



Programme syllabus

Master's Programme, Sustainable Urban Transition, 120 credits
Masterprogram, hållbar stadsutveckling
120.0 credits

Valid for students admitted to the education from autumn 15 (HT - Autumn term; VT - Spring term).

This is a translation of the Swedish, legally binding, programme syllabus.

Programme objectives

The information is valid for students who started the program academic year 2015/2016. Later decisions may affect year 2 in the program. Please look at KTH's website for further information.

In addition to the general objectives for Masters programmes as stated in the national degree ordinance and the local degree policy of KTH, specific learning outcomes are defined for studies the Nordic Masters programme Sustainable Urban Transitions. For each of the five tracks in the program a set of learning outcomes has been defined. For the two tracks KTH is involved in, Urban and Regional Transitions (UR Trans) and Transitions of Urban Structures (TRUST) following learning outcomes have been defined:

Knowledge and understanding

Urban and Regional Transitions (UR Trans)

- Demonstrate knowledge on the theoretical concepts and foundations in urban and regional planning, sustainable development and governance.
- Demonstrate in-depth knowledge on the processes that contribute to urban change, the actors taking part in these processes as well as the societal, economic and environmental determinants that further sustainable urban transition.
- Demonstrate specialised knowledge on the tools and methods that can be applied to analyse the conditions and prerequisites for urban transition.
- Demonstrate a sound understanding of the relation between theory and practice in urban planning and regional development, as well as of the linkages to other disciplines involved in the transition process at the local, regional and global level.

Transitions of Urban Structures (TRUST)

- Insight in how sustainability and urban development are interdependent.
- Knowledge and a better understanding of the connections between land use, urban form and urban infrastructure.

- Knowledge about how integrated overall planning issues for land use, transport and urban infrastructure can contribute to a more sustainable urban development.
- An understanding of urban transitions and the implications for future urban development in cities of the North and the South.

Skills and abilities

Urban and Regional Transitions (UR Trans)

- Be able to assess and manage complex problems and challenges regarding urban and regional development and planning taking into account the societal, economical, environmental and political context.
- Demonstrate the ability to identify and formulate issues critically, autonomously and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work.
- Be able to make effective oral and written presentations of complex tasks related to urban development using modern techniques and tools to illustrate and visualise plans, concepts and strategies.
- Be able to lead and work in multidisciplinary groups and contribute to the outcome of the working task.

Transitions of Urban Structures (TRUST)

- Insight in developing land use, transport and infrastructure plans for a more sustainable city development, based on the principle of an integrated planning process.
- Ability to use geographical information systems (GIS) as an important tool in urban planning.
- Insight in and being more aware of the challenges connected to the global environmental challenges and living conditions
- Ability of leading integrated planning processes and using the knowledge in processes that are firmly rooted with the citizens.
- Ability to develop strategic plans for a larger city in relation to the transition of the technical infrastructure and the interaction between them.

Ability to make judgements and adopt a standpoint

- Be able to analyse the merits of theoretical concepts, policies, plans and projects based on a comprehensive assessment.
- Be able to detect implicit assumptions in theoretical and societal views on planning problems.
- Demonstrate the ability to contextualize planning objectives and policies in different timely, cultural and institutional backgrounds.
- Be able to develop their own opinion on the nature and manner of dealing with new planning problems.
- Demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

Extent and content of the programme

The Masters programme Sustainable Urban Transitions counts 120 hp and consists of three terms of coursework and one term for the degree project, together 2 years. The course-work encompasses a

combination of theoretical courses, exercises, projects and studios that aim at providing students with knowledge and skills in the field of sustainable urban development and planning. All courses in the programme are at advanced (2nd cycle) level. The language of instruction is English.

The Nordic Master program Sustainable Urban Transitions is a joint two-year Master's program that is offered by Aalto University, Chalmers University of Technology (CTH), Technical University of Denmark (DTU), Royal Institute of Technology (KTH) and the Norwegian University of Science and Technology (NTNU). The program covers five tracks:

- Human Oriented Urban Transitions (Aalto University and CTH)
- Area Based Urban Transitions (CTH, Aalto University and NTNU)
- Urban Ecology (NTNU, CTH and Aalto University)
- Transition of Urban Structures – TRUST (NTNU, KTH and DTU)
- Urban Regional Transitions – UR Trans (KTH, Aalto University and DTU)

Urban Regional Transitions (UR Trans) addresses urban regional interactions as a means for urban development at the local and regional level. Regions as an object for planning are becoming more important, not only to strengthen the region but also to support the individual cities within the region. However, the regions' significance and focus in planning differ from case to case. In a global context, major metropolitan regions (e.g. London, Shanghai, New York, Singapore, and Dubai) are competing with each other in creating favourable conditions for business and industries. On the other hand, regional development is often discussed at the European and national level, as part of a strategy to counteract the impacts of depopulation, unemployment and the lack of services in rural areas. A core issue in this track is to equip students with a deeper understanding of alternative strategies for creating competitive sustainable urban regions. This requires collaborative efforts to offer an attractive environment for living and economic activities. Through the integration of culture, education and retail, and by effective transportation networks, these regions cater diversified services for their residents and generate synergies which can attract new investments to the region. However, being successful at the regional level also requires achievements at the local level to create living conditions that allow sustainable socio-ecological development.

Transition of Urban Structures (TRUST) refers to the challenges of sustainable urban development. In order to reduce greenhouse gas emissions and improve the urban environment and citizen's living conditions, the urban structure including the infrastructure, land use and transportation pattern must be reconsidered. A great challenge to urban development is to design the urban structure in a way that reduces the cities' ecological footprint. This requires a long-term change of urban structures to facilitate a future development which focuses on existing building zones which need to be converted and densified without compromising existing qualities of the city. This involves that city reconstruction will be the future predominant way to build a city, where development of a city's land use, transportation system and infrastructure will require relocation of the businesses in town.

Eligibility and selection

The general admission requirement for masters programmes at KTH is a completed Bachelor's degree, equivalent to a Swedish Bachelor's degree (180 ECTS), or equivalent academic qualifications from an

internationally recognised university. English language proficiency equivalent to (the Swedish upper secondary school) English course B/6. In addition, students have to meet following specific requirements:

The admission requirements for the Nordic masters' programme in Sustainable Urban Transition differ between the tracks, depending on the admission requirements of the partner universities involved in the study track. Students who apply to KTH for admission to Urban Regional Transitions (UR Trans) can complete their studies in year 2 at either Aalto University or DTU. For students who aim to be admitted to the track Transitions of Urban Structures should apply to NTNU.

Students who start at KTH and continue their studies at Aalto University need a completed Bachelor's degree in Architecture, corresponding to a Swedish Bachelor's degree (180 credits), or equivalent academic qualifications from an internationally recognised university.

Students who start at KTH and continue their studies at DTU need a completed Bachelor's degree in Civil Engineering in the Built Environment, corresponding to a Swedish Bachelor's degree (180 credits), or equivalent academic qualifications from an internationally recognised university. In addition, students should have completed courses in the following fields:

a.: Operations research, Operations Management and Engineering Economy

b.: Urban Planning, Project Management and Management & Organization

At least 5 credits has to be obtained in field (a), at least 5 credits in field (b) and at least 15 credits in total in the two fields.

Students with a B.Eng degree must have completed additional courses within the areas of operations research or discrete mathematics (5credits) and algorithms and stochastic processes (5 credits).

For English language proficiency following requirements are defined:

English language proficiency equivalent to (the Swedish upper secondary school) English course B/6.

TOEFL: Paper-based: 580 (written section grade 4,5) or Internet-based test: 92 (written section grade 22)

IELTS: 6.5, no section lower than 5.5 (only IELTS Academic Training accepted).

For alternative ways to meet the English language requirements check <http://www.kth.se>

Students in their final year of their undergraduate education may also apply and if qualified, receive a conditional acceptance.

For candidates fulfilling the admission requirements, the ranking and selection of students is carried out by the partner universities on basis of the student's academic achievements, motivation letter and portfolios (for students in Architecture). The evaluation scale is 1-75.

Implementation of the education

Structure of the education

Structure of the education

Since the program results in a double degree, student should complete at least 60 ECTS of coursework at KTH and at a partner university. Students who apply to the masters program Sustainable Urban Transitions at KTH will start their first year of studies (60 ECTS) in the track Urban Regional Transitions (UR Trans) at KTH and continue at either DTU or Aalto University to complete their second year of studies (60 ECTS), including a 30 ECTS degree project. Students who are admitted to the track Transitions of Urban Structures TRUST, complete the first year (60 ECTS) at NTNU and continue the second year of studies at KTH (60 ECTS) or DTU (60 ECTS). The second year of studies includes a 30 ECTS degree project.

During the first year in the track Urban Regional Transitions (UR Trans) at KTH, the determinants of urban and regional transformation will be addressed. These encompass the role of cities in regional contexts, the prerequisites for infrastructure and urban development as well as the economic mechanisms that facilitate or constrain transitions processes. Sustainable development is a key question during the entire study, and students will be challenged to transform overall objectives into policies, plans and actions. The course work encompasses a substantial share of studios and projects that aim to develop your practical skills and to gain a better understanding of planning practice. To support the professional training and to strengthen analytical skills, the curriculum also contains a number of theoretical and methodological courses that provide a contextual and conceptual framework.

In the second year in this track, the acquired knowledge can be deepened at either Aalto University or DTU. The second year at DTU will allow the student to use the knowledge about urban regional strategies to develop a strategy on a city (municipal) scale. This will be complemented with a classic analysis of the relationship between infrastructure and land use in an international metropolitan region. Students continuing their studies at Aalto University will continue to develop skills in the particular areas of interdisciplinary and creative understanding and action, particularly at the regional level. They will address the key issues of regional development through laboratory work and selected studies from the university's six Schools. They will be working in a new School combining the creative disciplines (architecture, urban design, urban and regional planning, design, media, and arts), but they will also have access to a variety of courses offered by the four Schools of Technology and the School of Economics. The core of their studies will be the Urban Laboratory, where they will address a selected contemporary issue related to local urban development (such as local impacts of globalization, regional segregation, multiculturalism, migration, networking of cities, etc.), coupled with potential field studies and courses in urban and regional studies. The Laboratory continues during the second semester to support the writing of the Master's Thesis. Common seminars with the supervising team from the two or three universities involved will be arranged.

Students who want to join the study track Transitions of Urban Structures (TRUST) will start at NTNU in Trondheim, where the students will be given an introduction to planning for sustainable urban development both in a local and a Nordic context. The first two semesters the teaching will be offered at the Norwegian University of Science and Technology where the Faculty of Architecture and Fine Art will be responsible for the program. This track is offered every second year starting in September 2012.

Students with a B.Sc. (eng) background can stay the third semester DTU in Copenhagen. The second year at DTU will allow the student to go even deeper into analyzing the relationship between infrastructure and land use development by studying the plans and actual developments of an international metropolitan region. This will be complemented with the opportunity for the student to develop a strategy for future development of a chosen larger city. Students with a background in architecture or planning proceed their studies in the third semester at KTH in Stockholm. In the second year at KTH, students can choose among three project courses, either towards urban planning, environmental planning or urban design. The projects

are advanced learning experiences in which students should address some of the main challenges in contemporary urban planning and design in a practical setting. Depending on the choice of project course, students can select an additional elective. In the fourth semester students conduct a degree project.

A course in Theory of Science and Research Methodology (7,5 ects) is mandatory for all master programs at KTH and students who have not completed an equivalent course in their previous studies, should choose the course Theory of Science and Research Methodology in Planning and Design or Theory and Methods of Science or equivalent during their studies in the program.

The academic year covers 40 weeks, starting in September and divided into two terms, which each consists of two study periods. Each study period concludes with a regular examination period of at least one week.

Courses

The programme is course-based. Lists of courses are included in [appendix 1](#).

During the first year at KTH in the track Urban Regional Transition (UR Trans), the program includes a set of courses which allows students to acquire specialised professional skills. In the second year in the track Transitions of Urban Structures (TRUST), KTH offers three alternative projects (15 or 22,5 ECTS) that students can choose between.

Grading system

Courses in the first and the second cycle are graded on a scale from A to F. A-E are passing grades, A is the highest grade. The grades pass (P) and fail (F) are used for courses under certain circumstances.

Conditions for participation in the programme

For citizens of a country within the EU/EEA or Switzerland, the application and tuition is free of charge. Non EU/EEA students will be charged fees at the university he/she is studying in accordance with the prevailing university regulations, i.e. he/she has to pay fees for 2 semesters at KTH. More information on tuition fees at the Nordic partner universities can be found on the websites of respective university.

Students who have been admitted to the programme have to attend the registration meeting in order to enrol for the programme. Students who received conditional acceptance should provide documented proof that he/she has a completed Bachelor's degree or equivalent to a minimum of 180 ECTS. If a student is not able to attend the registration meeting for reasons beyond his/her control he/she should register not later than two weeks after the start of the courses.

A prerequisite for a students' participation in studies at KTH is that the student performs a course registration and semester registration for each semester.

Before the first semester you are automatically registered in connection with enrollment in the semester. Before the second, third and fourth semester students must register online. Registration is made under the personal menu after logging on to the web page.

For registration in term 3 students should have completed at least 45hp. For registration for the degree project students should have completed at least 60 hp of the courses, of which 30 ECTS should be at advanced level in the main subject area.

All of program students from second semester do a course application on www.antagning.se, and course registration done in the personal menu.

Recognition of previous academic studies

Students may request to be given credit for a course/courses from another college/university within or outside Sweden. KTH's policy for recognising previous academic studies is available in full in KTH's regulations at www.kth.se.

Studies abroad

Besides 60 credits from KTH, the Nordic master program Sustainable Urban Transitions requires 60 credits of studies at one of the partner universities. For students in the track *Urban Regional Transitions (UR Trans)* this implies that students have to complete one year of studies (60 credits) at DTU or Aalto University. Students in the track *Transitions of Urban Structures (TRUST)* need to complete 60 credits of coursework at NTNU. The programme offers no opportunities for studies at a third university.

Degree project

The degree project comprises 30 credits and provides students with the opportunity to investigate a problem in depth under the supervision of experienced practitioners and researchers.

Students in the Urban Regional Transitions (UR Trans) will conduct the Degree project at the second year university (DTU or Aalto University) who provides the main supervisor, while KTH provides a co-supervisor. Students in the Transitions of Urban Structures (TRUST) can conduct the Degree project at KTH or DTU who provide the main supervisor. In these Degree projects a staff member of NTNU will offer co-supervision. The supervision from each of the two degree awarding institutions involved in the study ensures the integration of the program components.

Information regarding the grading scale on the degree project refer to the syllabus.

Degree

To obtain the master's degree from KTH, students must have passed courses of at least 120 higher education credits, of which the following must be included:

- at least 60 higher education credits from courses at KTH and at least 60 higher education credits from courses at DTU, Aalto University or NTNU
- at least 105 higher education credits from courses on the second level among which the programmes mandatory and conditionally elective courses as well as a 30 credit degree project. In addition, a maximum of 15 credits from courses in any engineering area can be included.

Students who have fulfilled the degree requirements will be awarded a double degree from the universities at which the student has completed 60 credits within the Masters programme. The degrees that are awarded are:

KTH: Teknologie masterexamen, translated into English as Degree of Master of Science (120 credits)

DTU: Master of Science in Engineering

Aalto: Master of Science in Architecture

NTNU: Master of Physical Planning

[Appendix 1 - Course list](#)

[Appendix 2 - Programme syllabus descriptions](#)



Appendix 1: Course list

Programme syllabus for studies starting in autumn 2015, Master's Programme, Sustainable Urban Transition, 120 credits (THSUM)

General courses

Year 1

Mandatory courses (22.5 Credits)

Code	Name	Credits	Edu. level
AG2126	Theory of Science and Research Methodology for Planning and Design	7.5 hp	Second cycle
AG2805	Sustainable Planning and Design	15.0 hp	Second cycle

Conditionally elective courses

Code	Name	Credits	Edu. level
AD2862	Sustainable Urban Planning and Design Studio 1.2- Situations	15.0 hp	Second cycle
AD2865	Introduction to Urban Economics	7.5 hp	Second cycle
AD2867	Sustainable Urban Planning and Design Studio 1.1- Textures	15.0 hp	Second cycle
AE2507	Strategic Environmental Assessment	7.5 hp	Second cycle
AG2116	City Networks in Regional Contexts	7.5 hp	Second cycle
AG2127	Planning Theory and Urban Governance	7.5 hp	Second cycle
AG2128	Urban Development and Planning	7.5 hp	Second cycle
AG2141	Urban Infrastructure	7.5 hp	Second cycle
AG2171	Futures Studies and Forecasts	7.5 hp	Second cycle
AG2804	Transport, Communication and Sustainable Development	7.5 hp	Second cycle
AG2806	Environmental Aspects of the Built Environment	7.5 hp	Second cycle

Supplementary information

* Students who apply to the masters program Sustainable Urban Transitions at KTH will start their first year of studies (60 ECTS) in the Track Urban Regional Transitions (UR Trans) at KTH and continue at either DTU or Aalto University to complete their second year of studies (60 ECTS), including a 30 ECTS degree project.

* Students who apply to the masters program Sustainable Urban Transitions at KTH will start their first year of studies (60 ECTS) in the Transition of Urban Structures (TRUST) at NTNU and continue at KTH to complete their second year of studies (60 ECTS), including a 30 ECTS degree project.

Year 1 at NTNU:

AAR4515 Sustainable urban design – project 15 ECTS
<http://www.ntnu.edu/studies/courses/AAR4515/2012>

AAR4944 Planning for sustainability and development (Theory) 7,5 ECTS
<http://www.ntnu.edu/studies/courses/AAR4944/2012>

FP4350 Planning theory and process skills 7,5 ECTS
<http://www.ntnu.edu/studies/courses/FP4350/2012>

AAR4225 Integrated land use and transportation planning 7,5 ECTS
<http://www.ntnu.edu/studies/courses/AAR4225/2012>

AAR4936 Analytical methods in physical planning 7,5 ECTS
<http://www.ntnu.edu/studies/courses/AAR4936/2012>

AAR5260 GIS in urban planning 7,5 ECTS

AAR5270 Globalisation and Urban Development 7,5 ECTS
<http://www.ntnu.edu/studies/courses/AAR5270/2012>

Appendix 2: Specialisations

Urban Regional Transitions – UR Trans (KTH, DTU/Aalto University)

During previous decades regions are becoming more important objects of planning, not only to strengthen the region but also to support the individual cities within the region. However, the regions' significance and focus in planning differ from case to case. In a global context, major metropolitan regions (e.g. London, Shanghai, New York, Singapore, and Dubai) are competing with each other in creating favourable conditions for business and industries. On the other hand, regional development is often discussed at the European and national level, as part of a strategy to counteract the impacts of depopulation, unemployment and the lack of services in rural areas.

Competitive regions consist normally of one or more cities, which with collaborative efforts are able to offer an attractive environment for living and economic activities. Through the integration of culture, education and retail, and by effective transportation networks, these regions cater diversified services for their residents and generate synergies which can attract new investments to the region. However, being successful at the regional level also requires achievements at the local level to create living conditions that allow sustainable socio-ecological development.

Transition of Urban Structures – TRUST (NTNU, KTH/DTU)

The dramatic growth and transformation of urban areas represent major global environmental challenges and affects important factors of living conditions. If we are to meet these challenges and plan for

sustainable urban development, we must develop new planning strategies, methods and tools for sustainable urban development. In order to reduce greenhouse gas emissions and improve the urban environment and citizen's living conditions, the urban structure including the infrastructure, land use and transportation pattern must be reconsidered. A great challenge to urban development is to design the urban structure in a way that reduces the cities' ecological footprint. This often means a long-term change of the urban structure, the land use, the transportation system and the infrastructure.

In future cities new development should take place mainly within the existing building zone through conversion and densification without compromising existing qualities of the city. City reconstruction will be the future predominant way to build a city, where development of a city's land use, transportation system and infrastructure will require relocation of the businesses in town. The principle of establishing the right business at the right place must be followed.

In this study track we will deal with how these challenges best can be solved in an integrated planning process where land use, public transport, car traffic and infrastructure are seen together in relation to the development of the urban structure location of transport nodes, the density of the development and the design.

The perspective in this study track is the urban structure and how organising the land use, the public transport system, the pedestrian and bicycle routes, the car traffic and the distribution of power and water system influences the ecological footprint of the cities. We will have focus on how to strive for carbon-neutral cities by improving eco efficiency in the urban structure, developing sustainable transport, developing and using renewal energy and develop well planned and organized neighbourhoods with high quality of life and increasing sense of place.

By utilizing high academic competence by the Technical University of Denmark (DTU), Royal Institute of Technology (KTH) and the Norwegian University of Science and Technology (NTNU) this study track will give an outstanding multidisciplinary competence of high international level in sustainable urban planning with focus on urban infrastructure.

Year 2

Conditionally elective courses

Code	Name	Credits	Edu. level
AD2863	Sustainable Urban Planning and Design Studio 2.1- Urban Ecologies	22.5 hp	Second cycle
AD2EXU	Degree Project in Urban Planning and Design, Second Cycle	30.0 hp	Second cycle
AG2129	Project Sustainable Urban Planning - Strategies for Urban and Regional Development	15.0 hp	Second cycle
AG212X	Degree Project in Urban and Regional Planning, Second Cycle	30.0 hp	Second cycle
AG2130	Applied Urban and Regional Analysis	7.5 hp	Second cycle
AG2134	Contemporary Urban Theory, Advanced Course	7.5 hp	Second cycle

Supplementary information

Students who apply to the masters program Sustainable Urban Transitions at KTH will start their first year of studies (60 ECTS) in the Track Urban Regional Transitions at KTH and continue at either DTU or Aalto University to complete their second year of studies (60 ECTS), including a 30 ECTS degree project.

Year 2 at DTU:

42273 Urban Planning and Sustainable Urban Development, 10 ECTS <http://www.kurser.dtu.dk/42273.aspx?menulanguage=en-gb>

42278 Urban Technology and Management, 10 ECTS <http://www.kurser.dtu.dk/42278.apx?menulanguage=en-gb>

42543 Management of Change, 5 ECTS <http://www.kurser.dtu.dk/42543.aspx?menulanguage=en-gb>

42401 Introduction to Planning, 5 ECTS <http://www.kurser.dtu.dk/42401.aspx?menulanguage=en-gb>

Degree Project 30 ECTS

Year 2 at Aalto University:

Urban Laboratory (mandatory) 20 ECTS Not available

A-36.3330 Urban Renewal, 10 ECTS <https://noppa.aalto.fi/noppa/kurssi/a-36.3330/esite>

A-36.3504 City in Transition Theory, 5 ECTS <https://noppa.aalto.fi/noppa/kurssi/a-36.3504/esite>

Maa-20.3510 Strategic Urban and Regional Planning, 4 ECTS <https://noppa.aalto.fi/noppa/kurssi/maa-20.3510/esite>

21E10000 How to Change the World: Innovation towards Sustainability, 6 ECTS <https://noppa.aalto.fi/noppa/kurssi/21e10000/esite>

10157 Designing Services, 12 ECTS <https://noppa.aalto.fi/noppa/kurssi/10157/esite>

21A00310 Introduction to Management, 6 ECTS <https://noppa.aalto.fi/noppa/kurssi/21a00310/esite>

Ene-59.4301 Energy Systems for Communities, 5 ECTS <https://noppa.aalto.fi/noppa/kurssi/ene-59.4301/esite>

Degree Project

* Students who apply to the masters program Sustainable Urban Transitions at KTH will start their first year of studies (60 ECTS) in the Transition of Urban Structures (TRUST) at NTNU and continue at KTH to complete their second year of studies (60 ECTS), including a 30 ECTS degree project.

Appendix 2: Specialisations

Urban Regional Transitions – UR Trans (KTH, DTU/Aalto University)

During previous decades regions are becoming more important objects of planning, not only to strengthen the region but also to support the individual cities within the region. However, the regions' significance and focus in planning differ from case to case. In a global context, major metropolitan regions (e.g. London, Shanghai, New York, Singapore, and Dubai) are competing with each other in creating favourable conditions for business and industries. On the other hand, regional development is often discussed at the European and national level, as part of a strategy to counteract the impacts of depopulation, unemployment and the lack of services in rural areas.

Competitive regions consist normally of one or more cities, which with collaborative efforts are able to offer an attractive environment for living and economic activities. Through the integration of culture, education and retail, and by effective transportation networks, these regions cater diversified services for their residents and generate synergies which can attract new investments to the region. However, being successful at the regional level also requires achievements at the local level to create living conditions that allow sustainable socio-ecological development.

Transition of Urban Structures – TRUST (NTNU, KTH/DTU)

The dramatic growth and transformation of urban areas represent major global environmental challenges and affects important factors of living conditions. If we are to meet these challenges and plan for sustainable urban development, we must develop new planning strategies, methods and tools for sustainable urban development. In order to reduce greenhouse gas emissions and improve the urban environment and citizen's living conditions, the urban structure including the infrastructure, land use and transportation pattern must be reconsidered. A great challenge to urban development is to design the urban structure in a way that reduces the cities' ecological footprint. This often means a long-term change of the urban structure, the land use, the transportation system and the infrastructure.

In future cities new development should take place mainly within the existing building zone through conversion and densification without compromising existing qualities of the city. City reconstruction will be the future predominant way to build a city, where development of a city's land use, transportation system and infrastructure will require relocation of the businesses in town. The principle of establishing the right business at the right place must be followed.

In this study track we will deal with how these challenges best can be solved in an integrated planning process where land use, public transport, car traffic and infrastructure are seen together in relation to the development of the urban structure location of transport nodes, the density of the development and the design.

The perspective in this study track is the urban structure and how organising the land use, the public transport system, the pedestrian and bicycle routes, the car traffic and the distribution of power and water system influences the ecological footprint of the cities. We will have focus on how to strive for carbon-neutral cities by improving eco efficiency in the urban structure, developing sustainable transport, developing and using renewal energy and develop well planned and organized neighbourhoods with high quality of life and increasing sense of place.

By utilizing high academic competence by the Technical University of Denmark (DTU), Royal Institute of Technology (KTH) and the Norwegian University of Science and Technology (NTNU) this study track will give an outstanding multidisciplinary competence of high international level in sustainable urban planning with focus on urban infrastructure.



Appendix 2: Specialisations

Programme syllabus for studies starting in autumn 2015, Master's Programme, Sustainable Urban Transition, 120 credits (THSUM)

This programme has no specialisations.