Breda University of Applied Sciences

Academy: ABEL

Program: Built Environment
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Contactpersoon

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1. Important dates

25 August, 2025	Introduction week & International Kick-off
1 September, 2025	Start of Semester 1 courses
13 October – 17 October, 2025	Autumn break
22 December – 4 January, 2026	Winter break
30 January, 2026	End of Minor
2 February, 2026	Start of Semester 2 courses
16 February – 20 February, 2026	Spring break
27 April – 1 May, 2026	May holiday
3 July, 2026	Last day of Semester 2 courses

2. Program

	Code	Title	ECTS	Semester
Year 2 - S1				
	BBEE2.LB3.CR-01	LAB 3 – City and Region	10	1
	BBEE2.KB6.MF-01	KB6 Management & Finance	5	1
Choose 1	BBEE2.UD2.SS-01	Specialization 2: Urban Design	5	1
	BBEE2.MO2.MP-01	Specialization 2: Mobility	5	1
	BBEE2.UP2.HL-01	Specialization 2: Urban Planning	5	1
Choose 2	BBEE.P3.REPL-01	Profiling: Regional Planning	5	1
	BBEE.P3.SMAR-01	Profiling: Smart Mobility	5	1
	BBEE.P3.LADE-01	Profiling: Landscape Design	5	1
	BBEE.P3.TAUR-01	Profiling: Tactical Urbanism	5	1
Year 2 - S2				
	BBEE2.LAB4.HH-01	LAB 4 – High Density Urban Hub	10	2
Choose 1	BBEE2.UD3.SPS-01	Specialization 3: Urban Design	5	2
	BBEE2.MO3.MS-01	Specialization 3: Mobility	5	2

	BBEE2.UP3.WM-01	Specialization 3: Urban Planning	5	2
Choose 2	BBEE.P4-6.PRP-01	Profiling: Process & Participation	5	2
	BBEE.P4-6.DEC-01	Profiling: Design & construct	5	2
	BBEE.P4-6.ATM-01	Profiling: Advanced traffic modelling	5	2
	BBEE.P4-6.ADV-01	Profiling: Advanced Visualization	5	2
	BBEE.P4-6.ARC-01	Profiling: Architecture	5	2
	BBEE.P4-6.SUB-01	Profiling: Sustainability in BE	5	2
	BBEE.P4-6.TRT-01	Profiling: Trends & transitions	5	2
	BBEE.P4-6.MOL-01	Profiling: Mobility & land use	5	2
	BBEE.P4-6.ALR-01	Profiling: Academic literacy and research	5	2
Year 4 - S1				
	ACS.20MINOR	Minor: Crowd Safety in Hubs and Events	30	1
	BCW.25MINOR	Minor: The art of change in an era of transformation	30	1
	BUR.20MINOR	Minor: International urban redevelopment	30	1
	Total ECTS	**Semester**		

Breda University OF APPLIED SCIENCES

Built Environment

Year 2

Semester 3

OSIRIS-code:	BBEE2.KB6.MF-01
Course name:	KB6 Management and finance
Study load:	5 EC (=140 hours)
Coordinator:	Marcel van Wietingen
Lecturer(s):	Stephen Narsoo, Marcel van Wietingen
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.*

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
	I	I	I						

Learning objective(s):

Upon completion of this study component you are able to:

	Competency
1. understand different forms of projectmanagement and to apply them;	*Research*
2. understand and apply different elements like money, risks, organiszation, time, communication and quality.	*Research*
3. understand the relation between theory and practice;	*Specify*
4. understand the difference in roles, both internaly and externally, within projectmanagement;	*Research*
5. make an inventory of all the financial aspects of spatial development and translate them into an overall calculation;	*Design*
6. construct and execute a complete calculation of a land development;	*Realize*
7. make a financial calculation of all types of choices within the planning- and designprocess.	*Realize*

Content description:

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.

Language:	English
Teaching activity:	Instruction and demonstration Group work Individual independent learning
Examination:	Group assignment 30% Written exam 70%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BBEE2.LB3.CR-01
Course name:	LAB3 City and region
Study load:	10 EC (=280 hours)
Coordinator:	Maurizio Scarciglia
Lecturer(s):	Zhan Goosen, Frank Jacobs, Rana Habibi, Elly Khademi, Tomas Mahu, Sjors Martens, Stephen Narsoo, Thomas Oorschot, Maurizio Scarciglia, Diaan van Westhuizen
Summary:	*Urbanization in the last decades has meant an esponential urban growth, so massive as to merge cities into entire regions. One of the most emblematic examples is the Greater Bay in China. Here a massive flow of migrants from rural China is transforming a neklace of cities around the Pearl River Delta into the biggest world metropolitan conurbation, estimated to soon host up to 100 millions ingabitants. This Lab will unable the collaboration between Planning students, mobility Studets 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.*

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
I					I		I	I	I

Learning objective(s): Upon completion of this study component you are able to:

	Competency
1. structure and execute an approach for a challenge in the Built Environment in a series of steps from problem analysis and definition to solution direction/vision, to plan/design;	*Research*
2. gather information and raw data using various research methods, analyze them and then interpret and draw conclusions from them;	*Research*
3. analyse existing policy and assess how implementation of it is progressing, as well as provide suggestions for next policy adjustments;	*Monitor, test and evaluate*
4. distinguish intercultural differences in urban and regional development, as well as trends and processes in urban and regional development;	*Initiate and steer*
5. work independently, systematically, innovatively, as well as show critical thinking skills, both in the group and individually;	*Manage and innovate*

	6. explain the role of the different specializations Urban Design, Urban Planning and Mobility, and work from that role within the interdisciplinary group in tackling integral urban challenges on the regional scale. Communicate from out the roles in two joint specialisms;	*Integral approach*
	7. use both academic and practical, spatial and cultural knowledge to base your strategy on, meaning you translate existing knowledge into practical strategies.	*Initiate and steer*

Content description:

In this study component the following content is covered:

- The relevance of the regional scale for urban development.
- The historical, spatial, socio-economic, demographic, and political 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.
- Migration from rural areas/left behind children/education/employment policies and social inclusion.
- Shenzhen-Hong Kong region; One Country two systems and the future of regional integration, political implications.
- Social and psychological implications of economic growth on society: entering capitalism.
- Water management/land reclamation/river design/pollution-sanitation/parks and natural reserves /pressure on agriculture/rural-urban fringes.
- Integrated Regional and urban Transportation (road, railway, metro, ferries, airport).
- Transportation poverty & Future sustainable mobility.
- Ethics and critical thinking by comparing Chinese and European cases.

Language: English

Teaching activity:
Group work
Individual independent learning
Student presentations

Examination:
Group assignment 50%
Individual assignment 25%
Individual assignment 25%

Mark: Marks, F, MO

Required literature: --

Required other materials: --

OSIRIS-code:	BBEE2.PPD3-01
Course name:	Personal & Professional Development 3
Study load:	5 EC (=140 hours)
Coordinator:	Suzanne van Rijswijk
Lecturer(s):	Frank Jacobs, Suzanne van Rijswijk, Martijn Roosen, Kevin Vermeulen

Summary:

Your personal and professional development is the common thread throughout your studies for BE. Three things are central to this:
1. You will learn to shape your learning process in a self-directed way.
2. You will discover and determine which "type" of BE professional you are and want to become.
3. You will develop into a professional (co-)worker. You will record your development in your portfolio, and you will formulate future (learning) goals.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
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Learning objective(s):

Upon completion of this study component you are able to:

		Competency
1.	identify assignments, (type of) organisations and positions within the field that appael to you, both in the Netherlands and abroad;	*Manage and innovate*
2.	build your own professional network in a proactive way;	*Communicate and collaborate*
3.	identify and spread your more specific qualities, motivation and ambitions that you currently have for yourself as a future professional in the field;	*Manage and innovate*
4.	translate your qualities, motivation and ambitions into (learning) goals and concrete study choices up to and including the work placement in semester 3.1 and a look ahead to the rest of the 3rd and 4th years (your first PDP: personal development plan).	*Manage and innovate*
5.	explaining your PDP and portfolio convincingly during an assessment, in which you show that you take increasing ownership of your personal and professional development;	*Communicate and collaborate*
6.	properly substantiate and present the choice of the profiling room (free elective) in your portfolio.	*Manage and innovate*

Content description:

In this study component the following content is covered:

- the building of your professional network;
- a motivation video;
- various workshops and guest lectures from the industry, especially aimed at preparation your work placement in year 3;
- portfolio and a PDP (personal development plan) with your plans and ambitions for your PRO modules in semester 4 and your internship
- acquaintance with foreign projects and companies in the field during the international fieldtrip;
- Choice for filling in your profile room to develop your skills set as an addition to the curriculum and the choices made for the specialisation and PRO modules. The profiling room can be filled in with your own proposal, to be submitted to your study coach.

Language:	English
Teaching activity:	Instruction and demonstration Individual independent learning Formative assessment
Examination:	Portfolio assessment 100%, on condition that the Edubook assignments have been made and a process book is completed.
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	License Edubook (already purchased at PPD in Year 1)

OSIRIS-code: BBEE2.MO2.MP-01 **(specialisation)**

Course name: MO2 Mobility patterns and data

Study load: 5 EC (=140 hours)

Coordinator: Elly Khademi

Lecturer(s): Hossein Dashtestaninejad, Mark van Eijk, Elly Khademi

Summary: *In this mobility specialisation module, we will investigate the relationship between individuals' travel behaviour based on individuals' socio-economic characteristics, spatial distribution of activities and supply and demand in transportation. We identify factors and measures that effectively influence travellers' behaviour for a more green and sustainable areas. Through modelling, you will learn about the connection between supply and demand in order to steer and predict mobility patterns.*

In the demand part of this module, travel behaviour based on individuals' characteristics will be discussed and reviewed through the tool of transport Demand Management (TDM) to influence different travel patterns shaped by different stakeholders.

In the supply part of this module, you will learn about characteristics of different transport networks (private car, public transport, and active modes) and on a network level how governments try to plan and provide infrastructure and services to these networks to satisfy travellers' needs.

In the last part, you will learn about equilibrium of supply and demand for having a good transport system and how data and modelling helps this process as a supporting tool and helps government in planning and decision-making process.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
	I				I				

Learning objective(s): Upon completion of this study component you are able to:

	Competency
1. explain different travel patterns of different group segmentations (age, education, household composition, income, etc);	*Specify*
2. understand and explain Transport Demand Management (TDM) strategies as a tool to impact travel pattern of different group segmentations;	*Specify*
3. understand, and explain different transport networks (car, public transport, cycling and walking), their characteristics and alignment;	*Specify*

	4. implement a performance analysis of different transport networks using different mobility indicators;	*Monitor, test and evaluate*
	5. explain the equilibrium of supply and demand on the strategic level (Macro);	*Integral approach*
	6. interpret the different types of transport models;	*Specify*
	7. explain the Macro model of travel demand (4-step model);	*Research*
	8. Estimate a regression analysis to forecast the number of trips.	*Monitor, test and evaluate*

Content description:

In this study component the following content is covered:

- transport demand including travel behaviour for different group segmentations and Transport Demand Management (TDM) strategies and tools;
- transport supply including different types of transport network and their characteristics on strategic level and network performance indicators (accessibility, time, cost, safety, delay, etc.);
- Modelling including equilibrium of supply and demand, transport modelling and Macro models (4-step model of travel demand) and regression analysis (basic level).

Language: English

Teaching activity: Instruction and demonstration
Individual independent learning
Formative assessment

Examination: Written exam 70%
Individual assignment 30%

Mark: Marks, F, MO

Required literature: --

Required other materials: --

OSIRIS-code: BBEE2.UD2.SS-01 **(specialisation)**

Course name: Spatial Strategy

Study load: 5 EC (=140 hours)

Coordinator: Levi Lanser

Lecturer(s): Rana Habibi, Levi Lanser, Maurizio Scarciglia

Summary: *The goal is to learn, recognize and use ensemble typologies into the city, rural and in-between areas. The use of methods designing in regional scale and to understand the historical, political, economical and geographical context and strategies.*

While Toolbox Urbanism (SO1) focuses on the objects composing the built environment, this course will focus on the ensemble typologies of these objects on an urban and regional scale.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
I	I								

Learning objective(s):

Upon completion of this study component you are able to:

	Competency
1. identify ensemble typologies withing the following context: city, rural and in-between on different scales;	*Specify*
2. understand, recognize, use analysis and design methods on regional scale;	*Research*
3. develop an integral strategy for the development based on its historical, political, economical and geographical context;	*Integral approach*
4. establish the role of the urban designer within the built environment as a whole, through the use of ensemble typologies, design methods and strategy.	*Integral approach*

Content description:

In this study component the following content is covered:

- ensemble typologies withing various contexts (city, rural, in-between);
- analysis and design methodologies within various contexts (on regional scale);
- perspectives and strategies regarding (strategic approaches based on) culture, political context, governance, economic development, technology etc.

Language: English

Teaching activity:	Group work Individual independent learning Formative assessment
Examination:	Group assignment 70% Individual assignment 30%
Mark:	Marks, F, MO
Required literature:	Urbanism, Fundamentals and Prospects, Han Meyer, Maarten Jan Hoekstra, John Westrik, Boom uitgevers Amsterdam, Agust 2020, ISBN9789024425709, 1st press (ENG)
Required other materials:	--

OSIRIS-code: BBEE2.UP2.HL-01 **(specialisation)**

Course name: UP2 Housing and livability

Study load: 5 EC (=140 hours)

Coordinator: Zhan Goosen

Lecturer(s): Zhan Goosen, Frank Jacobs, Thomas Oorschot

Summary: *The aim of UP2 Housing and livability is to build on the knowledge of UP1 Spatial Development where students 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, liveable and sustainable development of residential areas in relation to permits and policy control.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
II		II							

Learning objective(s): Upon completion of this study component you are able to:

	Competency
1. identify causes and challenges related to urbanization;	*Specify*
2. demonstrate an understanding of urban demography (changing structure of human population);	*Research*
3. establish and explain arising challenges related to housing in urban areas (developed and developing countries) on an international scale;	*Research*
4. explain the relation between the demand for housing (related to demography) and supply of housing (the housing market);	*Research*
5. demonstrate an understanding of the dimensions of sustainability;	*Research*
6. identify relevant impacts concerning sustainability on a neighborhood scale based on the dimensions;	*Research*
7. define livability in the context of urban planning and establish influencing factors;	*Research*
8. establish the role of the urban planner within spatial planning as a whole and relevant topics (e.g. Housing, Policy & Control etc.);	*Research*
9. describe how leading policies may influence spatial development processes;	*Research*

10. demonstrate the ability to practically apply GIS. *Design*

Content description:	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
Language:	English
Teaching activity:	Instruction and demonstration Group work Individual independent learning
Examination:	Group assignment 40% Written exam 60%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BBEE.P3.REPL-01 **(profiling)**
Course name:	PRO Regional planning
Study load:	5 EC (=140 hours)
Coordinator:	Zhan Goosen
Lecturer(s):	Zhan Goosen, Stephen Narsoo

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.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
							II		II

Learning objective(s):

Upon completion of this study component you are able to:

	Competency
1. demonstrate relevant knowledge within the Built-Environment discipline with a prime focus on spatial planning of city and region;	*Initiate and steer*
2. identify and describe broader theories of Regional Development- City and Region interrelationships, Growth models, comparative advantages etc.;	*Research*
3. build analytical skills such as regional (demographic, economic, land suitability) analysis while preparing strategies for city and region;	*Integral approach*
4. demonstrate basic insight of Regional (Metropolitan) institutional structure comprising the multi-scalar governance (local to subnational to national) stakeholders as well as the challenges of governmental collaboration on a regional scale;	*Initiate and steer*
5. understand regional strategies and policies;	*Initiate and steer*

	6. understand the contexts and needs of different regional plans (metropolitan planning) across various parts of the world;	*Integral approach*
	7. conduct a case study of metropolitan planning covering the holistic understanding of the challenges and experiences of the case concerned.	*Integral approach*

Content description:

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 in the Global South, comparing the context from the cases in terms of the governance structure, legal framework and the priorities, the future of metropolitan development.

Language: English

Teaching activity: Instruction and demonstration
Group work
Individual independent learning

Examination: Group assignment 40%
Written exam 60%

Mark: Marks, F, MO

Required literature: --

Required other materials: Materials (articles, book chapters) will be provided during the course work

OSIRIS-code:	BBEE.P3.SMAR-01 **(profiling)**
Course name:	PRO Smart mobility
Study load:	5 EC (=140 hours)
Coordinator:	Sjors Martens
Lecturer(s):	Sjors Martens, Nina Nesterova

Summary:

Self-driving Cars, Artificial intelligence, Intelligent Cycling, urban air mobility, New public transport payment systems; you've probably heard these terms get thrown around during your studies plenty of times. All these innovations in the mobility systems are grouped under the header of Smart Mobility: the innovative use of technology to increase efficiency, safety, and flowthrough in the mobility system. However, use of technology does not necessarily benefit the planet or the traveler. Analyzing and distinguishing smart mobility projects on their debt to sustainability and responsibility allows you as a mobility specialist to contribute to the future of mobility by guiding it towards more citizen centered systems. We will pursue what is smart in smart mobility.

Apart from approaching smart development with a critical lens, the future should be regarded with similar suspicion as well. The mobility management of today is shifting towards a broader city management that requires data skills, systems thinking, marketing and lobbying. Taking responsible mobility decisions will require another - holistic approach, where mobility is not being one of the smart city silos, but an integral and inter-related part of the smart city management. As a Smart Mobility scholar it is therefore your job to become one of these city managers of the future, familiar with the associated parties, and functioning as intermediary between different societal, business, and civilian parties. Your training for the future begins here.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
		II						II	

Learning objective(s):

Upon completion of this study component you are able to:

	Competency
1. identify the main stakeholders and relations between them in smart city projects;	*Research*
2. interpret the smart mobility solutions on their approach to smart, sustainable, and responsible mobility;	*Specify*
3. compare a variety of state-of-the-art smart mobility projects on their approach the various elements and processes in management and design of the built environment and its logistics;	*Integral approach*

	4. develop critical thinking about proposed smart solutions, by critically evaluating mobility innovations from the perspective of their inclusivity and sustainability;	*Monitor, test and evaluate*
	5. independently formulate a plan of action that encourages smart mobility teams towards more responsible and sustainable solutions;	*Manage and innovate*
	6. investigate one's personal contribution to a network of future city management professionals.	*Design*

Content description:

In this study component the following content is covered:

- researching state of the art innovations;
- understand research presentations on city management and data science;
- position within a research and management network;
- selecting and criticizing research directions;
- collaboration in a project with external stakeholders;
- future mobility management and city management;
- exploring the workfield.

Language: English

Teaching activity: Instruction and demonstration
Formative assessment
Individual independent learning

Examination: Individual assignments 100%

Mark: Marks, F, MO

Required literature: --

Required other materials: POLIS Research Network Resources
https://www.buas.nl/en/research/domains/built-environment
ELTIS mobility solutions database
EIT UM webTVs and market place solutions
CIVITAS mobility solutions database

OSIRIS-code:	BBEE.P3.LADE-01 **(Pofiling)**
Course name:	PRO Landscape design
Study load:	5 EC (=140 hours)
Coordinator:	Michiel Mulderij
Lecturer(s):	Marc Holvoet, Michiel Mulderij

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.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
II		II							

Learning objective(s):

Upon completion of this study component you are able to:

	Competency
1. recognize geomorphological underlayers, natural and cultural systems;	*Research*
2. interpret geomorphological underlayers, natural and cultural systems;	*Research*
3. graphically represent geomorphological underlayers, natural and cultural systems;	*Communicate and collaborate*
4. analyze best practice designs that make use of landscape underlayers at the regional, city and local scale;	*Research*
5. identify and record best practice design principles for future use.	*Design*

Content description:

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

Language:	English
Teaching activity:	Group work Individual independent learning Formative assessment
Examination:	Individual assignments 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BBEE.P3.TAUR-01 **(profiling)**
Course name:	PRO Tactical urbanism
Study load:	5 EC (=140 hours)
Coordinator:	Tomas Mahu
Lecturer(s):	Loek Hellebrekers, Frank Jacobs, Tomas Mahu, Thomas Oorschot

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.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
					II	II			

Learning objective(s):

Upon completion of this study component you are able to: *Competency*

1. recognize and understand issues in urban environments;
2. understand and apply different Tactical Urbanism approaches;
3. develop a plan for a TU-intervention, clearly linking the interventions with specific urban issues;
4. execute, monitor and evaluate the TU-intervention;
5. communicate and collaborate as if you are an organization, and as such provide the right information on the intervention through the right channels to your target group(s).

Content description:	In this study component the following content is covered: - urban issues, both social and physical - tactical urbanism - connective communication
Language:	English
Teaching activity:	Group work Individual independent learning Formative assessment
Examination:	Group assignments 70% Individual assignments 30%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

Breda University OF APPLIED SCIENCES

Built Environment

Year 2

Semester 4

OSIRIS-code:	BBEE2.LAB4.HH-01
Course name:	LAB4 High density urban hub
Study load:	10 EC (=280 hours)
Coordinator:	Jeroen Weppner
Lecturer(s):	Jolijn van Baarsen - van den Berg, Luiz de Carvalho Filho, Tomas Mahu, Michiel Mulderij, Stephen Narsoo, Thomas Oorschot, Jeroen Weppner, Tim van Wershoven, Diaan van Westhuizen
Summary:	*From a global perspective an increasing amount of people are moving towards cities. This puts a huge pressure on housing on the one hand, but also on maintaining and improving a sustainable, safe and accessible environment on the other hand. In this Lab you will elaborate on the complexity of densification in an high density urban area from a strategic to an operational level.*

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
		II	I	II		II			II

Learning objective(s): Upon completion of this study component you are able to:

		Competency
1.	understand the complexity of an urban development process;	*Integral approach*
2.	demonstrate the ability to organize and communicate the proposed plans with stakeholders considering participation/ collaboration/ cocreation;	*Communicate and collaborate*
3.	identify key drivers and key obstacles per stakeholder analysis through interviews and through spatial analysis;	*Realize*
4.	demonstrate the ability to translate a given vision into variants and create a detailed design/proposal based on a Multi-criteria analysis (MCA);	*Design*
5.	reflect on the variant selection in a mixed-specialism group;	*Integral approach*
6.	demonstrate the ability to consider maintenance and realization of the proposal;	*Maintain*
7.	present the main outcomes in a professional way to (external) stakeholders.	*Communicate and collaborate*

Content description: In this study component the following content is covered:

<u>Mobility</u>

- hub function analysis (butterfly model)

- traffic and transport networks analysis
- modal shift and split analysis and prognosis
- trend analysis
- future user analysis incl designing nudges
- multi-criteria analysis / variation studies
- 3d GIS / AutoCAD
- mobility plan
- public space design
- urban hubs and inter-modality
- transfer and connections: destinations (functions)

Urban Design

- multi-criteria analysis / variation studies
- 3d GIS / AutoCAD
- graphic techniques for impressions
- mass study
- public space design
- sketch-up for study models and impressions
- urban design plan
- urban hubs and inter-modality
- densification strategies

Urban Planning

- land development financial calculations
- participation ladder
- stakeholder analysis
- trend analysis
- multi-criteria analysis / variation studies
- writing a legal paragraph
- writing a zoning plan
- 3d GIS / AutoCAD
- graphic techniques for impressions
- urban hubs and inter-modality
- development and maintenance legislation
- densification strategies
- environmental safety

Language: English

Teaching activity: Group work
Individual independent learning
Student presentations

Examination: Group assignment 30%
Group assignment 20%
Individual assignment 50%

Mark: Marks, F, MO

Required literature:	--
Required other materials:	ArcGIS, SketchUp, AutoCAD (Mob)

OSIRIS-code:	BBEE2.PPD4-01
Course name:	Personal & Professional Development 4
Study load:	5 EC (=140 hours)
Coordinator:	Suzanne van Rijswijk
Lecturer(s):	Frank Jacobs, Suzanne van Rijswijk, Martijn Roosen, Kevin Vermeulen

Summary:

Your personal and professional development is the common thread throughout your studies for BE. Three themes are central to this:
1. You will learn to shape your learning process in a self-directed way.
2. You will discover and determine which "type" of BE professional you are and want to become.
3. You will develop into a professional (co-)worker. You will record your development in your portfolio, and you will formulate future (learning) goals.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
						II		II	

Learning objective(s):

Upon completion of this study component you are able to:

		Competency
1.	present yourself as an applicant in a professional manner to potential employers;	*Communicate and collaborate*
2.	to select potential organisations for work placements on the basis the professional network you have built up;	*Manage and innovate*
3.	acquire a suitable work placement and placement assignment in order to develop the learning objectives formulated in your PDP;	*Manage and innovate*
4.	name and/or illustrate your built-up profile by professionally presenting your portfolio during the BE showcase;	*Communicate and collaborate*
5.	demonstrate in your portfolio that you have expanded your skill set by filling in your profiling room;	*Manage and innovate*

Content description:

In this study component the following content is covered:

- the building of your professional network;
- a letter of application;
- various workshops and guest lectures from the industry, especially aimed at preparation your internship in year 3;

- the acquisition of a suitable internship and assignment for semester 5;
- showcase portfolio
- the profiling room, which can be filled in with your own proposal, to be submitted to your study coach.

Language:	English
Teaching activity:	Formative assessment Individual independent learning Instruction and demonstration
Examination:	Portfolio assessment 100% (on condition that the Edubook assignments have been made and a process book is completed and the profiling room has been filled in).
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	License Edubook (already purchased at PPD in Year 1)

OSIRIS-code:	BBEE2.MO3.MS-01 **(specialisation)**
Course name:	MO3 Mobility services and organisation
Study load:	5 EC (=140 hours)
Coordinator:	Jeroen Weppner
Lecturer(s):	Ineke Spapé, Jeroen Weppner
Summary:	*Sustainability is often linked to a decrease of (car) ownership, and a 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 vlaue of an increasing sharing society on the urban and rural challenges.*

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
		II						I	

Learning objective(s):

Upon completion of this study component you are able to:

	Competency
1. Distinguish the variety of sharing facilities and illustrate them in key characteristics of products and services;	*Design*
2. regulate the roles and interests of governmental organisations, commercial organisation and consumers;	*Manage and innovate*
3. Specify the governmental responsibilities in realisation, maintenance and development of 'traditional' mobility services;	*Manage and innovate*
4. Comment on a commercial business case, focussing on the development, maintenance and innovation;	*Manage and innovate*
5. Translate consumer demands and preferences towards a potential product characteristics;	*Design*
6. Critisize the opportunities and threats of rules and regulations;	*Manage and innovate*
7. develop a (simple) business case for your own sharing facility.	*Design*

Content description:

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.

Language:	English
Teaching activity:	Instruction and demonstration Group work Individual independent learning
Examination:	Group assignment 30% Individual assignment 70%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BBEE2.UD3.SPS-01 **(specialisation)**
Course name:	UD3 Spatial processes and systems
Study load:	5 EC (=140 hours)
Coordinator:	Michiel Mulderij
Lecturer(s):	Luiz de Carvalho Filho, Michiel Mulderij

Summary:

Will self-driving cars be the norm in 10 years? Will the sharing economy overtake private ownership? Are we going to work from home more and will we therefore need less office space? Are we moving away from natural gas for heating? Will agriculture become high-tech or more nature inclusive? These are some of the many questions with an impact on the future organization of our living environment. At the same time, we do not know how these trends will develop.

In UD3 Spatial processes and systems, you will learn how to design with uncertainties. You will be equipped with story telling techniques to expand your professional communication skills.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
						II	II		

Learning objective(s):

Upon completion of this study component you are able to:	*Competency*
1. identify uncertainties in a project;	*Specify*
2. analyze trends and developments in the built environment;	*Research*
3. predict possible consequences of trends and developments in the built environment;	*Initiate and steer*
4. formulate scenarios based on trends and developments in the built environment;	*Specify*
5. produce design solutions that can adapt to various scenarios;	*Design*
6. communicate about uncertainties in infographics;	*Communicate and collaborate*
7. narrate about design using story telling techniques .	*Communicate and collaborate*

Content description:

In this study component the following content is covered:

- history of urbanism: structures & ways of thinking, phylosophy, art and architecture;
- the basics of urban systems: trends & developments, causality (if this, than that);

- scenarios & strategy: spatial consequences, story telling.

Language:	English
Teaching activity:	Instruction and demonstration Group work Individual independent learning
Examination:	Individual assignments 50% Individual assignments 25% Individual assignments 25%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BBEE2.UP3.WM-01 **(specialisaton)**
Course name:	UP3 Water management
Study load:	5 EC (=140 hours)
Coordinator:	Marcel van Wietingen
Lecturer(s):	Stephen Narsoo, Marcel van Wietingen
Summary:	*This study component examines the role of water management within the process of spatial development.*

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
	I	I				I			

Learning objective(s):

Upon completion of this study component you are able to:

	Competency
1. name and recognize the underlying aspects of water management;	
2. make the connection between the changing climate and water management;	
3. make a connection between the Dutch landscape and water management;	
4. understand the multi governance of water management and the different actors;	
5. understand the actual question concerning spatial planning, related to water management;	
6. translate the theory of water management to concrete spatial development.	

Content description:

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;
- environmental quality;

- legal security.

Language:	English
Teaching activity:	Instruction and demonstration Group work Individual independent learning
Examination:	Group assignment 30% Written exam 70%
Mark:	Marks, F, MO
Required literature:	Water Governance in the Netherlands; OECD Report 'Deltaprogramma 2023 (download)
Required other materials:	--

OSIRIS-code:	BBEE.P4-6.PRP-01 **(profiling)**
Course name:	PRO Process & Participation
Study load:	5 EC (=140 hours)
Coordinator:	Daniëlle Mourits
Lecturer(s):	Loek Hellebrekers, Eefje van den Hoogen, Daniëlle Mourits
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, they look for tools that residents can use themselves. They also enter into discussions with other stakeholders, such as the municipality.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
			II			II			

Learning objective(s):

Upon completion of this study component you are able to:

	Competency
1. Choosing and applying appropriate communication tools to effectively convey professional information to residents, municipality and other target groups involved in developing a liveable neighborhood;	*Communicate and collaborate*
2. Identifying relevant stakeholders in order to achieve change aimed at quality of life;	*Communicate and collaborate*
3. Being able to collaborate constructively with residents and other relevant parties on spatial-social assignments at neighborhood level;	*Communicate and collaborate*
4. Drawing up an implementation plan with concrete proposals/measures and activities;	*Realize*
5. Evaluating applied methods and learning from them for the follow-up process;	*Monitor*

Content description:

In this study component the following content is covered:

- Participation methods at different scales
- 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)

Language:	English
Teaching activity:	Instruction and demonstration Group work Formative assessment
Examination:	Group assignment 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BBEE.P4-6.DEC-01 **(profiling)**
Course name:	PRO Design & construct
Study load:	5 EC (=140 hours)
Coordinator:	Rien Smalheer
Lecturer(s):	Jolijn van Baarsen - van den Berg, Joost van de Pas, Rien Smalheer

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 (civil) engineering parts to get a feeling for the realisation phase.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
	II					II			

Learning objective(s):

Upon completion of this study component you are able to:	*Competency*
1. oversee, understand and follow through on a large(r) project;	*Communicate and collaborate*
2. set up and produce several parts to the project, like designs, phasing/staging plans, etc.;	*Specify*
3. apply different types/forms of contact between client(s) and consultant(s), formal and informal;	*Specify*
4. contrast different tactics to procure/win integral projects (in tender/bidding phases);	*Integral approach*
5. being a specialist as a part of a multidisciplinary project team;	*Integral approach*

	6. cooperate internally, in the project team (5-role model), as well as cooperate externally, with the client;	*Communicate and collaborate*
	7. make choices within varying margins of uncertainty based on expected costs and benefits (the Economically Most Beneficial Offer).	*Specify*

Content description:

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.

Language: English

Teaching activity: Instruction and demonstration
Group work
Individual independent learning

Examination: Group assignment 60%
Written exam 40%

Mark: Marks, F, MO

Required literature: --

Required other materials: --

OSIRIS-code:	BBEE.P4-6.ATM-01
Course name:	PRO Advanced traffic modelling
Study load:	5 EC (=140 hours)
Coordinator:	Elly Khademi
Lecturer(s):	Elly Khademi, Sjors Martens

Summary:

In your studies you have learned how to evaluate traffic on a city and regional scale. But what about situations that do not exist yet? Crossings, events, new building projects; all these elements will raise questions about future traffic and its processing. To do this, traffic modelling is one of the main skills in the current mobility climate that can give predict or simulate future situations. This simulation is often done through modelling in computer programmes or using mathematical formulas to predict future flows.

In this module you will be introduced to Micro and Macro models. Micro models simulate traffic on a crossing scale - you are able to 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. If you want to look into the future, this is your module.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
	II				II				

Learning objective(s):

Upon completion of this study component you are able to:

	Competency
1. Explain the differences between various Micro and Macro models of transportation;	*Specify*
2. Specify and incorporate the elements of effective transportation planning in a simulation programme;	*Specify*
3. Explain the entire spectrum of decision support transport Micro and Macro models;	*Specify*
4. Explain and apply the basic knowledge of traditional Macro (4-step) models.	*Design*
5. Design a network in a micro simulation programme (VISSIM);	*Design*
6. Test future traffic situations through a model study using both Micro and Macro modelling;	*test and evaluate*

	7. Describe the elements of a vehicle-dependent traffic light regulation;	*Specify*
	8. Design a vehicle dependent traffic light regulation in the associated programmes;	*Design*
	9. Evaluate the designed-vehicle dependent traffic light regulation using micro modelled simulations;	*test and evaluate*

Content description:	In this study component the following content is covered: - Microsimulation theory and software (VISSIM) - Macrosimulation theory and software (VISUM) - The 4-step model of travel demand inducing - Types of Transport Models - Model Calibration and Validation and The Future of Transport Modelling - Vehicle-Dependent traffic light regulations - Detector and Processing software (COCON, ATB)
Language:	English
Teaching activity:	Instruction and demonstration Group work Individual independent learning
Examination:	Individual Assignments 25% Individual Assignment 25% Group Assignment 50%
Mark:	Marks, F, MO
Required literature:	Hollander, Yaron. Transport Modelling for a Complete Beginner. CTthink!, 2016.
Required other materials:	BUas computers with PTV software

OSIRIS-code: BBEE.P4-6.ADV-01 **(profiling)**

Course name: PRO Advanced visualisation

Study load: 5 EC (=140 hours)

Coordinator: Tomas Mahu

Lecturer(s): Ron van den Heuvel, Tomas Mahu, Joost van de Pas

Summary: *Visualization plays a crucial role in persuading certain points of view, train of thought, designs, and ideas. A visualization immediately speaks to the imagination and tells a specific story. Today, the power of visualization is increasingly appreciated and used in many ways. From "stills" to "videos" and from posters to AR/VR models, everything is used to convince people of a certain idea/point of view.*

Within our profession your visualizations are combined places, environments and the (future) users. As a professional you will have to talk to them, clarify certain findings and translate this into something new. Visualizing can help with that.

In this course we learn how to deal with new visualization techniques, and we give an extensive introduction on how they can be applied. We create the right content and process it into a (moving or non-moving) final product. All this to communicate an idea/design clearly and convincingly.

Storytelling, Composition & Ambiance are of paramount importance in this course.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
		II				II			

Learning objective(s): Upon completion of this study component you are able to:

	Competency
1. Generating ideas/solutions and/or providing insight into issues/problems by visualizing them in an innovative and substantiated way (read; readable for others).	*Design*
2. Choosing the right communication tools at a professional level for the intended communication.	*Communicate and collaborate*
3. In a professional manner, in complex situations, actively seek cooperation with those involved/target groups.	*Design*
4. Building a storyline in which certain choices/premises are substantiated clearly and powerfully.	*Communicate and collaborate*

Content description:	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 Video Edits - Working with Render programs
Language:	English
Teaching activity:	Instruction and demonstration Student presentations Group work
Examination:	100% groupwork
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	- 3D program (Sketchup/REVIT) - Render program (n.t.b) - Adobe package CC - Camera (Photo & Video)

OSIRIS-code: BBEE.P4-6.ARC-01 **(profiling)**

Course name: PRO Architecture

Study load: 5 EC (=140 hours)

Coordinator: Ed Ravensbergen

Lecturer(s): Luiz de Carvalho Filho, Ed Ravensbergen

Summary: *In this study component you will learn more about architecture. How are buildings designed? Which design philosophies can be described? What is the relation between the design on the scale of the buiding and on the scale of the city or the landscape?*
These issues will be adressed working on the assignment: making and presenting your own design for a buiding in a specific context.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
		II				II			

Learning objective(s):

Upon completion of this study component you are able to:	*Competency*
1. recognize and use important concepts and terms from architecture	*Research*
2. recognize and understand different architecture typologies and their functional requirements	*Specify*
3. make an architectural plan analysis of an existing building, illustrated in the form of drawings and described in your own words	*Research*
4. to use this acquired knowledge and insights to conduct a typology study for a building	*Design*
5. to develop an architectural concept based on a program and typology and location study	*Design*
6. to develop the concept according to one's own insight into an architectural sketch design for a specific building at a concrete location, which meets the given program and its functional requirements	*Design*
7. to make a reproduction of a building in the form of a scale model	*Communicate and collaborate*
8. design and present a building using Sketch-up	*Design*
9. to explain and argument the sketch design orally with a visual presentation	*Communicate and collaborate*
10. evaluate the design as related to its urban context and its role within the public domain	*Monitor*

Content description:	In this study component the following content is covered: - the relationship between architecture and urban planning - the use of architectural concepts related to: architects and design philosophy, building concept and typology, facade and construction, functions and routing, relationship with the public domain - applying different drawing and presentation techniques - making a scale model of a building - oral and written (digital) presentations - the plan analysis - the building concept - the sketch design - Sketch-up as a design and presentation tool - basic techniques 3d visualization - the (slide) presentation
Language:	English
Teaching activity:	Instruction and demonstration Individual independent learning Formative assessment
Examination:	Individual assignment 75% Group assignment 25%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BBEE.P4-6.SUB-01 **(profiling)**
Course name:	PRO Sustainability in BE
Study load:	5 EC (=140 hours)
Coordinator:	Rana Habibi
Lecturer(s):	Rana Habibi, Daniëlle Mourits, Stephen Narsoo

Summary:

Sustainability is a broad concept that is called to attention in every plan at every scale level. An important theme within this is the energy transition. This module focuses on the question 'How do you organize a future-proof neighborhod?'. In addition, we are working towards an improvement proposal that addresses the application of the theme of energy transition, anchoring in legislation and innovative forms of maintenance. Improvement requires change, both in terms of content and behaviour. So both are covered.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
				II					II

Learning objective(s):

Upon completion of this study component you are able to:

	Competency
1. Formulate future-proof solutions in the field of energy transition at neighborhood level, in which you make integral proposals	*Integral approach*
2. Identifying required behavioral changes aimed at various stakeholders in sustainability at neighborhood level	*Integral approach*
3. Analyzing existing (digital) spatial plans	*Research*
4. Embedding sustainability proposals in the Environmental Plan	*Maintain*
5. Providing innovative forms of maintenance aimed at sustainability at neighborhood level	*Maintain*

Content description:

In this study component the following content is covered:

- Energy transition
- Behavioral change
- Legislation ('Omgevingsvisie' and 'Omgevingsplan')
- Innovative maintenance

Language: English

Teaching activity:

Instruction and demonstration
Group work
Formative assessment

Examination: Group assignment 100%

OSIRIS-code:	BBEE.P4-6.TRT-01 **(profiling)**
Course name:	PRO Trends & transitions
Study load:	5 EC (=140 hours)
Coordinator:	Michiel Mulderij
Lecturer(s):	Michiel Mulderij, Maurizio Scarciglia

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 suburb 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.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
					II		II		

Learning objective(s):

Upon completion of this study component you are able to:

		Competency
1.	analyze historic data (GIS) to identify historic transitions in society and the built environment;	*Monitor, test and evaluate*
2.	extrapolate historic transitions in society and the built environment to identify current trends and societal urgencies;	*Initiate and steer*
3.	identify threats and opportunities for future development and translate these into a brief;	*Initiate and steer*
4.	process research outcomes into a story telling product, that includes text and graph(ic)s;	*Communicate and collaborate*
5.	reflect and conclude how societal urgencies and transitions can inform spatial planning and design.	*Initiate and steer*

Content description:

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.

Language:	English
Teaching activity:	Instruction and demonstration Group work Formative assessment
Examination:	Individual assignments 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BBEE.P4-6.MOL-01 **(profiling)**
Course name:	PRO Mobility & land use
Study load:	5 EC (=140 hours)
Coordinator:	Paul van de Coevering
Lecturer(s):	Paul van de Coevering, Mark van Eijk
Summary:	*Mobility and urbanization are intertwined on many and different dimensions. In fact, these seemlingly separated worlds are more as one then you might expect. Therefore, planning for and interventions in the urban environment should be intertuned thoroughly.*

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
		II							II

Learning objective(s):

Upon completion of this study component you are able to:

	Competency
1. describe the interaction between mobility and land use, as well as main concepts and principles for spatial mobility policies;	*Integral approach*
2. indicate the relevance of spatial and infrastructural interventions for the accessibility, liveability and economy of urban regions;	*Integral approach*
3. determine robust principles behind successful use of spatial mobility policies (best practices);	*Design*
4. weigh which principles and tools are effective for current challenges on the cutting edge of mobility and land use;	*Integral approach*
5. design a good structure for process coordination and governance to enhance collaboration between all governments and disciplines involved;	*Manage and innovate*
6. apply theoretical knowledge, the robust principles, governance and tooling effectively in a topical case.	*Integral approach*

Content description:

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.

Language:	English
Teaching activity:	Instruction and demonstration Group work Individual independent learning
Examination:	Group assignment 50% Individual assignment 50%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

OSIRIS-code:	BBEE.P4-6.ALR-01 **(profiling)**
Course name:	PRO Academic literacy and research
Study load:	5 EC (=140 hours)
Coordinator:	Zhan Goosen
Lecturer(s):	Luiz de Carvalho Filho, Zhan Goosen, Diaan van Westhuizen

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.

Focus competencies:

competency level (I-III):

Research	Specify	Design	Realize	Maintain	Monitor, test and evaluate	Communicate and collaborate	Initiate and steer	Manage and innovate	Integral approach
II	II								

Learning objective(s):

Upon completion of this study component you are able to:

	Competency
1. demonstrate an understanding of the importance of scientific research;	*Research*
2. identify and apply the necessary steps in a research project and process;	*Research*
3. construct a research report with appropriate content for your discipline/topic;	*Specify*
4. plan and structure your research project effectively;	*Initiate and steer*
5. use language appropriately and effectively in written academic work;	*Communicate and collaborate*
6. evaluate and justify information and ideas obtained from sources;	*Monitor, test and evaluate*
7. show the ability to recognize different research methods;	*Research*

Content description:

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).

Language:	English
Teaching activity:	Instruction and demonstration Individual independent learning Formative assessment
Examination:	Group assignment 30% Individual assignment 70%
Mark:	Marks, F, MO
Required literature:	Academic Writing: A Handbook for International Students Author: Stephen Bailey Publication Information: Fifth edition. London: Routledge. 2017
Required other materials:	--

3 ABEL Minors 2025-2026 academic year

Crowd Safety in Hubs & Events	
Video: Minor: Crowd Safety in Hubs & Events | Breda University of Applied Sciences	
Duration of the minor (start and end dates)	Monday 1 September 2025 – Friday 30 January 2026
Language of instruction	English
Intake / selection for BUas students	- Minimum of C1 level in English - Having spatial awareness - Affinity with numbers - Propaedeutic certificate obtained
Admission requirements for external students	- Minimum of C1 level in English - Having spatial awareness - Affinity with numbers - Propaedeutic certificate obtained
Short description of the minor	
Everyone wants to feel secure at a festival, a football match, or in a bustling shopping street. With global trends and developments, effective crowd management is crucial. Learn how by closely collaborating with industry partners in the **Crowd Safety in Hubs & Events** minor. **What is it all about?** The Crowd Safety minor is all about the prevention of accidents and incidents in crowded places. Just think of city centres and parks, railway stations, festivals, but also events, such as Pride Amsterdam, carnival or the Tilburg Fun Fair. The main purpose is to prevent unsafe situations by defining, preparing, researching, analysing and improving the 'place to be' **Working together with key players in the field** This minor gives you the opportunity to get into contact with key players in the field of safety, such as the Event Safety Institute and GK Still International, who are unparalleled in their knowledge of crowd safety. Dedicated coaches and experts will guide you through this minor. All relevant safety aspects of highly crowded areas will be discussed, and it is up to you to apply all the knowledge gathered in real-life cases. The minor provides a combination of theory and practical experience by means of lectures and challenging international case studies and field trips. **What's in it for me?** Nowadays, a lot of attention has already been paid in studies to create experiences. In this minor you will learn how to manage them and to keep them safe! That is a definite value added! Not only if you study Built Environment or Logistics, but also if you want to work in the event sector, the tourism industry, the hotel world or the facility services industry, this minor is a good choice. Together we contribute to a safer world!	
Learning goals	At the end of this minor, you will have: • a clear understanding of important concepts of Crowd Management and application of crowd modelling; • the ability to discuss application of crowd safety management (with concepts such as planning, licensing and operations) and its relevance to the wider legal, organisational, regulatory and risk management framework; • the ability to discuss appropriate risk assessment methodologies for crowd safety, how they impact on legislation and guidance, and/or what areas of crowd safety need improvement; • the ability to recognise group behaviour and understand causality; • a clear understanding of important concepts of Crowd Management and application of crowd modelling to the chosen event/venue; • the ability to discuss application of crowd safety management (with concepts such as planning, licensing and operations) and its relevance to the wider legal, regulatory and risk management framework;

	• a clear understanding of important concepts within event logistics and application of logistics analysis, process management and capacity calculation; • a clear understanding of important concepts within mobility and urban design by applying and analysing integral alignment, design and planning processes and urban and spatial design; • the ability to discuss the application of crowd simulations by analysing crowd simulations, applying measuring and monitoring tools, queuing theories and crowd simulations; • the ability to discuss application of stakeholder analysis, procedures and permits, and laws and regulations; • the ability to analyse an event or venue, including four core modelling elements; • the ability to demonstrate an understanding of core principles and applications of the tools. Providing some details of use of models, information they provide, and how they can assist you with risk analysis of crowd dynamics; • the ability to use clear graphics; • the ability to communicate the information about the tools to users and/or team, with the goal to communicate with the audience.
Competencies	This minor provides you with a wide range of competencies. You will: • develop skills to prevent accidents from happening • develop knowledge about practical tools that enables you to assess and analyse risks in crowded areas • develop a thorough understanding of dynamics behind crowds • develop modelling and communication skills • develop more affinity with the topic • develop your calculating skills • develop your adaptability to change (in this dynamic world) • develop an open mind • be ready for a practical challenge
Topics	The overall goal of this minor is to learn all about the prevention of accidents and incidents in crowded places. This encompasses the following topics: • crowd management • crowd control • risk analysis • human and crowd behaviour • stakeholder (management) • measuring and monitoring • modelling • media and communication • logistics and mobility • laws and regulations • crowd simulations
Structure of the minor	• The minor consists of two parts. • You will focus on the fundamentals and the theory of crowd science and related topics, such as event logistics, mobility management and crowd simulations. You will join over 40 expert sessions with a specific related topic and you will experience crowds during a lot of field trips. • You will discuss the theory and a lot of practical situations with state-of-the-art experts from the industry. Group work and independent study is necessary and possible due to the use of digital portals with valuable and extensive information. The focus in this part is on group work. In those cases, you will apply the theory to a real-life situation. The groups will consist of students with various backgrounds.

	• At the same time, you will focus on preparing and presenting a theoretical and practical end product.
Teaching methods	The minor is developed as a learning community. You will work with real-life cases, from inside and outside the Netherlands. The learning community will be achieved via the use and involvement of: • theoretical sessions • working sessions • real-life cases • field trips • an international field trip
Assessment	Assessment will consist of: • group products: 50% • individual products: 50% Besides, one of these items must score a sufficiency: • state-of-the-art case studies, (S/I) • a peer evaluation (S/I) • your presence during field trips (S/I)
International context	International partners and field trips are involved in this minor. We will also add international case studies to the minor. You can bring an international case study yourself as well.
Required study material	• *Applied Crowd Science*, Prof Keith Still • *An Introduction to Crowd Science*, Prof Keith Still • *Event Logistics*, M. van Rijn
Costs	Additional costs for this minor will be approx. € 75 for literature and expenses during field trips. Aside from these costs you may take part in an international field trip; the additional costs for this will vary, but will be an estimated € 400.
Minimum number of participants	15
Maximum number of participants	35
Location	Breda University of Applied Sciences, Mgr. Hopmansstraat 2, 4817 JS Breda
Domain offering the minor	Academy for Built Environment & Logistics (ABEL)
Minor coordinator (name + e-mail address)	Justin van de Pas (pas.j@buas.nl)

Change Management: How to Successfully Drive Change in Organisations	
Video: Minor: Change Management | Breda University of Applied Sciences	
Duration of the minor (start and end dates)	Monday 1 September 2025 -- Friday 30 January 2026
Language of instruction	English
Intake / selection for BUas students	Propaedeutic certificate obtained
Admission requirements for external students	Propaedeutic certificate obtained

Short description of the minor

Change is the only constant factor in our lives. The minor in **Change Management** introduces you to the challenging and fun field of change from multiple perspectives. It helps you develop your change competencies, equipping you to better handle change in future workplace settings.

Nowadays change is the only constant factor in people's professional (and personal) lives. To become a successful professional, being able to deal with change is of the highest importance. Though, most change initiatives fail or do not produce the desired outcomes.

What is it all about?

This minor introduces you to the challenging and fun field of change from multiple perspectives. It offers you an opportunity to develop your change competences, so you are better equipped to deal with change in future work settings.

What's in it for me?

During this minor you will develop the competence to successfully plan, execute, and evaluate organisational change. You will develop this competence by participating in what we call a 'change experience': an 18-week project during which you work with four or five fellow students on a real-life case of an organisation, city, or industry that is on the eve of a major change. In that project your goal is to make real impact by making stakeholders enthusiastic for your change plans, to the extent that they want to carry your plans forward.

Learning goals	Upon completing the minor, you will be able to: • make an analysis of external developments which can be of influence on the organisation. • set up a business model. • formulate strategic options based on the analyses. • analyse your own organisation in terms of strengths and weaknesses. • formulate strategic objectives in such a way that operational objectives can be derived from them. • diagnose a complex situation with appropriate diagnosis models. • provide insight into how the current situation is maintained by various factors. • identify the core of the change issue. • properly substantiate the choice for a specific change strategy, considering the nature of the issue, the change history of the organisation, the change agents and the energy and resistance of all those involved. • translate the chosen change strategy in an intervention plan with a mix of interventions, aimed at the effective and efficient implementation of the change (including a training plan). • develop a communication plan which fits the change strategy. • determine the feasibility of the intended change (financial, legal and organisational). • write a resistance handling plan.
Competencies	This minor provides you with a range of competencies. You will: • Be able to successfully plan, execute, and evaluate organisational change. • Gain research skills.

	• Gain communication skills. • Gain entrepreneurial skills. • Gain development-oriented skills. • Gain innovative skills. • Gain organising skills.
Topics	The overall goal of this minor is to learn all about how to deal with change in future work settings. This encompasses the following topics: • Organisational behaviour • Change Management • Project Management • Business Development • Strategy & Innovation
Structure of the minor	You will participate in various workshops and meetings which are organised around five themes: Organisational behaviour, Change Management, Project Management, Business Development, Strategy & Innovation. These topics are of great importance for a successful change implementation. The five topics combined offer the right combination of practical and theoretical knowledge that will help you during the change projects. Change (often) starts with the process of strategy formation. Based on an analysis of the environment and of your own organisation, you establish a desired vision of the future. You can use the familiar SWOT, but in a broader perspective, and you get acquainted with the Canvas Business Model. This business model describes the rationale of how an organisation creates, delivers, and retains value. The change management profession is central to the minor. How do you professionally shape the change process? The reason for change often arises from the strategic plan of the organisation. What is the desired change? What change strategy gives you the best chance of realising the change? What interventions ensure that this happens? In addition, we look at forms of resistance and how you can distinguish them and what effective strategies are for dealing with them. During the minor you will also work on personal competences and work on an individual assignment. It is your job to apply the knowledge of the workshops and the individual assignments to your change experience.
Teaching methods	During this minor different teaching methods will be implemented: • Workshops • Lectures • Discussion groups • Learning communities • Project work
Assessment	The assessment will consist of an individual assignment, a group report, a group presentation and an individual process.
International context	If possible, we will look at the change processes within an international context. This will mainly depend on the input of students.
Required study material	Kotter, J. P. (2012). *Leading change*. Harvard Business School Publishing. ISBN: 9781422186435
Costs	Solely extra costs for mandatory reading materials.
Minimum number of participants	15
Maximum number of participants	50
Location	Breda University of Applied Sciences, Mgr. Hopmansstraat 2, 4817 JS Breda

Domain offering the minor	Academy for Built Environment and Logistics
Minor coordinator (name + e-mail address)	Karolien Kampstra (kampstra.k@buas.nl)

International Urban Redevelopment: Towards Sustainable Cities and Mobility	
Video: Minor: Urban Redevelopment | Breda University of Applied Sciences	
Duration of the minor (start and end dates)	Monday 1 September 2025 – Friday 30 January 2026
Language of instruction	English
Intake / selection for BUas students	Propaedeutic certificate obtained
Admission requirements for external students	Propaedeutic certificate obtained

Short description of the minor

Cities around the world are aiming to reduce their car dependency and unrestricted growth, which needs a new way of thinking about urban areas and mobility. In the minor in **International Urban Redevelopment** you will work it out and the best team is going to visit the project sponsor.

Cities around the world are aiming to reduce their car dependency and unrestricted growth (urban sprawl). The purpose of the minor is to pave the way for a shift towards sustainable mobility and urban culture. This involves tackling issues related to air quality, obesity, the quality of public spaces, social cohesion, etc. However, changing urban structures and citizen behaviour is no easy endeavour: it needs careful and specific interventions to change the way urban areas are laid out and used. It not only involves a shift in spatial and transportation policies, but also a new way of thinking about cities, people and mobility. That is Retrofitting in a nutshell. This minor programme aims to spur this paradigm shift by using your expertise and perspectives. Ready to inspire?

What is it all about?

In this minor you will work in a studio with a team of four to six students on a challenging international case study in which you combat car dependence and urban sprawl. Our network includes metropolitan regions around the world and we work on new case study areas each year. In previous years we worked in: Calgary, Vancouver and Nanaimo (Canada), Seattle and Los Angeles (USA) and Bilbao (Spain).

You will conduct an in-depth analysis of the challenges relating to urban sprawl and car dependency in a specific case study area. Based on this analysis, you formulate a vision, develop a concept and create detailed designs, in which everything is interrelated and reinforces each other:

- hardware (infrastructure, buildings, urban green, facilities, etc.)
- software (neighbourhood identity, behavioural campaigns, attitudes, etc.)
- orgware (participation, values, inspiration, and the huge potential of local communities)

What you ultimately deliver as a multidisciplinary team is:

- a ten-pager with the unique elements of vision and concept
- a poster and (optionally) additional means of visual communication, for example, an interactive web page or a VR application
- a background report with all the details

The best teams will have the opportunity to visit the project sponsor and present their work to local experts and the community.

What's in it for me?

After attending this minor, you can pursue a career in urban planning and design or a career in mobility. You will also be able to conduct research within the domain of social sciences. Jobs like this can be found in local or national governments or at design studios.

Learning goals	At the end of this minor, you will have learned how to: • assess the situations in your international case study area with the STEEP and SWOT analysis tools.

	• create integrated concepts with hardware, software and orgware interventions for the redevelopment and revitalisation of your case study area which are grounded in theory and are aligned with the results of your SWOT analysis. • create a detailed integrated plan to tackle societal issues related to urban sprawl and car dependency in your case study area. • provide a coherent storyline from the SWOT analysis to concept-ing and the specific measures. • conduct targeted Urban Guerrilla tactics in practice.
Competencies	This minor provides you with a range of competencies. You will train these competencies throughout the minor, especially in the group work sessions. You will: • analyse and conduct research • initiate • specify • design • communicate Additionally, you will be: • realising & operating: during the Tactical Urbanism training you will gain hands-on experience in performing real interventions in the street. • managing & gaining an entrepreneurial attitude: you will work as a professional and take the initiative in parts of the project. You will reflect on your own performance.
Topics	The overall goal of this minor is to learn all about the shift towards sustain-able mobility and urban culture. This encompasses the following topics: • shifting car dependency / active transportation • social cohesion and urban greening • tactical urbanism and placemaking • design thinking and concepting
Structure of the minor	The minor programme consists of three phases. • In the first phase (Initiation Phase), you and your team will ex-plore the case study area using the STEEP and SWOT analysis tools. Each team member immerses himself in one of the previ-ously mentioned topics. • In the second phase (Integration Phase), you will work with the re-sults of the teamwork and the individual studies and merge them into one vision for the case study area. Key challenge is to create a vision where the various elements and measures reinforce each other. • In the third phase (Communication Phase), you will focus on com-munication skills. How are you going to bring the story to the pro-ject sponsor and the wider audience? During the minor, the pro-ject sponsor will come to Breda to engage in interaction and chal-lenge your concepts. In each phase of the minor, different knowledge modules are provided. In the first phase, the emphasis is on the nature and impact of Hardware, Software and Orgware interventions (HSO). In the second phase, there will be more emphasis on Tactical Urbanism (TU) and your group will execute a real-life Urban Guerrilla action in the street. In the communication phase, the focus will be on visual communication (VIC) to enable you to convey your message to the project sponsor in the best possible way.

Teaching methods	Two days will be allocated for coaching in a studio. During these days we combine interactive feedback to your team with plenary feedback sessions. In addition, your group will plan an official meeting to discuss progress in the team at least once every two weeks. Masterclasses and mini- lectures on the topics above will be provided on the two studio days. The other days are spent on individual work and group work. The language of instruction for the master classes, lectures, and coaching sessions is English.
Assessment	During the minor you will be coached by experts from Breda University of Applied Sciences. You will receive qualitative feedback based on the learning objectives. You also monitor your personal development in assessments. Self-evaluation is important. This is a continuous process in which you reflect on personal performance and situations and developments within your team. To help you with this, all team members also provide feedback on each other's work and actions. The final assessment of your individual contribution and the group product is given in the form of a mark (on a scale of 1 to 10). Both assessments have a weighting of 50% in the final assessment.
International context	This minor is internationally oriented. The students have different international backgrounds and we work together with international partners. As a student you will work on a case study from one of those world cities.
Required study material	This minor requires you to read papers. The lecturers will make a selection of relevant literature, which will be provided. Additionally, you will perform your own literature research.
Costs	No fee required. However, after the minor, the best teams and students will get the opportunity to visit the project sponsor and present their work to local experts and community groups. The elected students have to take travel costs into account. The BUas team and the project sponsor will make arrangements for hosting this visit.
Minimum number of participants	15
Maximum number of participants	50
Location	Breda University of Applied Sciences, Mgr. Hopmansstraat 2, 4817 JS Breda
Domain offering the minor	Built Environment, Academy for Built Environment & Logistics
Minor coordinator (name + e-mail address)	Paul van de Coevering (coevering.p@buas.nl)