Built Environment

Course Overview 2026 - 2027

CREATING MEANINGFUL EXPERIENCES

Breda University OF APPLIED SCIENCES

Built Environment - Course Overview

Breda University of Applied Sciences
Academy: ABEL (Academy of Built Environment and Logistics)
Program: Built Environment
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Important dates

1 September 2026 till January 2027	Start of block A (semester 1)
19 October 2026 t/m 23 October 2026	Autumn break
21 December 2026 – 1 January 2027	Christmas break
8 February 2027 – 12 February 2027	Spring break
1 February 2027 till 25 June 2027	Start of block C (semester 2)
3 May 2027 – 7 May 2027	May holiday

Choose		Title	ECTS	Block
Block A				
Mandatory		LAB2A From City to Region	5	A
Choose 2		KB5 Data Driven Decision Making	5	A
		MO2 Mobility Patterns & Data	5	A
		UP2 Housing & Livability	5	A
		UD2 Spatial Strategy	5	A
			15	
Block B				
Mandatory		LAB2B From Region to City	5	B
Choose 2		KB6 Management & Finance	5	B
		KB 2 Analyses & Design	5	B
		KB3 Human Society and Built Environment	5	B
			15	
Block C				
Mandatory		LAB2C High Density Environments	5	C

Choose 2		MO3 Mobility Services & Organisation	5	C
		UP3 Water Management	5	C
		UD3 Spatial Processes & Systems	5	C
		Pro 2C Gis & Geo data	5	C
		Pro 2C Smart Mobility	5	C
		Pro 2C Regional Planning	5	C
		Pro 2C Landscape	5	C
		Pro 3C Participation in Practice	5	C
		Pro 3C Design & Construct	5	C
		Pro 3C Mobility and Land use	5	C
		Pro 3C Academic Literacy & research	5	C
			15	
Block D				
Mandatory		LAB2D Re-image the Hub	5	D
		PRO2D Energy Transition	5	D
		PRO2D Area Development	5	D
		PRO2D Traffic & Transport Modelling	5	D
		PRO2D Tactical Urbanism	5	D
		PRO2D Trends & Transitions	5	D
		PRO2D Visualisation: Beyond Blueprints	5	D
		PRO3D Environmental Psychology & Sociology	5	D
		PRO3D Entrepreneurship	5	D
		PRO3D Architecture	5	D
			15	

Block A

LAB2A From City to Region

OSIRIS code: BBE2.ALB2-1

Study load: 5 EC (=140 hours)

Coordinator: Maurizio Scarciglia

Language: English

Summary

Urbanization in the last few decades has meant exponential urban growth so massive as to merge cities into entire regions. One of the most emblematic examples is the Greater Bay Area in China. Here, a massive flow of migrants from rural China is transforming a necklace of cities around the Pearl River Delta into the biggest world metropolitan conurbation, estimated to soon host up to 100 million inhabitants. This Lab will enable the collaboration between Planning students, mobility students, and Urban Design students to disentangle the complexity of regional developments and unravel their potential and threads for the future in light of the major challenges that our society will face, such as the climate crisis, technology innovations, and globalization.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 1.1. You identify, analyse, and define an issue or task relevant to society and/or the profession. Initiate (2) 2 1.2. You formulate the context, the preconditions, the requirements, and the objective to underpin a well-founded decision or action to be taken. Initiate (2) 3 3.1 You develop the chosen solu on in detail from an integral approach, considering other disciplines and preconditions: technical, legal, and economic feasibility, as well as social responsibility and inclusiveness. Specify (2) 4 6.1 You formulate and validate a research ques on based on a task that is relevant to society and/or the profession. Research (2) 5 6.2 You collect and analyze data to provide substan ated answers to the question. Research (2) 6 8.1 You communicate in a way that shows you are aware of the environment and your role and position in it. (Communicate (2) 7 9.1 You are aware of the effect of your ac ons on your professional environment. (Professionalize (2) 8 10.1 You ac vely seek opportuni es to learn about different cultures and engage in cultural exchange opportunities. Intercultural understanding (1) 39

Content

In this study component the following content is covered: - The relevance of the regional scale for urban developmet; - The historical, spa al, socio-economic, demographic, and poli cal trends and developments in the Pearl River Delta urban region; - Housing shortage and local welfare policies (e.g. Hukou household registration system)/ urban villages vs. speculation and densification; - Migra on from rural areas/le behind children/educa on/employment policies and social inclusion; - Shenzhen-Hong Kong region: One Country two systems and the future of regional integration- political implications; - Social and psychological implica ons of economic growth on society: entering capitalism; - Water management/land reclama on/river design/pollu on- sanitation/parks and natural reserves /pressure on agriculture/rural- urban fringes; - Integrated Regional and urban Transporta on (road, railway, metro, ferries, airport); - Transporta on poverty & Future sustainable mobility - Ethics and cri cal thinking by comparing Chinese and European cases

Assessment

Assessments Weightage Mark AI Level

Group assignment 100% Numerical mark

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KB5 Data Driven Decision Making

Under development

MO2 Mobility Patterns & Data

OSIRIS code: BBE2.AMO2-1

Study load: 5 EC (=140 hours)

Coordinator: Elly Khademi

Language: English

Summary

Travel patterns describe human mobility, including when, why, and how people move between different places. With a good understanding of travel patterns, we can estimate the travel demand and accordingly make strategic decisions in transport planning. In this expertise module of mobility, we will investigate the relationship between Individual needs, opportunities, and travel behavior (the transport system). We also identify factors and measures that effectively influence travelers' behavior for a more green and sustainable cities (policy). Through modelling, and data analysis we will discuss the connection between supply and demand to steer and predict mobility patterns

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Iden fy the importance of travel pa erns in the process of transport planning given a series of knowledge (initiate, Low autonomy & medium complexity) ; 2 Formulate a research ques on related to a transport planning assignment in the given context (research, medium autonomy & medium complexity); 3 Iden fy and analyse mobility related issues using standard travel survey data(initiate, Low autonomy & medium complexity); 4 Independently develop solu ons for policy makers, using the iden fied travel patterns for a given context (design, Low autonomy & medium complexity); 5 You communicate the solu ons to specific policy makers, using professional industry products to ensure knowledge, and decision making (Communicate, , medium autonomy & medium complexity).

Content

In this study component the following content is covered: - Part I (Travel behavior, Pa ern, and Theories): Introduc on to the transport system, its impacts and transport policies: In the first part of this module, the transport system and its impacts are investigated, and we will review the state of the art r - Part 2 (Data and Decision): the importance of data in iden fying travel patterns and strategic decision making. In the second part, you will learn about equilibrium of supply and demand for having a good transport system and how data and modelling help this process as a supporting tool and helps government in planning and decision-making process.

Assessment

Assessments Weightage Mark AI Level

Written exam 70% Numerical mark 1 Individual assignment 30% Numerical mark

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UP2 Housing & Livability

OSIRIS code: BBE2.AUP2-1

Study load: 5 EC (=140 hours)

Coordinator: Frank Jocobs

Language: English

Summary

UP2 Housing & Livability is the second Specialization module for Urban Planning. The aim of UP2 Housing and livability is to build on the knowledge of UP1 Spatial Development where you were introduced to the different roles that an urban planner can fulfill in the process of spatial development. UP2 Housing and livability focuses on housing in which the relationship is established with demographic developments, housing for different target groups, livable and sustainable development of residential areas in relation to permits and policy control.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Purposefully collec ng and analyzing data at regional, urban, and neighborhood levels, using at least the provided themes. (6.3) 2 Explaining and applying relevant theory related to housing and livability across different spatial scales. (6.3) 3 Developing a spa al proposal for a specific loca on aimed at improving the housing and living situation, based on self-formulated principles. (2.1) 4 Independently formula ng and demonstrably weighing different solution options in order to provide an appropriate spatial recommendation, using multiple perspectives. (2.2) 5 Embedding a spa al proposal within relevant policies and legisla on in preparation for the actual implementation of the proposed solutions. (4.1)

Content

In this study component the following content is covered: - Urban and neighbourhood developments; - Urbanization and globalization; - Demography with a focus on developing and developed countries; - Housing (perspectives and challenges); - Social housing and the role of housing associations in the Netherlands; - Environmental liveability; - Sustainability dimensions and impacts (People, Planet, Profit); - Housing permit systems and policy control.

Assessment

Assessments Weightage Mark AI Level Written exam 60% Numerical mark 1

Group assignment 40% Numerical mark

UD2 Spatial Strategy

OSIRIS code: BBE2.AUD2-1

Study load: 5 EC (=140 hours)

Coordinator: Rana Habibi

Language: English

Summary

UD | SO 01 was cantered on the individual components of the constructed surroundings in the scale of neighbourhood and block, whereas UD | SO 02 delves into the spatial strategies and structure of cities and regions. This course's main objective is to understand how cities are shaped and the spatial strategies that help us address urban issues at local, national, and global levels. Cities and regions are evolved over decades based on several socio-political and economic circumstances. Hence, urban structures encompassed not only physical forms and spatial arrangements, but also reflected the socioeconomic and political evolution of different nations and their lifestyles over time. The urban morphology, and typologies are influenced by the spatial strategies and methods used to design them, which vary depending on each region's socioeconomic and cultural conditions. Different economic and environmental crises require different strategies compared to periods of stability and certainty. As urban designers, having various tools and strategies is essential to effectively handle every upcoming situation. This course aims to acquire knowledge and skills in identifying and applying various spatial strategies and analysing diverse spatial structures of the cities

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Ini ate 1.1_level 2 Identify different types of ensembles (including buildings and open spaces) in a specific area using a provided template.(initiate 1.1; level 2) 2 Ini ate 1.1_level 2 Analyze complex context (city) through given layers using a provided template (initiate1.1, level 2) 3 Research 6.3_level 2 Analyze the process of design and strategies that have been used in a given project using a provided template (research 6.3, level 2) 4 Design 2.2_level 2 Develop your own urban design strategy based on a given context using a provided template (Design 2.2, level 2) 5 Design 2.2_level 2 Justify your design strategies and substantiate them based on the design steps/organs introduced to you (Design 2.2, level 2) 6 Adapt your communication style to accommodate the cultural preferences of team members (Inter-Cultural understanding 10.2, level 2) 47 7 Inter-Cultural Understanding 10.2_Level 2 Adapt your communication style to accommodate the cultural preferences of team members (Inter-Cultural understanding 10.2, level 2)

Content

In this study component the following content is covered: - This course aims to acquire knowledge and skills in identifying and applying various spatial strategies and analysing diverse spatial structures of the cities. - A) Analytical Framework Through examples of the cities, you will learn how the city shaped and how one can analyse different layers of the city? - B) Urban Design Strategies In the first part of the course, we explain and examine the three main parts of urban design strategy. In the second part we focus a little bit more on the higher level of urban design strategy as this is something that you also need in your LAB work

Assessment

Assessments Weightage Mark AI Level

Written exam 70% Numerical mark 1

Group assignment 30% Numerical mark 1

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Block B

LAB2B From Region to City

OSIRIS code: BBE2.BLB2-1

Study load: 5 EC (=140 hours)

Coordinator: Maurizio Scarciglia

Language: English

Summary

Urbanization in the last few decades has meant exponential urban growth so massive as to merge cities into entire regions. One of the most emblematic examples is the Greater Bay Area in China. Here, a massive flow of migrants from rural China is transforming a necklace of cities around the Pearl River Delta into the biggest world metropolitan conurbation, estimated to soon host up to 100 million inhabitants. This Lab will enable you to deepen your specialization skills into solving a specific urban challenge in a context undergoing massive urban transformation. After crafting a planning-mobility or design solution for the given area, you will reflect on its validity within the regional context in which you operate.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 3.1 You develop the chosen solution in detail from an integral approach, considering other disciplines and preconditions: technical, legal, and economic feasibility, as well as social responsibility and inclusiveness. Specify (2) 2 2.1 You develop a future-proof solution based on various perspectives and a project definition, a process, frameworks, guidelines and/or requirements. Design (2) 3 2.2 You justify your approach, weigh alternatives, and substantiate your choice, taking into account the wishes of the stakeholder(s). Design (2) 4 6.1 You formulate and validate a research question based on a task that is relevant to society and/or the profession. Research (2) 5 6.2 you choose one or more appropriate methods. Research (2) 6 8.1 You communicate in a way that shows you are aware of the environment and your role and position in it. Communicate (2) 7 9.1 You are aware of the effect of your ac ons on your professional environment. Professionalize (2) 8 10.1 You ac vely seek opportuni es to learn about different cultures and engage in cultural exchange opportunities. Intercultural understanding (1) 50

Content

In this study component the following content is covered: - The relevance of the regional scale for urban development; - Housing shortage and local welfare policies (e.g., Hukou household registration system)/ urban villages vs. speculation and densification; - Migra on from rural areas/le behind children/educa on/employment policies and social inclusion; - Shenzhen-Hong Kong region: One Country, two systems and the future of regional integration- political implications; - Social and psychological implica ons of economic growth on society: entering capitalism; - Integrated Regional and urban Transporta on (road, railway, metro, ferries, airport); - Transporta on poverty & Future sustainable mobility.

Assessment

Assessments Weightage Mark AI Level

Individual assignment 100% Numerical mark 2

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KB6 Management & Finance

OSIRIS code: BBE2.BKB6-1

Study load: 5 EC (=140 hours)

Coordinator: Stephen Narsoo

Language: English

Summary

This study component examines project management within the process of spatial development. This will be the basis of the financial aspects of the development.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Recall basic concepts related to project management in the built environment through a theory based exam. 2 Apply project management principles to a site development by compiling a project management plan.

Content

In this study component the following content is covered: - Project based working with complex spatial projects; - Process based working; - Program management; - Phases of spatial development; - The financial aspects of the process of spatial development; - Financial calculation of land development; - Spatial use; - Costs and revenues; - Phasing and calculation.

Assessment

Assessments Weightage Mark AI Level

Written exam 70% Numerical mark 1

Group assignment 30% Numerical mark 4

KB2 Analysis & Design

OSIRIS code: BBE1.BKB2-1

Study load: 5 EC (=140 hours)

Coordinator: Thomas Oorschot

Language: English

Summary

During this study component, we go through the different steps in the process of a spatial development. You will learn different methodologies and ways of thinking that all aim for the best use of an area/location. We do this by analysing areas, structures, policies and data. We then translate that into insights that can be used as starting points and preconditions (framework) for setting the ambition. This framework forms the basis for the next step in the process, the vision/design phase. During this phase, various spatial concepts or variants are investigated within the established framework by means of design-design research, in order to arrive at a choice that will be elaborated and realised in the follow-up phases.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 To apply the cyclical character of both the spa al planning process and the process of practice-based research within a given case study. This is evident from the quality of your sub-assignments, which are essential to be on time and in the correct order. (Research 6.3, level 1; medium autonomy / low complexity); 2 To develop different perspectives (spatial, policy and mobility perspectives) and various spatial solutions for a given case study. You demonstrate this with your sub-concepts. (Design 2.1, level 1;medium autonomy, low complexity); 3 Apply and document the analysis techniques for your (design) research (according to spatial, policy and mobility perspectives) in such a way that they are reproducible. You demonstrate this with a complete documentation (final report) (Research 6.4, level 1 ; (medium autonomy / low complexity) 4 Design an integral spatial concept (based on various spatial concepts) that is ready for further development and that clearly responds to the client's demand. You demonstrate this with reference studies, specific analysis maps and relevant explanations. (Specify 3.1, level 1; medium autonomy / low complexity) 5 Substantiate and justify the given integral spatial concept from different perspectives, taking into account the various disciplines and preconditions from the client's perspective. You demonstrate this with different concept drawings. (Design 2.2, level 1; medium independence / low complexity) 16

Content

In this study component the following content is covered: - -Introduc on to the cyclical process of spa al planning and applied research. - Key analysis methods: spa al, historical, policy analysis, mul -layer approach, parking and capacity research, traffic safety, and Lynch's method. - Understanding the spa al structure hierarchy and applying "Sustainably Safe" principles in the design of street and road profiles, in different contexts. - Use of graphical techniques to support and communicate integrated analysis results and design. - Vision and concept development through reference studies, handbooks, and research into spatial concepts, variants, and design principles.

Assessment

Assessments Weightage Mark AI Level

Individual assignment 100% Numerical mark 1

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KB3 Human Society & Built Environment

OSIRIS code: BBE1.BKB3-1

Study load: 5 EC (=140 hours)

Coordinator: Luiz Marcos De Carvalho Filho

Language: English

Summary

This course covers critical processes such as urbanization, globalization, sustainability and digitization, along with the principles of environmental psychology. The course goes beyond the mere placement of infrastructure within a city. It delves into understanding how individuals interact with the urban elements we introduce into their environment. These interactions are crucial in shaping both behaviours and the space itself. The heart of urban development lies in comprehending these interactions. The course aims to understand human behaviour and how the built environment influences, regulates, and facilitates various behaviours. This understanding paves the way for broader ideas about planning and decision- making that impact people's lives more ethically and responsibly, particularly in urbanisation, digitisation, and globalisation processes. The course also offers practical training in the use of Geographic Information System (GIS) tools, enabling students to apply theoretical knowledge in real- world scenarios. This comprehensive approach ensures that students are well-equipped to address the complex challenges of urban development.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Recognize the mutual influence between urban development process, society, human behaviour and the built environment. You will demonstrate this in a written exam (initiate 1.1 level 1) (low independence/medium complexity) 2 Inves gate and interpret social trends and developments that influence behavior and the design of the built environment, with a focus on globalization, sustainability and digitalization. You demonstrate this trough mapping and spatial analysis; (research 6.3, level 1) (medium independence / low complexity) 3 Present the result in a structured report combining a reflec on on theory and mapping exercises. You demonstrate this in an individual report. (communicating 8.1, level 1) (medium independence, low complexity).

Content

In this study component the following content is covered: - Impact of Social Trends on the Built Environment: Examine how globalisation and urbanisation shape the built environment; - Influencing Human Behaviour: Explore the mutual influence between society, human behaviour, and the built environment; - Dimensions of Sustainability: Understand the social, economic, and environmental pillars of sustainability and their connections to the built environment; - Digi sa on and the Built Environment: Analyze the influence of digitisation, including smart cities and network society, on urban 18 development and the built environment; - Theory in Prac ce: Apply theore cal concepts from lectures to analyze the built and social environment of Rotterdam South; - GIS Tools and Mapping: U lize Geographic Informa on System (GIS) tools to map and understand Rotterdam South, deriving research questions from theoretical topics.

Assessment

Assessments Weightage Mark AI Level

Written exam 50% Numerical mark 1

Individual assignment 50% Numerical mark 1

Breda University
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Block C

LAB2C High Density Environments

OSIRIS code: BBE2.CLB2-1

Study load: 5 EC (=140 hours)

Coordinator: Rana Habibi

Language: English

Summary

LAB 4 - High Density Urban Hub, is a project for second-year students from the bachelor Built Environment (BE) International track at Breda University of applied sciences in the Netherlands. As a 2nd-year student in the Urban Design Specialization, drawing on your existing knowledge of the built environment (Lab 02)and regional development (Lab 03), this lab aims to elevate your understanding to the scale of detail design. We'll explore the challenges and opportunities of high-density urban development, delving into various design strategies and techniques to foster livable and sustainable urban environments. In this lab, we'll delve into higher-density urban development, a crucial aspect of today's expanding cities. Creating more living spaces within existing urban environments becomes imperative as populations grow. At least in The Netherlands, we have a major challenge to build over 950.000 houses till 2030. In 14 significant projects, 200.000 houses will be built within the next decade. Some of them will be built in an existing urban environment, creating high-density urban hubs. Urban designers and planners face the challenge of finding innovative and sustainable solutions to accommodate this demand. The project site is located in the Haven- Stad area. Haven-Stad includes 12 projects, and we focus solely on Melkweg.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 You define the clients' relevant wishes, requirements, preconditions and issues. (Initiate 1.1 level 2) 2 You develop a detailed Action Plan, Program of Requirements (PoR), Project Assignment and/or Research/Design Proposal. (Initiate 1.2 level 2) 3 You collect information about the region and site through maps, documentaries, website of municipality and other publications. (Research 6.3 level 2) 4 You analyse the area and site through the collected information, design question and focus point that you have chosen. (Research 6.3 level 2) 5 You develop concepts, goals, programs, and visions through a series of scenarios and design methodologies based on the previous research that you have done. (Design 2.1 level 2) 6 You are focused on interaction and cooperation to get everyone involved and engaged through group-working and conducting collective project. (Communicate 8.2 level 2) 61

Content

In this study component the following content is covered: Mobility - In Block 1, students will focus on foundational mobility and spatial analysis. They'll explore traffic and transport network analysis, hub function analysis using the butterfly model, and modal shift/split analysis and prognosis to understand current and Urban Design - In Block 1, students will learn how to analyze the context of a site, helping them understand its physical, social, and environmental conditions. They will then move on to defining goals and programs, where they identify key objectives and user needs for Urban Planning - In Block 1, students will gain foundational skills to support strategic urban planning. They'll learn to conduct stakeholder and trend analyses to understand key influences and actors, apply multi-criteria analysis and variation studies to compare plannin

Assessment

Assessments Weightage Mark AI Level

Group assignment 100% Numerical mark 1

MO3 Mobility Services & Organisation

OSIRIS code: BBE2.CMO3-1

Study load: 5 EC (=140 hours)

Coordinator: Jeroen Weppner

Language: English

Summary

Sustainablity is often linked to a decrease of (car) ownership, and an increase of (car, bycicle or scooter) sharing opportunities. But what how are these services organised? And what is the role of governmental and commercial organisations? In this course we will explore the value of an increasing sharing society on the urban and rural challenges.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Explain the difference between a market-driven and government-driven mobility service, including the role distribution between the transport authority, transport provider, and traveler. You understand how these parties are involved in the development, offering, and management in both urban and rural areas. (Competency: specifying 3.2, medium complexity and autonomy) 2 Go through the tendering process for concession granting and develop a proposal that takes into account the tasks, roles, and responsibilities of the most relevant stakeholders. You demonstrate this by going through the process steps in a case study and setting out and substantiating the proposal from the stakeholders' perspective. (Competency: managing projects and processes (7.4), high complexity and medium autonomy) 3 Propose and position a new mobility service. You demonstrate this by outlining the playing field in which the service will operate based on the social context, mobility needs and preferences of consumers, the arrangement of roles and responsibilities, and opportunities/risks (in terms of quality management and legislation). (Competency: specifying, 3.1, medium autonomy and medium complexity) 4 Set up a simple business case for a new mobility service. You demonstrate this in a sales pitch where you focus on the unique selling point, product features, strategic approach, and revenue model. (Competency: designing, 2.1, medium autonomy and medium complexity)

Content

In this study component the following content is covered: - Governmental and commercial focused mobility services; - The relationship between government, private companies (supplier) and consumer (demands); - (common) rules and regulations, concession grants and parking regulations; - Customer needs and preferences; - Business cases and use cases; - Current and forecasted policy on (shared) mobility services and technological innovations. 65

Assessment

Assessments Weightage Mark AI Level Individual assignment 60% Numerical mark 1 Group assignment 40% Numerical mark 4 66

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UP3 Water Management

OSIRIS code: BBE2.CUP3-1

Study load: 5 EC (=140 hours)

Coordinator: Summary: This study component examines the role of water management within the process of spatial development. Both national and international examples will be dealt with.

Language: English

Summary

This study component examines the role of water management within the process of spatial development. Both national and international examples will be dealt with.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Produce a spatial design and advice within the spatial domain based on inventory and analysis. (Design 2.1, level 2, medium complexity, medium independence) 2 Make a connection between climate change, landscape and water management. You demonstrate this by demonstrably taking climate- and landscape-specific preconditions into account in the chosen solution. (Specify 3.1 , level 2, medium complexity, medium independence) 3 Collaborate with fellow students and stakeholders/target groups on a spatial design and advice from an external client. (Communicate 8.2, level 2, medium complexity, medium independence) 4 Name and understand the underlying aspects of water management and the role of different levels of government and actors within water management. (Initiation 1.2, level 1, low complexity, medium independence)

Content

In this study component the following content is covered: - Climate change, - adaptation and - mitigation; - Urban water management; - Different actors concerning water management; - Water safety, -quality and -quantity; - Water governance – legislation and -policy.

Assessment

Assessments Weightage Mark AI Level Written exam 50% Numerical mark 1
Group assignment 50% Numerical mark 2

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UD3 Spatial Processes & Systems

OSIRIS code: BBE2.CUD3-1

Study load: 5 EC (=140 hours)

Coordinator: Luiz Marcos De Carvalho Filho

Language: English

Summary

Will self-driving cars be the norm in 10 years? Will the sharing economy overtake private ownership? Will remote work reduce the need for office space? Are we moving away from natural gas for heating? Will agriculture become high-tech or more nature-inclusive? These questions impact the future organization of our living environment, yet their development remains uncertain. In UD3 Spatial Processes and Systems, you will learn how to design with these uncertainties.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Explain how cultural, technological and governance processes impact cities and induce changes in their urban fabric by elaborating a timeline and comparative mapping. (Competency: research 6.3, medium complexity and autonomy) 2 Explain how urban systems operate by understanding their parts and interconnections by selecting one urban system and mapping it out. (Competency: Research 6.3, medium complexity and autonomy) 3 Elaborate on issues related to the future of the city of your choice by selecting topics to be investigated in a scenario exercise. (Competency: Initiate 1.1, medium complexity and autonomy) 4 Use scenario planning as a tool for designing and planning by elaborating different scenarios for the city of your choice. (Competency: Research 6.3, medium complexity and autonomy) 5 Summarise your findings into a clear and appealing narra ve through a poster. (Competency: Communicate 8.3, medium complexity and autonomy

Content

In this study component the following content is covered: - History of urbanism: learning from past ideas about the future, how changes in culture, technology and governance impacted cities; - Urban systems: unpacking the complexi es behind urban systems and exploring their structural elements and spatial components; - Scenarios planning: how to design with uncertainty, what are the tools at disposal of urban designers to come up with future-proof solutions?

Assessment

Assessments Weightage Mark AI Level

Individual assignment 100% Numerical mark 2

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PRO2B Gis & Geo Data

OSIRIS code: BBE2.BGIS-1PR3 / BBE2.CGIS-1PR6

Study load: 5 EC (=140 hours)

Coordinator: Luiz Marcos De Carvalho Filho

Language: English

Summary

In this study component, you will explore using GIS and geodata analysis in the urban environment domain. You will learn to select, clean, and analyse datasets using Geographic Information Systems (GIS). Throughout the course, you will learn how to identify patterns and trends in spatial data at different scales and conduct statistical and geographical analyses. The course will encourage you to look beyond spatial analysis's technical aspects and translate data into valuable insights that can be used for decision-making. The core competencies of this module are (6) Research at Level 3 and (4) Specifying at Level 2. These competencies are translated into learning objectives we will assess throughout the module.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Iden fy, analyze and define a socially relevant issue or task related to the combination of GIS and geodata. This is demonstrated by a well-defined topic and research question within the final product based on social and academic relevance. (Initiate 1.1. Level 3) high autonomy, medium complexity) 2 Perform sta s cal and geographic analysis using QGIS tools and methodologies. You will demonstrate this by formulating key conclusions for a given city in the Netherlands. (Research 6.2. Level 3) high autonomy, medium complexity). 3 Iden fy pa erns and trends in spa al data, interpre ng the results to deliver meaningful insights with high complexity due to your chosen topic/interest in the Built Environment. (Research 6.3. Level 3) high autonomy, medium complexity). 4 Posi on GIS and geodata analysis individually within the context of the Built Environment domain, demonstrating a personal understanding of its applications in urban planning and development through the development of a poster in which you explain a chosen topic/subject/interest in a selected city in the Netherlands from an integrative approach. (Specify 3.1. Level 2) medium autonomy, medium complexity). 5 Communicate your conclusions using text, maps and graphs, ensuring a clear and compelling presentation of data using a (pre-structured) a1 poster. (Communicating 8.3. Level 2) average autonomy, average complexity). 53

Content

In this study component the following content is covered: - GIS theory - Spa al analysis - Sta s cs - Communica on tools - Repor ng

Assessment

Assessments Weightage Mark AI Level

Individual assignment 100% Numerical mark 3

Breda University
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PRO2B Smart Mobility

OSIRIS code: BBE2.BSMA-1PR3

Study load: 5 EC (=140 hours)

Coordinator: Sjors Martens

Language: English

Summary

Self-driving Cars, Artificial intelligence, smart ovens, the Internet of Things; you've probably heard these terms get thrown around during your studies plenty of times. All these innovations in the city are grouped under the header of Smart Cities: the innovative use of technology to increase efficiency, safety, sustainability and democracy in the urban system. However, use of technology does not necessarily benefit the planet or the citizen. Analyzing and distinguishing smart city projects on their debt to ethics, sustainability and responsibility allows you as a built environment specialist to contribute to the future of the city by guiding it towards more citizen centered systems. We will pursue what is smart in smart cities, focusing instead on the question "who is smart in the smart city". Apart from approaching smart development with a critical lens, the future should be regarded with similar suspicion as well. A BE specialist now has to navigate within broader smart city management that requires data skills, systems thinking, marketing and lobbying. This requires understanding the networks of stakeholders and what drives them to make decisions – their values. To get everyone's nose in the same direction regarding technology innovations, requires a critical professional. In this course, we will explore value based decision making, taking a stand in a stakeholder network, and organizing stakeholder interaction through the development of a board or card game. You will walk away from this course knowing how to play people in the smart city – because you can play games in more way than one.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Organise the main stakeholders and their rela ons within a self- selected existing project or pilot. For this, you will perform a stakeholder analysis using a provided stakeholder matrix. (7.2; Medium Autonomy & Complexity) 2 Iden fy values within exis ng innova on projects and define personal values within a self-designed project. (1.1; Low autonomy & High Complexity) 3 Cri cally assess innova on cycles and promises of provided and self-selected projects or pilots, through the innovation curve model. This requires a professional positioning as a smart city manager. (9.3; Medium Autonomy & Complexity) 4 Develop a value-driven innova on project in smart mobility through a provided scenario-based game methodology. (3.1; Medium autonomy & low complexity) 5 Substan ate design choices, stakeholder involvement, and future actions of a self-made scenario-based game. (2.2; Medium Autonomy & Complexity) 6 Interpret playtest data in order to reflect on smart mobility scenario applications in a defined context. This interpretation will address 55 mobility value and -ethics. (6.3; Medium Autonomy & Complexity)

Content

In this study component the following content is covered: - Researching state of the art innova ons in smart ci es; - Managing the key stakeholders in smart city management; - Cri cally assessing the management of innova on in the city; - Ethical & value based approach to stakeholder analysis; - Board/Card game/Role play game design; - Games as playful participation methodology; - Focus Group Interviews

Assessment

Assessments Weightage Mark AI Level

Group assignment 100% Numerical mark 4

Breda
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PRO2B Regional Planning

OSIRIS code: BBE2.BREP-1PR3
Study load: 5 EC (=140 hours)
Coordinator: Stephen Narsoo
Language: English

Summary

Regional planning deals with the efficient placement of land-use activities (zoning), infrastructure &- economic development, management of natural resources for sustainable settlement growth across a larger area of land than an individual city or town. We can thus define regional planning as the integrated management of a spatially bounded area, strengthening integrated development encompassing ecological principles and economic growth. This PRO module examines what regional development is, the types of regions that exist and the relationship between regional planning and more conventional land use planning, stressing the need for regional development accompanied with the functioning and coordination of government at multiple scales (metropolitan to local scale) while preparing the regional plan. The module covers the experiences of Regional Planning & Development both from the Global North and South.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Students will recall basic concepts of land value capture through theory based exam; 2 Students will foster inter-cultural understanding by proposing project/programme elements that align with and support the cultural values and traditions of the Sierra Nevada Native American community, ensuring that the revitalization efforts are culturally sensitive and sustainable.

Content

In this study component the following content is covered: - Understanding of regional planning and development: regions as an important entity for regional development and planning, history and evolution of regional plans, types of regions: formal, functional and planning region; - Focus on metropolitan development and planning: what is a metropolitan region? Major metropolitan regions in the world, metropolitan issues and challenges from developed and developing societies; - Case study: implication of regional (metropolitan) development and planning: cities and metropolitan planning in the Netherlands, metropolitan planning.

Assessment

Assessments Weightage Mark AI Level Written exam 100% Numerical mark 1

PRO2B Landscape

OSIRIS code: BBE2.BLAN-1PR3

Study load: 5 EC (=140 hours)

Coordinator: Michiel Mulderij

Language: English

Summary

"I find it striking that the quality of the urban habitat of homo sapiens is so weakly researched compared to the habitats of gorillas, elephants, and Bengal tigers and panda bears in China...you hardly see anything on the habitat of man in the urban environment." Jan Gehl In this learning component students will learn to read geomorphological, natural, and cultural underlayers to understand the make-up of the living environment they work on. They will experience how these underlayers can inform design on various scales.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Formulate the context of a landscape in the Netherlands, based on provided literature. You will demonstrate this by interpreting landscape layers. 2 Provide a substan ated answer to the ques on of how a landscape system works, by overlaying various landscape layers (analyzing), using demonstrated methods. 3 >Communicate your analysis process and outcomes in a target- oriented way, based on given and independently sourced best-practice examples. You will demonstrate this by compiling your findings in a well-documented and self-explanatory analysis booklet.

Content

In this study component the following content is covered: - Geomorphology; - Ecosystems; - Archetypical cultural landscapes; - Archetypical settlement patterns; - Regional landscape design; - City scale landscape design; - Local landscape design.

Assessment

Assessments Weightage Mark AI Level I

Individual assignment 100% Numerical mark 2

PRO2D Participation in Practice

OSIRIS code: BBE2.DPAR-1PR4

Study load: 5 EC (=140 hours)

Coordinator: Loek Hellebrekers

Language: English

Summary

This module focuses on the user of the physical living environment in a residential area: the residents. In what ways can they themselves participate in the development of a liveable neighborhood? Students are introduced to different participation methods and learn to apply them in practice. Together with residents and other stakeholders, they look for tools that they can use themselves.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Understand the complexity of participation within spatial projects and processes and identify, analyze and define an issue or task that is relevant to society and/or the profession. (1.1) 2 Choose a participation tool that is suitable for the intended purpose. (6.2) 3 Communicate purposefully and in a target group-oriented manner, showing that you are aware of the environment and your role and position in it. (8.1) 4 Focus on interaction and cooperation in order to apply participation within the spatial domain. (8.2) 5 Communicate purposefully with a view to knowledge and opinion formation and/or decision-making. (8.3)

Content

In this study component the following content is covered: - Participation methods at different scale levels; - In-depth stakeholder analysis; - Application of participation methods to a specific case (neighbourhoud level); - Target group-oriented use of communication tools; - Reflection and evaluation of applied participation method(s).

Assessment

Assessments Weightage Mark AI Level

Group assignment 100% Numerical mark 2

PRO3D Design & Construct

OSIRIS code: BBE3.DDEC-1PR6

Study load: 5 EC (=140 hours)

Coordinator: Joost van de Pas

Language: English

Summary

"This module is the most realistic one of the whole educational programme." "Now I understand the importance of proper designing and Project work." These are just two reactions of students and graduates of our education. This module deals with a realistic case from the municipality of Breda, where the public domain (space/infrastructure, etc.) needs to be changed. The challenges are plenty: designing and repurposing public space, designing functional infrastructure, weighing expected cost with desired/required quality, etc. How do you tackle functional and practical design objectives according to specifications, in cooperation with various specialisms, with each person having their own project-role to produce a coherent total concept that the/your client will want to choose over that of your competition? A complete challenge you will not easily forget! The product, a total spatial concept, of your project group has to compete with that of other groups to ultimately obtain the order. You are in to win it. This module is for deepening and broadening your Design skills. It will also teach you how to combine these with some general (civill) engineering parts to get a feeling for the realisation phase.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Understanding the way of working within a larger project: You demonstrate this with a detailed Plan of Approach. (Managing 7.1, Level 3 high independence, high complexity) 2 Crea ng and producing various parts of the project: You demonstrate this with a phasing plan and/or design. (Designing 2.1, Level 3 high independence, high complexity) 3 Understanding different types/forms of contact between clients and advisors: You demonstrate this by using various types or forms of (in)formal contact with clients and advisors. (Level 2 medium independence, medium complexity) 4 Collabora ng both internally within the project team and externally with the client: You demonstrate this through collaboration documents and oral presentations (or pitches) or written documents (emails, letters). (Communicating 8.2) 5 Making confident choices within varying uncertainty margins based on expected costs and benefits: You demonstrate this by working out the chosen solution in detail from an integral approach and making project choices based on financial- economic feasibility, presented in a Trade-off matrix. (Specifying 3.1, Level 3 high independence, high complexity) 101

Content

In this study component the following content is covered: - Design of urban area; - Level separated junctions; - 3D design; - EMBO (Economically Most Beneficial Offer; EMVI); - BIM (Building Information Modelling and Management); - Staging, traffic and stakeholder management with operational (traffic) safety; - Contracting (different forms; also buying knowledge); - Tender process.

Assessment

Assessments Weightage Mark AI Level

Group assignment 100% Numerical mark 2

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PRO3C Mobility & Land Use

OSIRIS code: BBE3.CMOL-1PR6

Study load: 5 EC (=140 hours)

Coordinator: Paul van de Coevering

Language: English

Summary

Mobility and urbanization are intertwined on many and different dimensions. In fact, these seemingly separated worlds are more as one then you might expect. Therefore, planning for and interventions in the urban environment should be aligned thoroughly.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Identify the potential of integrated land use and transport strategies to promote sustainability and livability in neighborhoods (initiate 1.2). You demonstrate your understanding by creating a detailed outline for an individual article (level 3) high complexity and medium autonomy. 2 Collect and analyze literature and additional sources to provide substantiated answers to research questions on a specific topic of choice (Research 6.3). You will demonstrate this with an individual paper (level 3) high complexity and high autonomy. 3 Develop packages of measures and an integrated design to reduce car dependency and encourage sustainable mobility and livability in a complex case study (Design 2.1). You will demonstrate this in a group project (level 3) high complexity and average autonomy. 4 Substantiate the packages of measures and the design by the knowledge in the individual papers (Design 2.2). You will demonstrate this in a group project (level 3) high complexity and average autonomy. 5 Develop professional pitches, reports, and other forms of visual communication (Communicate 8.3). You will demonstrate this in a group project (level 3) high complexity and average autonomy.

Content

In this study component the following content is covered: - The mutual dependence between mobility and land use and the key role of accessibility; - Robust principles for urban compaction, mixing functions, multimodal/ inclusive design and accessibility planning; - Planning concepts like Transit Oriented Development, Bicycle Oriented Development, urban compaction, location policies and retail policies; - Daily Urban Systems and location selection processes (mobility and land use cycle); - Multimodal urbanization (balance between accessibility, economy and liveability); - Stakeholders, governance and planning processes; - Current challenges, like housing, urban transformation and downsizing of inner city infrastructure for car traffic.

Assessment

Assessments Weightage Mark AI Level

Individual assignment 50% Numerical mark 4

Group assignment 50% Numerical mark 4

Individual assignment Conditional P/F 4

PRO2D Academic Literacy & Research

OSIRIS code: BBE2.DALR-1PR4

Study load: 5 EC (=140 hours)

Coordinator: Diaan van der Westhuizen

Language: English

Summary

Research allows us to test ideas and assumptions in a structured way. It is for this reason that research, more specifically scientific research, develops a body of knowledge that is always refined, based on the rejection or confirmation of ideas and beliefs. Based on the knowledge you have gained in KB5 and the research skill line, this PRO module aims to build on those basics of good research in a formal approach and scientific manner. The study component introduces you to a process of acquiring, managing, evaluating, and reporting good quality research on a given topic. The intention is to work through a desktop research process that will improve your research management skills, writing and reporting skills: that you are able to investigate literature and sources and a systematic way and report back to a client, conference audience, or research community. Part of this process is to advise others about the quality of research conducted and make informed decisions about how this research can be applied, translated, or taken forward.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Outline research questions by narrowing down your field of interest within the context of a research brief. You will do this by developing a relevant abstract and annotated bibliography. 2 Demonstrate an understanding of the research project brief and willingness to collectively contribute to a group mind map. 3 Evaluate and assess the quality of research approaches by outlining your research storyline in a self-steering manner. 4 Demonstrate this with an analysis of a literature study and a detailed table of contents 5 Structure and organize your research contribution with convincing justification of the current literature as a draft literature review. 6 Modify and summarize your literature review using appropriate and effective academic style and writing through communicative means. 7 Communicate your outputs through a research report and poster exhibition. 84

Content

In this study component the following content is covered: - Scientific literature research approach; - Academic reading & writing styles; - Setting up scientific research project; - Report structuring; - Reliability and validity of literature, and data sources; - Research strategies & planning; - Effective and correct referencing style (APA); - Applying quantitative and qualitative knowledge to inform empirical discoveries; - Functions of research (observing, generalizing, reasoning, re-evaluation).

Assessment

Assessments Weightage Mark AI Level
Group assignment 30% Numerical mark 2
Individual assignment 70% Numerical mark 2

Breda
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Block D

LAB2D Re-image the Hub

OSIRIS code: BBE2.DLB2-1

Study load: 5 EC (=140 hours)

Coordinator: Rana Habibi

Language: English

Summary

LAB 4 - High Density Urban Hub, is a project for second-year students from the bachelor Built Environment (BE) International track at Breda University of applied sciences in the Netherlands. As a 2nd-year student in the Urban Design Specialization, drawing on your existing knowledge of the built environment (Lab 02)and regional development (Lab 03), this lab aims to elevate your understanding to the scale of detail design. We'll explore the challenges and opportunities of high-density urban development, delving into various design strategies and techniques to foster livable and sustainable urban environments. In this lab, we'll delve into higher-density urban development, a crucial aspect of today's expanding cities. Creating more living spaces within existing urban environments becomes imperative as populations grow. At least in The Netherlands, we have a major challenge to build over 950.000 houses till 2030. In 14 significant projects, 200.000 houses will be built within the next decade. Some of them will be built in an existing urban environment, creating high-density urban hubs. Urban designers and planners face the challenge of finding innovative and sustainable solutions to accommodate this demand. The project site is located in the Haven- Stad area. Haven-Stad includes 12 projects, and we focus solely on Melkweg.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 You ensure that your strategies and visions align with the demands of density. (Specify 3.2 Level 2) 2 You justify your vision based on the density, urban typologies and sustainable aspects of the site by developing your master plan and physical model. (Design 2.2 level 2) 3 You are focused on interaction and cooperation to get everyone involved and engaged through group-working and conducting collective project. (Communicate 8.2 level 2) 4 You communicate in a professional, purposeful and a target-oriented way matching the expectations of your audience. (Communicate 8.3 level 2)

Content

In this study component the following content is covered: Mobility - In Block 2, students apply this knowledge to develop concrete designs and plans. They'll integrate mobility plans into their masterplans, focusing on networks, shared mobility solutions, and parking balance calculations to ensure functional and sustainabl Urban Design - In Block 2, students will apply their vision by translating density into spatial form, working with typologies for built and open spaces to shape functional and aesthetic environments. They will also develop detailed drawings and visualizations of public 71 Urban Planning - In Block 1, students will gain foundational skills to support strategic urban planning. They'll learn to conduct stakeholder and trend analyses to understand key influences and actors, apply multi-criteria analysis and variation studies to compare plannin

Assessment

Assessments Weightage Mark AI Level

Individual assignment 100% Numerical mark 1

PRO2D Energy Transition

OSIRIS code: BBE2.DENT-1PR4

Study load: 5 EC (=140 hours)

Coordinator: Rana Habibi

Language: English

Summary

Energy Transition Sustainability is a school of thought that includes a multi- disciplinary discourse such as economy, sociology and built environment. Global warming, radical climate changes, cause massive impacts in our socio- economic situations and therefore our built environment in upcoming years. According to many scholars and practitioners' sustainability is an approach that requires constant actions from various experts, stakeholders, decision makers and users of space. Hence, as a built environment expert we must take into the account, the different aspects of sustainability in our spatial planning and design of future cities, in various scales. Hence, the pro-module of sustainability mainly focuses on "how do we as a built environmental expert designate a future-proof neighborhood?" While we will explore the different aspects of sustainability within spatial planning, design and mobility in different scales, we will be working with different metaphors such as metabolism and energy consumption as a digestive system of the cities and will explore how different flows of energy can effect the rate of sustainability within our spatial decisions. You will receive several interactive lectures and activities within the class which will give you insight in different aspects of innovative urban management and a sustainable spatial organization/ design of a built environment. You can find more details about the lectures and the teaching methodologies in the lecture series section. The last five weeks of the semester will be allocated to the assignment. As an assignment you will receive a neighborhood called "Spaanse Polder" in Rotterdam, we will specifically focus on neighborhood scale and will examine how a neighborhood can be equipped and sustained for future. Therefore, you will be asked to provide a sustainable environmental plan based on the energy supply and consumption of the neighborhood and propose an innovative urban management and user behavioral changes for future maintenance of the neighborhood.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 You develop future-proof principles for a business park neighborhood. You demonstrate this by analyzing the given site, providing strategies and performing energy calculations for the new proposal. (Design, level 2, medium complexity, medium independenence) 2 You chose a visual podcast as you research methodology to elaborate on your research about the Energy Transition discussion. You will demonstrate this by analyzing the given projects and literature reviews in the form of a video. (Research, level 2, medium complexity, medium independenence) 3 You develop a comprehensive sustainable strategy that takes into account the economic, environmental and social aspects of urban development. You will demonstrate this by participating in the Climate 73 Game and the decision-making process and series of workshops. (Specify, level 2, medium complexity, medium independenence) 4 You are focused on interaction and cooperation to get everyone involved and engaged. You demonstrate it by signing and agreement form and have a reflection afterwards. (Communication, level 2, medium complexity, medium independenence)

Content

In this study component the following content is covered: - Formulating future-proof solutions in the field of sustainability at neighborhood level, in which you make integral proposals; - Analyzing existing (digital) spatial plans; - Embedding sustainability proposals in the Environmental Plan; - Identifying required behavioral changes aimed at various stakeholders in sustainability at

neighborhood level; - Compare and discuss four major concepts related to the global energy transition. - Calculate energy demand and supply of renewal energy at a neighbourhood level

Assessment

Assessments Weightage Mark AI Level

Group assignment 50% Numerical mark 3

Group assignment 50% Numerical mark 3

PRO3C Area Development

OSIRIS code: BBE3.CADV-1PR6

Study load: 5 EC (=140 hours)

Coordinator: Ellen Stoppels

Language: English

Summary

Area development is an integral process. Many actors are involved. Those actors have common goals, but also their own specific goals. A good cooperation between all those actors is of great importance for a succesfull area development. In earlier study components, especially in KB6, this has allready been handled with. Especially the role of advisory organizations and municipalties has been steressed. In this study component this will be extended. Attention will also be focused on end users, real estate developers and real estate exploiters. Central issues are finance and ways of cooperation.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Specify 3.1 You detail the chosen solu on from an integral approach, taking into account other disciplines and preconditions: technically, legally and economically feasible as well as socially responsible and socially inclusive. 2 Manage 7.1 You manage and facilitate the process/project with the aim of creating value. 3 Manage 7.2 You deal adequately with risks and clarify and monitor the interests of all people and parties involved. 4 Communicate 8.2 You are focused on interaction and collaboration so that everyone is involved and engaged. 5 Communicate 8.3 You communicate purposefully with a view to forming knowledge and opinions and/or decision-making.

Content

In this study component the following content is covered: - Environment management - Ways of cooperation - Project management - Real estate exploitation - Calculation of land development - Calculate and design - Participation

Assessment

Assessments Weightage Mark AI Level
Group assignment 100% Numerical mark 2

PRO2D Traffic & Transport Modelling

OSIRIS code: BBE2.DTTM-1PR4

Study load: 5 EC (=140 hours)

Coordinator: Elly Khademi

Language: English

Summary

Transport planning operates at three levels: macro, meso, and micro. At the macro level, planning focuses on large-scale, long-term strategies, such as national or regional transportation networks, aiming to optimize connectivity and accessibility across vast areas. The meso level deals with intermediate- scale planning, such as city or metropolitan area transportation systems, addressing issues like traffic flow and public transit efficiency. The micro level involves detailed, localized planning, such as street design and pedestrian pathways, ensuring safety and convenience for individual users. Modelling is crucial at all levels as it allows planners to simulate different scenarios, predict outcomes, and make informed decisions to improve overall transportation efficiency and sustainability. In this module you will be introduced to Micro and Macro models. Micro models simulate traffic on a crossing scale - you can see individual vehicles driving over a network you created according to pre-set parameters. Macro models rely on great mathematical input to be able to predict effects on a network when a change occurs (like a closed off exit). The two types of models each have their own application and limits. In this module you will use them to evaluate a more complex traffic light regulation you will design, and to give advice on a larger infrastructural project.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Design a traffic simula on model from provided data in the VISSIM program. You demonstrate this by means of a tutorial network and executing a network assignment. (design, Low autonomy & medium complexity) 2 Define the basic knowledge of tradi onal (4-step) macro models and formulate them in a model. You demonstrate this by forming the data provided into a model on the basis of self-chosen calculation rules. (initiate; Medium autonomy & complexity) 3 Explain the differences between micro and macro transport models and elaborate the selection procedure of the type of model. You can demonstrate this by setting up a synthetic model study. (specify, Medium Autonomy & complexity) 4 Formulate and report a model study based on model choice, policy preferences, and traffic management interventions. You can demonstrate this by carrying out a model study for the traffic situation of Breda in VISSIM or VISUM. (research, Low autonomy & high complexity) 5 Test the results of a micro and macro model study on the basis of policy frameworks and traffic management standards. You demonstrate this with a content reflection in the model study report. (manage project and processes, Medium Autonomy & complexity) 76

Content

In this study component the following content is covered: - Microsimulation theory and software (VISSIM) - Macrosimulation theory and software (VISUM) - Vehicle-Dependent traffic light regulations - Detector and Processing software (COCON, ATB)

Assessment

Assessments Weightage Mark AI Level

Individual assignment 50% Numerical mark 1

Group assignment 50% Numerical mark 1

PRO2D Tactical Urbanism

OSIRIS code: BBE2.DTAC-1PR4

Study load: 5 EC (=140 hours)

Coordinator: Tomas Mahu

Language: English

Summary

The built environment of urban areas is generally strictly regulated. However, cities still continuously have to deal with issues such as liveability, safety and sustainability. Tackling such issues is often approached through large scale interventions. In contrast, Tactical Urbanism (TU) is an alternative approach in tackling urban issues. It does so through short term and flexible interventions aimed at exploring long term solutions. TU concerns low budget, temporary, spontaneous and low risk interventions, intended to improve neighborhoods and public space in cities in order to make them more liveable, sustainable and pleasant. TU centers on action and is also known as Do It Yourself (DIY) urbanism, Planning-by-Doing, Urban Acupuncture and Urban Prototyping. It concerns either governmental or citizen initiatives for neighborhood improvement by short term, low budget and scaleable interventions to catalyze long term change. The module will focus on the question how an urban problem can be solved through a TU- intervention.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Develop interventions that could lead to future-proof solutions to improve the liveability, safety and sustainability of neighbourhoods and public space in cities. You demonstrate this by setting up interventions for several urban (design 2.1 level: average complexity, average autonomy). 2 Prepare implementation of short term, low budget and scalable interventions to catalyze long term change. You demonstrate this by a detailed plan of approach for. (implement 4.1: average complexity, average autonomy). 3 Perform implementation actions necessary to ensure that the result demonstrably meets the specifications. You demonstrate this by a presentation including pictures, inventory of results, an evaluation and a reflection report. (implement 4.2, level: average complexity, average autonomy). 4 Professionalise 9.2 You consider your own actions and their results and show that you can learn from them

Content

In this study component the following content is covered: - Urban issues, both social and physical - Tactical urbanism - Connective communication

Assessment

Assessments Weightage Mark AI Level

Group assignment 50% Numerical mark 4

Individual assignment 50% Numerical mark 4

PRO3D Trends & Transitions

OSIRIS code: BBE3.DTRT-1PR6

Study load: 5 EC (=140 hours)

Coordinator: Maurizio Scarciglia

Language: English

Summary

In 1896, the first two cars were introduced in the Netherlands. Forty years later, the Dutch roads served 100.000 cars, and today, just 80 years later, we have already more than 8.3 million private cars in the Netherlands. It is evident that the car has completely disrupted the use of the street and the way we plan our cities. Horses were displaced. Pedestrians and cyclists were pushed to the margins. The gradual increase in car ownership is one of the most prominent examples of a trend causing major transitions in our built environment. However, a similar story can be told about first the exodus to the suburbs and later the gentrification of our cities, the emergence of remote working, increasingly smaller family nuclei, and the list goes on. In this module, you will explore trends in our society that have caused transitions in our BE. You will also study current trends and reflect on how these trends may affect our BE in the future. This knowledge and understanding will help you as a mobility specialist, urban planner, and urban designer alike to better grasp and respond to the constant changes in our society.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 1.1 You identify, analyze, and define an issue or task relevant to society and/or the profession. 2 1.2 You formulate the context, the preconditions, the requirements, and the objective to underpin a well-founded decision or action to be taken. You analyze historic and spatial data (GIS) to identify historic transitions in society and the built environment; 3 6.1 You formulate and validate a research question based on a task that is relevant to society and/or the profession. You extrapolate historic transitions in society and the built environment to identify current trends and societal urgencies; 4 6.3 You collect and analyze data to provide substantiated answers to the question. 5 9.3 You take a critical view of the professional culture and the ethical and social standards of the profession 6 9.4 You develop a good image of your personal and professional identity. 103

Content

In this study component the following content is covered: - Data collection from various sources; - Data processing; - Monitoring social trends and societal urgencies; - Data analysis techniques; - Data visualization; - Storytelling; - Spatial strategies.

Assessment

Assessments Weightage Mark AI Level

Individual assignment 100% Numerical mark 2

PRO2D/3C Visualisation: Beyond Blueprints

OSIRIS code: BBE2.DVBB-1PR4 / BBE3.CVBB-1PR6

Study load: 5 EC (=140 hours)

Coordinator: Tomas Mahu

Language: English

Summary

Welcome to Beyond Blueprints, where urban, mobility and spatial plans come to life through visual arts, atmospheres, and stories. In this module, we shift the focus from traditional blueprints and technical drawings to a more creative and expressive way of visualizing. Here, we go beyond the blueprints; we aim to establish a profound connection between your vision as a designer and the emotions of those who experience these plans. Discover how Beyond Blueprints bridges the gap between the world of (urban) planning and the art of storytelling, and experience the harmony between functionality and aesthetics in the built environment. Welcome to a new dimension of urban development, where imagination leads the way.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Master a graphic design program at a professional level by demonstrating the necessary skills. (2.1 Design – level 2 - average complexity and high independence). You will demonstrate this with multiple visuals. 2 Develop multiple ideas about how certain concepts can be visualized in an innovative and substantiated way (for example; by effectively communicating them to others). (2.2 Design – level 2 - average complexity and high independence). You will demonstrate this with multiple visuals. 3 Visualize a specific topic or theme in a unique way using still images, so that even a layman understands what is happening or becomes interested in knowing more. (2.2 Design – level 2 - average complexity and high independence). You will demonstrate this with multiple visuals. 4 Choose the right communication tools to create a powerful story using images, with which you can impress, convince or shock your audience (at a professional level for the intended communication). (8.1 Communicating – Level 3 - High Complexity and High Independence). 5 Using the right software that fits the content and understanding why certain applications do or do not work. (8.1 Communicating – Level 3 - High Complexity and High Independence).

Content

In this study component the following content is covered: - Choosing and creating the right content i.r.t. a plan/design/idea; - Working with Adobe CC; - Working with 3D visualization programs; - Working with Render programs. 82

Assessment

Assessments Weightage Mark AI Level

Individual assignment 100% Numerical mark 4

Breda University OF APPLIED SCIENCES

PRO3D Environmental Psychology & Sociology

OSIRIS code: BBE3.DENV-1PR6

Study load: 5 EC (=140 hours)

Coordinator: Karina Iurkova

Language: English

Summary

Environmental psychology and urban sociology are related fields that both study the interaction between individuals and groups and their surroundings, but they have distinct focuses and areas of emphasis. The field of Environmental Psychology primarily examines the psychological and emotional relationship between individuals and their physical environment. It delves into how people perceive, interact with, and are affected by the physical aspects of cities, such as architecture, green spaces, noise, and pollution. Urban Sociology, on the other hand, is a subfield of sociology that specifically concentrates on the social structures, processes, and dynamics within urban areas or cities. It looks at the collective experiences, social structures, and processes that shape urban life. This PRO module dives into foundational themes of both disciplines which are interconnected through a continuous assignment with iterative cycles. The course's structure is based on student-led lectures, discussions, workshops, literature and site analysis, and iterative peer evaluation sessions and feedback sessions. The course provides a comprehensive and multidisciplinary perspective on the complex relationship between people and the urban environments they inhabit. The students will continuously work on creating an assessment strategy, conducting analysis of the chosen project location through the lens of specific personas and coming up with design and policy solutions identified through their investigation. They will also analyse the city's and district's policies and visions and status of societal networks to feed in and modify their proposed solutions and designs so that they not only correspond to the individual needs of their personas but also to the city and society as a whole.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Define the preconditions for future urban and social developments through understanding the challenges and ambitions of the project site and wider city's context, and perspectives of different socio-economic groups on their surroundings. You will demonstrate this by analyzing experiences and needs of chosen personas using different methodologies (desk research, interviews, observations, etc.), analyzing city's development history and future ambitions, and visiting the project site. (1.1 Initiate) 2 Formulate the assessment criteria and the analysis strategy for the chosen project site by critically looking at the relationship between the built environment, foundational theories and concepts, and perceptions of the chosen personas. You will demonstrate this with methodological choice of assessment criteria, identifying their relevance for the personas with supporting arguments based on personas analysis, and the ranking structure. (6.3 Research) 105 3 Conduct assessment based on defined criteria to underpin well-founded recommendations and actions to be taken for developing a design/plan strategy. You will demonstrate this with a complete assessment and comparisons based on chosen personas, and derived conclusions and design and planning guidelines for site development vision. (1.2 Initiate) 4 Create a development proposal that meets contextual factors and responds to the needs of diverse socio-demographic groups. You will demonstrate this with well-argued (re)redevelopment plan/design for the project site, positive impact definition in relation to the core topics of the course and assessment conclusions. (2.1 Design) 5 Critically evaluate and justify proposed plans in the light of larger sociological trends and substantiate the relevance of your design and plan choices for diverse socio-economic groups. You will demonstrate this with thematic reflections on the proposed plan/design based on the selected urban sociology topics, and fictional yet well-grounded personas interviews in the newspaper article. (2.2 Design)

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Content

In this study component the following content is covered: - Foundaonal concepts of environmental psychology and their influence on urban plans, designs and policy decisions; - Assessment of urban areas and idenficaon of differences in interactions between various societal groups and the surrounding environment; - Societal trends and evoluon and structure of the urban community as a socio-spatial system; - Creaon of integrated sustainable and inclusive soluons based on the theoretical and practical knowledge to specific context; - Adaptaon of the design strategies focusing on increasing well-being and positive environmental impact to the city's societal trends, such as gentrification, segregation, and the shadow economy, to address the social factors underlying urbanization and

Assessment

Assessments Weightage Mark AI Level

Individual assignment 100% Numerical mark 3

PRO3D Entrepreneurship

OSIRIS code: BBE3.DEPS-1PR6

Study load: 5 EC (=140 hours)

Coordinator: Stephen Narsoo

Language: English

Summary

In the work field, you often encounter hiring consultancy firms, working for a consultancy firm and/or investor, or starting a consultancy firm yourself. An understanding of entrepreneurship is therefore important. It gives you a better grip on the processes that take place or helps you to work on a business case yourself. This module will address current issues and business model Canvas. You are going to apply the basic principles of entrepreneurship to a concrete task, the central idea being to approach this problem from the perspective of an entrepreneur. You will deal with the (professional) content, as well as business and financial aspects.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 You will discover and develop your personal intra-/entrepreneurial skills. 2 You set up a business model, from the perspective of new concepts related to the knowledge domain (LG or BE) and/or your own area of interest.

Content

In this study component the following content is covered: - Entrepreneurship - Current spatial issues - Business model Canvas - Presentation

Assessment

Assessments Weightage Mark AI Level

Individual assignment 30% Numerical mark 4

Group assignment 70% Numerical mark 4

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PRO3D Architecture

OSIRIS code: BBE3.DARC-1PR6

Study load: 5 EC (=140 hours)

Coordinator: Luiz Marcos De Carvalho Filho

Language: English

Summary

In this study component, you will delve into the world of architecture, exploring the journey from hand drawings and representation to conceptual models, and ultimately, to understanding design principles, composition, and the ideologies behind the design of emblematic houses.

Unit Learning Outcomes

Upon completion of this study component you are able to: 1 Use sketches and other hand drawing techniques to represent the urban environment and architectural elements. You will demonstrate this in a portfolio. Communicate 8.1 (medium complexity, medium autonomy) 2 Represent an architectural concept through model-making, exploring several methods. You demonstrate this in three conceptual models. Communicate 8.1(medium complexity, medium autonomy) 3 Explain building composi on and program distribu on by analysing an emblematic house. You will demonstrate this in a series of analytical drawings and text. Initiate 1.2 (medium complexity, medium autonomy) 4 Explore the knowledge acquired in redesigning a simple standard commercial house. You will demonstrate this in drawings and text. Design 2.2 (medium complexity, high autonomy)

Content

In this study component the following content is covered: - Hand drawing techniques; - The use of scale models; - How to express an architectonic concept through hand drawing and models; - An introduction to architectonic drawing (blueprints); - Learning from emblematic projects and the way of working of influential architects.

Assessment

Assessments Weightage Mark AI Level

Individual assignment 100% Numerical mark 4

Games

Leisure & Events

Tourism

Media

Data Science & AI

Hotel

Logistics

Built Environment

Facility

CREATING MEANINGFUL EXPERIENCES

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