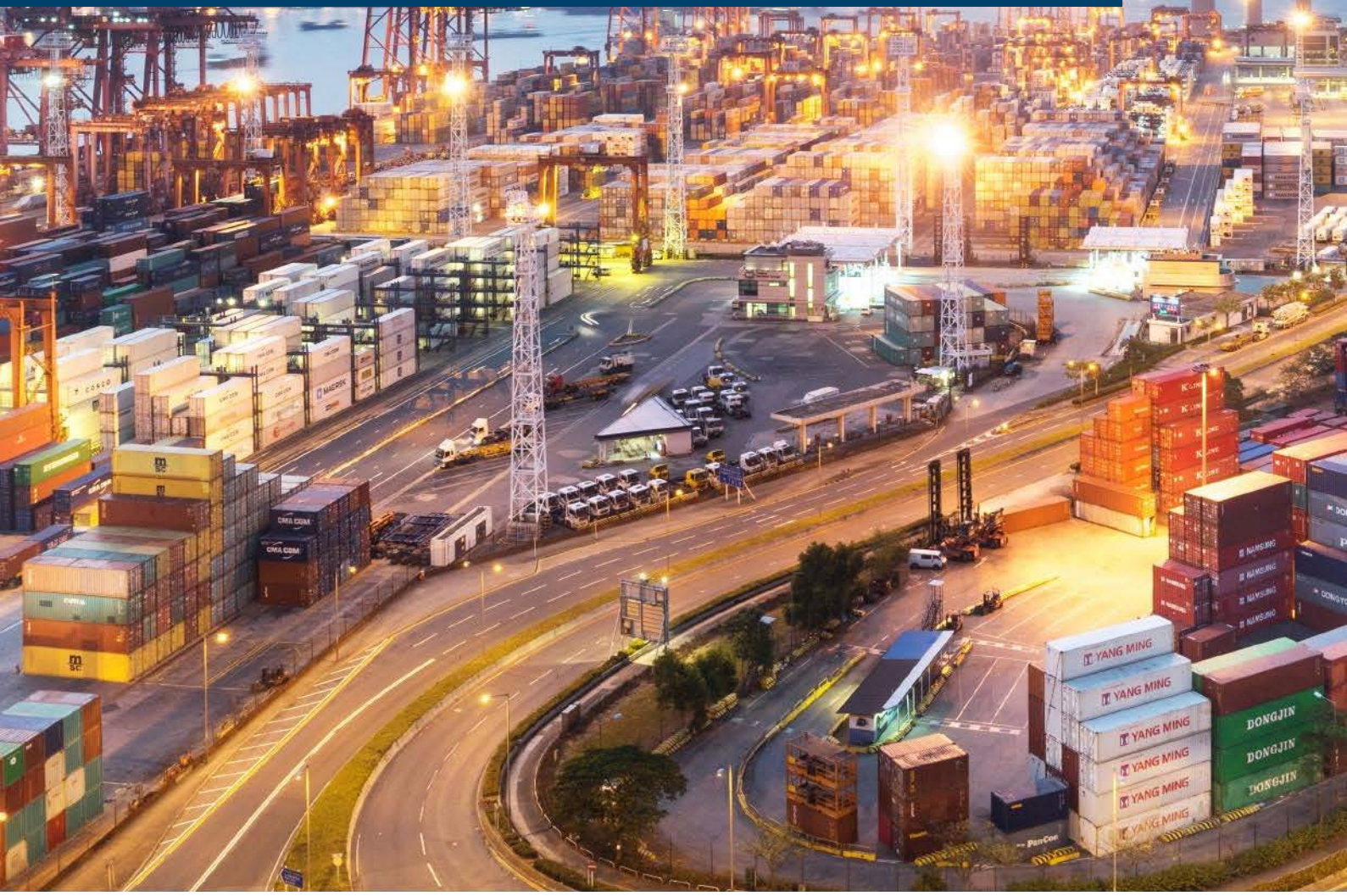
Built Environment

Study component catalogue

Study year 2024-2025



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
- A link to the year schedule containing lecture weeks, 'clean-up weeks', 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 ABEL or another academy within 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 2024-2025 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 2024- 2025: year 1

Semester 1

Name	Osiris-code	ECTS	Page
KB1 Introduction into Built Environment	BBEE1.KB1BE-01	5	7
KB2 Analysis & Design	BBEE1.KB2AD-03	5	8
KB3 Human, Society & the Built Environm.	BBEE1.KB3HC-01	5	9
LAB1 Explore your Environment	BBEE1.LB1EE-02	10	11
Personal & Professional Development 1	BBEE1.PPD1-01	5	13
	Subtotal	**30**	

Semester 2

Name	Osiris-code	ECTS	Page
KB4 Government & Policy	BBEE1.KB4GP-01	5	15
KB5 Research & Reporting	BBEE1.KB5RR-01	5	16
LAB2 Living in Cities	BBEE1.LB2LC-01	10	17
Personal & Professional Development 2	BBEE1.PPD2-03	5	19
Specialisation			
MO1 Urban Traffic System	BBEE1.MO1UT-01	5	20
UP1 Spatial Development	BBEE1.UP1SD-01	5	21
UD1 Toolbox Urban Design	BBEE1.UD1TB-03	5	22
	Subtotal	**30**	
	Total	**60**	

Built Environment 2024- 2025: year 2

Semester 3

Name	Osiris-code	ECTS	Page
KB6 Management & Finance	BBEE2.KB6.MF-02	5	24
LAB3 City & Region	BBEE2.LB3.CR-02	10	25
Personal & Professional Development 3	BBEE2.PPD3-01	5	27
Specialisation			
MO2 Mobility Patterns & Data	BBEE2.MO2.MP-02	5	28
UP2 Housing & Livability	BBEE2.UP2.HL-01	5	29
UD2 Spatial Strategy	BBEE2.UD2.SS-02	5	30
Profiling modules (1)			
PRO Regional Planning	BBEE.P3.REPL-02	5	32
PRO Smart Mobility	BBEE.P3.SMAR-03	5	33
PRO Landscape	BBEE.P3.LAN-01	5	34
PRO Tactical Urbanism	BBEE.P3.TAUR-03	5	35
	Subtotal	**30**	

Semester 4

Name	Osiris-code	ECTS	Page
LAB4 High Density Urban Hub	BBEE2.LAB4.HH-02	10	37
Personal & Professional Development 4	BBEE2.PPD4-03	5	39
Specialisation			
MO3 Mobility Services & Organisation	BBEE2.MO3.MS-02	5	40
UP3 Water Management	BBEE2.UP3.WM-02	5	41
UD3 Spatial Processes and Systems	BBEE2.UD3.SPS-02	5	42
Profiling modules (3)			
PRO Participation in Practice	BBEE.P4.PAP-01	5	43
PRO Design & Construct	BBEE.P4.DEC-01	5	44
PRO Traffic & Transport Modelling	BBEE.P4.TTM-01	5	45
PRO Urban Chronicles	BBEE.P4.URB-01	5	46
PRO Energy Transition	BBEE.P4.ENT-01	5	47
PRO Academic Literacy & Research	BBEE.P4.ALR-01	5	49
PRO VIS Beyond Blueprints	BBEE.P4-6.VBB-02	5	50
PRO Challenges & RBI Research	BBEE.P4-6.RBI-01	5	51
	Subtotal	**30**	
	Total	**60**	

Built Environment 2024- 2025: year 3

Semester 5

Name	Osiris-code	ECTS	Page
Placement	BBEE3.PLACEM-01	30	53
	Subtotal	**30**	

Semester 6

Name	Osiris-code	ECTS	Page
LAB5 Cities of the Future	BBEE3.LB5.CF-01	10	55
Profiling modules (4)			
PRO Mobility & Land Use	BBEE.P6.MOL-01	5	56
PRO Architecture	BBEE.P6.ARC-01	5	57
PRO Area Development	BBEE.P6.ADEV-01	5	58
PRO GIS & Geo Data	BBEE.P6.GGD-01	5	59
PRO Environmental Psychology & Sociology	BBEE.P6.ENV-01	5	60
PRO Trends & Transitions	BBEE.P6.TRT-01	5	62
PRO Entrepreneurship	BBEE.P6.EPS-01	5	63
PRO VIS Beyond Blueprints	BBEE.P4-6.VBB-02	5	
PRO Challenges & RBI Research	BBEE.P4-6.RBI-01	5	
	Subtotal	**30**	
	Total	**60**	

Built Environment 2024- 2025: year 4

Semester 7

Name	Osiris-code		ECTS	Page
Change Management: how to succesfully drive change in organisations	BCM.24MINOR		30	65
Crowd Safety in Hubs & Events	BCS.24MINOR		30	67
International Urban Redevelopment	BUR.24MINOR		30	69
A Supply Chain Cycle Challenge in the Bicycle Industry	BSCC.24MINOR		30	70
External Minor ABEL	BEXT.24MINOR		30	
		Subtotal	**30**	

Semester 8

Name	Osiris-code		ECTS	Page
Graduation Thesis	B4.SC-18		30	72
		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:	Luiz Marcos De Carvalho Filho
Lecturer(s):	Luiz Marcos De Carvalho Filho, Diaan van der Westhuizen
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.

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 Activities:	Instruction and demonstration
	Individual independent learning
	Formative assessment
Examination:	Individual assignment 100%
Required literature:	--
Other required materials:	Reader, e-book: Introduction to the Built Environment reader published on Brightspace.

OSIRIS-code:	BBEE1.KB2AD-03
Course name:	KB2 Analysis Design
Study load:	5 EC (=140 hours)
Coordinator:	Thomas Oorschot
Lecturer(s):	Thomas Oorschot, Joost van de Pas, Karina Iurkova
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.
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 Activities:	Instruction and demonstration Group work Individual independent learning
Examination:	Individual assignment 100%
Required literature:	--
Other required materials:	--

OSIRIS-code:	BBEE1.KB3HC-01
Course name:	KB3 Human Society Built Environment
Study load:	5 EC (=140 hours)
Coordinator:	Luiz Marcos de Carvalho Filho
Lecturer(s):	Luiz Marcos De Carvalho Filho, Stephen Narsoo, Diaan van der Westhuizen
Summary:	This course covers critical processes such as urbanisation, globalisation, and digitisation, along with the principles of environmental psychology. The course goes beyond the mere placement of infrastructure within a city. It delves into understanding how individuals interact with the urban elements we introduce into their environment. These interactions are crucial in shaping both behaviours and the space itself. The heart of urban development lies in comprehending these interactions. The course aims to understand human behaviour and how the built environment influences, regulates, and facilitates various behaviours. This understanding paves the way for broader ideas about planning and decision-making that impact people's lives more ethically and responsibly, particularly in urbanisation, digitisation, and globalisation processes. The course also offers practical training in the use of Geographic Information System (GIS) tools, enabling students to apply theoretical knowledge in real-world scenarios. This comprehensive approach ensures that students are well-equipped to address the complex challenges of urban development.

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

- Understanding People & Society: The course explores concepts at different scales - macro (sociology), meso (neighbourhood and local communities), and micro (environmental psychology);
- Accessible and Available Society: Students will explore spatial issues such as mobility choice, community traffic, and smart city technology;
- Healthy and Liveable Society: The course covers spatial issues related to densification, ageing, experience, and well-being.
- Sustainable Society: Students will learn about spatial issues in the context of climate change, energy transition, sustainable building, and mobility transition;
- Impact of Social Trends on Built Environment: The course examines social trends and developments like globalisation and lasting urbanisation, as well as their impact on human behaviour and the built environment;
- Emerging Societies and Built Environment: The course discusses diverse types of societies that have emerged from these trends and developments and the role of the built environment in them;
- Self-Sufficient Society: Students will study spatial issues related to participation, collaboration, prosumers, and share-economy.
- Influencing Human Behaviour: The course introduces spatial tools such as nudging, public space design, and scale to influence human behaviour;

- Human Behaviour Concepts: The course delves into the economic, psychological, and sociological motives behind human behaviour.

Language:	English	
Teaching Activities:	Instruction and demonstration	
	Group work	
	Individual independent learning	
Examination:	Written exam	50%
	Individual assignment	50%
Required literature:	Provided on Brightspace.	
Other required materials:	--	

OSIRIS-code:	BBEE1.LB1EE-02
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, Ellen Stoppels, Thomas Oorschot, Joost van de Pas
Summary:	This lab course, tailored for first-semester Built Environment students, introduces the transformative processes of urban environments and how to participate actively in them. In this practical lab, you will be introduced to the study of urban environments and the critical roles of mobility, urban planning, and urban design disciplines. You will work individually and in groups in tasks such as undertaking an inventory and analysis of a specific location in Breda identifying the positive and negative attributes of an inner-city area using a SWOT (Strengths, Weaknesses, Opportunities, and Threats) matrix. Your work will culminate in written and visual proposals outlining the future development of the chosen location, translated into a comprehensive transformation plan. This plan will encompass existing and proposed buildings, activities, infrastructure, and transportation modes. You will have the opportunity to make a specific contribution to an aspect of your choice that you wish to explore further or broaden. This contribution will play a crucial role in shaping your transformation strategy. This hands-on approach ensures a deep understanding of the practical aspects of urban transformation and sets the basis for the following semesters.
Content description:	In this study component the following content is covered: - Spatial inventory and analysis; - Collaboration contract; - Spatial environment on a specific location in Breda; - Basics of different tools in the development of the built environment; - Research by design in combination with text; - Development of a vision and planning design, e.g., a transformation plan; - Professional communication by through text and images; - Peer evaluation and feedback; - Process monitoring in a journal and meeting notes; - Presenting; through a basic report, an exposition and a trade article.
Language:	English
Teaching Activities:	Group work Individual independent learning Student presentations
Examination:	Individual assignment 25%

	Individual assignment	25%
	Group assignment	25%
	Group assignment	25%
Required literature:	Provided on Brightspace.	
Other required materials:	Drawing material (markers, ruler, tracing paper).	

OSIRIS-code:	BBEE1.PPD1-01
Course name:	Personal & Professional Development 1
Study load:	5 EC (=140 hours)
Coordinator:	Valerie Lau, Danique Gommers
Lecturer(s):	Danique Gommers, Rosa Hagenaars, Tomas Mahu, Stephen Narsoo
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; 3. You will develop into a professional. In your own PPD report you will record your development and describe your future (learning) goals.
Content description:	In this study component the following content is covered: - Further introduction to the programme, BUas and the industry; - Introduction of the competencies Professionalisation, Communication and Intercultural understanding; - Several workshops; - Excursions you will prepare, execute and present according to your own preferences; - An individual (introduction) talk with your study coach.
Language:	English
Teaching Activities:	Instruction and demonstration Individual independent learning Student presentations Workshops
Examination:	Individual assignment 100%
Required literature:	--
Other required materials:	License Hogeschooltaal

Built Environment

Year 1

Semester 2

OSIRIS-code:	BBEE1.KB4GP-01
Course name:	KB4 Government & Policy
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.
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 Activities:	Instruction and demonstration Group work Individual independent learning
Examination:	Written exam 60% Group assignment 40%
Required literature:	--
Other required materials:	--

OSIRIS-code:	BBEE1.KB5RR-04
Course name:	KB5 Research & Reporting
Study load:	5 EC (=140 hours)
Coordinator:	Elly Khademi
Lecturer(s):	Rana Habibi, Elly Khademi
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, and quantitative. 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.
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 method: interview skills like formulating questions, listening, making notes and follow questions, research by design; - Quantitative research: survey and experiment design, unit of analysis: population and samples, sampling techniques, data collection techniques; - Basic statistics: Descriptive Statistics; - Story telling, research report structure, professional writing style and APA references.
Language:	English
Teaching Activities:	Offline and online (blended learning) Group and individual assignments Individual independent learning
Examination:	Individual assignment 30% Group assignment 70%
Required literature:	Reader will be provided
Other required materials:	Sowiso license via Buas

OSIRIS-code:	BBEE1.LB2LC-02
Course name:	LAB2 Living in Cities
Study load:	10 EC (=280 hours)
Coordinator:	Zhan Goosen
Lecturer(s):	Zhan Goosen, Karina Iurkova, Steven Narsoo, Elly Khademi, Diaan van der Westhuizen, Luiz De Carvalho Filho, Hossein Dashtestaninejad
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 (MO). The emphasis and focus of the LAB is twofold: 1. Equipping students with the core skillset and foundational knowledge required by their specialism for practical application 2. Orientating students with regards to their (future) role in the professional ecology.
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 Activities:	Group work	
	Individual independent learning	
	Student presentations	
Examination:	Group assignment	50%
	Individual assignment	50%
Required literature:	--	
Other required materials:	Sketching paper, (scale) ruler, fineliners (different thicknesses) and markers (different colors).	

OSIRIS-code:	BBEE1.PPD2-03
Course name:	Personal & Professional Development 2
Study load:	5 EC (=140 hours)
Coordinator:	Valerie Lau, Danique Gommers
Lecturer(s):	Danique Gommers, Rosa Hagenaars, Stephen Narsoo, Tomas Mahu
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. 3. You will develop into a professional. In your own PPD report you will record your development and describe your future (learning) goals.
Content description:	In this study component the following content is covered: - Several workshops; - Further development of your personal portfolio (personal development plan) with plans and ambitions; - Excursions you will prepare, execute and present according to your own preferences; - An individual (introduction) talk with your study coach; - Further development of the competences: Professionalisation, Communication and Intercultural understanding.
Language:	English
Teaching Activities:	Instruction and demonstration Individual independent learning Student presentations Workshops
Examination:	Individual assignment 100% Hogeschooltaal exam --
Required literature:	--
Other required materials:	--

OSIRIS-code:	BBEE1.MO1UT-01
Course name:	MO1 Urban Traffic System
Study load:	5 EC (=140 hours)
Coordinator:	Danique Gommers
Lecturer(s):	Danique Gommers
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 methods to gather required parking and counting data, 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!

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;
- Traffic counting and parking measurement methods;
- Visualisation of spatial designs.

Language:	English	
Teaching Activities:	Instruction and demonstration	
	Group work	
	Individual independent learning	
Examination:	Individual assignment	30%
	Group assignment	70%
Required literature:	--	
Other required materials:	--	

OSIRIS-code:	BBEE1.UP1SD-01
Course name:	UP1 Spatial Development
Study load:	5 EC (=140 hours)
Coordinator:	Zhan Goosen
Lecturer(s):	Zhan Goosen
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.
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; - Housing market.
Language:	English
Teaching Activities:	Instruction and demonstration Group work Individual independent learning
Examination:	Written exam 70% Group assignment 30%
Required literature:	--
Other required materials:	--

OSIRIS-code:	BBEE1.UD1TB-03
Course name:	UD1 Toolbox Urban Design
Study load:	5 EC (=140 hours)
Coordinator:	Maurizio Scarciglia
Lecturer(s):	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.
Content description:	In this study component the following content is covered: - Structuring elements in the public realm; - Building typologies in history; - Public space and transition public/private in history; - Standard dimensions; - Spatial quality in reference plans; - Densities; - Physical models; - Profiles.
Language:	English
Teaching Activities:	Group work Individual independent learning Formative assessment
Examination:	Individual assignment 100%
Required literature:	--
Other required materials:	Sketching paper, Fine Liners (black, multiple thicknesses)

Built Environment

Year 2

Semester 3

OSIRIS-code:	BBEE2.KB6.MF-02
Course name:	KB6 Management & Finance
Study load:	5 EC (=140 hours)
Coordinator:	Marcel van Wietingen
Lecturer(s):	Stephen Narsoo, Marcel van Wietingen, Danique Gommers
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.
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 Activities:	Instruction and demonstration Group work Individual independent learning
Examination:	Written exam 70% Group assignment 30%
Required literature:	--
Other required materials:	--

OSIRIS-code:	BBEE2.LB3.CR-02
Course name:	LAB3 City & Region
Study load:	10 EC (=280 hours)
Coordinator:	Maurizio Scarciglia
Lecturer(s):	Danique Gommers, Rana Habibi, Karina Iurkova, Loek Hellebrekers, Stephen Narsoo, Maurizio Scarciglia, Sjors Martens, Menno Slijboom
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 students and Urban Design students to disentangle the complexity of regional developments and unravel their potential and threads for the future, in light of the major challenges that our society will face, such as the climate crisis, technology innovations and globalization.
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 Activities:	Group work Individual independent learning Student presentations
Examination:	Group assignment 50% Individual assignment 50%

Required literature: --

Other required materials: --

OSIRIS-code:	BBEE2.PPD3-01
Course name:	Personal & Professional Development 3
Study load:	5 EC (=140 hours)
Coordinator:	Valerie Lau, Danique Gommers
Lecturer(s):	Danique Gommers, Karina Iurkova, Frank Jacobs, Joost van de Pas
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. You will record your development in your PPD report, and you will formulate future (learning) goals.
Content description:	In this study component the following content is covered: - The building of your professional network; - A motivation video; - Various workshops and professional practices; - A PDP (personal development plan) with plans and ambitions for PRO modules and placement; - Acquaintance with foreign projects and companies in the field during the international fieldtrip; - Choice for filling in your free electives 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 - Developing yourself further on the competences: Professionalisation, Communication and Intercultural understanding. - Showcase-portfolio.
Language:	English
Teaching Activities:	Instruction and demonstration Individual independent learning Formative assessment Workshops
Examination:	Individual assignment 100%
Required literature:	--
Other required materials:	For those who need to reach the level of B2 for English and for those who want to reach the level of C1 for English, the purchase of College Language English is mandatory.

OSIRIS-code:	BBEE2.MO2.MP-02
Course name:	MO2 Mobility Patterns & 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.
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 related to transport policies to manage the travel demand. - 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 Activities:	Instruction and demonstration Workshops Individual and group assignments Individual independent learning Formative assessment
Examination:	Written exam 50% Individual assignment 50%
Required literature:	The Transport System and Transport Policy: An Introduction edited by Bert vanWee, Jan Anne Annema, David Banister. Reader will be provided.
Other required materials:	--

OSIRIS-code:	BBEE2.UP2.HL-01
Course name:	UP2 Housing & Livability
Study load:	5 EC (=140 hours)
Coordinator:	Zhan Goosen
Lecturer(s):	Frank Jacobs, Zhan Goosen
Summary:	UP2 Housing & Livability is the second Specialization module for Urban Planning. The aim of UP2 Housing and livability is to build on the knowledge of UP1 Spatial Development where you were introduced to the different roles that an urban planner can fulfill in the process of spatial development. UP2 Housing and livability focuses on housing in which the relationship is established with demographic developments, housing for different target groups, livable and sustainable development of residential areas in relation to permits and policy control.
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 Activities:	Instruction and demonstration Group work Individual independent learning
Examination:	Written exam 60% Group assignment 40%
Required literature:	--
Other required materials:	--

OSIRIS-code:	BBEE2.UD2.SS-02
Course name:	UD2 Spatial Strategy
Study load:	5 EC (=140 hours)
Coordinator:	Rana Habibi
Lecturer(s):	Rana Habibi, Maurizio Scarciglia
Summary:	UD | SO 01 was cantered on the individual components of the constructed surroundings in the scale of neighbourhood and block, whereas UD | SO 02 delves into the spatial strategies and structure of cities and regions. This course's main objective is to understand how cities are shaped and the spatial strategies that help us address urban issues at local, national, and global levels. Cities and regions are evolved over decades based on several socio-political and economic circumstances. Hence, urban structures encompassed not only physical forms and spatial arrangements, but also reflected the socioeconomic and political evolution of different nations and their lifestyles over time. The urban morphology, and typologies are influenced by the spatial strategies and methods used to design them, which vary depending on each region's socioeconomic and cultural conditions. Different economic and environmental crises require different strategies compared to periods of stability and certainty. As urban designers, having various tools and strategies is essential to effectively handle every upcoming situation. This course aims to acquire knowledge and skills in identifying and applying various spatial strategies and analysing diverse spatial structures of the cities
Content description:	In this study component the following content is covered: - This course aims to acquire knowledge and skills in identifying and applying various spatial strategies and analysing diverse spatial structures of the cities. - A) Analytical Framework Through examples of the cities, you will learn how the city shaped and how one can analyse different layers of the city? - B) Urban Design Strategies In the first part of the course, we explain and examine the three main parts of urban design strategy. In the second part we focus a little bit more on the higher level of urban design strategy as this is something that you also need in your LAB work
Language:	English
Teaching Activities:	Workshops Lectures Group work Individual independent learning
Examination:	Group assignment 50% Individual assignment 50%
Literature:	Recommended - Avermaete - Urban Design in the 20th Century, Zurich: gta, 2021. Recommended - De Meulder - Water Urbanism East, Zurich: Park Books, 2013.

Recommended - Ferrao - Sustainable Urban Metabolism. MIT Press, 2013.

Recommended - Ingaramo - Topics and Methods for Urban and Landscape Design- From the river to the project. Switzerland:Springer, 2016.

Recommended - Lejeune - Rural Utopia and Water Urbanism – The Modern Village in Franco's Spain, Berlin: Dom Publishers, 2021

OSIRIS-code:	BBEE.P3.REPL-02
Course name:	PRO Regional Planning
Study load:	5 EC (=140 hours)
Coordinator:	Stephen Narsoo
Lecturer(s):	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.
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 Activities:	Instruction and demonstration Group work Individual independent learning
Examination:	Written exam 40% Group assignment 60%
Required literature:	--
Other required materials:	Materials (articles, book chapters) will be provided during the course work

OSIRIS-code:	BBEE.P3.SMAR-03
Course name:	PRO Smart Mobility
Study load:	5 EC (=140 hours)
Coordinator:	Sjors Martens
Lecturer(s):	Sjors Martens, Marcel van Wietingen
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.
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 Activities:	Instruction and demonstration Formative assessment Individual independent learning
Examination:	Individual assignment 40% Group assignment 60%
Required literature:	--
Other required materials:	--

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.
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 Activities:	Group work Individual independent learning Formative assessment
Examination:	Individual assignment 100%
Required literature:	--
Other required materials:	--

OSIRIS-code:	BBEE.P3.TAUR-03
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 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.
Content description:	In this study component the following content is covered: - Urban issues, both social and physical - Tactical urbanism - Connective communication
Language:	English
Teaching Activities:	Group work Individual independent learning Formative assessment
Examination:	Group assignment 50% Individual assignment 50%
Required literature:	--
Other required materials:	--

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):	Stephen Narsoo, Thomas Oorschot, Jeroen Weppner, Diaan van der Westhuizen, Rana Habibi, Lizanne Hessels
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.

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
- Shared mobility solutions
- 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 Activities:	Group work	
	Individual independent learning	
	Student presentations	
Examination:	Group assignment	50%
	Individual assignment	50%
Required literature:	--	
Other required materials:	ArcGIS, SketchUp, AutoCAD, InDesign	

OSIRIS-code:	BBEE2.PPD4-03
Course name:	Personal & Professional Development 4
Study load:	5 EC (=140 hours)
Coordinator:	Valerie Lau, Danique Gommers
Lecturer(s):	Danique Gommers, Karina Iurkova, Frank Jacobs, Joost van de Pas
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. You will record your development in your PPD report, and you will formulate future (learning) goals.
Content description:	In this study component the following content is covered: - Developing yourself further on the competences: Professionalisation, Communication and Intercultural understanding; - A PDP (personal development plan) with plans and ambitions; - Various workshops and professional practices from the industry, especially aimed at preparation your placement in year 3; - The acquisition of a suitable placement and assignment for semester 5; - Showcase portfolio; - Free electives (to develop your skills-set to complement the curriculum and the choices made for the specialisation and PROmodules), which can be filled in with your own proposal, to be submitted to your coach; - A letter of application & cv; - The building of your professional network.
Language:	English
Teaching Activities:	Instruction and demonstration Individual independent learning Formative assessment Workshops
Examination:	Individual assignment 100%
Required literature:	--
Other required materials:	For those who need to reach the level of B2 for English and for those who want to reach the level of C1 for English, purchase of college language English is mandatory.

OSIRIS-code:	BBEE2.MO3.MS-02
Course name:	MO3 Mobility Services & Organisation
Study load:	5 EC (=140 hours)
Coordinator:	Jeroen Weppner
Lecturer(s):	Jeroen Weppner, Juul Buitink
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 value of an increasing sharing society on the urban and rural challenges.
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 Activities:	Instruction and demonstration Group work Individual independent learning
Examination:	Written exam 50% Group assignment 50%
Required literature:	Provided during class
Other required materials:	Business modal template (explained during class)

OSIRIS-code:	BBEE2.UP3.WM-02
Course name:	UP3 Water Management
Study load:	5 EC (=140 hours)
Coordinator:	Marcel van Wietingen
Lecturer(s):	Marcel van Wietingen, Ellen Stoppels
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.
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 Activities:	Instruction and demonstration Group work Individual independent learning
Examination:	Written exam 60% Group assignment 40%
Required literature:	Water Governance in the Netherlands; OECD Report; 'Deltaprogramma 2023 (download)
Other required materials:	--

OSIRIS-code:	BBEE2.UD3.SPS-02
Course name:	UD3 Spatial Processes and Systems
Study load:	5 EC (=140 hours)
Coordinator:	Luiz Marcos De Carvalho Filho
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.
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 Activities:	Instruction and demonstration Group work Individual independent learning
Examination:	Individual assignment 100%
Required literature:	--
Other required materials:	--

OSIRIS-code:	BBEE.P4.PAP-01
Course name:	PRO Participation in Practice
Study load:	5 EC (=140 hours)
Coordinator:	Loek Hellebrekers
Lecturer(s):	Loek Hellebrekers, Thomas Oorschot, 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 and other stakeholders, they look for tools that they can use themselves. They also enter into discussions with other participants such as the municipality.
Content description:	In this study component the following content is covered: - Participation methods at different scale levels; - In-depth stakeholder analysis; - Application of participation methods to a specific case (neighbourhoud level); - Target group-oriented use of communication tools; - Reflection and evaluation of applied participation method(s).
Language:	English
Teaching Activities:	Instruction and demonstration Group work Formative assessment
Examination:	Group assignment 100%
Required literature:	--
Other required materials:	--

OSIRIS-code:	BBEE.P4.DEC-01
Course name:	PRO Design & Construct
Study load:	5 EC (=140 hours)
Coordinator:	Jolijn van Baarsen - van den Berg
Lecturer(s):	Jolijn van Baarsen - van den Berg, Joost van de Pas
Summary:	"This module is the most realistic one of the whole educational programme." "Now I understand the importance of proper designing and Project work." These are just two reactions of students and graduates of our education. This module deals with a realistic case from the municipality of Breda, where the public domain (space/infrastructure, etc.) needs to be changed. The challenges are plenty: designing and repurposing public space, designing functional infrastructure, weighing expected cost with desired/required quality, etc. How do you tackle functional and practical design objectives according to specifications, in cooperation with various specialisms, with each person having their own project-role to produce a coherent total concept that the/ your client will want to choose over that of your competition? A complete challenge you will not easily forget! The product, a total spatial concept, of your project group has to compete with that of other groups to ultimately obtain the order. You are in to win it. This module is for deepening and broadening your Design skills. It will also teach you how to combine these with some general (civill) engineering parts to get a feeling for the realisation phase.
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 Activities:	Instruction and demonstration Group work Individual independent learning
Examination:	Written exam 40% Group assignment 60%
Required literature:	--
Other required materials:	--

OSIRIS-code:	BBEE.P4.TTM-01
Course name:	PRO Traffic & 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.
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 Activities:	Instruction and demonstration Group work Individual independent learning
Examination:	Individual assignment 25% Individual assignment 25% Group assignment 50%
Required literature:	
Other required materials:	BUas computers with PTV software

OSIRIS-code:	BBEE.P4.URB-01
Course name:	PRO Urban Chronicles
Study load:	5 EC (=140 hours)
Coordinator:	Tomas Mahu
Lecturer(s):	Tomas Mahu
Summary:	In the PRO-module Urban Chronicles, you will discover the power of storytelling by creating a short documentary related to the field of Built Environment. You will learn how to use visual communication to inform, activate, and investigate. During this module, you will work in small groups on a self-chosen topic. You will gain insights into story structure and delve into important aspects such as camera angles, editing, colour usage, composition, and sound. Additionally, you will learn how to analyze visual material to convey your message as effectively as possible. Urban Chronicles provides you with the tools and techniques to tell your story in an engaging and professional manner. You will develop not only technical skills but also your creative and analytical abilities. Discover the power of visual storytelling and deepen your knowledge of the Built Environment.
Content description:	In this study component the following content is covered: - Storytelling; - Learning to communicate visually through video footage; - Creating your own visual material; - Selecting and creating the right content in relation to a plan/design/idea; - Working with various visualization programs such as: Adobe Premiere, Adobe Audition, Adobe After Effects.
Language:	English
Teaching Activities:	Instruction and demonstration Student presentations Group work
Examination:	Group assignment 100%
Required literature:	--
Other required materials:	Adobe package CC-Camera (Photo & Video)

OSIRIS-code:	BBEE.P4.ENT-01
Course name:	PRO Energy Transition
Study load:	5 EC (=140 hours)
Coordinator:	Rana Habibi
Lecturer(s):	Rana Habibi, Stephen Narsoo
Summary:	Energy Transition Sustainability is a school of thought that includes a multi-disciplinary discourse such as economy, sociology and built environment. Global warming, radical climate changes, cause massive impacts in our socio-economic situations and therefore our built environment in upcoming years. According to many scholars and practitioners' sustainability is an approach that requires constant actions from various experts, stakeholders, decision makers and users of space. Hence, as a built environment expert we must take into the account, the different aspects of sustainability in our spatial planning and design of future cities, in various scales. Hence, the pro-module of sustainability mainly focuses on "how do we as a built environmental expert designate a future-proof neighborhood?" While we will explore the different aspects of sustainability within spatial planning, design and mobility in different scales, we will be working with different metaphors such as metabolism and energy consumption as a digestive system of the cities and will explore how different flows of energy can effect the rate of sustainability within our spatial decisions. You will receive several interactive lectures and activities within the class which will give you insight in different aspects of innovative urban management and a sustainable spatial organization/ design of a built environment. You can find more details about the lectures and the teaching methodologies in the lecture series section. The last five weeks of the semester will be allocated to the assignment. As an assignment you will receive a neighborhood called "Spaanse Polder" in Rotterdam, we will specifically focus on neighborhood scale and will examine how a neighborhood can be equipped and sustained for future. Therefore, you will be asked to provide a sustainable environmental plan based on the energy supply and consumption of the neighborhood and propose an innovative urban management and user behavioral changes for future maintenance of the neighborhood.

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

- Formulating future-proof solutions in the field of sustainability at neighborhood level, in which you make integral proposals.
- Analyzing existing (digital) spatial plans.
- Embedding sustainability proposals in the Environmental Plan.
- Identifying required behavioral changes aimed at various stakeholders in sustainability at neighborhood level.
- Providing innovative forms of management aimed at sustainability at neighborhood level.
- Compare and discuss four major concepts related to the global energy transition;

- Calculate energy demand and supply of renewal energy at a neighbourhood level.

Language: English

Teaching Activities: Instruction and demonstration

Group work

Formative assessment

Examination: Group assignment 50%

Group assignment 50%

Literature: Recommended - Sijmons, Dirk, Jasper Hugtenburg, A. van Hoorn, and Fred Feddes. 2014. Landscape and Energy : Designing Transition. Nai010 Publishers

Recommended - Cody, Brian. 2017. Form Follows Energy : Using Natural Forces to Maximize Performance. Birkhäuser.

Recommended - Sim, David, and Jan Gehl. 2019. Soft City : Building Density for Everyday Life

OSIRIS-code:	BBEE.P4.ALR-01
Course name:	PRO Academic Literacy & Research
Study load:	5 EC (=140 hours)
Coordinator:	Diaan van der Westhuizen
Lecturer(s):	Mariana Chinellato Ferreira, 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.
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 Activities:	Instruction and demonstration Individual independent learning Formative assessment
Examination:	Group assignment 30% Individual assignment 70%
Required literature:	1. Academic Writing: A Handbook for International Students Author: Stephen Bailey Publication Information: Fifth edition. London: Routledge. 2017 2. Architectural Research Methods: Second Edition. Authors: Linda Groat & David Wang. 2nd Edition, Wiley. 2013

OSIRIS-code:	BBEE.P4-6.VBB-02
Course name:	PRO VIS Beyond Blueprints
Study load:	5 EC (=140 hours)
Coordinator:	Tomas Mahu
Lecturer(s):	Karina Iurkova, Tomas Mahu
Summary:	Welcome to Beyond Blueprints, where urban, mobility and spatial plans come to life through visual arts, atmospheres, and stories. In this module, we shift the focus from traditional blueprints and technical drawings to a more creative and expressive way of visualizing. Here, we go beyond the blueprints; we aim to establish a profound connection between your vision as a designer and the emotions of those who experience these plans. Discover how Beyond Blueprints bridges the gap between the world of (urban) planning and the art of storytelling, and experience the harmony between functionality and aesthetics in the built environment. Welcome to a new dimension of urban development, where imagination leads the way.
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 Render programs.
Language:	English
Teaching Activities:	Instruction and demonstration Student presentations
Examination:	Individual assignment 100%
Required literature:	--
Other required materials:	3D program (Sketchup/REVIT)-Render program (n.t.b)-Adobe package CC-Camera (Photo & Video)

OSIRIS-code:	BBEE.P4-6.RBI-01
Course name:	PRO Challenges & RBI Research
Study load:	5 EC (=140 hours)
Coordinator:	Michiel Mulderij
Lecturer(s):	Michiel Mulderij
Summary:	During this module you will take part in a challenge. Each year we aim to offer a rich collection of challenges for students to join. These can be linked to events like workshops/ hackathons/ fresh brains/ competitions and other activities organized by BUas or by external organizers. The module consists of two components: The event itself (about 20% of the module) and preparation/ follow-up research or design activities (80% of the module). The PRO Challenges & RBI Research is customized module, which means that every year there will be different challenges with different activities and learning outcomes.
Content description:	In this study component the following content is covered: - Variable, depending on the available challenges.
Language:	English & Dutch
Teaching Activities:	Group work Individual independent learning Formative assessment
Examination:	Individual assignment 100%
Required literature:	--
Other required materials:	--

Built Environment

Year 3

Semester 5

OSIRIS-code:	BBEE3.PLACEM-01
Course name:	Placement
Study load:	30 EC (=840 hours)
Coordinator:	Loek Hellebrekers
Lecturer(s):	Elly Khademi, Loek Hellebrekers, 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: Loek Hellebrekers - 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 placement: 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 (TER-ABEL).
Language:	English
Teaching Activities:	Individual independent learning Formative assessment Student presentations
Examination:	Individual assignment 100%
Required literature:	--
Other required materials:	Placement handbook

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, Maurizio Scarciglia, Menno Slijboom
Summary:	In this fifth and final lab, you will apply your skills developed in the first three years of the programme. You will focus on one of the challenges of the city of the future presented in the lab. In this integral lab, you will not only apply your skills as a mobility expert, spatial planning specialist or urban designer, but also your personal skills gained through your unique experience with your selection of PROs and your placement.
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 Activities:	Individual independent learning Formative assessment Student presentations
Examination:	Individual assignment 100%
Required literature:	--
Other required materials:	--

OSIRIS-code:	BBEE.P6.MOL-01
Course name:	PRO Mobility & Land Use
Study load:	5 EC (=140 hours)
Coordinator:	Paul van de Coevering
Lecturer(s):	Paul van de Coevering
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.
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 Activities:	Instruction and demonstration Group work Individual independent learning
Examination:	Individual assignment 50% Group assignment 50%
Required literature:	--
Other required materials:	--

OSIRIS-code:	BBEE.P6.ARC-01
Course name:	PRO Architecture
Study load:	5 EC (=140 hours)
Coordinator:	Luiz de Carvalho Filho
Lecturer(s):	Luiz de Carvalho Filho
Summary:	In this study component, you will learn more about architecture, from drawing and representation to conceptual models to a design assignment. How are buildings designed? Which design philosophies can be described? What is the relation between the design on the scale of the building and the scale of the city or the landscape? These issues will be addressed while working on the assignment: making and presenting your design for a house in a specific context.

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

- Hand drawing techniques;
- The use of scale models;
- How to express an architectonic concept through hand drawing and models;
- An introduction to architectonic drawing (blueprints);
- Scale in drawing and level of representation
- The requirements for the design of a house (space required for different functions);
- Learning from emblematic projects and the way of working of influential architects;
- Applying different drawing and presentation techniques to present the concept/design for a house.

Language:	English
Teaching Activities:	Instruction and demonstration Individual independent learning Formative assessment
Examination:	Individual assignment 100%
Required literature:	Reader provided on Brightspace
Other required materials:	Drawing material (markers, ruler, tracing paper) Model making material (scissors, box cutter, glue)

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, Loek Hellebrekers
Summary:	Area development is an integral process. Many actors are involved. Those actors have common goals, but also their own specific goals. A good cooperation between all those actors is of great importance for a succesfull area development. In earlier study components, especially in KB6, this has allready been handled with. Especially the role of advisory organizations and municipalties has been stressed. 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.
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 Activities:	Instruction and demonstration Group work
Examination:	Written exam 50% Group assignment 50%
Required literature:	--
Other required materials:	--

OSIRIS-code:	BBEE.P6.GGD-01
Course name:	PRO GIS & Geo Data
Study load:	5 EC (=140 hours)
Coordinator:	Luiz Marcos De Carvalho Filho
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.
Content description:	In this study component the following content is covered: - GIS theory; - Spatial analysis; - Statistics; - Communication tools; - Reporting.
Language:	English
Teaching Activities:	Instruction and demonstration Individual independent learning Formative assessment
Examination:	Individual assignment 100%
Required literature:	Will be provided in the course.
Other required materials:	--

OSIRIS-code:	BBEE.P6.ENV-01
Course name:	PRO Environmental Psychology & Sociology
Study load:	5 EC (=140 hours)
Coordinator:	Karina Iurkova
Lecturer(s):	Geert de Leeuw, Karina Iurkova
Summary:	Environmental psychology and urban sociology are related fields that both study the interaction between individuals and groups and their surroundings, but they have distinct focuses and areas of emphasis. The field of Environmental Psychology primarily examines the psychological and emotional relationship between individuals and their physical environment. It delves into how people perceive, interact with, and are affected by the physical aspects of cities, such as architecture, green spaces, noise, and pollution. Urban sociology, on the other hand, is a subfield of sociology that specifically concentrates on the social structures, processes, and dynamics within urban areas or cities. It looks at the collective experiences, social structures, and processes that shape urban life. This PRO module is split into two parts that are closely interconnected through a continuous assignment with iterative cycles. The course's structure is based on student-led lectures, discussions, workshops, literature and site analysis, and iterative peer evaluation sessions and feedback sessions. The course provides a comprehensive and multidisciplinary perspective on the complex relationship between people and the urban environments they inhabit. The students will continuously work on creating an assessment strategy and multicriteria analysis, analysis of the chosen project location through the lens of specific personas and coming up with design and policy solutions identified through their investigation (Environmental Psychology part). They will also analyse the city's and district's policies and visions and status of societal networks to feed in and modify their proposed solutions and designs so that they not only correspond to the individual needs of their personas but also to the city and society as a whole (Urban Sociology part).

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

- Ffoundational concepts of environmental psychology and their influence on urban plans, designs and policy decisions;
- Multi-criteria analysis method and an assessment plan for a specific location based on knowledge about the human mind and the way people interact with their environment and vice versa;
- Assessment of urban areas and identification of differences in interactions between various societal groups and the surrounding environment;
- Societal trends and evolution and structure of the urban community as a socio-spatial system;
- Creation of integrated sustainable and inclusive solutions based on the theoretical and practical knowledge to specific context;

- Adaptation of the design strategies focusing on increasing well-being and positive environmental impact to the city's societal trends, such as gentrification, segregation, and the shadow economy, to address the social factors underlying urbanization and and facilitate attainable design strategies.

Language: English

Teaching Activities: Instruction and demonstration

Student-led lectures and peer feedback

Group work

Individual independent learning

Examination: Group assignment 50%

Individual assignment 50%

Literature: Recommended - 1.Environmental Psychology: an introduction" (Steg, L. E., Van Den Berg, A.E., & De Groot, J. I., 2019)
Recommended - 2.Cities for People" (Jan Gehl, 2010)
Recommended - 3.Urban Theory. A Critical Introduction to Power, Cities and Urbanism in the 21st Century 2014 Harding & Blokland
Recommended - 4.The Urban Sociology Reader"
(Jan Lin and Christopher Mele, 2013)
Recommended - 5.Environmental Psychology for Design" by Dak Kopec (second or fourth edition).

OSIRIS-code:	BBEE.P6.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.
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 Activities:	Instruction and demonstration Group work Formative assessment
Examination:	Individual assignment 100%
Required literature:	--
Other required materials:	--

OSIRIS-code:	BBEE.P6.EPS-01
Course name:	PRO Entrepreneurship
Study load:	5 EC (=140 hours)
Coordinator:	Stephen Narsoo
Lecturer(s):	Stephen Narsoo
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.
Content description:	In this study component the following content is covered: - Entrepreneurship; - Current spatial issues; - Business model Canvas; - Presentation.
Language:	English
Teaching Activities:	Instruction and demonstration Formative assessment Group work
Examination:	Individual assignment 100%
Required literature:	--
Other required materials:	--

Built Environment

Year 4

Semester 7

OSIRIS-code:	BCM.24MINOR
Course name:	Change Management: how to succesfully drive change in organisations
Study load:	30 EC (=840 hours)
Coordinator:	Karolien Kampstra
Lecturer(s):	Erik van Diffelen, Karolien Kampstra, Arna van Strien, Rutger Thielen

Content description:

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

Upon completion of this study component you are able to:

1 Successfully plan, execute, and evaluate change initiatives;

2 Make an analysis of external developments which can be of influence on the organisation;

3 Set up a business model;

4 Formulate strategic options based on the analyses;

5 Analyse your own organization in terms of strengths and weaknesses;

6 Formulate strategic objectives in such a way that operational objectives can be derived from them;

7 Diagnose a complex situation with appropriate diagnosis models;

8 Provide insight into how the current situation is maintained by various factors;

9 Identify the core of the change issue;

10 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;

11 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);

12 Develop a communication plan which fits the change strategy;

13 Determine the feasibility of the intended change (financial, legal and organisational);

14 Being able to write a resistance handling plan.

Language:	English
Teaching Activities:	Project with coaching
	LAB with coaching
	Workshop

Examination:	Group assignment	67%
	Individual assignment	33%
	Process (obligatory)	
Required literature:	J. Kotter. Leading Change. Harvard Business School Publishing (ISBN 9781422186435)	
Other required materials:	--	

OSIRIS-code:	BCS.24MINOR
Course name:	Crowd Safety in Hubs & Events
Study load:	30 EC (=840 hours)
Coordinator:	Justin van de Pas
Lecturer(s):	Justin van de Pas, Sanne Kuipers, Arna van Strien

Content description:

-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;
-complexity theory;
-law, permits and regulations

Upon completion of this study component you are able to:

1 Clear understanding of important concepts of Crowd Management and application of crowd modelling;

2 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;

3 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;

4 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;

5 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;

6 Ability to discuss the application of crowd simulations by analysing crowd simulations, applying measuring and monitoring tools, queing theories and crowd simulations;

7 Ability to discuss application of stakeholder analysis, procedures and permits and law and regulations;

8 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;

9 Communicate the information about the tools to users and/or team, with the goal to communicate with the audience;

10 Analysing an event or venue, including four core modelling elements;

11 Recognise group behavior and understanding causality;

12 (Deep) researching and correct referencing;

	13 The use of clear graphics.	
Language:	English	
Teaching Activities:	Lecture,	
	Workshop	
	Project with coaching	
	Excursion	
Examination:	Group assignment	50%
	Individual assignment	50%
	Process (obligatory)	
Required literature:	Still, G.Keith. Introduction to Crowd Science. (ISBN 9780367866709)	
Other required materials:	--	

OSIRIS-code:	BUR.24MINOR
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

Content description:

- 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.

Upon completion of this study component you are able to:

1 Assess the current situation in your international case study area with the STEEP and SWOT analysis tools;

2 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;

3 Create a detailled integrated plan to tackle societal issues related to urban sprawl and car dependency in your case study area;

4 Provide a coherent storyline from the SWOT analysis to concepting and the specific measures;

5 Conduct targeted Urban Guerilla tactics in practice.

Language:	English	
Teaching Activities:	Project with coaching	
Examination:	Individual assignment	50%
	Group assignment	50%
Required literature:	--	
Other required materials:	--	

OSIRIS-code:	BSCC.24minor
Course name:	A Supply Chain Cycle Challenge in the Bicycle Industry
Study load:	30 EC (=840 hours)
Coordinator:	Luuk Koopman
Lecturer(s):	Luuk Koopman, Rutger Thielen

Content description:

Experience what it is and how it feels to make a solid improvement in the supply chain. This improvement is based on tools, theory and methods from Supply Chain Management: Processes, Partnerships & Performance.

Lots of teamwork, fun, collaboration and personal/professional development.

Upon completion of this study component you are able to:

1 Apply knowledge and theories about integrated supply chain management from dedicated workshops;

2 Review a supply chain related problem or challenge from a company/organisation within the strategical, tactical and operational context of that company or organisation;

3 Develop and pilot improvements in the end-to-end supply chain and present these, together with outlining needs and wants for/from the organisation to make these improvements sustainable;

4 Define and apply an end-to-end supply chain management solution, based on different perspectives from business functions and processes; apply in this methodology a systematic literature review,including data-collection and analysis on validity and reliability.

Language:	English	
Teaching Activities:	Project with coaching	
	Lecture	
	Workshop	
	Excursion / company visit	
Examination:	Group assignment	50%
	Individual assignment	50%
Required literature:	Douglas M. Lambert, Supply Chain Management: Processes, Partnerships, Performance, 4th edition (ISBN 978-0975994993)	
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):	-
Summary:	You have to arrange your own graduation position and assignment. The graduation coordinator measures the assignment on size, complexity and draft. During the graduation process you will work on location. During this period you will develop on certain competencies. You demonstrate to have achieved the competencies based on the developed professional products, gathered feedback and performed activities during the graduation period. You will be supervised by a university supervisor and a company supervisor. During a number of individual talks with your university supervisor you will discuss the content of your graduation assignment and your progress
Language:	English
Teaching Activities:	Graduation supervision
Examination:	Individual assignment 100%
Required literature:	--
Other required materials:	Graduation manual

Appendices

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

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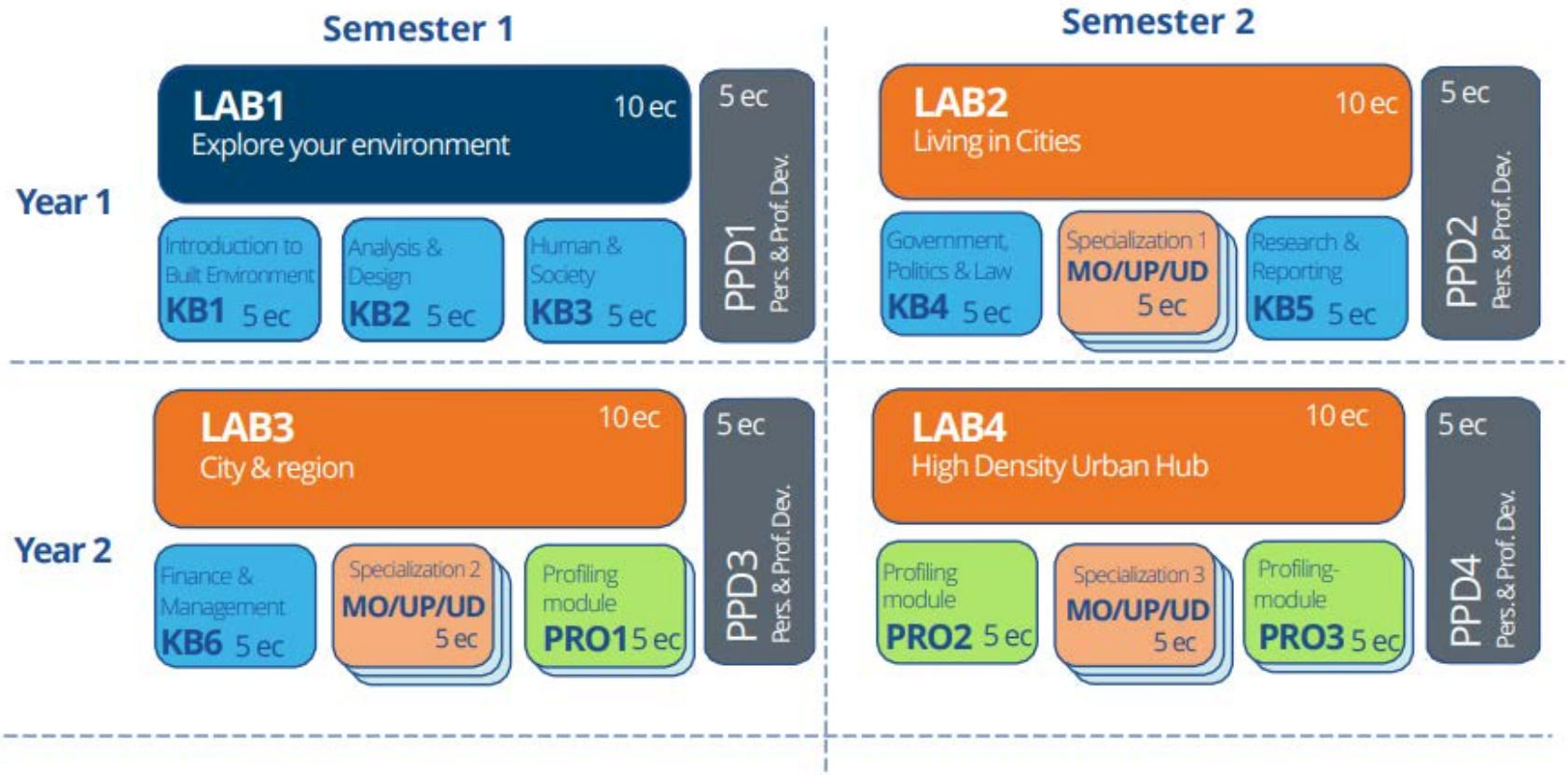

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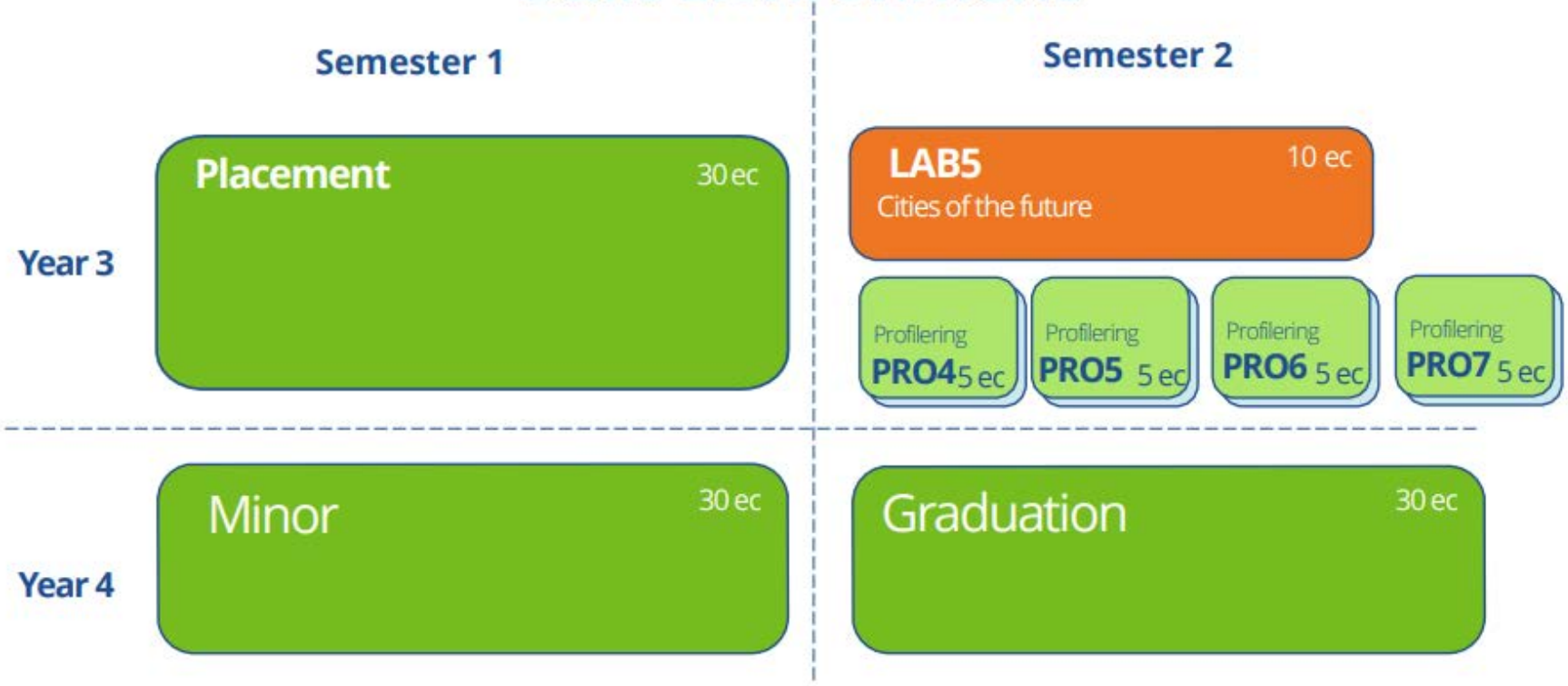

Link to year schedule:

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

Link to assessment programme:

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

Games

Media

Hotel

Facility

Built Environment

Logistics

Tourism

Leisure & Events

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