selection of current and past projects can be found on our website

Curriculum Framework

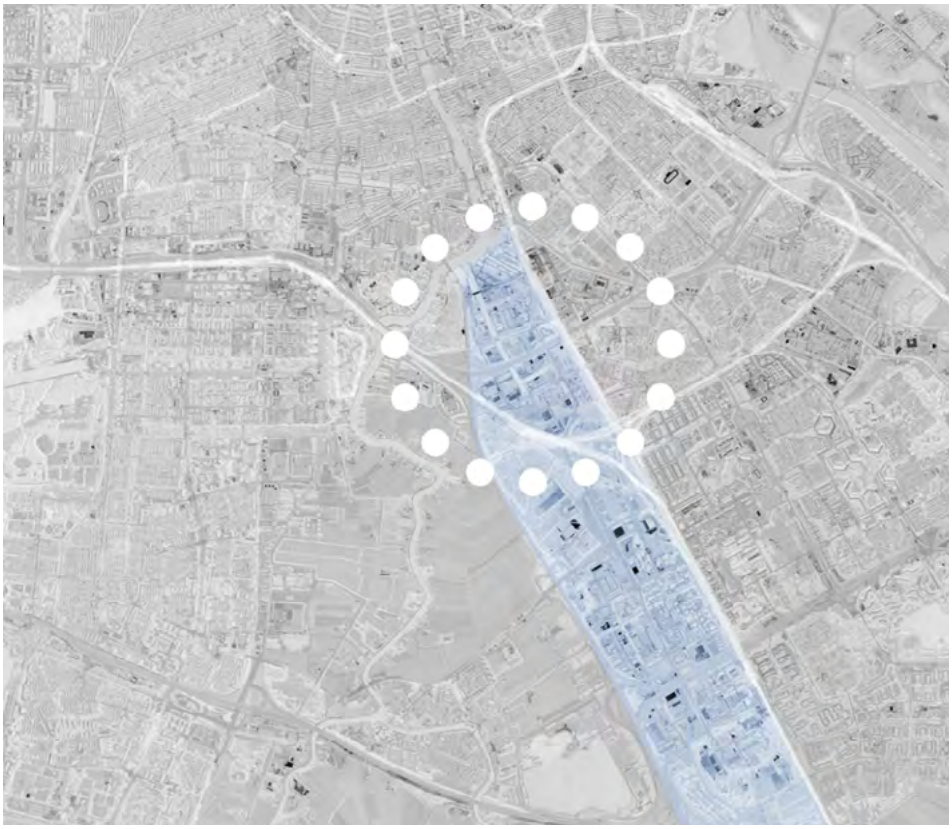
Evolution of functional urban areas, planning for liveable Amstel-Stad

Course content and structure

Amsterdam is considered as one of the greatest cities to live, because of its ability to ensure urban quality and mobility, and also to stimulate identity, culture and freedom of citizens. With the first building erected in the fourteenth century, the city expansion had its largest period of growing in the seventeenth century. On the present-day, urban expansion occurs mostly in the areas surrounding the city, where the new challenge is presented: How to maintain the urban quality in the new areas? To address that challenge, big renewal efforts are being made to ensure the Comprehensive Vision Amsterdam 2050 goals: polycentric development; growth within limits; sustainable and healthy mobility; rigorous greening and making the city together. Considering the importance of planning environmentally sustainable urban settlements and the challenge to think areas outside of the historical center of Amsterdam, this studio aims to takes up the Amstel-Stad as a case study. Amstel-Stad is an urban zone between Amstelkwartier to the north and the AMC to the south, in a municipal boundary of Amsterdam and Ouder-Amstel. The central challenge of this studio is to rethink the Amstel-Stad urban zone towards a sustainable urban design. The proposals should consider five fields of challenges: mobility, diverse urban model, lively neighborhoods, public spaces and green/blue strategies.

Learning objectives

The aim of the module is to equip students with the design and solution-oriented skills that can assist them in redesigning the urban structure at the neighbourhood/district level, which is the easiest to grasp spatially and will therefore help them to identify the very essence of urban dynamics. Students will demonstrate that they are able to conceptualise the problem, analyse a real case study, apply appropriate methods and design techniques, develop scenarios for future transformation and produce designs that can help to implement this scenario. Another aim is to prepare students for teamwork while taking individual responsibility for a specific task. As a result of the module, students should be able to give a convincing public presentation of their project and discuss their solution with the audience.



Module responsible:
Prof. Dipl.-Ing. Christa Reicher (STB)

Teaching staff:
Prof. Verônica Garcia Donoso (STB)

Semester:
Summer Semester 2022

Integrated Project III:

Cross-border-thinking: European Development Corridor

Module responsible:
Prof. Dipl.-Ing. Christa Reicher (STB)

Teaching staff:
Andreas Klozoris (STB)
Eva Hoppmanns (STB)

Semester:
Summer Semester 2022

Course content
The final integrated project goes big and bold!

Within the Eurodelta region, the most densely urbanized area in North Western Europe and a highly interconnected territory with approximately 45 million inhabitants, the project aims to revive the spirit of brave urban utopias and superstructures from the past and translate that thinking into modern times and challenges.

The Eurodelta stretches from Western Germany to the Netherlands, Belgium and Northern France along agglomerations in the river basins of the Rhin, Scheldt and Meuse. This diverse and complex territory creates a common interest for a cross-border thinking and calls for innovation and action both in terms of territorial governance but also in terms of spatial strategies.

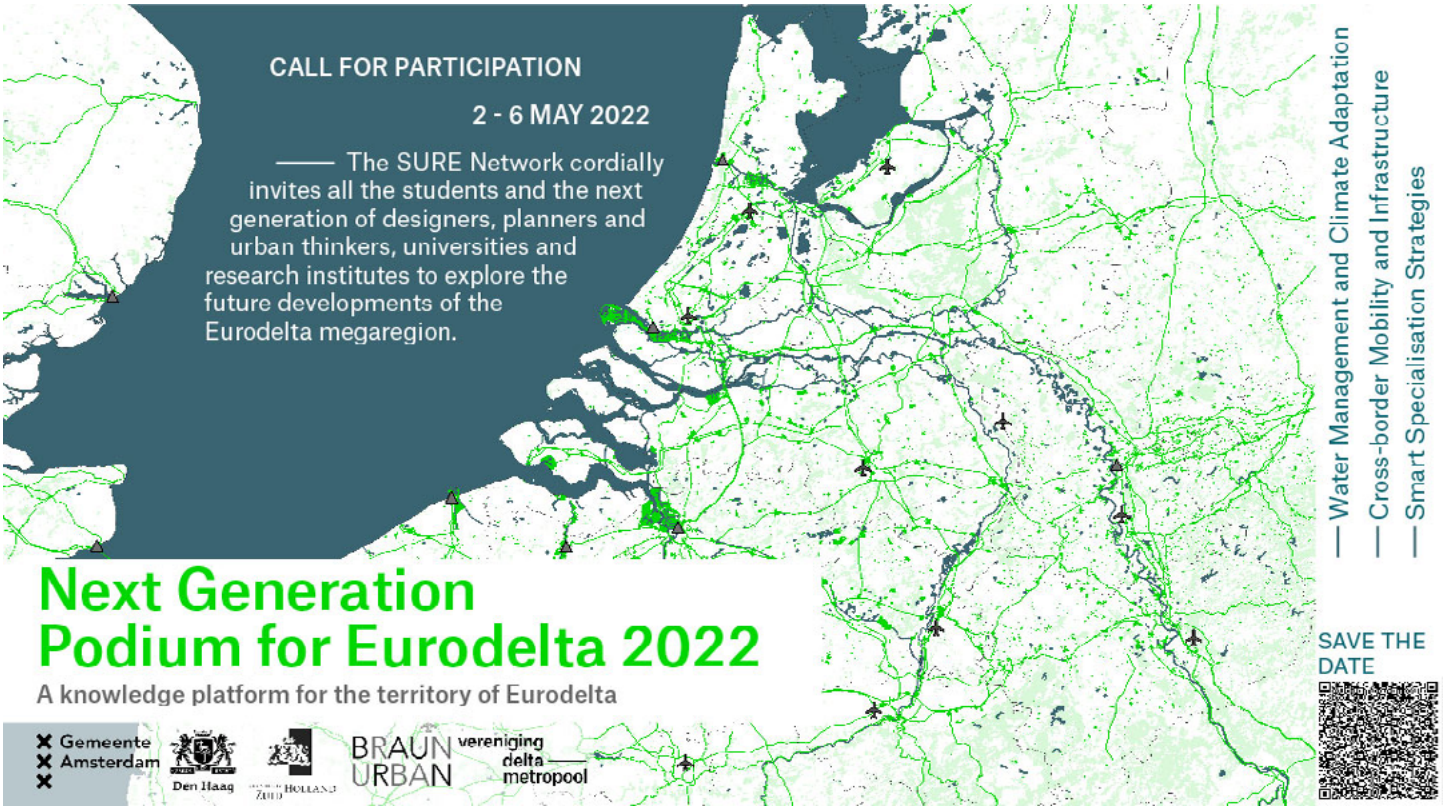
With the current political climate and the ever-present need to nourish democratic structures the project aims to take cross-border thinking and European cohesion to a new level, break stereotypes and think out of the norm.

The goal of the project is to create a vision of a ‘European Development Corridor’ from Cologne to Calais. Asking what would happen if this entire region became one fully connected artery in the heart of Europe, crossing borders, landscapes and cultures and connecting them in the longest linear structure to date.

The participants will be urged to work strategically in relation to regional interdependencies, ecological, social, economic and cultural nodes and zones, while thinking about the meaning of borders. From the megaregional scale the project will then focus on the creation of thematically appropriate systems within an all-connecting linear superstructure. In a final step focal points will be detailed, providing zoom-in spots for a better understanding of the structure.
Let’s go big and lets be bold!

A selection of current and past projects can be found on our website

Curriculum Framework


CALL FOR PARTICIPATION
2 - 6 MAY 2022
The SURE Network cordially invites all the students and the next generation of designers, planners and urban thinkers, universities and research institutes to explore the future developments of the Eurodelta megaregion.
Next Generation
Podium for Eurodelta 2022
A knowledge platform for the territory of Eurodelta
Gemeente Amsterdam
Den Haag
Zuid Holland
BRAUN URBAN
vereniging delta metropool
— Water Management and Climate Adaptation
— Cross-border Mobility and Infrastructure
— Smart Specialisation Strategies
SAVE THE DATE

Research Module in Urban and Regional Transformation

Mobility Research and Transportation Modeling: Assessing the Walkability of Cities

Module responsible:
Prof. Dr. Tobias Kuhnimhof (ISB)

Teaching staff:
Marcel Porschen (ISB)

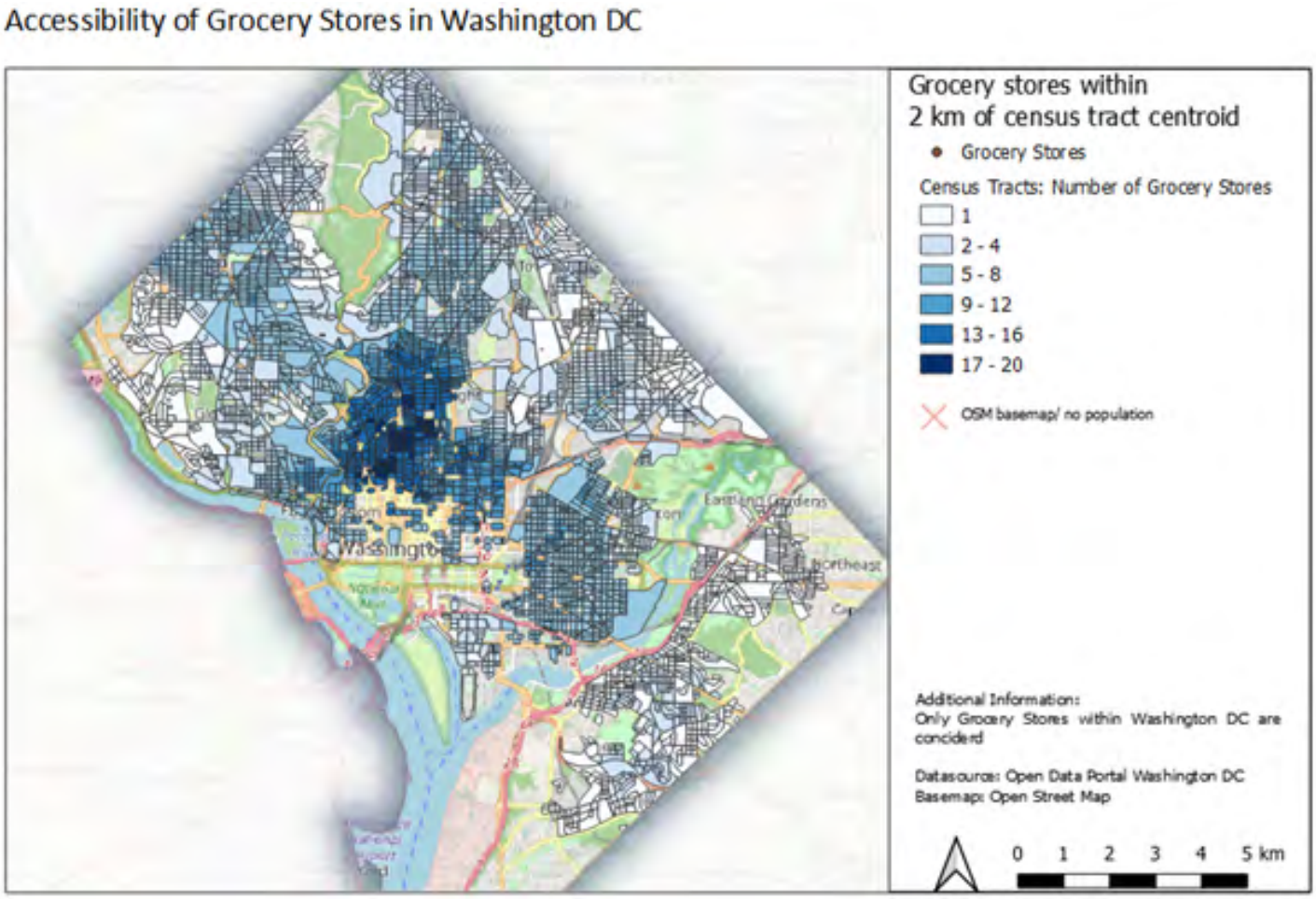
Semester:
Summer Semester 2022

Course content and structure

The course introduces fundamentals of spatial and behavioural data analysis for mobility research. The course includes hands-on exercises with GIS-software and a course project. Topics on mobility research include fundamental concepts and terminology of mobility, data collection methods for mobility research, travel behaviour research and concepts of travel demand modelling. Spatial analysis topics include density measures and consumption of space as well as their impact on mobility, spatial autocorrelation, various concepts of accessibility and their calculation using GIS, and hot-spot analysis.

Learning objectives

Students understand relationships between spatial configurations (e.g. urban densities) and transport, are familiar with the basic concepts of travel demand modelling and understand the concept of choice modelling in the context of transport. Students are able to apply spatial analysis methods in QGIS, e.g. weighted densities, analysis of spatial autocorrelation, computing of accessibilities.



Result of an accessibility analysis performed via QGIS.

Resilience and Urban Structure- Wenchuan Earthquake Reconstruction

Course content and structure

Climate change increasingly imposes risks for human living environment. The deadly European flood in 2021 summer was the catastrophe becoming reality. The destructive power is not only associated with the intensity of disaster but also closely relates to urban capabilities for disaster prevention and mitigation. Resilience is understood as the ability of a complex system able to be functional maintenance when face stresses, shocks and uncertainty. But how to operationalize and implement the structural attributes of resilience still remains puzzles and debates. Western Sichuan of China where earthquakes frequently occurred provides experimental fields for resilience operationalizing. The module is designed to discover and reveal association with resilient attributes and urban-architectural structures based on the case study of Wenchuan post-earthquake reconstruction.
The module is structured in four parts and will be conducted with a combination format of a digital workshop as well as consultations in person.

1. theoretical basics for understanding concepts of resilience will be provided, cognition shift from ‘engineering resilience’ to ‘evolutionary resilience’.
2. empirical case studies of Wenchuan earthquake reconstruction will be analyzed in digital format, and structures of historical Qiang settlements will be presented refer to resilient attributes.
3. a conceptual framework of resilience will be employed based on Wenchuan case studies and literature investigation.
4. specific detail planning and strategies will be implemented to realize the resilience framework with Wenchuan case.

Learning objectives

The objective of the module is to introduce students to the real research projects and engage them into the specific tasks that can contribute to the real project. The goal is to equip students with the ability to construct a conceptual framework on the basis of their own understanding of an academic concept as well as address approaches and specific strategies for implementation. In addition, students can develop their methodological competence, individual responsibility and team working abilities as well.

Module responsible:
Prof. Dipl.-Ing. Christa Reicher (STB)

Teaching staff:
Dr. Fan Zeng (STB)

Semester:
Summer Semester 2022

By Katja Gadziak

Impromptu Courses

TCR Talks: Urban Resilience in the Age of Instability

Module responsible:
Prof. Dipl.-Ing. Christa Reicher (STB)

Teaching staff:
Fabio Bayro Kaiser (STB)
Ceren Sezer (STB)

Semester:
Summer Semester 2022

Course content and structure

The concept of urban resilience has received increasing attention in both public and policy debates and agendas. Urban resilience refers to the capacity of urban and rural areas, individuals and communities, governments and organisations to absorb the instabilities when they face major shocks, stresses and uncertainty. The most recent examples of these conditions include the Covid 19 pandemic, flooding in Europe and Asia, and forest fires worldwide.

The TCR Talks summer 2022 brings experts from various disciplines and domains to reflect on the mechanisms of resilience in the context of instability.

Session 1, focus on earth observation technologies: April 21, 17:00-18:00
Speaker: Dr. Christian Geiß | German Aerospace Center (DLR)
Moderation: Fabio Bayro Kaiser

Session 2, focus on social aspects: June 2, 17:00-18:00
Speaker: Prof Karina Landman | Department of Town and Regional Planning at University of Pretoria in South Africa
Moderation: Dr ir Ceren Sezer

Assignment: collage with reflective essay of 800 words: Urban Resilience in the Age of Instability

Field Trips

Urban landscape biennale: the green city of tomorrow

The Biennale of Urban Landscape developed by lala.ruhr - the laboratory for the landscape of the Metropole Ruhr - deals intensively with the vision and concrete shape of the green city of the future. Even though many ideas and examples are already available, it is necessary to think further about the findings of the various programmes and projects and to adapt them to the specific local conditions. In various on-site workshops, participants discuss and work on concrete tasks from the urban area of the festival location and thus become part of the Biennale's programme. In an integrated approach, solutions are sought that combine social, ecological and economic improvements in a liveable and resilient city from one design. The current IPCC report repeatedly highlights the options for the transformation of cities, which will already be home to 2/3 of the world's population by 2050: Nature-based and engineering approaches need to be developed together, with integrated green and blue infrastructure and urban agriculture playing a central role. It also creates a profound space for action to improve health, social structures and ecosystems.

The overarching concern of the Biennale of the Urban Landscape is the vision and concrete shape of the green city of the future. The radiant power of a concentration of themes, events and actors in one place and at one time is an amplifier for projects, ideas and processes. The first Biennale in September 2022 will take place over three weekends and offer different formats and events. The focus will be on three main themes that complement each other and yet address different audiences. This will create a versatile and attractive framework with a festival atmosphere for committed exchange and creativity. Each focus will be complemented by a tailor-made excursion programme to places, actors and project presentations. Between the weekends, residencies, students and young professionals will also be on site, collaborating interdisciplinarily in workshops and projects and discussing and presenting their results.

Exkursion dates: September 19-24

Module responsible:
Prof. Dipl.-Ing. Christa Reicher (STB)

Teaching staff:
Fabio Bayro Kaiser (STB)
Anne Söfker-Rieniets (STB)

Semester:
Summer Semester 2022

Elective Courses

The elective courses supported by a multidisciplinary teaching staff are characterised by a broad spectrum of methodological, procedural, morphological, landscape architectural, ecological, legal, and economic aspects.

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Elective Modules

GIS-Box: Theory - Mapping Transformation

Module responsible:
Prof. Agnes Förster (PT)

Teaching staff:
Martin Bangratz (PT)
Prof. Agnes Förster (PT)

Semester:
Summer Semester 2022

Course content and structure

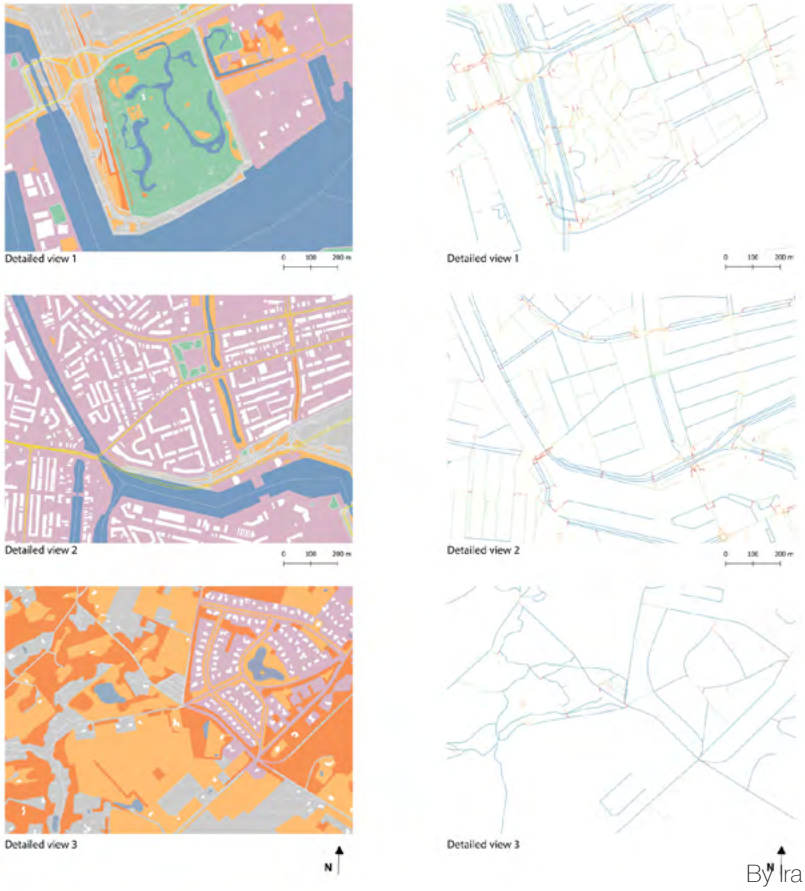
This module is part of the GIS-Box, which collects and provides knowledge, resources and tools to visualize and analyze spatial data. In the Theory Module, students will be introduced to various concepts connected to understanding, mapping and analyzing spatial transformation. Inputs include video lectures by multidisciplinary experts on conceptions of space, social space analysis, urban morphology, city trends, and more. Students will have the opportunity to view the content independently and complete the course with an online exam.

Students who take this course will have access to other content of the GIS-Box (video lectures and tutorials), even if they are not registered for them.

Learning objectives

- Understanding spatial concepts and how to think and communicate ideas about space
- Appreciating the interdisciplinary nature of spatial research and professions

GIS-Box Modules (not required, but connected through a common Moodle space):
GIS-Box: Theory
Data Fatory
GIS-Box: Project



By Ira Kataria

GIS-Box: GIS Basics - Mapping Transformation

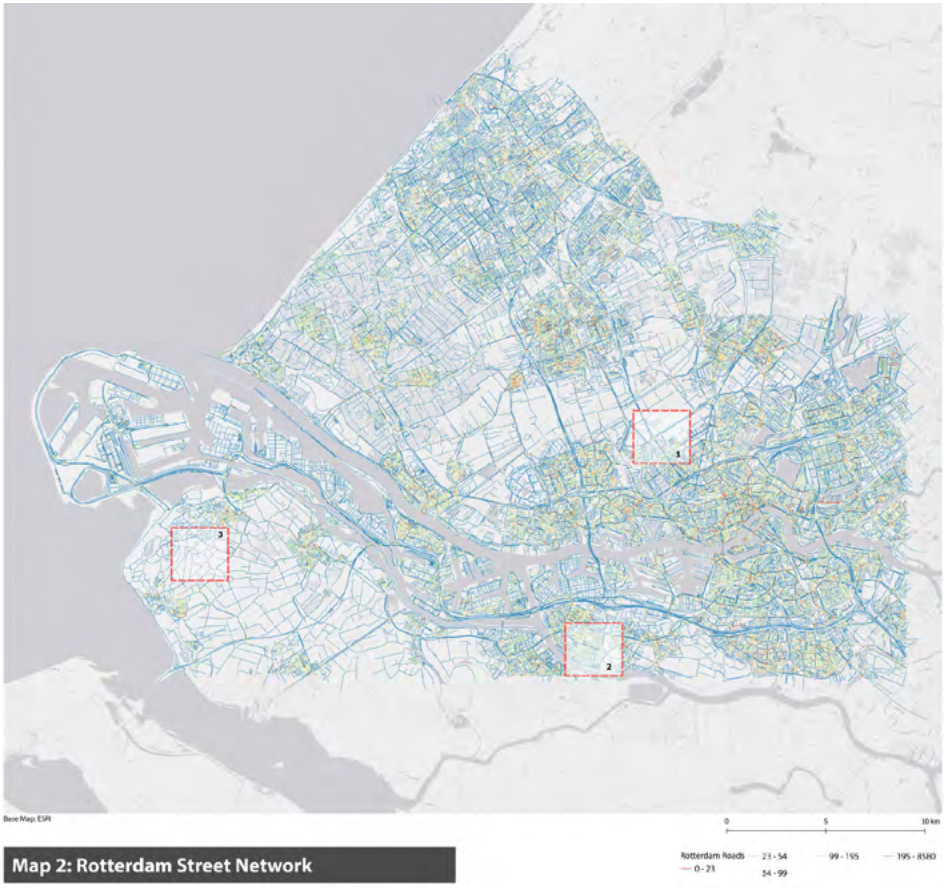
Course content and structure

This module is part of the GIS-Box, which collects and provides knowledge, resources and tools to visualize and analyze spatial data. In the GIS Basics, students will get theoretical and practical introductions to a number of concepts and tools that are relevant to mapping and spatial analysis. This includes map projections, satellite images, elevation models, and connectivity analyses. Students will complete tutorials, short exercises and produce maps using QGIS, an open source software that can be used to visualize and analyze geospatial data. Video tutorials will teach you to select, display and style data. Specifically, you will produce your own maps of a city or region in order to develop and share an understanding of the space. The inner city of Aachen will serve as a common spatial point of reference, with its multiple connections to different levels of scale. Students who take this course will have access to other content of the GIS-Box (video lectures and tutorials), even if they are not registered for them.

Learning objectives

- Understanding the practical uses and potential of spatial data for urban planning, infrastructure planning, urban sociology and many other fields
- Technical know-how of QGIS and geospatial (open) data
- New conceptions of urban space and how to visualize it

GIS-Box Modules (not required, but connected through a common Moodle space):
GIS-Box: Theory
Data Fatory
GIS-Box: Project



Map 2: Rotterdam Street Network

By Ira Kataria

Module responsible:

Prof. Agnes Förster (PT)

Teaching staff:

Dr. Georg Strauch (GEO)
Maddalena Iovene (PT)
Marcel Porschen (ISB)
Martin Bangratz (PT)

Semester:

Summer Semester 2022

Urban landscape biennale: the green city of tomorrow

Module responsible:
Prof. Dipl.-Ing. Christa Reicher (STB)

Teaching staff:
Fabio Bayro Kaiser (STB)
Anne Elisabeth Söfker-Rieniets (STB)

Semester:
Summer Semester 2022

The Biennale of the Urban Landscape: The overarching concern of the Biennale of the Urban Landscape is the vision and concrete shape of the green city of the future. The radiant power of a concentration of themes, events and actors in one place and at one time is an amplifier for projects, ideas and processes. The first Biennale in September 2022 will take place over three weekends and offer different formats and events. The focus will be on three main themes that complement each other and yet address different audiences. This will create a versatile and attractive framework with a festival atmosphere for committed exchange and creativity. Each focus will be complemented by a tailor-made excursion programme to places, actors and project presentations. Between the weekends, residencies, students and young professionals will also be on site, collaborating interdisciplinarily in workshops and projects and discussing and presenting their results.

Cities are and will remain the places where most people spend their time and also consume a significant amount of resources and energy with their lifestyle. This way of life has an impact on a global scale. This degradation of our landscapes has led even animals to seek refuge in cities more and more, and biodiversity is shifting to urban areas. The already noticeable changes in the climate are encountering less resilient systems and infrastructures in our cities, which are quickly overwhelmed by drought, heat or even heavy rain and can thus also lose their quality of life. The current IPCC report once again clearly emphasises that these already known changes are occurring faster and more effectively than predicted a few years ago. With the Climate Adaptation Act, the state of North Rhine-Westphalia has already set the course for making the transformation of cities a task of public service. But what can a city look like that is fit for the future? We want to address the question of how cities can be productively integrated into a landscape and an ecosystem on a larger scale, and how this can look in detail, in the direct living environment of the inhabitants, on their doorstep. In a change of perspective, how can a city become a high-performance landscape that is productive, resilient, liveable and inclusive, integrating buildings, streets, people and your resource needs? Under the motto #thinklandscape, we call for questioning and rediscovering our cities in a change of perspective and a paradigm shift.

Unfolding City Complexity

Course content and structure

The complexity of a city manifests itself in space, takes part in the daily life of citizens and shapes the unique character and spontaneous functioning of local areas. Urban complexity is observable in the composition of artefacts, the configuration of social patterns and the type;distribution of activities. In particular, it expresses itself in the way morphological, social and functional systems interact and influence each other.
Why are certain areas more attractive than others? Why do people prefer to walk along certain streets? Why is that park so successful? Why do certain economic activities cluster together? How a primary urban function influences its surrounding area? These, and many other questions, will accompany us throughout the semester.
The ability to grasp urban complexity is crucial to carrying out projects that can work with the spontaneous forces of cities. In this course, students will explore and apply methods to analyse urban complexity at the local scale. The goal is twofold: (I) to discuss the main conditions;factors that influence the spontaneous functioning of urban contexts; (II) to develop methods to visualise urban complexity and disseminate its understanding to a vast public.

The seminar will be characterised by frontal lessons (50%) and students; inputs (50%). Candidates, divided into small groups, will investigate and explore the spontaneous order of a specific urban area. The discussion on urban complexity and the development of analytical methods will be triggered by, but not limited to, the collective reading of Jane Jacobs;s seminal book “The Death and Life of Great American Cities”.

Learning objectives

- To learn how to interpret spontaneous urban orders and functioning
- To develop the necessary skills to read and unfold the complex interrelation between morphological, social and economic systems
- To apply and combine multiple research/analytical investigation methods
- To generate highly professional analyses that are accessible both to experts and, above all, non-experts
- To creatively develop the most effective dissemination strategy based on the specific peculiarities of the selected case study
- To strengthen students’ potentials, skills, attitudes and abilities

By Nabhan Nahed, Mohammad Nabeel Jamal, Korzynska Sara, Jana Maria Schiefer

Module responsible:

Jun. Prof. Dr. Jan Polívka (NWB)

Teaching staff:

Dr. Stefano Cozzolino (NWB)

Semester:

Summer Semester 2022

Quartiere managen: Was kann Quartier?

Module responsible:
Prof. Agnes Förster (PT)

Teaching staff:
Prof. Agnes Förster (PT)

Semester:
Summer Semester 2022

Course content and structure

Im Quartier organisieren wir unseren Alltag, wir erleben dort Nachbarschaft und Zusammenleben. Es ist Austragungsort gesellschaftlicher Veränderungen und Konflikte, Gegenstand raumbezogener Konzepte und sozio-kultureller wie wirtschaftlicher Programme.

Im Seminar machen wir uns mit dem Quartier als elementaren Baustein städtischen Lebens vertraut, erkunden den Maßstab, die handlungsfähigen Akteure und ihre Organisationsformen und reflektieren diese vor dem Hintergrund bedeutender Zukunftstrends.

Entsprechend einer Vielzahl an Herausforderungen und Aufgaben des Quartiersmanagements lernen wir verschiedene theoretische Ansätze kennen, führen Interviews mit Expert:innen zu ihrem Rollenverständnis, ihren Kooperationen und dem Wandel, der sich in der Planungskultur kontinuierlich und bisweilen sprunghaft vollzieht.

Anhand von Fallbeispielen untersuchen wir die Struktur- und Ablauforganisation verschiedener Modelle des Quartiersmanagements, decken Chancen und Risiken auf und optimieren vor dem Hintergrund der aktuellen Forschung die gewählten Managementansätze.

Learning objectives

u.a. methodisches Arbeiten anhand von Dokumentenrecherche, Interviews, Medienanalyse und Kartierungen; eigenständiges Strukturieren und Arbeiten; grafische Aufbereitung von Resultaten und Erstellen eines dazu geeigneten Vermittlungsformates

Ausgehend von den Herausforderungen und Aufgaben für das Quartiersmanagement reflektieren wir dessen typische Trägerschaften und Organisationsmodelle anhand von Fallbeispielen. Wir schärfen unser Verständnis für Akteure und Prozesse auf der Quartiersebene. Wir machen uns vertraut mit Methoden, Instrumenten und Verfahren, die im Rahmen von Quartiersmanagement eingesetzt werden.

Only in German

Individualized Construction

BIM - Building Information Modeling - refers to a methodology for optimizing the planning, execution and operation of buildings with the aid of a digital building model in which geometric and semantic information is stored.
This course teaches the basics of Autodesk Revit, one of the market leading BIM modeling solutions. In order to learn the software's basic functionalities, video tutorials and datasets for training are provided to the participants. To help with the independent learning, semi-weekly consultations are offered. In addition, advanced topics in BIM will be presented and can be optionally further implemented in the BIM modeling workflow.
At the end of the course, a final exercise in form of a modeling Task is worked on over several weeks. Model and Plans must be submitted via upload.

Participants should already have general experience in using CAD software.

Module responsible:
Prof. Dr. Sigrid Brell-Cokcan (IP)

Teaching staff:
Lukas Kirner (IP)

Semester:
Summer Semester 2022

Learning objectives

- Obtain basic knowledge of the operation of Autodesk Revit.
- Create and edit BIM models
- Learn about advanced BIM techniques and Topics

Visual Programming Basics

Module responsible:
Prof. Dr. Sigrid Brell-Cokcan (IP)

Teaching staff:
Martin von Hilchen (IP)

Semester:
Summer Semester 2022

Visual programming has become a powerful tool in the architect‘s toolbox. It combines the power of programming with an intuitive and direct visual appearance. Architects can use it in all design phases from the initial idea to full-scale construction. Easily adjustable input parameters make it easy to test variants and generate alternatives, e.g. by simply moving a slider.
This course teaches the basics of Grasshopper, a visual programming plugin for McNeel‘s Rhinoceros software. In addition to explaining how the software works and how to use it, weekly examples and video tutorials will be used to show how to apply it to various project work. The core contents will be worked out independently with the help of the video tutorials and the acquired knowledge will be consolidated by means of weekly exercises and quizzes. During the weekly sessions, solutions are discussed, further content is presented, and helpful tips are given for the next week‘s exercise. At the end of the course, a final exercise is worked on over several weeks and submitted via upload.

Prior knowledge of Rhinoceros and Grasshopper is helpful, but not explicitly required. **Participants should already have general experience in using CAD programs.**

Learning objectives
- Obtain basic knowledge of the operation of Rhinoceros and Grasshopper.
- create and edit parametric models
- create simple variants through parametric design

Advanced Visual Programming

Advanced Visual Programming is a design oriented course exploring computational engineering. The goal of the course is to achieve an advanced understanding of how technology can empower design exploration, analysis and optimization in Architecture Engineering and Construction.
This course teaches advanced skills in Rhino and Grasshopper, exploring plug ins and processes in the creation of parametric models. Topics range from design diagrams, to algorithmic modelling and from structural analysis to optimization. Participants will learn computational processes for fabrication, visualization and documentation.
From an initial context and set of constraints participants will work throughout the semester to develop a computational concept and design report that leverages the power of visual programming.
This course collaborates with the CR Robot Programming Course.
Courses are comprised of lectures, tutorials, and workshops.

This advanced course requires the completion of the course:
Visual Programming Basics

Module responsible:
Prof. Dr. Sigrid Brell-Cokcan (IP)

Teaching staff:
Ethan Kerber (IP)

Semester:
Summer Semester 2022

Learning objectives

Plugins utilized include:

- Karamba (structural analysis)
- Octopus (evolutionary optimization)
- KUKA|prc (parametric robot control)
- KUKA|crc (cloud robot control)
- Horster (animation)
- Fologram (augmented reality)
- RhinoInside (Revit Interoperability)

Impressum

contact
RWTH Aachen University
Faculty of Architecture
Chair of Urban Design
Institute for Urban Design and European Urbanism

Univ.-Prof. Dipl.-Ing. Christa Reicher

Wüllnerstraße 5b
52062 Aachen
Tel.: +49 241 80 95033
info@staedtebau.rwth-aachen.de
www.staedtebau.rwth-aachen.de