

2-week Professional Development Course on
EUROPEAN SUSTAINABLE URBANISM FOR
PRACTITIONERS:
BERLIN, GERMANY, AND BEYOND

Directed to:
Architects, Planning Professionals, Urban Designers, and City Managers

Offered by:
The EcoCityLab
Department of Urban Design and Urban Development
Institute of Urban and Regional Planning
Technical University of Berlin

2-week course on
EUROPEAN SUSTAINABLE URBANISM FOR PRACTITIONERS:
BERLIN, GERMANY, AND BEYOND

EXECUTIVE SUMMARY

The Department of Urban Design and Development's EcoCityLab in the Institute for Urban and Regional Planning at the Technical University of Berlin (TU Berlin) offers a two-week course on *Sustainable Urbanism* to architects, planning professionals, urban designers, and city managers at the TU Berlin main campus in Berlin, Germany. Through a series of 21 lectures, 6 site visits to exemplary urban design and green infrastructure projects in Berlin, a 3-day sustainable urban design workshop, and a 3-day fieldtrip to Freiburg/Vauban (the German city leading in sustainable development practices) the 2-week course gives participants theoretical knowledge and practical training on sustainable urbanism as it has been theorized and practiced in Europe but with application to other countries and development contexts.

The Course is taught by an international staff of academics, professionals and specialists on sustainable urban planning, design, and development attached to TU Berlin and to local public and private organizations.

The program is offered 3 times a year on the first two weeks (beginning on the 1st Sunday) of May, June, and September (although dates can be adjusted to pre-organized group requests). Upon successful completion of the Course, the Technical University of Berlin, through the Institute for Urban & Regional Planning and the EcoCityLab, will issue a "Certificate of Participation" to each participant.

The fee for the program is €6,500 per participant (20 participants max.) and includes all training sessions and lectures; course reader and design workshop materials; a student helper (draftsman) during the design workshop; coffee & snacks between sessions; 3 social events with special dinners in two of them; a specialized guided bus- and walking-tour in Berlin with a visit & presentation at the Berlin Planning Senate; public transportation in Berlin; a round-trip train ticket to Freiburg & accommodation in Freiburg in a 4-star hotel; and specialized guided tours and presentations in Freiburg and its sustainable districts Vauban and Riesefeld.

For an additional fee of €1,500/person the Course includes a four-day trip to Copenhagen (Denmark) and Malmö (Sweden) to visit exemplary sustainable development projects and districts. The fee includes accommodation in a 4-star hotel, bicycle rental, guided tours, and special lectures in these two cities.

Language of instruction: English

Note: Fees, dates, language translation, and the inclusion of hotel accommodation and meals in the package may be negotiated for **pre-organized groups**. An option to visit Hannover/Hamburg as cities with exemplary development practices may also be chosen instead of Freiburg

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Program at-a-glance

Day	Activity
0 (Sun.)	Welcome reception at TU Berlin
1 (Mon.)	Course program introduction Part I. Introduction to European, German, and Berlin urban systems (3 Lectures) Berlin bus tour and walk through the City Centre with a visit to the Berlin Planning Senate. Dinner at Berlin TV Tower restaurant.
2 (Tue.)	Part II. European Sustainable Urbanism (3 Lectures) Berlin walking tour: <i>Globalization and Berlin: From Hauptbahnhof (Central Station) to Potsdamer Platz</i>
3 (Wed.)	Part III. Natural processes, ecosystem services, and green infrastructure (5 Lectures)
4 (Thu.)	Part IV. Case studies of sustainable cities and projects in Europe (4 Lectures)
5 (Fri.)	Part V. Fieldtrips to sustainable urban design projects in Berlin Kirchsteigfeld, Alter Schlachthof, and Castello
6 (Sat.)	Part V (cont.). Fieldtrips to green infrastructure projects in Berlin Potsdamer Platz, Block 6, and Adlershof
7 (Sun.)	Free
8 (Mon.)	Part VI. Sustainable urbanism policies, legislation, and guidelines (2 Lectures) Part VII. Challenges for the practice of sustainable urban planning, development & design and the social dimension of urban sustainability (4 Lectures)
9-11 (Tue-Thu.)	Part VIII. Case study fieldtrip to Freiburg, Germany (and its sustainable districts Vauban & Rieselfeld)
12-14 (Fri.-Sun.)	Part IX. Sustainable urban design workshop Closing ceremony (Cocktail Party)
15-18 (Mon.-Th.)	(OPTIONAL) 4-day fieldtrip to Copenhagen (Denmark) & Malmö (Sweden)

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Introduction

The practice of urban planning and design in Europe and Germany has now taken a clear path towards sustainability¹. The rise of urban sprawl in Europe in the 1970s, growing environmental degradation due to unsound industrial practices in European cities, declining biodiversity, the approaching of "peak oil," and the European Union commitment to mitigate and adapt to climate change have all contributed to shape an European urban agenda informed by the science of sustainable urbanism. Today, no European public agency, private firm, or independent practitioner working in the fields of architecture, urban design or spatial planning would undertake the development of a project without due attention to sustainability issues.

The two-week TU Berlin/EcoCityLab Program on "**European Sustainable Urbanism: The Cases of Berlin, Germany, and Beyond**" offers a comprehensive training program that covers all the conceptual issues related to sustainable urban development in Europe, taking participants to real case-study fieldtrips in Berlin and other German cities, and giving them practical tools to apply sustainable urbanism principles in the design of small urban design projects, neighbourhoods, or towns in any geographical context.

Although sustainability is understood as the interconnection of environmental, economic, and social issues, the program focuses on the physical (environmental) aspect of sustainability as this dimension is the one most urban planning and design professionals have to focus on in their professional practice. As such, and in addition to relevant case-study fieldtrips, the program covers theoretical, conceptual, practical, and normative issues related to the following aspects of sustainable development; all high on the agenda of European sustainable development:

- 1) Urban form, density, and land uses to conserve energy, facilitate mass public transport, and contribute to pedestrianism
- 2) Sustainable urban structures at the level of the region, city, district, and neighborhood
- 3) Place-based urban design
- 4) Sustainable public transport systems
- 5) Construction materials and waste
- 6) Bicycling as daily transportation practice
- 7) Energy-efficient, energy-conserving, and energy-producing buildings
- 8) Non-fossil fuel medium- and large-scale energy production systems using sun, wind, waves, tides, geo-thermal energy, and biomass
- 9) Urban food production
- 10) Solid and organic waste recycling
- 11) Rain, sewage, and grey water recycling
- 12) Urban design the Urban Heat Island control
- 13) Sustainable development policies, norms, and regulation
- 14) Sustainable development rating systems

The program is designed as a comprehensive overview of all the elements of sustainable urbanism to give participants practical tools to seamlessly integrate the different fields of urban planning and design (e.g., transportation, infrastructure, urban design, landscape architecture, etc.) into the planning and design of a small neighbourhood, and urban district, or even a large city.

¹ Bundesregierung 2008: Deutsche Anpassungsstrategie an den Klimawandel; BMU 2010: Nationale Klimaschutzinitiative für Kommunen.

The theoretical framework for the program is based on Dr. Rafael Pizarro's research on Sustainable Urbanism in Europe at the EcoCityLab in the Department of Urban Design & Development at TU Berlin's Institute for Urban & Regional Planning (ISR), but the program draws lecturers, specialists, and guest speakers from other departments at ISR and from various public agencies, research centers, and private firms in Berlin.

Berlin and Germany as host city & country

Berlin is the ideal place to hold this program for planners, urban designers, and city managers. Since the 1990s, the Berlin Planning Senate has passed legislation and implemented urban development policies to make Berlin and its metropolitan region truly sustainable. Since the 1980s, sustainable urban development, energy regulation, and considerations for sustainable water management, solid waste handling, and ecological construction materials, for example, have become part and parcel of the Planning Senate's sustainable ecological development and design codes. The German Federal government has also adopted all European Union sustainable development policies and regulations creating a veritable sustainable planning environment for builders and urban developers.

In light of the above, Berlin has become a breeding ground for innovative ideas in architecture, urban design, and planning towards creating a sustainable urban future. Furthermore, as the capital of Germany, successful ideas tried and implemented in Berlin spread quickly to other regions of the country putting Germany at the cutting edge of sustainable urban development in Europe. Berlin is also home to a number of projects exemplary of sustainable development practice such as the Heinrich-Böll-Settlement, the area of Alter Schlachthof, Kirchsteigfeld, Rummelsburger Bucht, Castello, the Campus in Berlin-Adlershof, Potsdamer Platz, Block 6, and Prinzessingärten (all to be studied and visited during the Course).

Technische Universität Berlin - TU Berlin

Founded in 1879, the internationally renowned **Technische Universität Berlin** (Technical University of Berlin or TU Berlin) is one of the largest technological universities in Germany with more than 30,000 students studying in 50 accredited degree programs in seven Faculties (Schools). The international reputation of TU Berlin (with 8 Nobel Prize Winners among its professors) has attracted more than 6,000 students from other countries making it the largest percentage of foreign students in a German university. Academic activities at the university are focused on building a distinctive profile ensuring exceptional performance in research and teaching, providing graduates with top academic qualifications, and featuring a modern approach to university administration. TU Berlin strives to promote the dissemination of knowledge and to facilitate technological progress through adherence to the core principles of excellence and quality. A strong set of regional, national and international networks with partners in science and industry is also one of the distinctive features of the university. The Course will be held at the Main Campus (Ernst-Reuter Platz) in West Berlin (Charlottenburg), which is centrally located and with easy access via public transport (trains, trams, and buses) or bicycling to the main tourist attractions, historic sites, and entertainment venues in the city.

The **Faculty of Planning-Building-Environment**, the academic unit within which the course takes place, is home to the Institutes of Urban & Regional Planning, Architecture, Civil Engineering, Landscape Architecture & Environmental Planning, Applied Geosciences, Geodesic & GeoInformation Science, Ecology, and Sociology; an extraordinary amalgamation of all fields

of knowledge related to the natural and built environments providing a sound intellectual foundation for the instruction imparted in the Course.

The Department of Urban Design & Development (DUDD) at the TU Berlin and the EcoCityLab (ECL)

The course is directed, administered, and taught by the Department of Urban Design & Development's EcoCityLab (ECL), located in the Institute of Urban & Regional Planning (ISR). In addition to the DUDD/ECL lecturers, the program draws other lecturers, specialists, and guest speakers from other departments at ISR and from various public agencies, research centers, and private firms in Berlin. The DUDD, directed by Prof. Angela Uttke, has long been engaged in developing curricula and research expertise in sustainable urban development making it the premier academic Department in a German university to investigate sustainability in the practice and theory of urban planning and design. Several theory courses, design studios, research seminars, and professional workshops related to sustainable urbanism are regularly taught at the Department.

The EcoCityLab (ECL), a practice-oriented teaching and research center based in the Department of Urban Design & Development, is devoted to explore the development of sustainable urban systems and societies with special emphasis on the interaction between climate-sensitive place-based urbanism, public spaces, and new green infrastructure systems for non-motorized personal transport, energy and food production, and for water and waste recycling. The Lab was founded and is directed by Dr. Rafael Pizarro (PhD in Planning) and co-directed by Dipl.-Ing. M.Sc. Jana Milosovicova, urban designer and landscape architect based in Berlin.

The Program

The two-week Course is composed of a series of lectures, case-study presentations, fieldtrips, round-table discussions, and a design workshop conducted by university professors, city planners, development specialists, designers, and local practitioners giving the Course participants solid conceptual and practical foundations on sustainable urbanism in Europe with emphasis on Berlin and Germany but with global applicability. The program is designed to provide participants with generalist yet practical knowledge on all aspects of sustainable urbanism so that lessons learned in the Course can be applied to projects in different geographical contexts.

Training Sessions

The Course program is divided into 9 thematic parts (numbered as Part I, Part II, Part III, etc.) that include a Berlin bus-tour plus Berlin City Centre orientation walk, visit to the Berlin Planning Senate, 21 lectures, 6 Berlin fieldtrips to visit exemplary sustainable development projects, a 3-day German Fieldtrip to Freiburg (and its sustainable districts Vauban & Rieselfeld), and a 3-day Sustainable Urban Design Workshop where participant can apply the knowledge gained in the program to designing a sustainable urban neighbourhood. The nine parts are described below:

PART I: INTRODUCTION TO EUROPEAN, GERMAN, AND BERLIN URBAN SYSTEMS

Lecture 1: European and German Territorial Spatial Systems

Lecture 2: Berlin Urban History

Lecture 3: Current Planning Challenges in Berlin

These initial lectures are a general introduction to the regional and urban systems in the European Union with emphasis on Germany and Berlin. It is intended to give the course participants knowledge on the larger geographical, climatic, and spatial-regional contexts within which the country and the city are embedded. It is also intended to give them an overarching view of Berlin's social, economic, cultural and historic contexts.

PART II: EUROPEAN SUSTAINABLE URBANISM

Lecture 4: Introduction to Sustainable Urbanism

Lecture 5: Urban Form & Design - Density, Land Use & Transport

Lecture 6: Sustainable Urban Structures (the Sustainable Region, City, District and Neighborhood)

This part begins with the rise of *sustainable urbanism* and the "urban renaissance" in Europe in the last decade as planning and design strategies to address European problems of urban sprawl and placelessness and other global problems such as climate change, peak oil, global environmental degradation, and loss of biodiversity. The lectures in this part of the program deal with basic structuring elements of the sustainable city such as form, urban design, density, land uses, and urban mobility. It also introduces the practitioner to "green infrastructure systems" for energy and food production, water and waste recycling, and non-motorized transport within urban cores (a detailed explanation of these systems is covered in the following Part III).

The three lectures explain the close relationship between compact urban form, mixed land uses, and intensity of uses in urban centres to facilitate mass public transit systems, alternative non-motorized forms of personal transport, and pedestrianism. They also explain how the 'pedestrian city,' typical of the older historic centres of European cities, is becoming the ideal form-related model for European urban sustainability. Likewise, in this section the practitioner will learn about macro-scale models of regional development, ideal urban structures for the sustainable city, and how does a prototypical 'sustainable neighborhood,' the first 'urban cell' of such city, look like.

These lectures also show the participants the symbiotic relationship between urban structure, urban form, urban design, and infrastructure systems highlighting the need for interdisciplinarity in the practice of sustainable urban planning and design.

PART III: NATURAL PROCESSES, ECOSYSTEM SERVICE, AND GREEN INFRASTRUCTURE

Lecture 7: Greenhouse Gas Emissions, Peak Oil, Green Infrastructure and Urban Space

Lecture 8: Climate-sensitive Urban Design and Urban Heat Island Control

**Lecture 9: Sustainable Energy Production, Embedded Energy in Construction
Materials & Waste**

**Lecture 10: Green Infrastructure for Water and Organic Waste Management &
Recycling**

Lecture 11: Urban Food Production

These five lectures explain how global problems such as climate change and the near-future scarcity of cheap oil demand a restructuring of conventional infrastructure systems to provide cities with basic services such as energy, drinking water, wastewater treatment, food, and protection against overheating urban cores. Problems associated with global warming and/or future scarcity of inexpensive oil such as draught-related fresh water scarcity, desertification of agricultural areas, dependency on oil for food production, waste of natural nutrients for soil fertilization due to chemical-based sewage treatment and disposal of organic waste in landfills, and the built-in energetic inefficiency of fossil fuel-based electricity and sewage treatment plants demand a re-thinking of conventional infrastructure systems in cities. The lectures show how these systems can function more efficiently and ecologically by using renewable energy sources, becoming smaller in size, and by being closer to the final consumer (e.g., located within neighbourhoods and small urban districts). This part of the program also brings to the fore a new paradigm in green infrastructure planning where infrastructural systems are interwoven with the urban fabric of districts and neighbourhoods creating new typologies for public space design while effectively mitigating climate change.

PART IV: CASE STUDIES OF SUSTAINABLE CITIES AND PROJECTS IN EUROPE

Lecture 12: Exemplary cities and projects in Europe

Lecture 13: Exemplary cities and projects in Germany

Lecture 14: Exemplary projects in Berlin

Lecture 15: Theoretical student projects

This part of the Course shows examples of sustainable cities and specific projects within the European union and beyond. Likewise, it shows the practitioner a set of theoretical student projects developed with the EcoCityLab methodology to produce state-of-the-art ecological settlements. Although the perfect sustainable city or project does not exist, there are several real-world examples that, by having implemented sustainable development planning and design strategies, have become exemplary of sustainable urbanism. In Europe, for instance, the cases of Copenhagen (Denmark), Sjöstad-Hammerby in Stockholm (Sweden), the Western Harbor in Malmö (Sweden), Freiburg and its Vauban and Riesefeld districts (Germany), Tübingen, Wittengen and Loretto (Germany), BedZed (England), and Helsinki and its Vikki neighbourhood (Finland) are some of those examples covered in these lectures.

Within Berlin, the exemplary case-study projects of Heinrich-Böll-Settlement, the area of Alter Schlachthof, Kirchsteigfeld, Castello, the campus of Berlin-Adlershof, Potsdamer Platz, Block 6, and Prinzessingärten will be explained. This lecture (#14) also serves as a preamble to the site visits to these projects (see next Part and Appendix 1).

PART V: FIELDTRIPS TO SUSTAINABLE URBAN DESIGN AND GREEN INFRASTRUCTURE PROJECTS IN BERLIN

Six Berlin fieldtrips to exemplary projects displaying sound ecological urban design and infrastructure principles will show implementation on the ground of the theoretical concepts explained in Parts II, III, and IV. The tours will include visits to three large-scale urban developments (Kirchsteigfeld, Alter Schlachthof, and Castello) and to three mid-size urban infrastructure projects dealing with sustainable rain/wastewater management and Urban Heat Island (UHI) control systems (Potsdamer Platz, Block 6, and Berlin-Adlershof's Institute of Physics building -- see detailed description of these projects in [Appendix 1](#)).

PART VI: SUSTAINABLE URBANISM POLICIES, LEGISLATION, AND GUIDELINES

Lecture 16: Sustainable Development Practice, Policies, and Legislation in Berlin and other European Cities

Lecture 17: Sustainable Development Rating Systems

This part will bridge the gap between theory and practice in sustainable urbanism in Europe, and will introduce the Course participant to various sustainability rating systems for urban development projects. In the first lecture (#16), presenters from the Berlin Planning Senate will explain current sustainable development policies and legislation in the city and how these regulations have positively transformed real estate development in Berlin. Likewise, the lecture explains how the regulatory systems work in various other European cities. This lecture is also an opportunity for the participants to compare German and Berliner regulatory land development systems with those of their own countries. In the same lecture, sustainable development legislation and initiatives in other European cities will also be presented as examples of tools to turn the theory of sustainable urbanism into real-world sustainable development practices. In the second lecture of this Part (Lecture 17), participants will learn about sustainable development rating systems such as BREEAM, LEED-ND, DGNB CityQuarters, OPL, SEEDA, VicUrban Masterplanned, SPeAR, and Cascadia Scorecard to assess the degree of sustainability of urban projects in countries of the European Union and beyond.

PART VII: CHALLENGES FOR THE PRACTICE OF SUSTAINABLE URBAN PLANNING, DEVELOPMENT & DESIGN AND THE SOCIAL DIMENSION OF URBAN SUSTAINABILITY

Lecture 18: Achieving Sustainable Urban Design, Landscape Architecture & Development

Lecture 19: Growing Food in Cities

Lecture 20: Retrofitting Urban Areas and Derelict Industrial Sites for Sustainability

Lecture 21: The Role of Education and Public Participation in Achieving Urban Sustainability

Although the theory of sustainable urbanism is based on a set of ecological principles to develop 'sustainable' projects, and although several real-life projects in Europe have indeed managed to incorporate elements of such theory, implementation of the theory 'on the ground'

still faces many real-world challenges. This series of lectures, given by development professionals working on different aspects of sustainable urbanism (e.g., urban agriculture, landscape architecture, climate-sensitive design, etc) will bring to the fore the real-world challenges facing designers, builders and developers attempting to achieve sustainability in their professional practice. Also, as sustainable urbanism, when implemented, is about places and human needs, the last lecture covers the social dimension of sustainability as practiced in Europe. For this part, and given that this is the last set of lectures of the Course and hence participants will have developed a sense for the most challenging aspects of urban sustainability, they will be asked to choose among four different topics for lectures 18 and 19.

PART VIII: CASE STUDY FIELDTRIP TO FREIBURG, GERMANY (WITH VISITS TO THE SUSTAINABLE DISTRICTS OF VAUBAN & RIESEFELD)

Following the Berlin part of the Course participants will be taken by train on a special 3-day fieldtrip to Freiburg in southeast Germany (near the border of France and Switzerland) to see the workings of sustainable urbanism in the context of a large urban center. Freiburg is a city of 220,000 people known worldwide for its sustainable planning practices and, particularly, for its sustainable model districts Vauban and Rieselfeld. In addition to special tours and lectures on sustainable urban management, urban and architectural design, and green infrastructure systems, participants will be able to enjoy the wonderful atmosphere of this historic city in the south of Germany (see detailed description of this option in [Appendix 2](#)).

PART IX: SUSTAINABLE URBAN DESIGN WORKSHOP

At the end of the course, the knowledge developed during the sessions (Parts I through VIII) will be applied to the design of a small urban development project located on a site in Berlin or in a city in the participant's country. In this 3-day workshop, Course participants (in groups of 3-5 people) will have the opportunity to apply the sustainable urbanism principles learned in the lectures and fieldtrips to the planning and design of a hypothetical project. Starting with an urban structure strategy to create lively public spaces, compactness, public transport and pedestrianism, the participants will be guided to include proposals for energy production, urban agriculture, wastewater recycling, organic solid waste recycling, and design strategies to control the Urban Heat Island effect. The final design will be a basic but holistic sustainable development project featuring all the elements of sustainable urbanism studied in the Course. This final project should serve as a framework to guide participants in the planning and design of a small- to large-scale real case project in their own countries.

The spirit of this design workshop, however, is also to offer participants the opportunity to engage in group discussions debating the pros and cons of all the systems studied in the program should they were to develop similar projects in their local context.

The project site: Participants are encouraged to propose a site in their own country, which with they are already familiar, or to use a Berlin site proposed by the Course organizers. If the latter is chosen, it we will give participants an opportunity to explore designing in a foreign/European context.

The project brief: The project is a hypothetical green neighbourhood for 2000-3000 people to be self-contained in terms of basic activities (housing, schools, community centres, shops,

entertainment centers, etc) and self-reliant in terms of basic infrastructure services (energy and water provision, waste handling, and food production). The idea is to produce a visionary project containing all the principles learned in the course assuming that ideal economic, cultural, social, and regulatory conditions may exist for the project to happen. The aim of this design workshop is to give participants a taste for what is like to plan and design a truly sustainable urban development.

Project drafting assistance: Each design group will be aided by a design student who would put in graphic form (digitally and/or in paper) the ideas discussed or sketched out by the participants during daily sessions. The student(s) will be there to help participants save time in the drawing stages, and to deliver final project drawings/diagrams on time for the final presentation on the last day of the workshop. Nevertheless, participants are encouraged to do their own drawings, diagrams, and sketches if they so desire.

At the end of the first two workshop days, there will be a work-in-progress presentation and a round-table discussion on the issues surfaced during the planning/design sessions. On the third and last day of the design workshop there will be a final presentation capped with a discussion panel of invited critics to reflect on the issues dealt with and learned in the actual project and in the entire course.

Workshop materials: TU Berlin/EcoCityLab will provide all drafting materials and printing services for the project. Participants, however, are encouraged to bring their own laptops to use software which with they might be more familiar.

Social Events

The program includes three social events as following:

Day 0 (prior to the actual beginning of the Course): A Welcome/IceBreaker informal gathering to meet course directors and introduce participants to each other. At this event, information will be provided about the location of lecture sessions, getting-around in Berlin, program schedule, and other logistics-related issues.

Day 1: Following the Berlin Bus Tours and the City Centre Tour (including the visit to see the City model at the Berlin Planning Senate) there will be a **Welcome-Dinner** at the famous Berlin's TV Tower City.

Day 14 - Closing Ceremony (Cocktail Party): Held at the premises of the Technical University of Berlin on the last day of the program this event is the official closure of the Course and where the **Certificates of Participation** will be awarded.

Optional: 4-day Fieldtrip to Copenhagen (Denmark) and Malmö (Sweden)

At the end of the two-week program, we offer an optional four-day fieldtrip to cities outside Germany that have exemplary sustainable urban planning, design, and development districts. Destinations of the Northern European Fieldtrip are: Copenhagen's central area and the city's Albertslund, Orestad, and Hedebygade/Vestebro districts (Denmark), and Malmö's Western Harbour and Augustenborg (Sweden). Each one of these cities has become a must-see for urban planning professionals, urban designers, and city managers interested in experiencing

what is like to live in a sustainable city (see a detailed description of these places in [Appendix 3](#)). The cost for this trip is €1,500 in addition to the regular course fee of €6,500.

Program Reader

Participants will be provided with a reader containing summaries of the lectures, descriptions of the case studies, and reading material (journal articles and book chapters) to give theoretical background to the Course lectures and fieldtrips.

Course Accreditation

The Technical University of Berlin, through its Institute of Urban & Regional Planning, will issue to each participant attending the Course a "**Certificate of Participation.**" The Certificate will bear the name of the University and the Department issuing the Certificate, the title and date and location of the Course, and the signatures of the Directors of the Department of Urban Design & Development and of the EcoCityLab.

Program Schedule

Day	Time	Activity
0 Sun	19:00	Welcome Reception at the Department of Urban Design & Development
1 Mon.	8:30 – 9:00	Course program Introduction
		Part I: Introduction to European, German, and Berlin urban systems
	9:00 – 10:00	Lecture 1: European and German Territorial Spatial Systems (including INTERREG III)
	10:00 – 10:15	<i>Coffee Break</i>
	10:15 – 11:15	Lecture 2: Berlin Urban History
	11:15 – 12:15	Lecture 3: Current Challenges in Berlin
	12:15 – 13:15	<i>Lunch</i>
	13:15 – 18:00	Berlin bus tour, walk through City Centre, and visit with lecture at the Berlin Planning Senate
	18:30	<i>Welcome Dinner at Berlin TV Tower</i>
2 Tue.		Part II. EUROPEAN SUSTAINABLE URBANISM
	9:00 – 10:00	Lecture 4: Introduction to Sustainable Urbanism
	10:00 – 11:00	Lecture 5: Urban Form & Urban Design - Density, Land Use and Transport
	11:00 – 11:15	<i>Coffee Break</i>
	11:15 – 12:15	Lecture 6: Sustainable Urban Structures (the Sustainable Region, City, District, and Neighborhood)
	12:15 – 13:15	<i>Lunch</i>
	13:15 – 17:00	Berlin walking tour: <i>Globalization and Berlin: From Hauptbahnhof (Central Station) to Potsdamer Platz</i>

3 Wed.	<p>9:00 – 10:00</p> <p>10:00 – 11:00</p> <p>11:00 – 11:15</p> <p>11:15 – 12:15</p> <p>12:15 – 13:30</p> <p>13:30 – 15:00</p> <p>15:00 – 15:15</p> <p>15:15 – 16:45</p>	<p>Part III: NATURAL PROCESSES, ECOSYSTEM SERVICES, AND GREEN INFRASTRUCTURE</p> <p>Lecture 7: Greenhouse Gas Emissions, Peak Oil, Green Infrastructure and Urban Space</p> <p>Lecture 8: Climate Sensitive Urban Design and Urban Heat Island Control</p> <p><i>Coffee Break</i></p> <p>Lecture 9: Sustainable Energy Production, Embedded Energy in Construction Materials & Waste</p> <p><i>Lunch</i></p> <p>Lecture 10: Green Infrastructure for Water & Organic Waste Management and Recycling</p> <p><i>Coffee Break</i></p> <p>Lecture: 11: Urban Agriculture</p>
4 Thu.	<p>9:00 – 10:30</p> <p>10:30 – 10:45</p> <p>10:45 – 12:15</p> <p>12:15 – 13:30</p> <p>13:30 – 15:00</p> <p>15:00 – 15:15</p> <p>15:15 – 16:45</p>	<p>Part IV: CASE STUDIES OF SUSTAINABLE CITIES AND PROJECTS IN EUROPE</p> <p>Lecture 12: Exemplary cities and projects in Europe: Malmö Western Harbor (Sweden), Hammerby-Sjostad (Sweden), BedZed (England), Copenhagen (Denmark) and Vikki (Finland).</p> <p><i>Coffee Break</i></p> <p>Lecture 13: Exemplary cities and projects in Germany: Freiburg (Vauban and Rieselfed), Hannover-Kronsberg, Tübingen-Wittengen-Loretto.</p> <p><i>Lunch</i></p> <p>Lecture 14: Exemplary projects in Berlin: Kirchsteigfeld, Heinrich-Böll Settlement, Alter Schlachthof, Castello, Rummelsburger Bucht and Rudower Felder</p> <p><i>Coffee Break</i></p> <p>Lecture 15: Theoretical student projects (Ingolstadt EcoTown, Heidestrasse EcoNeighborhood, and Berlin Energie Quartier /EcoBlock)</p>

5 Fri.	9:00 – 12:00 12:00 – 13:00 13:30 – 17:30	PART V. FIELDTRIPS TO SUSTAINABLE URBAN DESIGN AND GREEN INFRASTRUCTURE PROJECTS IN BERLIN Fieldtrip 1: Urban Design & Masterplanning Potsdam-Kirchsteigfeld <i>Lunch</i> Alter Schlachthof and Castello
6 Sat.	9:30 – 11:30 12:00 – 13:00 13:00 – 17:00	Fieldtrip 2: Green Infrastructure Institute of Physics Berlin-Adlershof <i>Lunch</i> Potsdamer Platz and Block 6
7 Sun.		Free
8 Mon.	9:00 – 10:30 10:30 – 12:00 12:00 – 13:00 13:30 – 14:30 14:30 – 15:30 15:30 – 15:45 15:45 – 16:45 16:45 – 18:15	Part VI. SUSTAINABLE URBANISM POLICIES, LEGISLATION AND GUIDELINES Lecture 16: Sustainable Development Practice, Policies, and Legislation in Berlin and other European Cities Lecture 17: Sustainable Development Rating Systems <i>Lunch</i> Part VII. CHALLENGES FOR THE PRACTICE OF SUSTAINABLE URBAN PLANNING, DEVELOPMENT & DESIGN AND THE SOCIAL DIMENSION OF URBAN SUSTAINABILITY Lecture 18: Achieving Sustainable Urban Design, Landscape Architecture & Development Lecture 19: Growing Food in Cities <i>Coffee Break</i> Lecture 20: Retrofitting Urban Areas and Derelict Industrial Sites for Sustainability Lecture 21: The Role of Education and Public Participation in Achieving Urban Sustainability
9 – 11		Part VIII. CASE STUDY FIELDTRIP TO FREIBURG, GERMANY (and its sustainable districts Vauban &

Tue. – Thurs.		Rieselfeld) (Detailed description of this fieldtrip in Appendix 2)
12 Fri.	9:00 – 12:00 12:00 – 13:00 13:00 – 17:30 17:30 – 18:30	<p>Part IX. SUSTAINABLE URBAN DESIGN WORKSHOP</p> <ul style="list-style-type: none"> • Introduction to the project • Brief site analysis and development constraints/opportunities <p><i>Lunch</i></p> <ul style="list-style-type: none"> • Individual initial proposal for the site • Group discussion on individual proposals • Group formation according to similarity of initial individual proposals (5 groups of 4 participants) • Group basic concept proposal • Presentation and discussion of each group’s proposal
13 Sat.	9:00 – 12:00 12:00 – 13:00 13:00 – 17:00 17:00 – 18:30	<p>Sustainable Urban Design Workshop (cont.)</p> <ul style="list-style-type: none"> • Proposal Development <p><i>Lunch</i></p> <ul style="list-style-type: none"> • Consultation with specialists • Presentation of work-in-progress and group discussion
14 Sun.	9:00 – 12:00 12:00 – 13:00 13:00 – 17:00 17:00 – 18:00 19:00	<p>Sustainable Urban Design Workshop (cont.)</p> <ul style="list-style-type: none"> • Proposal Definition <p><i>Lunch</i></p> <ul style="list-style-type: none"> • Final presentation with Guest Critics from Berlin • Conclusions & Course Evaluation <p>Evening: Closing Ceremony (Cocktail Party)</p>

15 - 18 Mon. – Thurs.

Optional: 4-day fieldtrip to Copenhagen (Denmark) and Malmö (Sweden)

Costs

The cost of the program is **€6,500 per participant** (maximum 20 participants) and includes:

- All training sessions, lectures, and fees for specialized tour guides in Berlin and Freiburg fieldtrips.
- Course Reader
- Design workshop materials
- Design workshop student assistants
- Writing pads/pens
- Coffee & snacks between sessions
- Three social events (including a Welcome Dinner at the Berlin TV Tower)
- Public transportation in Berlin
- Train transportation to/from Freiburg (and to Vauban & Riesefeld)
- Accommodation & breakfast in a 4-star hotel in Freiburg
- Lunch and dinner meals in Freiburg

Payment

All payments must be made in Euros (€) by bank transfer to the Technical University of Berlin. A €350 non-refundable booking/registration fee* must be made at least 5 months prior commencement of the intended course, and the difference (€6,150) must be paid 30 days before the beginning of the course. *Refundable only in case of course cancellation

Group requests

Fees, dates, language translation, and the inclusion of hotel accommodation and meals in the package may be negotiated for pre-organized groups.

Costs per participant do *not* include:

- International airfare to/from Berlin
- Hotel accommodation & meals in Berlin
- Health insurance
- Emergency funds
- Personal expenses

Additional fee of **€1,500 for fieldtrip to Copenhagen (Denmark) and Malmö (Sweden) include:**

- Train fares from Berlin to Copenhagen, from Copenhagen to Malmö, and from Malmö to Berlin
- 3 specialized lectures and guided tours
- 3 nights at a 4-star hotel in Copenhagen
- Bicycle rental in Copenhagen
- Public transportation in Copenhagen and Malmö

Program direction



Prof. Dr.-Ing. Angela Uttke, Head of the Department of Urban Design and Urban Development TU Berlin

Prof. Dr.-Ing. Angela Uttke, urban planner AKNW and urban designer. She is professor at the Institute of City and Regional Planning in the University of Technology Berlin and head of the Department of Urban Design and Urban Development. Before, she was a senior researcher and lecturer at the Institute of Urban Affairs (Difu) in Berlin and held advanced training courses for city planning officials on urban planning issues and public participation. Her research interests are in the field of sustainable city development and participatory design methods. In practice, she is a partner in the urban planning firm STADTIDEE in Dortmund and does urban regeneration, housing and consultancy projects for different cities throughout Germany (e.g. Würzburg, Düsseldorf, Aachen, Lippstadt), for the Federal Institute for Research on Building, Urban Affairs and Spatial Development and for the former European Culture City RUHR.2010. She is a founding member of JAS, Jugend Architektur Stadt e.V., a non-profit association dedicated to build environment education and participation of children and young people.



Dr. Rafael Pizarro (PhD), EcoCityLab Director

Dr. Rafael Pizarro, (Ph.D. Planning Univ. of Southern California; MSc Environmental Planning, Arizona State University; BSc Architecture, Univ. Javeriana, Bogotá, Colombia), has been DAAD Visiting Professor in the Department of Urban & Regional Planning at the Technical University of Berlin (TU Berlin), a Lecturer in Sustainable Urban Planning at the University of Sydney (Australia), and has taught part time and given courses at the University of Southern California (USA), at the Technological University of Monterrey (Mexico), at Universidad Jorge Tadeo Lozano (Colombia), at Universidad Javeriana (Colombia), at Universidad de Sevilla (Spain), at Universidad de Santiago de Compostela (Spain) and at Universidad de America (Colombia). He has also been a professional architect in Colombia, a City Planner for the City of Phoenix in Phoenix, Arizona (USA), and participated in the design of an ecocity for the Prefecture of HuLuDao in China. Dr. Pizarro's research focuses on sustainable urban development with special emphasis on the production of sustainable neighbourhoods. He is the author or co-author of more than 25 peer-reviewed journal articles and book chapters and has co-edited *Dialogues in Urban Planning: Towards Sustainable Regions* with Tony Gilmour and Edward Blakely (Sydney University Press 2008) and *Southern California and the World* with Eric Heikkila (Praeger 2002). He has lectured and presented more than 30 research papers at academic congresses worldwide. He has also been member of the Australian National City & Regional Planning Research Group on Climate Change and of the Group for Academic Studies and Research on Colombian Caribbean Cities.



Jana Milosovicova, Dipl.-Ing. M.Sc., EcoCityLab Co-Director

Jana Milosovicova, Urban Designer and Landscape Architect, has devoted her career to projects that deal with aspects of environmentally sustainable urban development. Jana has acquired her internationally gained knowledge and experience in the interrelated fields of urban design, planning and landscape architecture in collaboration with SUSTAINUM, EcoCityLab, TU Berlin, Peter Robinson Assoc. Sustainable Urbanism (Sydney), simpson+wilson architects (Sydney) and others. She is aware that only a holistic approach to sustainability (from well-thought-out interventions in the built environment to behavioral change) will help creating liveable and more sustainable urban environments and environmentally aware communities. In Jana's approach to sustainable urban development, one particularly relevant field of research and intervention is climate-sensitive urban design.

Appendices

Appendix 1: Fieldtrips in Berlin: Urban Design & Green Infrastructure Projects in Berlin

TRAINING PART V. FIELDTRIPS TO SUSTAINABLE URBAN DESIGN PROJECTS



Kirchsteigfeld: An example of sustainable urban form and public space design by Leon Krier and Christoph Kohl following the precepts of the new European urbanism and reflecting the “European urban renaissance.” Kirchsteigfeld is considered an outstanding example of traditional urban planning and design given its treatment of district boundaries, the design of public spaces, the formation of central places, the links to the surroundings, access to public local transport, and its approach to biodiversity-enhancing green open spaces.



Alter Schlachthof: Centrally located at an intersection of the three densely built-up districts of Pankow, Friedrichshain-Kreuzberg and Lichtenberg, this 50-hectare piece of land is developing into a new modern urban quarter with 1,300 flats, 170,000 m² of floor space for businesses, trade and service companies, restored building complexes under monument protection, and 7 hectares of park and public green areas. The area boasts excellent connections to local transport, to the national road network, and is within walking distance of the ICE railway station Ostbahnhof. The variety of residential space typologies offered in the project cater to a wide range of prospective tenants and includes lofts, townhouses, rental apartments, owner-occupied flats, and dwellings in restored historical buildings.



Castello: Castello is a mixed-use development in Berlin-Lichtenberg that includes a 5,500 m² shopping center with commercial space for shops, services, restaurants, and bistros, 1,000 m² floor space for medical offices and law firms, an underground 150-car parking garage; 193 two-, three- or four-bedroom apartments (some of them with shared terraces). The complex is constructed from prefabricated parts. This mixed-use development is accommodated in one “building” with parking underground and with a connecting roof-top garden (above the garage) with rainwater management design elements, playgrounds, semiprivate recreational open space facilities, and framed by retail and commercial spaces. Apartments are situated in a loosely connected, air-permeable, building block above the retail and commercial facilities. This compact development makes a highly efficient use of the lot combining residential, retail, commercial, playgrounds and open spaces, and an urban heat-island-reduction landscape watered exclusively with rainwater.

TRAINING PART V (CONT.). FIELDTRIPS TO GREEN INFRASTRUCTURE

PROJECTS



Institute of Physics, Humboldt University Berlin: The Humboldt University Berlin's Institute of Physics is an exceptional project of ecological urban development featuring various innovations in sustainable construction. The project is based on a concept of decentralised rainwater management, building greening and elements for cooling and ventilation. Rainwater is stored in elevated cisterns and used to irrigate the façade greening system (with deciduous plants) and to generate evaporative cooling as a natural air conditioning system. A pond located in the building's courtyard collects the excess water to allow it to evaporate (part of the Urban Heat Island Control system) or to sip through the ground to replenish the aquifer.



Potsdamer Platz: The Potsdamer Platz Complex is an example of introducing ecological planning principles from the beginning of the planning process. The complex features not only energy-saving building design, energy-producing photovoltaic panels, and environment-friendly construction materials but a large gray/rain water management system unique for such a centrally located complex (at the financial centre of Berlin). The system includes green roofs to reduce run-off and control the Urban Heat Island Effect, a grey water collection/recycling system for toilet flushing and green space irrigation, and an artificial lake filled with reeds and other phyto-remediation plants to clean run-off and grey waters and that doubles as ornamental landscape.

Block 6: A centrally located residential complex featuring an integrated water management systems that recycles domestic grey water and run-off from rooftops and sealed surfaces by means of a constructed wetland in its courtyard. The system was developed for the International Building Exhibition 1987 (IBA 87) and is also a model project of the Experimental Housing and Urban Development (EXWOST) research programme. Similar to the Potsdamer Platz project, water evaporation from the constructed wetland also contributes to improve the local micro-climate by reducing air temperatures during the summer months. The system has also economic benefits for the residents of the buildings. Given that residual grey and rain water in the complex is fully dealt with by the constructed wetland, there is no discharge into the city's combined storm run-off/sewer infrastructure, saving the €2,000 per year that residents would have to pay to the City for this municipal service. Additionally, the constructed wetland is considered "urban nature" helping to increase biodiversity in Berlin.



Prinzessingärten: This city garden is an example of urban agriculture in an urban context but is it also a place for learning about and experimenting with urban food production, organic planting, increasing biodiversity in cities, climate protection, healthy eating, sustainable living, and future-oriented urban lifestyle. The managers of this project, "Urban Gardeners" (Nomadisch Grün), have as a central goal the increase of biological, social and cultural diversity in the neighbourhood and to pioneer a new way of living in cities.

Appendix 2: 3-day Fieldtrip to Freiburg (Germany)



- Day 1: Morning: **Travel to Freiburg** (6 hours by train)
Afternoon: **Historic City Centre walk & Introduction to Freiburg's sustainable development**, Dinner
- Day 2: Morning: Tours and Lectures: **Freiburg Transportation Concept; Development and modernization of a 19th century district; and the City's Solar modernization**
Afternoon: Guided visit to the model city district **Rieselfeld: Integrated sustainable development of a 1960s district**
- Day 3: Guided visit to **model Eco-District Vauban**: Innovative housing projects, **Eco-Institute, Solar Settlement**
Afternoon: Departure for Berlin



Rieselfeld: Rieselfeld is another exemplary urban district where transport networks, low-energy housing, the social concept of the district, and the nature conservation area are examples of key elements of sustainable urban development.



Vauban: Vauban is located on the site of a former French military base 4 kms to the south of Freiburg's town centre. This new neighbourhood, labelled "A Sustainable Model District," is home to 5000-people working in 600 jobs. The district is renowned for being one of the first urban districts in the world to experiment and put into practice innovative concepts in energy conservation/production, traffic and pedestrian mobility, cooperative building, and public participation and social interaction in public spaces. The District contains the famous "Solarsiedlung" (Solar Settlement) and the Sonnenschiff (Sunship) complex, the first positive energy commercial building in the world and home to the Vauban Eco-Institute (to be visited during the tour).



Appendix 3: Optional 4-day European Field Trip to Copenhagen (Denmark) and Malmö (Sweden)

- Day 1: Morning: **Travel to Copenhagen** (7 hours by train)
Afternoon: **Orientation meeting & City Centre walk**; Dinner
- Day 2: Morning: **Bicycle Tour through Copenhagen**; Lecture by an Environmental Planner at Planning Department; Lecture "Eco-Metropolis Copenhagen 2015"
Afternoon: Tour **Hedebygade/Vesterbro** City Renovation & Renewal; Dinner
- Day 3: **Albertslund** – Lecture and tour on Climate Protection Policies, Urban Renewal, Agenda 21; Tour in **Orestad** (Copenhagen's Southern extension for 20,000 people); transfer to Malmö in Sweden; Dinner
- Day 4: Tour in Malmö's **Western Harbour**; environmental performance modernization in **Augustenborg**; afternoon: travel to Berlin (8h)



Copenhagen: The focus of the tour will be on Copenhagen's cycling culture and policies. Currently, 36% of travel trips in Copenhagen are done by bicycle but it is projected that by 2015 50% of commutes will be done by this mean of transport. Bicycles have become the most important vehicles for getting around in the city and for trips to/from jobs and schools. Other aspects of Copenhagen to be studied in the visit to the city are sustainable food reduction, noise protection, air pollution reduction, and climate

protection. Participants will be taken on bicycle rides around the historic inner harbor; an open museum for contemporary architecture with buildings by renown architects such as Rem Koolhaas, Daniel Libeskind and the like.

Hedebygade Block (in Vesterbro, Copenhagen): The HedebygadeBlock, located in the popular historic district of Vesterbro ("Western Bridge"), is a 350-apartment complex built in the 19th century but renovated in 1996 with the highest ecological development standards, and exemplary of Copenhagen's sustainable city district renewal plans. The buildings in the Block feature bio-climatic architecture, vertical plant-growing hotbeds; heat recovery via a heat exchanger, energy producing facades and rooftops



(w. PV panels); a shared courtyard for recreational purposes, with rainwater collection, communal waste sorting, a community house and kitchen, and a common laundry room supplied with rainwater.



Albertslund (Copenhagen): Considered a suburb of Copenhagen, Albertslund features a completely segregated bicycle network and a range of climate protection policies, implementation of Agenda 21 principles, innovative art projects in rent-controlled apartments, among other sustainable development strategies. Participants will participate in a lecture and site-visit with Albertslund Planning Director.



Orestad (Copenhagen): Orestad covers an area of 767 acres and lies a few kilometres south of Copenhagen's center. It is the city's newest development for 20,000 inhabitants proud of its Master plan drawn by American top architect Daniel Libeskind.



Western Harbour (Malmö, Sweden): This new residential district hosts exciting architecture as well as restaurants, cafes and cultural events. It is mainly a car-less district with recreational areas and service zones designed and built to make cars unnecessary. Pedestrians and bicycle riders have priority in all streets and a tram and bus line connects it to the center of Malmö. The 'trademark' of the district is

Spanish architect Santiago Calatrava's famous "Turning Torso."



Augustenborg (Malmö): Since 1998, Augustenborg has undergone a huge transformation from a ghetto-like residential area with flood problems to one of Malmö's most popular places to live. By taking advantage of site features to improve local storm water management and by adding green roofs on many buildings, the city's earlier drawbacks have come to inspire very advantageous solutions. The result is a

more sustainable village with people who take care of their own neighbourhood.