Built Environment

Study component catalogue

Year 2023-2024

DISCOVER YOUR WORLD

Breda University
OF APPLIED SCIENCES

Foreword

This study component manual contains the programme content of your degree programme. The following elements can be found in it:

- A description per study component with, among other things, learning outcomes, content and forms of assessment
- An overview of the entire study period (4 academic years) with the study load per study component
- An overview of competencies underlying your study programme
- A matrix with the link between all competencies and study components
- A link to the year schedule containing lecture weeks, resit opportunities, holidays, etc.
- A link to the assessment programme containing an overview of all exams and assignments

Type of study component

You will come across the following types of study components in years 1 and 2:

- In **labs** (BE) / **projects** (LG), you will work on a professional product in a small group with fellow students. You will develop knowledge, skills and the right attitude within the professional context. The focus will lie on project skills and collaboration. You will be guided by a lab or project supervisor and lecturers of various backgrounds and disciplines will direct you as regards content;
- In **modules** (BE) / **cases** (LG), you will acquire knowledge and skills relevant to the profession by attending lectures and actively working on assignments. The lecturer teaches and guides you as an expert.
- For the study component **Personal & Professional Development (PPD)**, you will attend a programme with workshops supporting you in your personal and professional development. To that purpose, you will work on various kinds of assignments and a portfolio, and reflect on your development and the choices you make (e.g. regarding an internship in year 3). During the PPD track, you will be personally guided by your study coach, who will also discuss your study progress;
- During **Connection to Industry and Research** (LG) you will carry out research and/or do an assignment commissioned by a company or organisation.
- During **Placement** and **Graduation** (BE and LG), you will independently carry out a placement assignment for the professional field (e.g. a company or institution) or contribute to a project. You will be supervised by a BUas teacher or Buas professional and a company coach. You will also participate in follow-up days and intervision.

Semester 1 and 2 (year 1), semester 3 and 4 (year 2) and semester 6 (year 3)

Year 1, also called propaedeutic phase, consists of two semesters of 18 weeks. In the first year, you will mainly acquire the necessary basic knowledge and skills you will need for the rest of your studies and professional practice. Each semester comprises a lab/project and several modules/cases. Additionally, you will continuously work - under the guidance of your coach - on building up your portfolio in the context of your personal and professional development.
Year 2 is a continuation of year 1, and also consists of two semesters of 18 weeks. Year 2 consists of modules/cases and labs/projects again offering more possibilities for specialisation. The focus within PPD will lie on preparing the placement.
In the second half of year 3, you follow another 18-week semester of modules/cases and labs/projects focusing on specialisation/profiling.

Semester 7

In semester 7, you take a minor, giving you 18 weeks to deepen or broaden your knowledge in a subject of your choice. You can take a minor at BUas, at another Dutch institution or abroad. This semester therefore also offers the possibility of an international exchange.

Semester 5 and 8

In the first half of the third year, you do a work placement (in the Netherlands or abroad). In project learning in years 1 and 2, you tackled several business cases/practical issues within groups. Now you will do this on your own. That means you will independently carry out (an) assignment(s) or contribute to (an) project(s).

In the last semester of the programme, you will do a graduation placement (at home or abroad) and show that you have all the necessary competences to graduate.

TER

All rules can be found in the 2022-2023 Teaching and Examination Regulations (TER). Wherever ABEL uses the term 'study unit' or 'study component', the term 'course' is used in the TER. Wherever ABEL uses various types of assessment, such as 'written exam', 'assignment' and 'portfolio assessment', the term 'examination' is used in the TER.
For your information: you can earn 60 ECTS credits (EC) in every academic year, where 1 ECTS credit (1 EC) is equivalent to a study load of 28 hours.

We wish you an enjoyable and a successful academic year.

On behalf of the management team of Built Environment and Logistics,

This study component manual is part of the Teaching and Examination Regulations of Built Environment and Logistics.

Built Environment 2023 - 2024: year 1

Semester 1

Name	Osiris-code	ECTS	Page
KB1 Introduction into Built Environment	BBEE1.KB1BE-01	5	7
KB2 Analysis and Design	BBEE1.KB2AD-02	5	9
KB3 Human, Society & the Built Environm.	BBEE1.KB3HC-01	5	11
LAB1 Explore your Environment	BBEE1.LB1EE-01	10	13
Personal & Professional Development 1	BBEE1.PPD1-01	5	15
	Subtotal	**30**	

Semester 2

Name	Osiris-code	ECTS	Page
KB4 Government, Politics and Law	BBEE1.KB4GP-01	5	18
KB5 Research and Reporting	BBEE1.KB5RR-03	5	20
LAB2 Living in Cities	BBEE1.LB2LC-02	10	22
Personal & Professional Development 2	BBEE1.PPD2-01	5	26
Specialisation			
Urban Traffic System (MO1)	BBEE1.MO1UT-01	5	28
Spatial Development (UP1)	BBEE1.UP1SD-01	5	30
Toolbox Urban Design (UD1)	BBEE1.UD1TB-01	5	32
	Subtotal	**30**	
	Total	**60**	

Built Environment 2023 - 2024: year 2

Semester 3

Name	Osiris-code	ECTS	Page
KB6 Management and Finance	BBEE2.KB6.MF-02	5	35
LAB3 City and Region	BBEE2.LB3.CR-01	10	37
Personal & Professional Development 3	BBEE2.PPD3-01	5	39
Specialisation			
Mobility Patterns and Data (MO2)	BBEE2.MO2.MP-01	5	41
Housing and Livability (UP2)	BBEE2.UP2.HL-01	5	43
Spatial Strategy (UD2)	BBEE2.UD2.SS-01	5	45
Profiling modules (1)			
Regional Planning	BBEE.P3.REPL-01	5	47
Smart Mobility	BBEE.P3.SMAR-02	5	49
Landscape	BBEE.P3.LAN-01	5	51
Tactical Urbanism	BBEE.P3.TAUR-02	5	53
	Subtotal	**30**	

Semester 4

Name	Osiris-code	ECTS	Page
LAB4 High Density Urban Hub	BBEE2.LB4.HH-02	10	56
Personal & Professional Development 4	BBEE2.PPD4-01	5	59
Specialisation			
Mobility Services and Organisation (MO3)	BBEE2.MO3.MS-01	5	61
Water Management (UP3)	BBEE2.UP3.WM-01	5	63
Spatial Processes and Systems (UD3)	BBEE2.UD3.SPS-02	5	65
Profiling modules (2)			
Participation in Practice	BBEE.P4-6.PAP-01	5	67
Design & Construct	BBEE.P4-6.DEC-01	5	69
Traffic and Transport Modelling Advanced	BBEE.P4-6.TTM-01	5	71
Visualisation	BBEE.P4-6.ADV-01	5	73
Architecture	BBEE.P4-6.ARC-02	5	75
Energy Transition	BBEE.P4-6.ENT-01	5	77
Mobility & Land Use	BBEE.P4-6.MOL-02	5	79
Academic Literacy and Research	BBEE.P4-6.ALR-02	5	81
	Subtotal	**30**	
	Total	**60**	

Built Environment 2023 - 2024: year 3

Semester 5

Name	Osiris-code	ECTS	Page
Placement	BBEE3.PLACEM-01	30	84
	Subtotal	**30**	

Semester 6

Name	Osiris-code	ECTS	Page
LAB5 Cities of the Future	BBEE3.LB5.CF-01	10	87
Profiling modules (4)			
Area Development	BBEE.P6.ADEV-01	5	89
Entrepreneurship	BBEE.P6.ENT-01	5	91
Gis & Geo Data	BBEE.P6.GGD-01	5	93
Trends & Transitions	BBEE.P6.TRT-01	5	95
Other profiling modules	Check semester 4		
	Subtotal	**30**	
	Total	**60**	

Built Environment 2023 - 2024: year 4

Semester 7

Name	Osiris-code	ECTS	Page
The Art of Change	BCM.23MINOR	30	98
Crowd Safety in Hubs & Events	BCS.23MINOR	30	100
International Urban Redevelopment	BUR.23MINOR	30	102
External Minor ABEL	BEXT.23MINOR	30	-
	Subtotal	**30**	

Semester 8

Name	Osiris-code	ECTS	Page
Graduation Thesis	B4.SC-18	30	104
	Subtotal	**30**	
	Total	**60**	

Built Environment

Year 1

Semester 1

OSIRIS-code: BBEE1.KB1BE-01

Course name: KB1 Introduction into Built Environment

Study load: 5 EC (=140 hours)

Coordinator: Michiel Mulderij

Lecturer(s): Luiz Marcos De Carvalho Filho, Michiel Mulderij, Joost van de Pas

Summary: The design of the city and its surrounds impacts our day-to-day life. Together they constitute the built environment: the features of our world attributed to the thinking and making of man. The built environment is shaped, managed and altered by various Built Environment (BE) professions including urban planning, urban design, and mobility. In this module you will be introduced to these professions and learn how they work together in the development of the built environment. As a future BE professional your ability to act on and in the built environment is informed by the rich bank of typologies, precedents, histories, and ideas on which you can draw. We would like for this course to be the first step towards gaining this knowledge. To this aim we will investigate the basic theories and concepts that define our field, engage with key moments in the history of the built environment and look to future trends and challenges that will define it. After completing this course, you will be equipped with the knowledge to look to the world around you with the eyes of a BE professional.

Focus competencies:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	I	-	-	-	-	-	I	-	-	I

Learning objective(s):

	Upon completion of this study component you are able to:	Competency
1	Define and interpret historical and contemporary processes of the built environment;	a
2	Define and apply key concepts and terminology in the evolution of the built environment;	g
3	Analyse and explain the interaction of political, economic, cultural and natural forces within the built environment;	a
4	Explain the interaction of urban planning, urban design, and mobility in shaping the built environment;	k
5	Define and evaluate the main challenges of the contemporary and future built environment.	a

Content description:	In this study component the following content is covered: - The evolution of urban form and spatial structures as the result of economic, political, and cultural determinants; - An overview of key periods and/ or movements in the 20th century that have informed the fields of mobility, urban design and planning; - The dynamic between the city and its suburban and rural counterparts with a focus on housing, work, recreation and transport; - Contemporary developments in the built environment: what drives them and what is the impact thereof in the built environment and its inhabitants; - Inspiring case studies that illustrate the roles of built environment professionals and their cooperative and integrative nature.
Language:	English
Teaching activity:	Instruction and demonstration Individual independent learning Formative assessment
Examination:	Individual assignment 100%
Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	Reader, e-book, Introduction to the Built Environment reader 2022-2023, published on Brightspace.
Digital Resources:	--

OSIRIS-code: BBEE1.KB2AD-02

Course name: KB2 Analysis and Design

Study load: 5 EC (=140 hours)

Coordinator: Levi Lanser

Lecturer(s): Levi Lanser, Thomas Oorschot, Joost van de Pas

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.

Focus competencies:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	I	I	I	-	-	-	-	-	-	-

Learning objective(s):	Upon completion of this study component you are able to:	Competency
1	Recognise different steps in the (cyclical) process of spatial planning;	a
2	Recognise and know how to apply the steps in the (cyclical) research process of applied research;	a
3	Set up an applied research project and perform a (problem) exploration;	a
4	Recognise different analysis methods, know how to apply these and explain the results clearly, both graphically (maps, tables, charts) and textually;	b
5	Integrate and structure the results of various (sub)analyses, make connections between them, and draw integral conclusions from them;	b
6	Use various methods to identify, study, assess and weigh the possible solutions to arrive at a vision.	c

Content description:	In this study component the following content is covered: - Introduction to the Cyclical character of the spatial plan formation process as well as the process of applied research; - Subassignments/themes/specialities within the spatial domain (BE) such as housing construction target, drainage/water storage, strengthening green structures, increasing the sustainability of agriculture, noise pollution, accessibility, vacancy levels and transformation; - Research methods and techniques in the analysis phase: various specialist and integral analysis methods such as spatial analysis, historical analysis, multi-layer approach, housing market exploration, target group research, parking research, capacity analysis, traffic safety analysis, Lynch's method, spatial SWOT; - Graphical techniques suitable for the various analysis methods and for translating the analysis results (integral principles and preconditions); - Research methods and techniques in the vision phase: vision formation by means of benchmarking studies, handbooks, and research into spatial concepts and variants; - Knowledge of the hierarchical structure of the spatial structure, including the road network: guiding principles and pillars of Duurzaam Veilig (Sustainably Safe), as well as its elaboration in terms of street and road profiles.
Language:	English
Teaching activity:	Instruction and demonstration Group work Individual independent learning
Examination:	Individual assignment 50% Group assignment 50%
Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE1.KB3HC-01

Course name: KB3 Human Society & the Built Environment

Study load: 5 EC (=140 hours)

Coordinator: Luiz de Carvalho Filho

Lecturer(s): Luiz Marcos De Carvalho Filho, Stephen Narsoo, Diaan van der Westhuizen

Summary: The core task of urbanists is not just about putting infrastructure into space but understanding how people interact with the objects we place in the city. These interactions mutually shape behaviours and space. An understanding of these interactions is at the heart of urban development. This course aims to gain an in-depth understanding of human behaviour and how the built environment shapes, controls, and enables various behaviours. This understanding will unlock more expansive ideas about how and when to plan and make decisions that affect people's lives more ethically and responsibly in the context of urbanisation, digitisation, and globalisation processes.

Focus competencies:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	-	-	-	-	I	I	-	I

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

		Competency
1	Describe the three major global forces; urbanisation, digitisation and globalisation and their impact on the built form;	g
2	Develop a working vocabulary based on at least four seminal (theories/schools of thought) that define the interaction between people and the built environment;	k
3	Analyse interactions between people and the built environment using at least three best practice methods;	h
4	Reflect on an existing plan, introducing changes that enhance the everyday experience of people living in cities at an appropriate scale.	j

Content description:	In this study component the following content is covered: - Concepts in people & society at different scales (macro: sociology, meso: neighbourhood and local communities, micro: environmental psychology); - Social trends and developments which have an impact on human behaviour as well as the built environment (such as globalisation, lasting urbanisation, and 24-hour economy); - Diverse types of societies that have emerged by these trends and developments and the role of the built environment in it; - Spatial issues in the sustainable society (such as climate change, energy transition, sustainable building, and mobility transition); - Spatial issues in a healthy and liveable society (such as densification, ageing, experience and well-being; - Spatial issues in the accessible and available society (such as mobility choice, community traffic, smart mobility); - Spatial issues in the self-sufficient society (such as participation, collaboration, prosumers, share-economy); - Spatial tools to influence human behaviour (such as nudging, public space design and scale); - Concepts and backgrounds of human behaviour (economic, psychological, and sociological motives).
Language:	English
Teaching activity:	Instruction and demonstration Group work Individual independent learning
Examination:	Written exam 50% Group assignment 50%
Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE1.LB1EE-01

Course name: LAB1 Explore your Environment

Study load: 10 EC (=280 hours)

Coordinator: Luiz de Carvalho Filho

Lecturer(s): Jolijn van Baarsen - van den Berg, Luiz Marcos De Carvalho Filho, Geert de Leeuw, Tomas Mahu, Stephen Narsoo, Thomas Oorschot, Joost van de Pas

Summary: In this lab, you will be introduced to the study of the urban environment and the role of the disciplines of mobility, urban planning, and urban design. Your work will involve the inventory and analysis of a place in Breda, identifying the positive and negative features of an inner-city area in a matrix of strengths, opportunities, weaknesses, and threats. Your work will result in written and visual statements about how the place should develop in the future, translated into a transformation plan.The chosen site will include both existing and new buildings, activities, infrastructure, and modes of transportation. Your specific contribution to one of the self-selected aspects that you desire to deepen/broaden will be used to assist your transformation strategy.

Focus competencies:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	I	-	I	-	-	-	I	-	-	I

Learning objective(s):

	Upon completion of this study component you are able to:	Competency
1	Recognize urban structures and objects within the built environment;	a
2	Explore the professional field (and your new study environment) including field trips;	k
3	Translate this knowledge into spatial interventions and/or recommendations on a specific location including urban planning-, urban design- and mobility aspects;	c
4	Implement and integrate these in a (simple) urban development plan of your own hand;	c
5	Communicate research and ideas through a variety of techniques and materials, both 2D and 3D;	g
6	Use effective ways of reporting and visualizing to present your research and design on a basic level;	g
7	Formulate general and specific research questions and evaluate their accomplishment;	a

8	Create a basic Plan of Approach by means of the research methods provided (e.g. spatial inventory, quantitative & qualitative research, literature);	a
9	Execute a basic data collection;	a
10	Make the first steps to become a professional in spatial planning, mobility and/or urban design by recognizing and creating awareness of the three different expertises within the domain of Built Environment (BE);	k

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

- Spatial inventory and analysis;
- Research by design in combination with text;
- Development of a vision and planning design, e.g transformation plan;
- Basics of different tools in the development of the built environment;
- Spatial environment on a specific location in Breda;
- Collaboration contract;
- Professional communication by through text and images;
- Peer evaluation and feedback;
- Process monitoring in a journal;
- Presenting; through a basic report, an exposition and a trade article.

Language: English

Teaching activity: Group work
Individual independent learning
Student presentations

Examination: Group assignment 50%
Individual assignment 50%

Mark: Mark, P, F, MO

Required literature: --

Other required materials: --

Digital Resources: --

OSIRIS-code:	BBEE1.PPD1-01
Course name:	Personal & Professional Development 1
Study load:	5 EC (=140 hours)
Coordinator:	Danique Gommers
Lecturer(s):	Danique Gommers, Karina Iurkova, Frank Jacobs, Joost van de Pas, Suzanne van Rijswijk, Kevin Vermeulen
Summary:	Your personal and professional development is the common thread throughout the Built Environment programme. In this context, three aspects are central: 1. You will learn to self-manage your learning, 2. You will discover and determine what 'type' of BE student you are / BE professional you want to become, and 3. You will develop into a professional worker / cooperator. In your own portfolio you will record your development and describe your future (learning) goals.

Focus competencies:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	-	-	-	-	I	-	I	-

Learning objective(s):

	Upon completion of this study component you are able to:	Competency
1	Find your way within the study programme and BUas, both online and offline;	g
2	Understand that you are responsible for your own studies;	j
3	Give shape to your approach to your studies;	j
4	Cooperate professionally;	g
5	Compile your own portfolio with a selection of your work and feedback received and your reflection on it;	g
6	Present your substantiated choice for one of the three specialisation areas during an assessment.	j

Content description:	In this study component the following content is covered: - Further introduction to the programme, BUas and the industry; - Introduction of the professional Built Environment competencies; - Several workshops and inspiration sessions; - (further) development of your personal portfolio; - Excursions you will prepare, execute and present according to your own preferences; - An individual (introduction) talk with your study coach.
Language:	English
Teaching activity:	Instruction and demonstration Individual independent learning Student presentations
Examination:	Portfolio assessment 100%; on condition that the Edubook assignments have been made and a process book is completed.
Mark:	P, F, MO
Required literature:	--
Other required materials:	License Edubook (2 years).
Digital Resources:	--

Built Environment

Year 1

Semester 2

OSIRIS-code: BBEE1.KB4GP-01

Course name: KB4 Government, Politics and Law

Study load: 5 EC (=140 hours)

Coordinator: Stephen Narsoo

Lecturer(s): Frank Jacobs, Stephen Narsoo

Summary: In the field of built environment the government is never far away. They guide and steer development, allow or deny building permits, construct infrastructure, protect monuments and nature, etc. During your career you will either deal with governments, or work at a government. This study component will provide you the basics of the functioning of governments and the role they play in the field of built environment.

Focus competencies:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	I	-	I	-	-	-	-	-	-	I

Learning objective(s):	Upon completion of this study component you are able to:	Competency
1	Describe the concepts and relevance of 'Government' and 'Society';	b
2	Explain why government exists and how it relates to society;	k
3	Compare the history of development of different types and levels of government and systems of governance;	a
4	Describe the role government can have in the Built Environment;	k
5	Compare different approaches to spatial planning and easily get familiar with the planning system of several different countries;	a
6	Recognize the purpose and general system behind spatial planning;	k
7	Research different international government and planning systems and explore the Dutch way of detailed zoning;	a
8	Interpret and reflect on ways to improve planning systems around the world;	j
9	Design an 'ideal' planning system;	c
10	Demonstrate an open mind while critically debating and interpreting different government and planning	g

systems.

Content description:	In this study component the following content is covered: - History of Government & Society interaction; - Term definition (on policy, law, Trias Politica); - Hierarchy (levels of government); - The role of government in planning; - Main elements of planning systems; - Planning processes & procedures; - Theory & process of policy making; - Policy development and implementation.
Language:	English
Teaching activity:	Instruction and demonstration Group work Individual independent learning
Examination:	Written exam 60% Group assignment 40%
Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	Web based sources. Via BUas library-metasearch.

OSIRIS-code: BBEE1.KB5RR-03

Course name: KB5 Research and Reporting

Study load: 5 EC (=140 hours)

Coordinator: Elly Khademi

Lecturer(s): Luiz Marcos De Carvalho Filho, Rana Habibi, Elly Khademi, Stephen Narsoo

Summary: Research and reporting are fundamental for making good designs, plans and policies and thus useful for many modules and activities during your bachelor program, especially the labs, work placement and graduation project.
In the professional field, you must read many research reports. Understanding these reports requires the knowledge you gain in this module. In KB5 Research and Reporting you will learn how to set up a research project. And get familiar with different research methods including qualitative, quantitative and research by design. You will learn how to find reliable sources and references to support your research and how to write a good research report including structure and language.

Focus competencies:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	I	-	-	-	-	I	I	-	-	-

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

		Competency
1	Construct a novel and clear research question that can generate knowledge important to the built Environment.	a
2	Choose an appropriate research method for specific case: quantitative and qualitative and research by design	f
3	Design a robust research strategy	a
4	Structure effective research report	g

Content description:	In this study component the following content is covered: - Literature research: online and offline (BUAS library); - Reliability and validity of literature, and data sources and source finding; - Qualitative research: interview skills like formulating questions, listening, making notes and follow questions; - Quantitative research: survey and experiment design, unit of analysis: population and samples, sampling techniques, data collection techniques; - Find, select, and comprehend relevant literature and data sources in relation to the research questions. - Basic statistics: Descriptive Statistics - Research by design - Report structure, professional writing style and APA references.
Language:	English
Teaching activity:	Instruction and demonstration Group work Individual independent learning
Examination:	Individual assignment 90% Written exam 10%
Mark:	Mark, P, F, MO
Required literature:	Verhoeven.N. Doing Research, The Hows and Whys of Applied Research. (ISBN 9789024424757)
Other required materials:	License Sowiso, via BUas.
Digital Resources:	--

OSIRIS-code: BBEE1.LB2LC-02

Course name: LAB2 Living in Cities

Study load: 10 EC (=280 hours)

Coordinator: Zhan Goosen

Lecturer(s): Danique Gommers, Zhan Goosen, Rana Habibi, Karina Iurkova, Frank Jacobs, Elly Khademi, Tomas Mahu, Joost van de Pas, Diaan van der Westhuizen

Summary: What does “Living in Cities" mean globally? Trends change geographically, according to local needs and how each region is facing exponential urbanization.LAB2 presents students with an opportunity to gain in depth knowledge of their elected specialization: Urban Design (UD), Urban Planning (UP) or Mobility (MThe emphasis and focus of the LAB is twofold:1. Equipping students with the core skillset and foundational knowledge required by their specialism for practical application2. Orientating students with regards to their (future) role in the professional ecology

Focus competencies:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	I	I	-	I	-	I	-	-	-

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

Mobility

1	Map the mobility system of an urban area on city level;	b
2	Evaluate a traffic structure on its safety, accessibility, and liveability on neighbourhood level;	a
3	Analyze the infrastructural bottlenecks of a project site;	b
4	Trace traffic situations back to their infrastructural, political, or social causes;	b
5	Suggest infrastructural improvements on route or node level based on policy or social structure;	e
6	Visually design improvements for mobility issues;	c
7	Apply strategies for collaboration;	g
8	Give, receive and apply feedback;	g
9	Reflect on expertise role and future professional development.	e

Urban Design

1	Determine and execute key aspects for analysis of a given project site;	b
2	Apply appropriate tools for research and design;	c
3	Formulate observations into clear design guidelines and recommendations;	b
4	Develop a design proposal aligned with key guidelines and recommendations;	c
5	Communicate a design proposal using appropriate tools and graphic means;	c
6	Demonstrate a sensitivity for different interest groups and contexts;	k
7	Reflect on expertise role and future professional development;	e
8	Apply strategies for collaboration;	g
9	Give, receive, and apply feedback.	g

Urban Planning

1	Conduct a complete site inventory and analysis based on research;	b
2	Create a framework with wishes and demands informed by an inventory and analysis;	b
3	Define substantiated alternative solutions through concepting (scenarios), cyclical processes and reflection;	c
4	Identify and consider the long-term impacts of a vision and distinguish between different interests and cultural contexts;	e
5	Explore suitable land uses & functions for ideal planning solutions and proposals;	c
6	Apply strategies for collaboration;	g
7	Give, receive and apply feedback;	g
8	Reflect on expertise role and future professional development.	e

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

Mobility

- Urban Mobility systems and structures
- Accessibility, traffic safety, and traffic livability
- Policy directives
- Road users
- Infrastructural mobility improvements
- Visualization in process and product
- Narrative and argumentation
- Professional collaboration

Urban Design

- Tools for analyzing and design;
- Framework for design (concept masterplan);
- Visualization in process and product;
- Urban Design proposal;
- Narrative and argumentation;
- Professional collaboration;
- Iterative design process.

Urban Planning

- International city and spatial planning;
- Neighbourhood and society;
- Physical interventions in the Built Environment;
- Spatial research;
- Planning across scales;
- Geography;
- Networks & systems;
- Housing, economic and demography;
- Land uses and functions;
- Policies;
- Sustainability.

Language: English

Teaching activity: Group work
Individual independent learning
Student presentations

Examination: Group assignment 50%
Individual assignment 50%

Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	Sketching paper, (scale) ruler, fineliners (different thicknesses) and markers (different colors).
Digital Resources:	--

OSIRIS-code: BBEE1.PPD2-01

Course name: Personal & Professional Development 2

Study load: 5 EC (=140 hours)

Coordinator: Danique Gommers

Lecturer(s): Danique Gommers, Karina Iurkova, Joost van de Pas, Kevin Vermeulen, Frank Jacobs

Summary: Your personal and professional development is the common thread throughout the Built Environment programme. In this context, three aspects are central: 1. You will learn to self-manage your learning, 2. You will discover and determine what 'type' of BE student you are / BE professional you want to become, and 3. You will develop into a professional worker / cooperator. In your own portfolio you will record your development and describe your future (learning) goals.

Focus competencies:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	-	-	-	-	I	-	I	-

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

		Competency
1	Apply more structure and focus to your motivations and your own learning process;	j
2	Further develop your own portfolio with a selection of your work and feedback received and your reflection on it;	g
3	Draw up an initial future profile of yourself as a BE professional in a trial version of a PDP (personal development plan). Based on this, you will choose your first PRO module for semester 1 of year 2;	j
4	Present a selection of your work during the BE Showcase event.	g

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

- Several workshops and inspiration sessions;
- (further) development of your personal portfolio;
- Excursions you will prepare, execute and present according to your own preferences;
- An individual (introduction) talk with your study coach.

Language:	English
Teaching activity:	Instruction and demonstration
	Individual independent learning
	Student presentations
Examination:	Portfolio assessment 100% On condition that the Edubook assignments have been made and a process book is completed.
Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	License Edubook (2 years).
Digital Resources:	--

OSIRIS-code: BBEE1.MO1UT-01

Course name: MO1 Urban Traffic System

Study load: 5 EC (=140 hours)

Coordinator: Sjors Martens

Lecturer(s): Danique Gommers, Sjors Martens, Rien Smalheer

Summary: In this first expertise module of mobility we will reflect on the urban traffic system, or all the elements of the built environment that influence how you can travel once you get out the door. The most everyday elements such as roads, traffic lights and signs, and modes of travel will be discussed. You will learn design principles of these elements, the data necessary to use them, safety- and behavioural rules, and how to design these infrastructural measures using different pieces of software. Ultimately, you'll be able to offer a weighted advice on the best layout of a location based on studied traffic situations. Going out for a walk will never be the same!

Focus competencies:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	I	I	-	-	-	I	-	-	-	-

Learning objective(s):

	Upon completion of this study component you are able to:	Competency
1	Recognise unsafe infrastructural situations;	a
2	Understand behavioural possibilities of road users;	a
3	Present the analysis of traffic unsafety through individual infrastructural cases;	g
4	Understand terms and vocabulary used in the domain of mobility;	b
5	Calculate the capacity of roundabouts and signalised intersections;	f
6	Create a fixed programme for a signalised intersection in COCON;	c
7	Translate policy considerations into solutions and criteria;	b
8	Quantitatively compare different solutions to traffic problems;	f
9	Apply evaluation criteria in an advisory report.	g

Content description:	In this study component the following content is covered: - Traffic user behaviour; - Unsafe situations and infrastructure; - Traffic intensity and capacity; - Traffic policy influences; - Traffic light programmes and designs; - Visualisation of spatial designs.
Language:	English
Teaching activity:	Instruction and demonstration Group work Individual independent learning
Examination:	Individual assignment 30% Group assignment 70%
Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE1.UP1SD-01

Course name: UP1 Spatial Development

Study load: 5 EC (=140 hours)

Coordinator: Zhan Goosen

Lecturer(s): Zhan Goosen, Stephen Narsoo

Summary: The aim is to introduce students to the different roles that an urban planner can fulfill in the process of spatial development. This includes the associated tasks, the instruments that are available to the planner and the products that are delivered.

Focus competencies:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	I	I	-	-	-	-	I	-	-	-

Learning objective(s):	Upon completion of this study component you are able to:	Competency
1	Demonstrate an understanding and connection between all planning phases, tasks and products;	a
2	Establish the role of the urban planner within spatial planning;	a
3	Understand the different roles and task of a spatial planner;	b
4	Establish the difference between the more strategic and the executive planning roles;	b
5	Describe how spatial development takes place with a focus on both urban and rural areas;	g
6	Explain the economic, social and physical development of regions;	g
7	Understand spatial functions and demonstrate the relationship between them.	a

Content description:	In this study component the following content is covered: - Urban and rural developments; - Planning processes and phases; - Roles & tasks in planning; - Specific products from urban planning; - Location factors; - Functions & program; - Housing market.
Language:	English
Teaching activity:	Instruction and demonstration Group work Individual independent learning
Examination:	Group assignment 30% Written exam 70%
Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE1.UD1TB-03

Course name: UD1 Toolbox Urban Design

Study load: 5 EC (=140 hours)

Coordinator: Maurizio Scarciglia

Lecturer(s): Luiz Marcos De Carvalho Filho, Maurizio Scarciglia, Diaan van der Westhuizen

Summary: What are the basic tools for the Urban Designer? As the discipline continuously changes according to urbanization and social trends, this course aims at offering the Urban Design student the basic tools to analyse, recognize and reproduce basic urban developments. The course, through an excursus in History of the discipline, equips the student with the foundational knowledge of the elements that compose the urban built environment; public space typologies, building types and building densities. This is achieved by combining inventorizing, analysis, model making as methodologies to investigate how urban design can improve the quality of life.

Focus competencies:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	I	I	-	-	-	-	I	-	-	-

Learning objective(s):	Upon completion of this study component you are able to:	Competency
1	Recognize structuring elements in the public realm, building typologies, transitions from public to private and building densities;	a
2	Define structuring elements in the public realm, building typologies, transitions from public to private and building densities;and reproduce building typologies;	b
3	Reproduce structuring elements in the public realm, building typologies, transitions from public to private and building densities;	b
4	Produce physical models and profiles based on typology, layers and building densities.	g

Content description:	In this study component the following content is covered: - Structuring elements in the public realm; - Building typologies; - Transitions public private; - Standard dimensions; - Spatial quality in reference plans; - Densities; - Physical models; - Profiles.
Language:	English
Teaching activity:	Group work Individual independent learning Formative assessment
Examination:	Individual assignment 100%
Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	Sketching paper, Fine Liners (black, multiple thicknesses)
Digital Resources:	--

Built Environment

Year 2

Semester 3

OSIRIS-code: BBEE2.KB6.MF-02

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:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	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;	a
2	Understand and apply different elements like money, risks, organiszation, time, communication and quality.	a
3	Understand the relation between theory and practice;	b
4	Understand the difference in roles, both internaly and externally, within projectmanagement;	a
5	Make an inventory of all the financial aspects of spatial development and translate them into an overall calculation;	c
6	Construct and execute a complete calculation of a land development;	d
7	Make a financial calculation of all types of choices within the planning- and designprocess.	d

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:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE2.LB3.CR-01

Course name: LAB3 City and Region

Study load: 10 EC (=280 hours)

Coordinator: Maurizio Scarciglia

Lecturer(s): Danique Gommers, Rana Habibi, Karina Iurkova, Frank Jacobs, Elly Khademi, Tomas Mahu, Stephen Narsoo, Maurizio Scarciglia, Diaan van der 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:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	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;	a
2	Gather information and raw data using various research methods, analyze them and then interpret and draw conclusions from them;	a
3	Analyse existing policy and assess how implementation of it is progressing, as well as provide suggestions for next policy adjustments;	f
4	Distinguish intercultural differences in urban and regional development, as well as trends and processes in urban and regional development;	h
5	Work independently, systematically, innovatively, as well as show critical thinking skills, both in the group and individually;	j

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 join	k
7	Use both academic and practical, spatial and cultural knowledge to base your strategy on, meaning you translate existing knowledge into practical strategies.	h

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 50%
Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE2.PPD3-01

Course name: Personal & Professional Development 3

Study load: 5 EC (=140 hours)

Coordinator: Danique Gommers

Lecturer(s): Danique Gommers, Karina Iurkova, Frank Jacobs, Joost van de Pas, 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:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	-	-	-	-	I	-	I	-

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;	j
2	Build your own professional network in a proactive way;	g
3	Identify and spread your more specific qualities, motivation and ambitions that you currently have for yourself as a future professional in the field;	j
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).	j
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;	g
6	Properly substantiate and present the choice of the profiling room (free elective) in your portfolio.	j

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 coac
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:	Mark, P, F, MO
Required literature:	--
Other required materials:	License Edubook (already purchased at PPD in Year 1)
Digital Resources:	--

OSIRIS-code: BBEE2.MO2.MP-01

Course name: MO2 Mobility Patterns and Data

Study load: 5 EC (=140 hours)

Coordinator: Elly Khademi

Lecturer(s): Hossein Dashtestaninejad, Elly Khademi

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.

Focus competencies:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	I	-	-	-	I	-	-	-	-

Learning objective(s):	Upon completion of this study component you are able to:	Competency
1	Explain the relationship between behavioral theories and travel patterns.	b
2	Explain different travel patterns of different group segmentations (age, education, household composition, income, etc.) for planning and policies.	b
3	Understand and explain Transport Demand Management (TDM) strategies as a tool to impact travel patterns of different group segmentations.	f
4	Explain the equilibrium of supply and demand on the strategic level (Macro).	b
5	Interpret the different types of transport models.	f
6	Explain the Macro model of travel demand (4-step model).	g
7	Estimate travel patterns based o the provided data set and make recommendation for future policies.	f

Content description:	In this study component the following content is covered: - Part I (Travel behavior, Pattern, and Theories): Introduction 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 - Part 2 (Data and Decision): the importance of data in identifying 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.
Language:	English
Teaching activity:	Instruction and demonstration Individual independent learning Formative assessment
Examination:	Written exam 70% Individual assignment 30%
Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE2.UP2.HL-01

Course name: UP2 Housing and Livability

Study load: 5 EC (=140 hours)

Coordinator: Zhan Goosen

Lecturer(s): Frank Jacobs, Zhan Goosen

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

Focus competencies:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	II	-	II	-	-	-	-	-	-	-

Learning objective(s):

	Upon completion of this study component you are able to:	Competency
1	Identify causes and challenges related to urbanization;	b
2	Demonstrate an understanding of urban demography (changing structure of human population);	a
3	Establish and explain arising challenges related to housing in urban areas (developed and developing countries) on an international scale;	a
4	Explain the relation between the demand for housing (related to demography) and supply of housing (the housing market);	a
5	Demonstrate an understanding of the dimensions of sustainability;	a
6	Identify relevant impacts concerning sustainability on a neighborhood scale based on the dimensions;	a
7	Define livability in the context of urban planning and establish influencing factors;	a
8	Establish the role of the urban planner within spatial planning as a whole and relevant topics (e.g. Housing, Policy & Control etc.);	a
9	Describe how leading policies may influence spatial development processes;	a

	10 Demonstrate the ability to practically apply GIS.	c

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: --

Other required materials: --

Digital Resources: --

OSIRIS-code: BBEE2.UD2.SS-01

Course name: UD2 Spatial Strategy

Study load: 5 EC (=140 hours)

Coordinator: Rana Habibi

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

Summary: While SPEC 1 UD | SO 01 focuses on the objects composing the built environment, UD | SO 02 will focus on the ensemble typologies of these objects on a neighborhood, urban and regional scale.

Cities and regions are shaped over decades based on several socio-political and economic circumstances. Hence, urban typologies not only referred to the forms and spatial arrangements but also embedded the evolution of different nations' socioeconomic and political actions and lifestyles during the time.
The forms and types of urban areas 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 various situations.
This course aims to acquire knowledge and skills in identifying and applying various spatial strategies and analyzing diverse spatial structures at three different scales: neighborhood, urban, and regional.
This course has two main parts:
-Spatial strategies in answering the questions: What are urban design strategies in times of uncertainties? Which strategies could be used when we have pre-defined programs? What is parameter-based urban design strategies.
-Analyzing Urban typologies on neighborhood, urban and regional scale.

Focus competencies:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	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;	b
	2	Understand, recognize, use analysis and design methods on regional scale;	a
	3	Develop an integral strategy for the development based on its historical, political, economical and geographical context;	k
	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.	k

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)
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE.P3.REPL-01

Course name: PRO Regional Planning

Study load: 5 EC (=140 hours)

Coordinator: Stephen Narsoo

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:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	-	-	-	-	-	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;	h
2	Identify and describe broader theories of Regional Development- City and Region interrelationships, Growth models, comparative advantages etc.;	a
3	Build analytical skills such as regional (demographic, economic, land suitability) analysis while preparing strategies for city and region;	k
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;	h
5	Understand regional strategies and policies;	h

6	Understand the contexts and needs of different regional plans (metropolitan planning) across various parts of the world;	k
7	Conduct a case study of metropolitan planning covering the holistic understanding of the challenges and experiences of the case concerned.	k

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 100%

Mark: Mark, P, F, MO

Required literature: --

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

Digital Resources: --

OSIRIS-code: BBEE.P3.SMAR-02

Course name: PRO Smart Mobility

Study load: 5 EC (=140 hours)

Coordinator: Sjors Martens

Lecturer(s): Sjors Martens, Ekaterina Uzunova

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:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	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;	a
2	Interpret and specify the pursued values in smart mobility solutions;	b
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;	k

4	Develop critical thinking about proposed smart solutions, through a technology critical perspective;	f
5	Independently formulate a plan of action or participation format that encourages smart mobility teams towards more responsible and sustainable solutions;	j
6	Investigate one's personal contribution to a network of future city management professionals.	c

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.
- Game design and playful participation methodology

Language: English

Teaching activity: Instruction and demonstration

Formative assessment

Individual independent learning

Examination: Individual assignments 50%

Group assignment 50%

Mark: Mark, P, F, MO

Required literature: --

Other required materials: --

Digital Resources: POLIS Research Network Resources

https://www.buas.nl/en/research/domains/built-environment ELTIS mobility solutions database EIT UM webTVs and market place

OSIRIS-code: BBEE.P3.LAN-01

Course name: PRO Landscape

Study load: 5 EC (=140 hours)

Coordinator: Michiel Mulderij

Lecturer(s): 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:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	II	-	II	-	-	-	-	-	-	-

Learning objective(s):

	Upon completion of this study component you are able to:	Competency
1	Recognize geomorphological underlayers, natural and cultural systems;	a
2	Interpret geomorphological underlayers, natural and cultural systems;	a
3	Graphically represent geomorphological underlayers, natural and cultural systems;	g
4	Analyze best practice designs that make use of landscape underlayers at the regional, city and local scale;	a
5	Identify and record best practice design principles for future use.	c

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:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE.P3.TAUR-02

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:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	-	-	-	II	II	-	-	-

Learning objective(s):

	Upon completion of this study component you are able to:	Competency
1	Recognize and understand issues in urban environments;	f
2	Understand and apply different Tactical Urbanism approaches;	f
3	Develop a plan for a TU-intervention, clearly linking the interventions with specific urban issues;	f
4	Execute, monitor and evaluate the TU-intervention;	f
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).	g

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 100%
Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	--

Built Environment

Year 2

Semester 4

OSIRIS-code: BBEE2.LAB4.HH-02

Course name: LAB4 High Density Urban Hub

Study load: 10 EC (=280 hours)

Coordinator: Jeroen Weppner

Lecturer(s): Luiz Marcos De Carvalho Filho, Karina Iurkova, Tomas Mahu, Michiel Mulderij, Stephen Narsoo, Thomas Oorschot, Jeroen Weppner, Tim van Wershoven, Diaan van der 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:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	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;	k
2	Demonstrate the ability to organize and communicate the proposed plans with stakeholders considering participation/ collaboration/ cocreation;	g
3	Identify key drivers and key obstacles per stakeholder analysis through interviews and through spatial analysis;	d
4	Demonstrate the ability to translate a given vision into variants and create a detailed design/proposal based on a Multi-criteria analysis (MCA);	c
5	Reflect on the variant selection in a mixed-specialism group;	k
6	Demonstrate the ability to consider maintenance and realization of the proposal;	e
7	Present the main outcomes in a professional way to (external) stakeholders.	g

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

Mobility

- 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
- Parking balance calsulations
- 3d GIS / AutoCAD
- Mobility plan: networks and designs
- Intersection and crossing modelling
- Urban hubs and inter-modality
- Maintenance planning

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 50%
	Individual assignment 50%
Mark:	Marks, F, MO
Required literature:	--
Other required materials:	ArcGIS, SketchUp, AutoCAD, InDesign
Digital Resources:	--

OSIRIS-code: BBEE2.PPD4-01

Course name: Personal & Professional Development 4

Study load: 5 EC (=140 hours)

Coordinator: Danique Gommers

Lecturer(s): Danique Gommers, Karina Iurkova, Frank Jacobs, Joost van de Pas, 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:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	-	-	-	-	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;	g
2	To select potential organisations for work placements on the basis the professional network you have built up;	j
3	Acquire a suitable work placement and placement assignment in order to develop the learning objectives formulated in your PDP;	j
4	Name and/or illustrate your built-up profile by professionally presenting your portfolio during the BE showcase;	g
5	Demonstrate in your portfolio that you have expanded your skill set by filling in your profiling room;	j

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). Free electives 3x
Mark:	Marks, F, P, MO
Required literature:	--
Other required materials:	License Edubook (already purchased at PPD in Year 1)
Digital Resources:	--

OSIRIS-code:	BBEE2.MO3.MS-01
Course name:	MO3 Mobility Services and Organisation
Study load:	5 EC (=140 hours)
Coordinator:	Jeroen Weppner
Lecturer(s):	Jeroen Weppner, Tim van Wershoven
Summary:	Sustainablity 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:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	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;	c
2	Regulate the roles and interests of governmental organisations, commercial organisation and consumers;	j
3	Specify the governmental responsibilities in realisation, maintenance and development of 'traditional' mobility services;	j
4	Comment on a commercial business case, focussing on the development, maintenance and innovation;	j
5	Translate consumer demands and preferences towards a potential product characteristics;	c
6	Critisize the opportunities and threats of rules and regulations;	j
7	Develop a (simple) business case for your own sharing facility.	c

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:	Provided during class
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE2.UP3.WM-01

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. Both national and international examples will be dealt with.

Focus competencies:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	II	II	-	-	-	II	-	-	-

Learning objective(s):

	Upon completion of this study component you are able to:	Competency
1	Name and recognize the underlying aspects of water management;	b
2	Make the connection between the changing climate and water management;	b
3	Make a connection between the Dutch landscape and water management;	b
4	Understand the multi governance of water management and the different actors;	g
5	Understand the actual question concerning spatial planning, related to water management;	c
6	Translate the theory of water management to concrete spatial development.	c

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;

Language: English

Teaching activity: Instruction and demonstration

	Group work
	Individual independent learning
Examination:	Group assignment 30%
	Written exam 70%
Mark:	Mark, P, F, MO
Required literature:	Water Governance in the Netherlands; OECD Report; 'Deltaprogramma 2023 (download)
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE2.UD3.SPS-02

Course name: UD3 Spatial Processes and Systems

Study load: 5 EC (=140 hours)

Coordinator: Michiel Mulderij

Lecturer(s): Luiz Marcos 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:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	-	-	-	-	II	II	-	-

Learning objective(s):

	Upon completion of this study component you are able to:	Competency
1	Identify uncertainties in a project;	b
2	Analyze trends and developments in the built environment;	a
3	Predict possible consequences of trends and developments in the built environment;	h
4	Formulate scenarios based on trends and developments in the built environment;	b
5	Produce design solutions that can adapt to various scenarios;	c
6	Communicate about uncertainties in infographics;	g

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.

Language:	English
Teaching activity:	Instruction and demonstration
	Group work
	Individual independent learning
Examination:	Individual assignments 100%
Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE.P4-6.PAP-01

Course name: PRO Participation in Practice

Study load: 5 EC (=140 hours)

Coordinator: Loek Hellebrekers

Lecturer(s): Loek Hellebrekers, Eefje van den Hoogen

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:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	-	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;	g
2	Identifying relevant stakeholders in order to achieve change aimed at quality of life;	g
3	Being able to collaborate constructively with residents and other relevant parties on spatial-social assignments at neighborhood level;	g
4	Drawing up an implementation plan with concrete proposals/measures and activities;	d
5	Evaluating applied methods and learning from them for the follow-up process;	f

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:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE.P4-6.DEC-01

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

Focus competencies:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	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;	g
2	Set up and produce several parts to the project, like designs, phasing/staging plans, etc.;	b
3	Apply different types/forms of contact between client(s) and consultant(s), formal and informal;	b
4	Contrast different tactics to procure/win integral projects (in tender/bidding phases);	k
5	Being a specialist as a part of a multidisciplinary project team;	k

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

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: Mark, P, F, MO

Required literature: --

Other required materials: --

Digital Resources: --

OSIRIS-code: BBEE.P4-6.TTM-01

Course name: PRO Traffic and Transport 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 predict, simulate, and evaluate traffic. You will compare the applicability of three different modelling platforms. This will turn you into a platformspecialist which municipalities are actively pursuing

Focus competencies:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	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;	b
2	Specify and incorporate the elements of effective transportation planning in a simulation programme;	b
3	Explain the entire spectrum of decision support transport Micro and Macro models;	b
4	Explain and apply the basic knowledge of traditional Macro (4-step) models.	c
5	Design a network in a micro simulation programme (VISSIM);	c
6	Chart applications of data platforms and make use of these in policy making	f

7	Describe the elements of a vehicle-dependent traffic light regulation;	b
8	Design a vehicle dependent traffic light regulation in the associated programmes;	c
9	Create user stories around digital atlasses and critically evaluate their use in policy making	g

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)
- Digital Twins

Language: English

Teaching activity: Instruction and demonstration
Group work
Individual independent learning

Examination: Individual assignment 50%
Group assignment 50%

Mark: Mark, P, F, MO

Required literature: Hollander, Yaron. Transport Modelling for a Complete Beginner. CTthink!, 2016.

Other required materials: BUas computers with PTV software

Digital Resources: --

OSIRIS-code: BBEE.P4-6.ADV-01

Course name: PRO Advanced Visualisation

Study load: 5 EC (=140 hours)

Coordinator: Tomas Mahu

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

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:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	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).	c
2	Choosing the right communication tools at a professional level for the intended communication.	g
3	In a professional manner, in complex situations, actively seek cooperation with those involved/target groups.	c
4	Building a storyline in which certain choices/premises are substantiated clearly and powerfully.	g

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:	Group assignment 100%
Mark:	Mark
Required literature:	--
Other required materials:	3D program (Sketchup/REVIT)-Render program (n.t.b)-Adobe package CC-Camera (Photo & Video)
Digital Resources:	--

OSIRIS-code: BBEE.P4-6.ARC-02

Course name: PRO Architecture

Study load: 5 EC (=140 hours)

Coordinator: Luiz de Carvalho Filho

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:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	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	a
2	Recognize and understand different architecture typologies and their functional requirements	b
3	Make an architectural plan analysis of an existing building, illustrated in the form of drawings and described in your own words	a
4	To use this acquired knowledge and insights to conduct a typology study for a building	c
5	To develop an architectural concept based on a program and typology and location study	c
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	c
7	To make a reproduction of a building in the form of a scale model	g
8	Design and present a building using Sketch-up	c
9	To explain and argument the sketch design orally with a visual presentation	g

	10 Evaluate the design as related to its urban context and its role within the public domain	f

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 100%

Mark: Mark, P, F, MO

Required literature: --

Other required materials: --

Digital Resources: --

OSIRIS-code: BBEE.P4-6.ENT-01

Course name: PRO Energy Transition

Study load: 5 EC (=140 hours)

Coordinator: Rana Habibi

Lecturer(s): Rana Habibi, Stephen Narsoo

Summary: 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 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. You can find more information in the assignment section.

Focus competencies:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	-	-	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	k
	2	Identifying required behavioral changes aimed at various stakeholders in sustainability at neighborhood level	k
	3	Analyzing existing (digital) spatial plans	a
	4	Embedding sustainability proposals in the Environmental Plan	e
	5	Providing innovative forms of maintenance aimed at sustainability at neighborhood level	e

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%
Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE.P4-6.MOL-02

Course name: PRO Mobility & Land Use

Study load: 5 EC (=140 hours)

Coordinator: Paul van de Coevering

Lecturer(s): Paul van de Coevering, Ellen Stoppels

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:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	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;	k
2	Indicate the relevance of spatial and infrastructural interventions for the accessibility, liveability and economy of urban regions;	k
3	Determine robust principles behind successful use of spatial mobility policies (best practices);	c
4	Weigh which principles and tools are effective for current challenges on the cutting edge of mobility and land use;	k
5	Design a good structure for process coordination and governance to enhance collaboration between all governments and disciplines involved;	j
6	Apply theoretical knowledge, the robust principles, governance and tooling effectively in a topical case.	k

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:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE.P4-6.ALR-02

Course name: PRO Academic Literacy and Research

Study load: 5 EC (=140 hours)

Coordinator: Diaan van der Westhuizen

Lecturer(s): Luiz de Carvalho Filho, Diaan van der 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.

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.

Focus competencies:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	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;	a
2	Identify and apply the necessary steps in a research project and process;	a
3	Construct a research report with appropriate content for your discipline/topic;	b
4	Plan and structure your research project effectively;	h
5	Use language appropriately and effectively in written academic work;	g
6	Evaluate and justify information and ideas obtained from sources;	f
7	Show the ability to recognize different research	a

methods;

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:	Individual assignment 100%
Mark:	Mark, P, F, MO
Required literature:	Academic Writing: A Handbook for International Students Author: Stephen Bailey Publication Information: Fifth edition. London: Routledge. 2017
Other required materials:	Architectural Research Methods: Second Edition. Authors: Linda Groat & David Wang. 2nd Edition, Wiley. 2013
Digital Resources:	--

Built Environment

Year 3

Semester 5

OSIRIS-code: BBEE3.PLACEM-01

Course name: Placement

Study load: 30 EC (=840 hours)

Coordinator: Elly Khademi

Lecturer(s): Elly Khademi, Stephen Narsoo, Diaan van der Westhuizen,

Summary: This study component involves:
Working in practice for 18 weeks and carrying out an assignment or several assignments for the company or institution concerned. You record the results in a report consisting of a competency section and a professional content section, which you explain orally during a presentation. In the competency section, you articulate your own learning experience.

Coordinators:
- UP: Stephen Narsoo
- MO: Elly Khademy
- UD: Diaan van der Westhuizen

Dutch track:
- RO: Frank van den Eeden
- MO: Lizanne Hessels
- SO: Ron van den Heuvel

Logistics: Irene Meeuwesen & Luuk Koopman

Admission for internship:
You arrange the placement yourself, whereby the placement post and placement assignment must be approved by the placement coordinator. The conditions for admission for the first work placement are listed in the Teaching and Examination Regulations ABEL (OER-ABEL).

Focus competencies:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	II	II	-	I	-	-	II	-	-	II

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

1 With direction and feedback, address, report and present a practice issue; k

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

Language: English

Teaching activity:	Individual independent learning
	Formative assessment
	Student presentations
Examination:	Oral competency assessment 100%
Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	Placement handbook
Digital Resources:	--

Built Environment

Year 3

Semester 6

OSIRIS-code: BBEE3.LB5.CF-01

Course name: LAB5 Cities of the Future

Study load: 10 EC (=280 hours)

Coordinator: Menno Slijboom

Lecturer(s): Zhan Goosen, Marc Holvoet, Karina Iurkova, Tomas Mahu, Stephen Narsoo, Maurizio Scarciglia, Menno Slijboom, Ekaterina Uzunova

Summary: In this fifth and final lab you will apply your skills, developed through the first three years of the programme. You will focus on one of the challenges of future cities presented in the lab. In this integral lab, you will not only apply your skills as a mobility expert, urban planner or urban designer, but also your personal skills gained through your unique experience of your selection of PROs and your placement.

Focus competencies:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):										

Learning objective(s):	Upon completion of this study component you are able to:	Competency
1	Analyse the complex social issues within the context of your chosen challenge. You will demonstrate this in your project analysis and elaboration of the brief;	h
2	Formulate the context, requirements and objectives of your project, using a given template. You will demonstrate this by writing a project brief with plan of approach for your chosen challenge;	h
3	Identify relevant stakeholders, evaluate their interest and take these into consideration. You will demonstrate this by making a stakeholder matrix, which you traceably consider as part of your decision making process;	j
4	Manage risks associated with your proposal. You will demonstrate this by developing scenario studies.	j
5	Independently choose and apply an appropriate format to explain, Illustrate and visualize your proposals. You demonstrate this by creating a convincing and comprehensive end product, for which the format is to be decided by yourself;	g
6	Proactively collaborate with peers from different specializations. You demonstrate this by integrating designs, principles and insights cross-specialisation;	k

7	Connect your proposal with issues and insights from outside the built environment domain. You demonstrate this by integrating research and ideas from other domains.	k

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

- Future urban challenges with societal relevance
- Project brief and plan of approach
- Stakeholders
- Risk management

Language: English

Teaching activity: Individual independent learning
Formative assessment
Student presentations

Examination: Individual assignment 100%

Mark: Mark, P, F, MO

Required literature: --

Other required materials: --

Digital Resources: --

OSIRIS-code: BBEE.P6.ADEV-01

Course name: PRO Area Development

Study load: 5 EC (=140 hours)

Coordinator: Marcel van Wietingen

Lecturer(s): Ellen Stoppels, Marcel van Wietingen

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 greta 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.

Focus competencies:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	II	-	II	-	-	-	-	-	-

Learning objective(s):

	Upon completion of this study component you are able to:	Competency
1	Make an inventory of all possible actors in area development and describe their role	b
2	Design the process of a specific area development	d
3	Recognize and apply specific forms of coorperation within are development	g
4	Construct and apply a real estate calculation	b
5	Construct an integral organization of an area development	k

Content description: 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

Language:	English
Teaching activity:	Instruction and demonstration
	Group work
Examination:	Written exam 50%
	Group assignment 50%
Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	Study material KB6

OSIRIS-code: BBEE.P6.ENT-01

Course name: PRO Entrepreneurship

Study load: 5 EC (=140 hours)

Coordinator: Frank van den Eeden

Lecturer(s): Frank van den Eeden

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.

Focus competencies:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	-	-	-	-	-	II	II	-

Learning objective(s):

	Upon completion of this study component you are able to:	Competency
1	Apply the basic principles of entrepreneurship to a concrete planning problem;	j
2	Approach the spatial task from an entrepreneur's perspective. This concerns both the substantive and the financial side of the story;	h

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

- Entrepreneurship
- Current spatial issues
- Business model Canvas
- Presentation

Language: English

Teaching activity: Instruction and demonstration

Formative assessment

Group work

Examination: Individual assignment 100%

Mark:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE.P6.GGD-01

Course name: PRO GIS & Geo Data

Study load: 5 EC (=140 hours)

Coordinator: Thomas Oorschot

Lecturer(s): Luiz Marcos De Carvalho Filho, Thomas Oorschot

Summary: In this study component, you will explore using GIS and Geodata analysis in the Urban Environment domain. You will learn how 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 how to carry out statistical and geographical analysis. The course will encourage you to look beyond the technical aspects of spatial analysis and to translate data into valuable insights that can be used for decision-making.

Focus competencies:

	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	II	II	-	-	-	-	-	-	-	-

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

		Competency
1	Position GIS and geodata analysis in the Built Environment domain;	b
2	Select, clean and analyse several datasets;	a
3	Perform statical and geographical analysis;	a
4	Recognise patterns and trends in spatial data;	a
5	Translate data analysis into conclusions;	b
6	Communicate conclusions in text, maps, and graphs.	g

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

- GIS theory
- Spatial analysis
- Statistics
- Communication tools
- Reporting

Language: English

Teaching activity: Instruction and demonstration

	Individual independent learning
	Formative assessment
Examination:	Individual assignment 100%
Mark:	Mark, P, F, MO
Required literature:	Will be provided in the course.
Other required materials:	--
Digital Resources:	--

OSIRIS-code: BBEE.P4-6.TRT-01

Course name: PRO Trends & Transitions

Study load: 5 EC (=140 hours)

Coordinator: Maurizio Scarciglia

Lecturer(s): 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:	a. Research	b. Specify	c. Design	d. Realise	e. Maintain	f. Monitor, test and evaluate	g. Communicate and collaborate	h. Initiate and steer	j. Manage and innovate	k. Integral approach
Competency Level (I-III):	-	-	-	-	-	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;	f
2	Extrapolate historic transitions in society and the built environment to identify current trends and societal urgencies;	h
3	Identify threats and opportunities for future development and translate these into a brief;	h
4	Process research outcomes into a story telling product, that includes text and graph(ic)s;	g
5	Reflect and conclude how societal urgencies and transitions can inform spatial planning and design.	h

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:	Mark, P, F, MO
Required literature:	--
Other required materials:	--
Digital Resources:	--

Built Environment

Year 4

Semester 7

OSIRIS-code:	BCM.23MINOR
Course name:	The Art of Change
Study load:	30 EC (=840 hours)
Coordinator:	Karolien Kampstra
Lecturer(s):	Erik van Diffelen, Karolien Kampstra, Arna van Strien, Rutger Thielen

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

- successfully plan, execute, and evaluate change initiatives;
- 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 organization 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);
- being able to write a resistance handling plan.

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

- Change Management
- Project Management
- Learning & Development
- Business Development
- Organisational Behaviour

Language:	EN
Teaching activity:	Project with coaching, LAB with coaching, Workshop
Examination:	Group assignment 67% Individual assignment 33 Process (obligatory)
Mark:	Numerical mark, P, F, MO

Required literature:	J. Kotter. Leading Change. Harvard Business School Publishing (ISBN 9781422186435), Kotter, John P. Accelerate: building strategic agility for a faster moving world. Harvard Business Review Press (ISBN 9781625271747)
Other required materials:	--

OSIRIS-code:	BCS.23MINOR
Course name:	Crowd Safety in Hubs & Events
Study load:	30 EC (=840 hours)
Coordinator:	Justin van de Pas
Lecturer(s):	Justin van de Pas
Learning objective(s):	Upon completion of this study component you are able to: - clear understanding of important concepts of Crowd Management and application of crowd modelling; - 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; - ability to discuss appropriate risk assessment methodologies for crowd safety, how this impacts on legislation and guidance, and/or which areas of crowd safety need improvement; - demonstrating understanding of core principles and applications of the tools. Providing some detail of use of models, information they provide and how this assists in the risk analysis of crowd dynamic; - clear understanding of important concepts within mobility and urban design by applying and analysing integtal alignment, design and planning processes and urban and spatial design; - ability to discuss the application of crowd simulations by analysing crowd simulations, applying measuring and monitoring tools, queing theories and crowd simulations; - ability to discuss application of stakeholder analysis, procedures and permits and law and regulations; - ability to discuss appropriate risk assessment methodologies for crowd safety, how this impacts on legislation and guidance, and/or which areas of crowd safety need improvement; - communicate the information about the tools to users and/or team, with the goal to communicate with the audience; - analysing an event or venue, including four core modelling elements; - recognise group behavior and understanding causality; - (deep) researching and correct referencing; - the use of clear graphics.
Content description:	In this study component the following content is covered: - crowd safety backgrounds and dynamics; - crowd safety, modelling and monitoring; - crowd safety, design & organization; - crowd simulations and the use of simulation; - crowd safety, decisions & response; - crowd simulations; - (event) Logistics; - mobility and Accessibility; - overtourism.
Language:	EN
Teaching activity:	Lecture, Workshop, Project with coaching

Examination:	Group assignment 50% Individual assignment 50% Process (obligatory)
Mark:	Numerical mark, F, MO
Required literature:	Still, G.Keith. Introduction to Crowd Science. (ISBN 9780367866709)
Other required materials:	--

OSIRIS-code:	BUR.23MINOR
Course name:	International Urban Redevelopment
Study load:	30 EC (=840 hours)
Coordinator:	Paul van de Coevering
Lecturer(s):	Paul van de Coevering, Zhan Goosen, Ed Ravensbergen, Ineke Spapé
Learning objective(s):	Upon completion of this study component you are able to: - assess the current situation 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 revitalization of your case study area which are grounded in theory and are alligned with the results of your SWOT analysis; - create a detailled 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 concepting and the specific measures; - conduct targeted Urban Guerilla tactics in practice.
Content description:	In this study component the following content is covered: - in depth analysis of a case study area in North America; - differences in land use and transportation networks between European and Northern American cities; - societal challenges related to urban sprawl and a car dependent culture; - hardware, software and orgware measures and their synergies; - designing and planning from masterplan to detailed street designs; - urban Guerilla tactics and connection with hardware, software orgware measures; - effective presentation skills; poster presentations, videos, brochures and other means of conveying your message.
Language:	EN
Werkvorm:	Project with coaching
Examination:	Individual assignment 50% Group assignment 50%
Mark:	Numerical mark, F, MO
Required literature:	--
Other required materials:	--

Built Environment

Year 4

Semester 8

OSIRIS-code:	B4.SC-18
Course name:	Graduation Thesis
Study load:	30 EC (=840 hours)
Coordinator:	Monique van Herpen
Lecturer(s):	--
Learning objective(s):	Upon completion of this study unit you are able to: - to tackle, to report and to present a practical problem as a starting professional.
Content description:	In this study unit, the following content is covered: You have to arrange your own internship and assignment. The internship coordinator measures the assignment on size, complexity and draft. During the graduation process you will work on location. Coordinators; - ILE/ILN: Irene Meeuwesen/ André Gijsberts; - BE: Monique van Herpen.
Language:	EN
Teaching activity:	Graduation supervision
Examination:	Individual assignment 100%
Mark:	Marks, F, MO
Required literature:	--
Required other materials:	--

Appendices

Competence description
Schematic overview of entire study period
Link to year schedule and assessment programme

Description competencies 2023 - 2024

01 Conducting research

You can analyze a problem and identify the question.
You can set up, carry out and assess practice-based research as an iterative process.
You make use of suitable methods and techniques and have a critical, investigative and entrepreneurial attitude.

02 Specifying

You create a specification with regard to formulating ambitions, prerequisites and feasibility in such a way that it gets the product moving in the right direction.

03 Designing

The design can be a plan, model, memorandum of advice, spatial or technical design. You create the design on the basis of a set programme of requirements, you examine various solutions and variants and make a well-founded choice.

04 Realising

You implement a design by preparing, maintaining, monitoring and adjusting its realization.

05 Controlling

You draw up a control & maintenance plan for preserving the realized quality.

06 Monitoring, assessing and evaluating

You can monitor and assess the achieved results objectively. Afterwards, you can adjust and make proposals for improvement and bring them forward.

07 Communicating and cooperating

You communicate profession-oriented information to the industry, colleagues and target groups to be determined (customers, commissioners, parties concerned). You can communicate both internally and externally in a way that suits the target group. Communicating comprises the entire spectrum in which information is received, given and shared. You aim at cooperating and constructively liaising with parties concerned and target groups.

08 Initiating and directing

You point out and list problems for the relevant issues for society from a bird's-eye view and a broad market orientation. You can formulate the prerequisites, requirements and objectives. You can describe, monitor and adjust the process.

09 Managing and innovating

You guide and steer processes to achieve objectives. You are self-directing and can reflect on own performance. You are proactive, take initiative, and can think and work 'out of the box'.

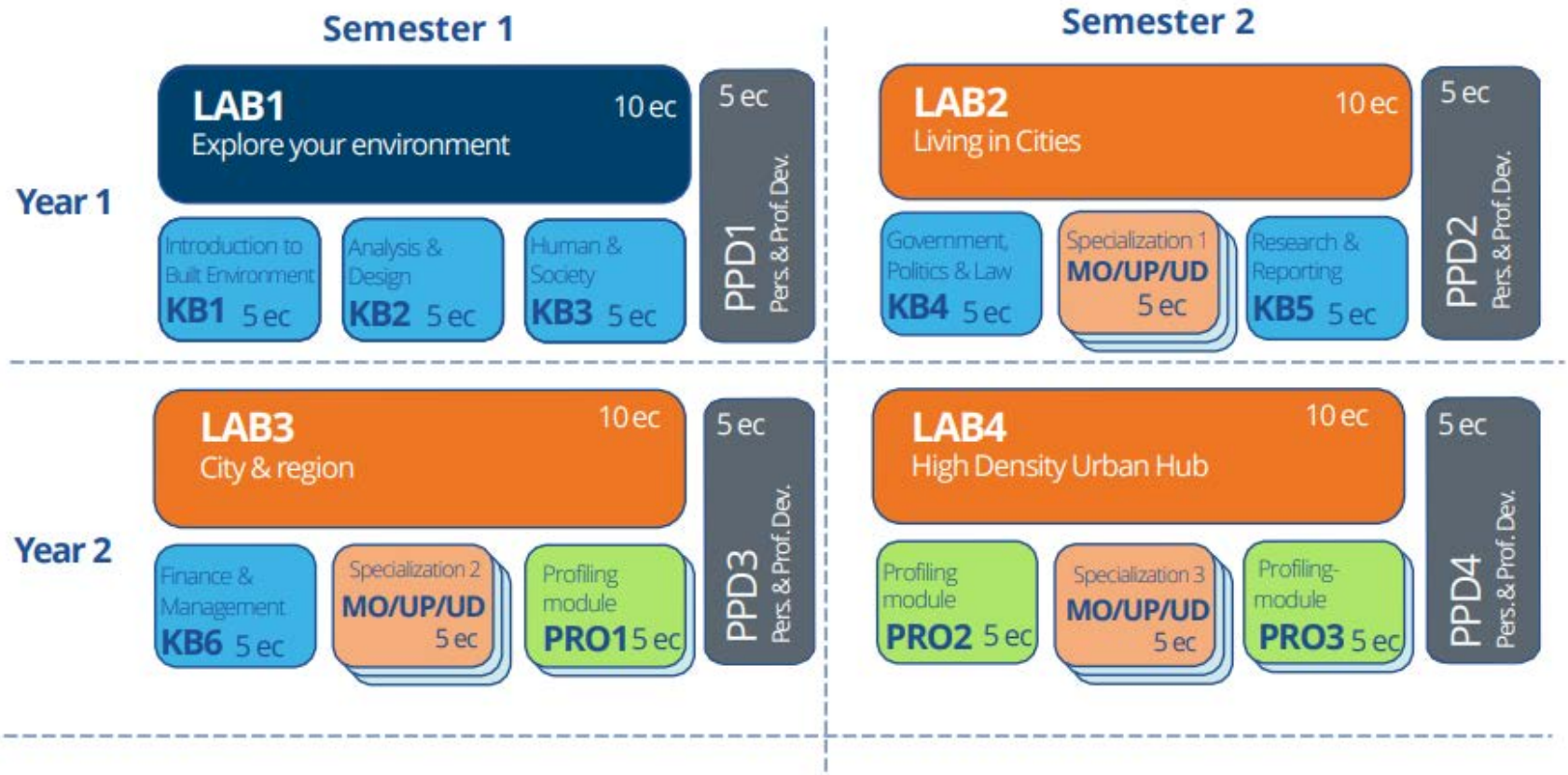
10 Working integrally

On the basis of your own expertise or area of specialization you can cooperate with people with a different expertise or area of specialization to find a solution for a complex issue.

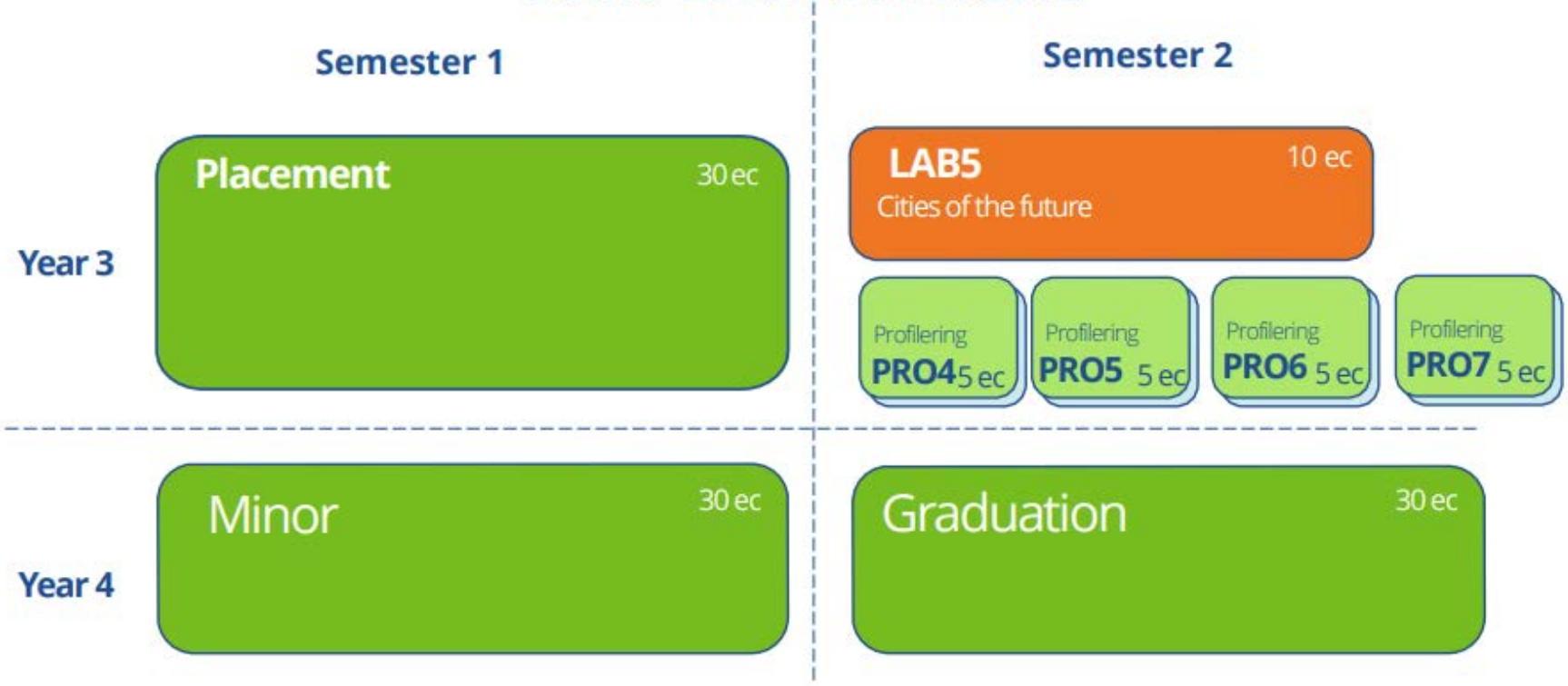
Description of the competency levels

Level	Character of assignment	Character of context	Degree of dependency
I	- Simple - Structured - Applies well-known methods	- Familiar - Simple - Monodisciplinary	- Steering guidance
II	- Complex - Structured - Uses well-known methods in varying situations	- Familiar - Complex - Monodisciplinary - Practice-based	- Coaching guidance
III	- Complex - Unstructured - Uses methods in new situations	- Unfamiliar - Complex - Multidisciplinary - Practice-based	- Independent - Guidance / coaching if necessary

Built Environment



Built Environment



Link to year schedule:

https://edubuas.sharepoint.com/sites/studentabel/SitePages/Timetables&Groups.aspx

Link to assessment programme:

https://edubuas.sharepoint.com/sites/studentabel/SitePages/Exam-information.aspx

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