

# **BOUWKUNDE**

FACULTY OF ARCHITECTURE

AND THE BUILT ENVIRONMENT

**DELFT UNIVERSITY OF TECHNOLOGY**

QANU  
Catharijnesingel 56  
PO Box 8035  
3503 RA Utrecht  
The Netherlands

Phone: +31 (0) 30 230 3100  
E-mail: [support@qanu.nl](mailto:support@qanu.nl)  
Internet: [www.qanu.nl](http://www.qanu.nl)

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This report was finalized on 11 April 2019.



# REPORT ON BOUWKUNDE OF DELFT UNIVERSITY OF TECHNOLOGY

This report takes the NVAO's Assessment Framework for Limited Programme Assessments as a starting point (September 2016).

## ADMINISTRATIVE DATA REGARDING THE PROGRAMMES

### **Bachelor's programme Architecture, Urbanism & Building Science**

Dutch name of the programme:	B Bouwkunde
International name of the programme:	B Architecture, Urbanism & Building Sciences
CROHO number:	56951
Level of the programme:	bachelor's
Orientation of the programme:	academic
Number of credits:	180 EC
Location(s):	Delft
Mode(s) of study:	full time
Language of instruction:	Dutch
Expiration of accreditation:	31/12/2019

### **Master's programme Architecture, Urbanism and Building Sciences**

Name of the programme:	M Architecture, Urbanism & Building Sciences
CROHO number:	60349
Level of the programme:	master's
Orientation of the programme:	academic
Number of credits:	120 EC
Specializations or tracks:	Architecture Building Technology Landscape Architecture Management in the Built Environment Urbanism
Location(s):	Delft
Mode(s) of study:	full time
Language of instruction:	English
Expiration of accreditation:	31/12/2019

### **Master's programme Berlage Post-master in Architecture and Urban Design**

Name of the programme:	M Berlage Post-master in Architecture and Urban Design
CROHO number:	75108
Level of the programme:	master's
Orientation of the programme:	academic
Number of credits:	90 EC
Location(s):	Delft
Mode(s) of study:	full time
Language of instruction:	English
Expiration of accreditation:	16/02/2020

### **Master's programme European Post-master in Urbanism**

Name of the programme:	M European Post-master in Urbanism
CROHO number:	75060
Level of the programme:	master's
Orientation of the programme:	academic

Number of credits:	120 EC
Location(s):	Delft
Mode(s) of study:	full time
Language of instruction:	English
Expiration of accreditation:	31/12/2021

The visit of the assessment panel Bouwkunde to the Faculty of Architecture and the Built Environment of Delft University of Technology took place on 26 and 27 November 2018.

## ADMINISTRATIVE DATA REGARDING THE INSTITUTION

Name of the institution:	Delft University of Technology
Status of the institution:	publicly funded institution
Result institutional quality assurance assessment:	positive

## COMPOSITION OF THE ASSESSMENT PANEL

The NVAO has approved the composition of the panel on 30 July 2018. The panel that assessed the bachelor's programme and master's programme Architecture, Urbanism & Building Sciences, the master's programme Berlage Post-master in Architecture and Urban Design and the master's programme European Post-master in Urbanism consisted of:

- Prof. dr. ir. arch. A. (André) Loeckx, emeritus professor of Architecture and Urbanism at the Faculty of Engineering (Department of Architecture) of KU Leuven (Belgium) [chair];
- Ir. M.E. (Madeleine) Maaskant, director of the Academy of Architecture of the Amsterdam University of the Arts;
- Prof. dr. ir. L. (Luc) Taerwe, emeritus professor in Structural Engineering, pro dean of the Faculty of Engineering and Architecture of Ghent University (Belgium);
- Prof. dr. W.G.M. (Willem) Salet, emeritus professor Urban and Regional Planning at the University of Amsterdam;
- C. (Claudia) Graafland, master's student Architecture and Urban Design Engineering at Eindhoven University of Technology [student member].

The panel was supported by Dr. M.J. (Marijn) Hollestelle, who acted as secretary.

## WORKING METHOD OF THE ASSESSMENT PANEL

The site visit to the bachelor's programme and master's programme Architecture, Urbanism & Building Sciences, the master's programme Berlage Post-master in Architecture and Urban Design and the master's programme European Post-master in Urbanism at the Faculty of Architecture and the Built Environment of Delft University of Technology was part of the cluster assessment Bouwkunde. Between 26 and 30 November 2018 the panel assessed 6 programmes at 2 universities. The following universities participated in this cluster assessment: Delft University of Technology and Eindhoven University of Technology.

On behalf of the participating universities, quality assurance agency QANU was responsible for logistical support, panel guidance and the production of the report. P. (Peter) Hildering, Msc., was project coordinator and secretary for QANU. Dr. M.J. (Marijn) Hollestelle acted as second secretary in the cluster assessment.

During the site visit at Delft University of Technology, the panel was supported by Dr. M.J. (Marijn) Hollestelle, a certified NVAO secretary.

### *Panel members*

The members of the assessment panel were selected based on their expertise, availability and independence. The full panel consisted of the following members:

- Prof. dr. ir. arch. A. (André) Loeckx, emeritus professor of Architecture and Urbanism at the Faculty of Engineering (Department of Architecture) of KU Leuven (Belgium) [chair];
- Ir. M.E. (Madeleine) Maaskant, director of the Academy of Architecture of the Amsterdam University of the Arts;
- Prof. dr. ir. L. (Luc) Taerwe, emeritus professor in Structural Engineering, pro dean of the Faculty of Engineering and Architecture of Ghent University (Belgium);
- Prof. dr. W.G.M. (Willem) Salet, emeritus professor Urban and Regional Planning at the University of Amsterdam;
- C. (Claudia) Graafland, master's student Architecture and Urban Design Engineering at Eindhoven University of Technology [student member].
- Ir. J. J. W. (Jorien) Cousijn, alumnus of the master's programme Architecture, Urbanism and Building Sciences at Delft University of Technology [student member];

### *Preparation*

On 10 September 2018, the panel chair was briefed by QANU on his role, the assessment framework, the working method, and the planning of site visits and reports. A preparatory panel meeting was organised on 25 October 2018. During this meeting, the panel members received instruction on the use of the assessment framework. The panel also discussed their working method and the planning of the site visits and reports.

The project coordinator composed a schedule for the site visit in consultation with the Faculty. Prior to the site visit, the Faculty selected representative partners for the various interviews. See Appendix 4 for the final schedule.

Before the site visit to Delft University of Technology, QANU received the self-evaluation reports of the programmes and sent these to the panel. A thesis selection was made by the panel's chair and the project coordinator. The selection consisted of 15 theses and their assessment forms for the bachelor's programme Architecture, Urbanism & Building Science, and 15 for the master's programme Architecture, Urbanism and Building Sciences programmes, based on a provided list of graduates between July 2017 – July 2018. The selection consisted of 10 theses and their assessment forms for the master's programme Berlage Post-master in Architecture and Urban Design, based on a provided list of graduates between February 2017 – February 2018. The selection consisted of 10 theses and their assessment forms for the master's programme European Post-master in Urbanism, based on a provided list of graduates between June 2016 – June 2018. A variety of topics and tracks and a diversity of examiners were included in the selection. The project coordinator and panel chair assured that the distribution of grades in the selection matched the distribution of grades of all available theses.

After studying the self-evaluation report, theses and assessment forms, the panel members formulated their preliminary findings. The secretary collected all initial questions and remarks and distributed these amongst all panel members.

At the start of the site visit, the panel discussed its initial findings on the self-evaluation report(s) and the theses, as well as the division of tasks during the site visit. Based on the nature of the post-initial master's programme Berlage Post-master in Architecture and Urban Design, and the post-initial master's programme European Post-master in Urbanism, the panel decided not to use the NVAO Guidelines for the assessment of postgraduate master's programmes in the Netherlands (2017) for these programmes. Although the programmes focus on students with a previous master's degree, they are not designed as an executive master for students with relevant working experience. These programmes are therefore assessed within the regular framework for (limited) programme assessments.

### *Site visit*



The site visit to Delft University of Technology took place on 26 and 27 November 2018. Before the site visit, the panel studied the additional documents provided by the programmes. An overview of these materials can be found in Appendix 5. The panel conducted interviews with representatives of the programmes: students and staff members, the programme's management, alumni and representatives of the Board of Examiners. The panel used the final part of the site visit to discuss its findings in an internal meeting. Afterwards, the panel chair publicly presented the panel's preliminary findings and general observations.

#### *Consistency and calibration*

The consistency of assessment within the cluster was ensured by the panel, which consisted of the same panel members for both site visits at Delft and Eindhoven University of Technology (except for the student members). Also, the coordinator was present at the start of all site visits as well as the panel discussion leading to the preliminary findings at the site visits of Delft University of Technology and Eindhoven University of Technology.

#### *Report*

After the site visit, the secretary wrote a draft report based on the panel's findings and submitted it to the project coordinator for peer assessment. Subsequently, the secretary sent the report to the panel. After processing the panel members' feedback, the project coordinator sent the draft report to the Faculty in order to have it/these checked for factual irregularities. The project coordinator discussed the ensuing comments with the panel's chair and changes were implemented accordingly. The report was then finalised and sent to the Faculty and University Board.

#### *Definition of judgements standards*

In accordance with the NVAO's Assessment framework for limited programme assessments, the panel used the following definitions for the assessment of both the standards and the programme as a whole.

#### **Generic quality**

The quality that, in an international perspective, may reasonably be expected from a higher education Associate Degree, Bachelor's or Master's programme.

#### **Unsatisfactory**

The programme does not meet the generic quality standard and shows shortcomings with respect to multiple aspects of the standard.

#### **Satisfactory**

The programme meets the generic quality standard across its entire spectrum.

After deliberation, the programme management of the programmes within the Bouwkunde cluster (Delft and Eindhoven University of Technology), together with the panel Bouwkunde, decided to use the judgements 'Unsatisfactory' and 'Satisfactory' for the assessment of the standards, and to abstain from the judgements 'good' and 'excellent' for the assessment of the standards.

# SUMMARY JUDGEMENT

## **Bachelor's programme Architecture, Urbanism & Building Sciences**

### *Intended learning outcomes*

The panel established that the intended learning outcomes of the bachelor's programme Architecture, Urbanism & Building Sciences (AUBS) are adequate in terms of level and orientation. They are well-formulated and geared towards the expectations of the academic and professional field. Moreover they form a continuing work in progress of reflection and refinement. The programme has a clear profile within the field of the built environment. The goals and aims are well-suited to produce competent experts of the built environment, who are shaped according to the typical 'Delft approach'. This constitutes a combination of design, science and engineering, with the ability to show these relationships, combined with a hands-on, problem-solving approach.

The programme's ILOs clearly reflect the programme's goal, namely to educate students with a broad basic knowledge of architecture, and to prepare them for specialisation in a master's programme. The proposed restriction of the 25 supplementary criteria for the bachelor's programme AUBS, criticized for being too particular and too disconnected from the 4TU criteria, to 7 criteria, that are domain specific but harmonize with the 4TU frame, is considered fitting by the panel.

The panel observed that research is put forward in the ILOs as design-oriented research, with design at the core. The panel recommends further specifying scientific research and research methodology so that research has a clear place in the programme's ILOs. The position of the AUBS programmes is unique in providing both design and research methodologies. To further improve this combination, the panel advises to follow a two-track approach: 1) to teach these capabilities separately, 2) to use this basis to teach and further develop a variety of combined approaches such as 'design research' and 'research by design'.

### *Teaching-learning environment*

The panel assessed a clear, adequate relationship of the bachelor's curriculum with the ILOs. The academic orientation meets the standard, as well as coupling with the professional field and the acquired skill set. The teaching staff is well-qualified and has a good mix of academically highly qualified staff and staff rooted in the architectural practice, fitting the nature of the programme, and safeguarding a link with architectural practice within the programme. The programme has managed to increase the number of teaching staff with a doctoral degree. The number of teachers with a UTQ has sharply increased, and this number is still rising. Teachers are involved in shaping learning trajectories and goals, and keep a close eye on the amount of set time they have for assessment and feedback, to keep the workload manageable. Students in general expressed that they are very pleased with their teachers and obtain valuable feedback on their projects and courses, and are involved in the programmes and able to shape their own studies, proportional to the nature of the programme followed. Where possible, options are explored to augment the teaching by means of MOOCs or online clips. The panel is impressed by the strength of the building and its facilities in enabling interaction between students and teachers.

AUBS is a coherent programme with clearly defined learning trajectories. It provides students with a broad foundation in architecture, urbanism and building sciences; specialisation can then take place in a relevant master's programme. It is well-aligned with the professional field. Students and teachers have mixed feelings about the plans for an English language bachelor's programme AUBS. The panel advises the programme to carefully assess why, how, and to what extent the bachelor's programme AUBS should be offered in English. The Academic Skills trajectory is a good and necessary component of the programme, but is a bit isolated from the rest; various academic skills are addressed in separate courses but it might be particularly helpful to strengthen skills in courses that deal with research modes and methods that are relevant to the graduation semester and the related scientific papers. The panel sees a coherent and feasible programme, and is impressed with the complementarity in the different modules, the logical build-up and the contemporary subjects



addressed in the courses, and compliments the programme on this. The panel also praises the programme for managing to teach a large number of students in small groups, which is a strong asset contributing significantly to its strength.

#### *Assessment*

The bachelor's programme AUBS uses an adequate and effective assessment policy. The assessment methods align with the relevant courses and goals. In assessing the courses, the "golden rules" of testing and the "peer-review principle" are consistently applied. The programme uses assessment matrices and provides suitable and sufficient feedback to students. The feedback and assessment models used within the programme is suitable and strong, providing students with timely and coherent feedback on their work, and are consistently applied in the various stages of the programme.

The panel is very positive about the design of the graduation phase and the use of a rubric, which it deems to be suitable for a systematic, transparent and objective grading of this work. For all programmes, the graduation process proceeds according to a fixed protocol. The panel felt that written qualitative feedback would be valuable for the programme AUBS graduation work to further clarify the grade awarded. In fact such qualitative feedback would synthesize in written form the oral comments given by supervisors or examiners. This would help to critically appreciate the student's work for instance in terms of reflections, research findings, design decisions, aesthetics, contributions to societal and ecological transitions. The Board of Examiners is operating actively and adequately to ensure that the assessment remains at a high level, and is proactively safeguarding the assessment quality.

#### *Realized learning outcomes*

Based on the quality of the studied theses and the interviews with teachers and alumni, the panel concluded that graduates of the programme master the intended learning outcomes and are sufficiently skilled to enter a relevant master's programme in architecture and/or urbanism. The programme convincingly manage to do what it intends to do.

The bachelor's programme AUBS clearly succeeds in producing Bachelors of Science with a broad knowledge of architecture, who master the basic knowledge and principles of the trade and are able to apply them in research and design. It prepares students for the master's programme AUBS. The panel assessed that the programme could pay attention to infusing academic skills and a stronger methodological approach more clearly into the theses, for instance by more extensively addressing academic skills and methodology not only in the Academic Skill module but also in courses leading up to the graduation project .

### **Master's programme Architecture, Urbanism & Building Sciences**

#### *Intended learning outcomes*

The panel established that the intended learning outcomes of the master's programme Architecture, Urbanism & Building Sciences (AUBS) are adequate in terms of level and orientation. They are well-formulated and geared towards the expectations of the academic and professional field. Moreover they form a continuing work in progress of reflection and refinement. The programme has a clear profile within the field of the built environment. The goals and aims are well-suited to produce competent experts of the built environment, who are shaped according to the typical 'Delft approach'. This constitutes a combination of design, science and engineering, with the ability to show these relationships, combined with a hands-on, problem-solving approach.

The panel observed that research is put forward in the ILOs as design-oriented research, with design at the core. The panel recommends further specifying scientific research and research methodology so that research has a clear place in the programme's ILOs. The position of the AUBS programmes is unique in providing both design and research methodologies. To further improve this combination,

the panel advises to follow a two-track approach: 1) to teach these capabilities separately, 2) to use this basis to teach and further develop a variety of combined approaches such as 'design research' and 'research by design'.

#### *Teaching-learning environment*

The panel assessed a clear, adequate relationship of the master's curriculum with the related ILOs. The academic orientation meets the standard, as well as coupling with the professional field and the acquired skill set. The teaching staff is well-qualified and has a good mix of academically highly qualified staff and staff rooted in the architectural practice, fitting the nature of the programme, and safeguarding a link with architectural practice within the programme. The programme has managed to increase the number of teaching staff with a doctoral degree. The number of teachers with a UTQ has sharply increased, and this number is rising. The teaching staff has a very international profile. Teachers are involved in shaping learning trajectories, tracks and goals and keep a close eye on the amount of set time they have for assessment and feedback, to keep the workload manageable. Students in general expressed that they are very pleased with their teachers and obtain valuable feedback on their projects and courses, and are involved in the programmes and able to shape their own studies, proportional to the nature of the programme followed. Where possible, options are explored to augment the teaching by means of MOOCs or online clips. The panel is impressed by the strength of the building and its facilities in enabling interaction between students and teachers.

Students experience that there are possibilities for personal and tailored development within the programme. The programme has a clear link with the professional field of the built environment, and in the present curriculum has taken steps to enhance the multidisciplinary cohesion by means of cross-domain studios. The Research Methods trajectory is a good and necessary component of the programme, but is a bit isolated from the rest; various academic skills are addressed in separate courses but it might be particularly helpful to strengthen skills in courses that deal with research modes and methods that are relevant for the graduation project and the solid research this project requires. Moreover, a better integration of research and research methodology in the programme could be beneficial not only for the graduation project but for all study assignments and for the later career of the student. The panel is impressed with the complementarity in the different tracks, the logical build-up and the contemporary subjects addressed in the courses, and compliments the programme on this. The small groups, the link with practical work and the real-life applicability of the teachings are clear, strong parts of the programme.

#### *Assessment*

The master's programme AUBS uses an adequate and effective assessment policy. The assessment methods align with the relevant courses and goals. In assessing the courses, the "golden rules" of testing and the "peer-review principle" are consistently applied. The programme uses assessment matrices and provides suitable and sufficient feedback to students. The EMMA feedback and assessment model used for within the programme is suitable and strong, providing students with timely and coherent feedback on their work, and is consistently applied in the various stages of the programmes.

The panel is very positive about the design of the graduation phase and the use of a rubric, which it deems to be suitable for a systematic, transparent and fair grading of this work. For all programmes, the graduation process proceeds according to a fixed protocol. The panel felt that written qualitative feedback would be valuable for the master's programme AUBS graduation project, to further clarify the grade awarded. In fact such qualitative feedback would synthesize in written form the oral comments given by supervisors or examiners. It would help to critically appreciate the student's work for instance in terms of reflections, research findings, design decisions, aesthetics, contributions to societal and ecological transitions. The Board of Examiners is operating actively and adequately to ensure that the assessment remains at a high level, and is proactively safeguarding the assessment quality.



### *Realized learning outcomes*

Based on the quality of the studied theses and the interviews with teachers and alumni, the panel concluded that graduates of the programme master the intended learning outcomes and are sufficiently skilled to work in the architectural and urbanist field, both in academic and professional settings. The programme convincingly manages to do what it intends to do.

The programme manages to both broaden and deepen the knowledge and principles of architecture and their application in research and design, focussing on integration, complexity, originality and research skills at an academic level. The panel assessed that the programme could pay attention to infusing academic skills and a stronger methodological approach more clearly into the theses, for instance by more extensively addressing academic skills and methodology not only in the Research Methods module but also in courses leading up to the graduation project.

## **Master's programme Berlage Post-master Architecture and Urban Design**

### *Intended learning outcomes*

The panel established that the ILOs of the master's programme Berlage Post-master Architecture and Urban Design are adequate in terms of level and orientation. They are well-formulated and geared towards the expectations of the academic and professional field. Moreover they form a continuing work in progress of reflection and refinement. The goals and aims are well-suited to produce competent experts of the built environment, who are shaped according to the typical 'Delft approach'. This constitutes a combination of design, science and engineering, with the ability to show these relationships, combined with a hands-on, problem-solving approach.

The post-master's programme Berlage is in need of a clearly formulated and communicated mission statement. It does have a high international reputation but attracts a limited number of students. The programme does have the potential to improve its connectivity with PhD research since a considerable number of PhD students attend Berlage programme components. An increased attention to research might attract more students wanting to continue in PhD research after completion of the programme. The panel recommends the faculty to reflect on the position of the post-graduate programme in relation to the regular master's programme, and explore whether the programmes can be used as a breeding ground on which also local talent can grow in theory, research and/or professional design.

### *Teaching-learning environment*

The panel assessed a clear, adequate relationship of the curriculum with its respective ILOs. The academic orientation meets the standard, as well as coupling with the professional field and the acquired skill set. The teaching staff is well-qualified and has a good mix of academically highly qualified staff and staff rooted in the architectural practice, fitting the nature of the programme, and safeguarding a link with architectural practice within the programme. The programme has managed to increase the number of teaching staff with a doctoral degree. The number of teachers with a UTQ has sharply increased, and this number is rising. The teaching staff has a very international profile. Teachers are involved in shaping learning trajectories, tracks and goals and keep a close eye on the amount of set time they have for assessment and feedback, to keep the workload manageable. Students in general expressed that they are very pleased with their teachers and obtain valuable feedback on their projects and courses, and are involved in the programmes and able to shape their own studies, proportional to the nature of the programme followed. The panel is impressed by the strength of the building and its facilities in enabling interaction between students and teachers.

Berlage focuses on innovation of the attitude and methodology of the architect, and has an adaptive content based on the students' needs. The content of each curriculum is individual by nature and is co-shaped between students and teachers, aiming at current problems. Education takes place in a collaborative process, with a focus on individual growth and contribution. Teachers act more as advisors; they are able to provide a lot of guidance because of the limited number of students. Many

guest lecturers, often with a large international stature, contribute to the programme. Teachers purposefully give their own, sometimes contradictory techniques and views; it is up to the students to navigate and develop their own discourse. This is fitting to the programme and highly valued by the panel.

The panel is impressed with this design of the curriculum, and deems the mechanisms in place to ensure consistency and achieving the ILOs adequate and fitting the character of the programme. Berlage is focused on developing soft skills and on challenging and sharpening the academic skills students have already acquired at the master's level, which the panel deems fitting for a post-master's programme. The panel thinks that the programme would benefit from an increased attention towards innovative modes and methods of research. Moreover the close interaction between design and research, proper to the cherished 'mongrel position' of Berlage is able to stimulate innovation in both design and research. The programme attracts a small number of students. Steps should be taken to keep the student groups sufficiently large to enable peer learning.

#### *Assessment*

The programme uses an adequate and effective assessment policy. The assessment methods align with the relevant courses and goals. In assessing the courses, the "golden rules" of testing and the "peer-review principle" are consistently applied. Due to the combination of a small and very personalised, high-profile programme, Berlage uses an individualised assessment model, which is sufficient and fits the character of this programme.

The panel is very positive about the design of the graduation phase and the use of a rubric, which it deems to be suitable for a systematic, transparent and objective grading of this work. For all programmes, the graduation process proceeds according to a fixed protocol. The Board of Examiners is operating actively and adequately to ensure that the assessment remains at a high level, and is proactively safeguarding the assessment quality.

#### *Realized learning outcomes*

Based on the quality of the studied theses and the interviews with teachers and alumni, the panel concluded that graduates of the programme master the intended learning outcomes and are sufficiently skilled to work in the architectural and urbanist field, both in academic and professional settings. The programme convincingly manage to do what it intends to do.

Berlage focusses intensively on how architects and urban designers practise in a globalized world, concentrating on the complex development of the built environment within different contexts, and manages to let students find their own discourse and develop critical thinking about the built environment and its challenges and opportunities. Based on the limited display of research methodology in some theses, the panel thinks that students can benefit from expanding or sharpening their academic skills a bit more during the post-master. The programme teaches the application of theoretical knowledge and out-of-the-box research, thus acting as a 'mangrove'. The mangrove alternately participates in the life of land and water; similarly for the Berlage the 'tidal movement' between the academic and professional fields engenders a particular creative and intellectual ecology that offers a breeding ground for personal development and disciplinary innovation.

### **Master's programme European Post-master in Urbanism**

#### *Intended learning outcomes*

The panel established that the ILOs of the master's programme European Post-master in Urbanism (EMU) are adequate in terms of level and orientation. They are well-formulated and geared towards the expectations of the academic and professional field. Moreover they form a continuing work in progress of reflection and refinement. The goals and aims are well-suited to produce competent experts of the built environment, who are shaped according to the typical 'Delft approach'. This



constitutes a combination of design, science and engineering, with the ability to show these relationships, combined with a hands-on, problem-solving approach.

The post-master's programme EMU is in need of a clearly formulated and communicated mission statement. It does have a high international reputation but attracts a limited number of students. For EMU, the panel specifically sees opportunities in advertising the programme on a European level using its international partner universities. The panel recommends the faculty to reflect on the position of the post-graduate programme in relation to the regular master's programme, and explore whether the programmes can be used as a breeding ground on which also local talent can grow in theory, research and/or professional design.

#### *Teaching-learning environment*

The panel assessed a clear, adequate relationship of the curriculum with its ILOs. The academic orientation meets the standard, as well as coupling with the professional field and the acquired skill set. The teaching staff is well-qualified and has a good mix of academically highly qualified staff and staff rooted in the architectural practice, fitting the nature of the programme, and safeguarding a link with architectural practice within the programme. The programme has managed to increase the number of teaching staff with a doctoral degree. The number of teachers with a UTQ has sharply increased, and this number is rising. The teaching staff has a very international profile. Teachers are involved in shaping learning trajectories, tracks and goals and keep a close eye on the amount of set time they have for assessment and feedback, to keep the workload manageable. Students in general expressed that they are very pleased with their teachers and obtain valuable feedback on their projects and courses, and are involved in the programmes and able to shape their own studies, proportional to the nature of the programme followed. The panel is impressed by the strength of the building and its facilities in enabling interaction between students and teachers.

EMU has a unique international component, in which students experience alternative approaches to urban development. This is highly valued by the panel. The panel is impressed by the setup of the curriculum. EMU refreshes the academic skills students have already acquired at the master's level, and is focussed on deepening their knowledge with an international outlook, which the panel deems fitting for a post-master's programme. The panel sees a challenging, clear and coherent programme in the given courses and in the complementary setup of its explicitly international approach. It wants to encourage the programme to follow up on their intent to emphasize the international character of the programme further by strengthening cooperation with the partnering EMU universities and benefitting from their complementarity. A better integration of research and research methodology in the programme could be beneficial to both PhD students and the students of the programme. Teachers are able to provide much guidance because of the limited number of students, which is valued by the panel. Steps should be taken to keep the student groups sufficiently large to enable peer learning.

#### *Assessment*

The programme uses an adequate and effective assessment policy. The assessment methods align with the relevant courses and goals. In assessing the courses, the "golden rules" of testing and the "peer-review principle" are consistently applied. The programme uses assessment matrices and provide suitable and sufficient feedback to students. The EMMA feedback and assessment model used within the programme is suitable and strong, providing students with timely and coherent feedback on their work, and is consistently applied in the various stages of the programmes.

The panel is very positive about the design of the graduation phase and the use of a rubric, which it deems to be suitable for a systematic, transparent and objective grading of this work. The graduation process proceeds according to a fixed protocol. The Board of Examiners is operating actively and adequately to ensure that the assessment remains at a high level, and is proactively safeguarding the assessment quality.

### *Realized learning outcomes*

Based on the quality of the studied theses and the interviews with teachers and alumni, the panel concluded that graduates of the programme master the intended learning outcomes and are sufficiently skilled to work in the architectural and urbanist field, both in academic and professional settings. The programmes convincingly manage to do what they intend to do.

EMU clearly manages to produce international leaders of urbanism for the next generation, with a unique, complementary view on urban design, landscape architecture and planning, and an interdisciplinary approach to urban development. The international set-up and the opportunity of international experience constitute major assets of the programme. The theses contain sufficient fundamental reflection, but some remain somewhat descriptive by nature while some other tend to be a bit disconnected from reality. A better integration of research and research methodology in the programme could be beneficial to the students.

The panel assesses the standards from the *Assessment framework for limited programme assessments* in the following way:

#### *Bachelor's programme Architecture, Urbanism & Building Sciences*

Standard 1: Intended learning outcomes	satisfactory
Standard 2: Teaching-learning environment	satisfactory
Standard 3: Assessment	satisfactory
Standard 4: Achieved learning outcomes	satisfactory
General conclusion	satisfactory

#### *Master's programme Architecture, Urbanism & Building Sciences*

Standard 1: Intended learning outcomes	satisfactory
Standard 2: Teaching-learning environment	satisfactory
Standard 3: Assessment	satisfactory
Standard 4: Achieved learning outcomes	satisfactory
General conclusion	satisfactory

#### *Master's programme Berlage Post-master Architecture and Urban Design*

Standard 1: Intended learning outcomes	satisfactory
Standard 2: Teaching-learning environment	satisfactory
Standard 3: Assessment	satisfactory
Standard 4: Achieved learning outcomes	satisfactory
General conclusion	satisfactory

#### *Master's programme European Post-master in Urbanism*

Standard 1: Intended learning outcomes	satisfactory
Standard 2: Teaching-learning environment	satisfactory
Standard 3: Assessment	satisfactory
Standard 4: Achieved learning outcomes	satisfactory
General conclusion	satisfactory

The chair, Prof. dr. ir. arch. A. (André) Loeckx, and the secretary, Dr. M.J. (Marijn) Hollestelle of the panel hereby declare that all panel members have studied this report and that they agree with the judgements laid down in the report. They confirm that the assessment has been conducted in accordance with the demands relating to independence.

# DESCRIPTION OF THE STANDARDS FROM THE ASSESSMENT FRAMEWORK FOR LIMITED PROGRAMME ASSESSMENTS

## **Standard 1: Intended learning outcomes**

The intended learning outcomes tie in with the level and orientation of the programme; they are geared to the expectations of the professional field, the discipline, and international requirements.

## **Findings**

This report covers the bachelor's programme Architecture, Urbanism & Building Sciences (AUBS), the master's programme Architecture, Urbanism & Building Sciences (AUBS), the master's programme Berlage Post-master Architecture and Urban Design (Berlage), and the master's programme European Post-master in Urbanism (EMU). These programmes are embedded in the Faculty of Architecture and the Built Environment of Delft University of Technology.

### *Intended learning outcomes*

The goals of the bachelor's programme AUBS, master's programme AUBS, master's programme Berlage and master's programme EMU are summarized in the intended learning outcomes (ILOs) listed in Appendix 2, consisting of criteria covering knowledge and skills. The panel studied these ILOs in terms of level, orientation and content. It concluded that the ILOs are clearly tied to the Dublin descriptors. This was demonstrated in an overview presented to the panel in which the goals of each of the programmes were shown to be connected to the 4TU Criteria for Academic Bachelor's and Master's Curricula (the Meyers criteria), which cover the Dublin descriptors. As a result, the bachelor's level and academic orientation are adequately visible in the ILOs for the bachelor's programme AUBS, and the master's level and academic orientation are adequately visible in the ILOs of the master's programme AUBS, Berlage and EMU. The ILOs are clearly described and constitute an adequate link with the research and design elements in the field of the built environment. The panel observed that the ILOs tie in with the level and orientation of the programmes; they are geared to the expectations of the professional field, the discipline, and international requirements.

For the *bachelor's and master's programme AUBS*, the panel observed that both programmes seem to regard research as part of the design process. In the bachelor's programme, it is put forward in the ILOs as design-oriented research, with design at the core. For the master's programme, equivalent wording is used with regard to the ILOs of the Architecture, Urbanism, and Landscape Architecture tracks. The ILOs for these tracks (A2, U2 and LA2, respectively) mention that a graduate is competent in conducting 'design research and research-by-design', 'design and planning research' or 'design research and research-by-design'. For each track, ILOs A4, U4 and LA4 mention the goal for its graduates is that they take a scientific approach, in which they can address 'the results of research'. What exactly is meant by research and 'research by design' was initially unclear to the panel, given the descriptions under ILOs A2, U2 and LA2.

The panel discussed this issue with the management of both programmes. The programme management indicated that scientific research and research methodology do have a place in the programme separate from the design process, but that this is not explicitly mentioned in the ILOs. The panel recommends specifying the ILOs further in this respect to make it clear that research methodologies are sufficiently embedded within the programme. While developing, teaching and exercising scientific research is important for all programmes focusing on the built environment, the panel considers the combination of design and research methodologies a unique aspect of these particular programmes. To further improve both research and design-research combinations, the panel advises to follow a two-track approach: 1) to teach these capabilities separately, 2) to use this basis to teach and further develop a variety of combined approaches such as 'design research' and 'research by design'.



### *Bachelor's programme Architecture, Urbanism & Building Sciences*

The goal of the bachelor's programme AUBS is to provide students with a broad knowledge of architecture, urbanism and building sciences, who have mastered the basic knowledge and principles of the trade and are able to apply them in research and design. Above all, it aims to prepare students for a master's programme at TU Delft (Architecture, Urbanism & Building Sciences, Geomatics for the Built Environment or the joint degree master's programme Metropolitan Analysis, Design and Engineering with Wageningen University & Research), the master's programme Architecture, Building and Planning at TU Eindhoven, or an equivalent programme abroad.

The general ILOs of the bachelor's programme AUBS are linked to the different learning trajectories within the programme. Aside from the 4TU criteria, the bachelor's programme AUBS has formulated 25 supplementary learning outcomes specifically for it. The panel supports the attempt to complement generic criteria such as the Dublin descriptors and the 4TU criteria by more domain specific intended learning outcomes. However, recently, the programme management concluded, as put forward in the self-evaluation report, that these 25 learning outcomes are too specific and are in need of an update. The panel agrees with the programme management. It feels that several of the 25 ILOs formulate very particular requirements that are too disconnected from the 4TU Meyers criteria. For instance, ILOs 11 and 12 state that a graduate must be able to design building and bearing constructions, and specify in detail the demands that must be met in a building or bearing construction. A new proposal for seven generic learning outcomes to replace the 25 current ones was put before the panel in the appendix of the self-evaluation report of the bachelor's programme AUBS. The panel was positive about the proposal and deemed that the new ILOs adequately describe the desired content and level of the programme in terms, that are more domain specific and are clearer in its connection with the 4TU criteria.

In speaking with teachers and the management of the bachelor's programme AUBS, the panel learned that the proposed update of the specific intended outcomes for this programme was explicitly discussed and formulated together with the teaching staff and the track representatives. Teachers mentioned to the panel that a more compact list of learning outcomes is preferable over the current 25 learning outcomes. The panel encourages staff and students to continue their interesting work on the refinement of intended learning outcomes. In this respect the panel suggests to formulate in more explicit terms the intended development of disciplinary awareness, knowledge and skills in the (sub) disciplines of AUBS. Such disciplinary awareness includes theory, history and criticism of paradigms and cases and forms a necessary reference base for research and design.

### *Master's programme Architecture, Urbanism & Building Sciences*

The master's programme AUBS is a two-year (120 EC) programme that aims to both broaden and deepen students' knowledge of the principles of architecture and their application in research and design, with a focus on integration, complexity, originality and research skills at an academic level. Students select one of the five specialised master's tracks: Architecture, Urbanism, Landscape Architecture, Building Technology, or Management in the Built Environment. With a diploma from the Architecture, Landscape Architecture or Urbanism track of the master's programme AUBS, graduates can apply for registration in the Dutch Register of Architects (after completion of a professional traineeship or BEP, 'beroepservaringperiode'), which allows them to use the protected title of Architect, Landscape Architect or Urban Designer in the Netherlands. Specific learning outcomes of these tracks tie in with the European standards for architects.

The panel observed that the master's programme AUBS makes use of a combination of generic, cross-track and track-specific ILOs. It assessed that the ILOs for each of the five tracks are sound and show that students are educated to take an appropriate critical, societal and ethical attitude with regard to the field.

### *Master's programme Berlage Post-master in Architecture and Urban Design*

The mission of the master's programme Berlage Post-Master in Architecture and Urban Design (hereafter: Berlage) is to focus intensively on how architects and urban designers think and practise

in a globalized context and on how to innovate thinking and practice, taking into account the complex development of the built environment within different contexts and the pressing challenges of our time. In talking to students, alumni and teaching staff, it became clear to the panel that Berlage positions itself at the intersection of the academic and professional field of the built environment. Berlage is intended for architects and urbanists looking for something more than just the profession and who want to develop themselves. The programme enables students to find their own discourse and develop critical thinking about the built environment and the associated challenges and opportunities. Berlage is a post-master's programme, meaning that students who wish to enrol must already hold a master's or an equivalent degree. Upon successful completion of the programme, students are awarded a master's certificate and the title Master of Science.

The programme is arranged around three key concepts: 'intercultural', 'based on reality', and 'socially and culturally sustainable'. The ILOs of *Berlage* primarily aim at innovative skills, changing professional attitudes and personal development rather than at the acquisition of additional knowledge, which the panel deems fitting to its post-master character. They clearly address a reflective dimension and the use of technological and methodological tools to these ends. The interviews with students and teachers provided the panel with a clear picture of what Berlage stands for. The panel is impressed by this profile provided by teachers and students. It noticed that this image did not clearly arise from the provided documentation. It recommends the programme to check whether Berlage is described clearly enough to outsiders. This is especially relevant considering the fact that the programme attracts just a small group of students, although it has a high international reputation. The panel advises Berlage to reflect on its main message to the field and, if necessary, reformulate this to clearly reflect the main strengths of the programme: personal development, reflection, and constructing one's own discourse in architecture and urban design.

The programme considers itself being in 'a mongrel' position between practice and academia, between design and research. Berlage programme components are frequently attended by a considerable number of PhD students and several Berlage alumni go for doctoral research. To qualify the position of the Berlage, the panel prefers the mangrove metaphor to 'the mongrel' one. The mangrove alternately participates in the life of land and water; similarly for the Berlage all a 'tidal movement' between the academic and professional fields engenders a particular creative and intellectual ecology that offers a breeding ground for personal development and disciplinary innovation. The panel encourages the programme to take advantage of the 'mangrove' position by increasing its 'tidal' movements between research and design as a motor of innovation and personal development.

#### *Master's programme European Post-master in Urbanism*

The mission of the master's programme European Post-master in Urbanism (EMU) is to educate international specialists who can deal with the complexity of planning and designing the cities and landscapes of the future. In the words of one of the teachers whom the panel interviewed during the visit, EMU 'aims to produce leaders of urbanism for the next generation'. The programme entails a unique combination of urban design, landscape architecture and planning, and aims to connect with various European traditions of urban development in an interdisciplinary approach. EMU envisions the improvement of living conditions through the spatial design of urban landscapes on different scales, accounting for societal, ecological and technical aspects, with a strong link between research and design.

EMU is a collaboration between KU Leuven, UPC Barcelona, Università IUAV di Venezia and TU Delft, and is spear-headed by the last. It is a post-master's programme, meaning that students who wish to enrol in it must already hold a master's or an equivalent degree. The programme is divided into four semesters (120 ECTS): three semesters at TU Delft (90 ECTS) and one semester (30 ECTS) at one of the partnering universities. Upon successful completion of the programme, students are awarded a master's certificate and the title Master of Science from TU Delft, and they obtain the certificate 'Strategies and Design for Cities and Territories' from the consortium of partnering universities.



According to the panel, the ILOs are theoretically and practically very relevant and balanced. The goal of the programme, educating international specialists, is specifically addressed in the programme-specific ILO no. 6, International Context: '*Knowledge of traditions and contemporary developments of European urbanism and processes of urbanization in European cities, landscapes and regions; the ability to relate present-day design tasks to this tradition and comment on this tradition; knowledge of different approaches and practices in different countries and regions over the world ('best practices'). The ability to analyse and define the difference and influence of the international context (globalization) on the possibilities for development on the specific local conditions and characteristics of a site.*' The exchange programme in the curriculum clearly addresses this ILO. Because the panel perceives this ILO to be at the core of the programme, it suggests that the programme should explore options to strengthen the international context for students beyond the exchange programme, by strengthening the collaboration with the partnering international universities. The panel believes that better interaction and cooperation between the partners would enrich the programme. This will be discussed further under Standard 2.

The goal of EMU is to educate international specialists who can deal with the complexity of planning and designing the cities and landscapes of the future. The panel is of the opinion that the mission statement could be communicated more clearly to the external world, especially potential students. A unique post-master's programme like EMU needs a strong mission statement to attract new students, especially when it, like EMU, has a limited number of students. The panel sees possibilities for the programme through strengthening the ties to its European partners as mentioned above. Teachers indicated to the panel that the visibility of the programme could be improved and that actions in this direction are to be taken. The panel agrees and advises the programme to pay attention to formulating a clear mission statement and seek out opportunities for advertising the programme within Europe.

#### *Position of the post-master's EMU and Berlage*

The panel noted that the amount of participating students in the Berlage and EMU post-master's is structurally low (around 10 students per year), and that the majority of these students come from master's programmes outside TU Delft.. During the site visit, the panel discussed with the programme management the possibility to use the postgraduate courses to create a breeding ground on which also local talents could grow. The panel understands that the high entrance fees obviously obstructs the instream of these local talents, but it thinks that the isolated position of the two post-master programmes within the faculty might also play a role.

The panel advises the management of the faculty to reflect on the position of the two programmes in relation to research and education within the faculty, and what roles talented graduates of the programme might have in selective positions for researchers, theorists or professionals in practice. Such a reflection might reveal new organisational and financial options for the flow of talented students to the postgraduate programmes. Furthermore, it might provide both programmes with a more sustainable student numbers, as well as strengthen the flow of postgraduate students to selective academic and professional practices of theory, research and design.

#### **Considerations**

The panel established that the ILOs of the programmes are adequate in terms of level and orientation. They are well formulated and geared towards the expectations of the academic and professional field. Moreover they form a continuing work in progress of reflection and refinement. The programmes each have a clear profile within the field of the built environment. Their goals and aims are well-suited to produce competent experts of the built environment, who are each shaped on their specific programme level according to the typical 'Delft approach'. This constitutes a combination of design, science and engineering, with the ability to show these relationships, combined with a hands-on, problem-solving approach.

For the *bachelor's programme AUBS*, the panel acknowledges that its ILOs clearly reflect the programme's goal, namely to educate students with a broad basic knowledge of architecture, and to

prepare them for specialisation in a master's programme. The proposed restriction of the 25 supplementary criteria for the bachelor's programme AUBS, criticized for being too particular and too disconnected from the 4TU criteria, to 7 criteria, that are domain specific but harmonize with the 4TU frame, is considered fitting by the panel.

For both the *bachelor's and master's programme AUBS*, the panel observed that research is put forward in the ILOs as *design-oriented research*, with design at the core. The panel recommends further specifying scientific research and research methodology so that research has a clear place in the programme's ILOs. The position of the AUBS programmes is unique in providing both design and research methodologies. To further improve this combination, the panel advises to follow a two-track approach: 1) to teach these capabilities separately, 2) to use this basis to teach and further develop a variety of combined approaches such as 'design research' and 'research by design'.

Both post-master's programmes *Berlage* and *EMU* are in need of a clearly formulated and communicated mission statement. They have a high international reputation but attract a limited number of students. The *Berlage* programme does have the potential to improve its connectivity with PhD research since a considerable number of PhD students attend *Berlage* programme components. An increased attention to research might attract more students wanting to continue in PhD research after completion of the programme. For *EMU*, the panel specifically sees opportunities in advertising the programme on a European level using its international partner universities. It also recommends the faculty to reflect on the position of the post-graduate programmes in relation to the regular master's programme, and explore whether the programmes can be used as a breeding ground on which also local talent can grow in theory, research and/or professional design.

## Conclusion

*Bachelor's programme Architecture, Urbanism & Building Sciences*: the panel assesses Standard 1 as 'satisfactory'.

*Master's programme Architecture, Urbanism & Building Sciences*: the panel assesses Standard 1 as 'satisfactory'.

*Master's programme Berlage Post-master Architecture and Urban Design*: the panel assesses Standard 1 as 'satisfactory'.

*Master's programme European Post-master in Urbanism*: the panel assesses Standard 1 as 'satisfactory'.

## Standard 2: Teaching-learning environment

The curriculum, the teaching-learning environment and the quality of the teaching staff enable the incoming students to achieve the intended learning outcomes.

## Findings

### *Bachelor's programme AUBS: Curriculum*

The bachelor's programme AUBS aims to give students a broad basis in design and engineering in relation to the built environment. The programme is built around six coherent learning trajectories, which are offered intertwined during the six semesters of the programme: Designing (six modules), Technology (five modules), Fundamentals (four modules), Academic Skills (three modules), Society Process and Practice (three modules), Representation, Visualization and Form (three modules). Each learning trajectory builds up from basic toward deeper and more specific knowledge.

The bachelor's programme AUBS lasts three years (180 ECTS), each year consisting of two semesters of 30 ECTS each. Each semester has two quarters of ten weeks each. Each quarter consists of three modules of 5 ECTS each, or a design module of 10 ECTS combined with another 5 ECTS module.



Students can take up to two modules at the same time. The first semester of the third year is reserved for a minor, but an internship is also possible. The graduation semester consists of two design projects: a redevelopment assignment of a certain urban area (ON5), and a (re)design of an energy-neutral public building (ON6). The ON5 project is accompanied by literatures and lectures tested via a written exam, and the ON6 project is accompanied by studies and reflections on the relation between design and research in the shape of four scientific papers.

After studying the curriculum and talking to teachers and students, the panel concluded that the programme adequately addresses all relevant parts of the ILOs and has a solid core in design and engineering. The bachelor's programme AUBS provides students with a broad foundation in architecture, urbanism and building sciences; specialisation can then take place in a relevant master's programme. It is well-aligned with the professional field, and often uses assignments contributed by the field. Its language of instruction is Dutch. For a limited number of courses, students have a choice to write papers or follow a module in English. Minors are offered in English, in preparation for an English follow-up master's programme.

The panel observed that the programme puts effort into creating coherence between the modules offered throughout the year. Students mentioned that the various courses are well-integrated and have a logical build-up within the programme. For instance, subjects like technology and fundamentals are revisited in design-oriented courses. Topics like *circular economy*, sustainability and zero-energy buildings are covered in multiple courses. The panel values this approach.

#### *Bachelor's programme AUBS: Academic Skills*

The previous accreditation committee recommended strengthening academic skills education in the programme. In response, the programme introduced the Academic Skills learning trajectory. The faculty indicated in the self-evaluation report that they realise the importance of a better integration of the academic skill set in other modules, for instance in the reflection on design modules. During the site visit, the panel spoke with representatives of the bachelor's programme about the integration of academic skills in the curriculum. The Academic Skills learning trajectory focusses on training in basic academic skills (during year one), such as academic writing, argumentation, conducting a literature review, debating, doing research, evaluation, and reflection, and on empirical research and statistics during the second year. Using these academic skills, students conclude the bachelor's programme by writing a series of academic papers reflecting on the design project Building and Technology.

The panel studied the content of the Academic Skills learning trajectory and concluded that it is a good component of the programme, and covers the relevant academic skills for an academic bachelor's programme. It does believe that the learning trajectory is still a bit isolated from the rest of the programme. It is useful to address various academic skills in different courses but it might be particularly helpful for students to rehearse and practise academic skills in courses that deal with modes and methods of research that are relevant for the research the graduation project and the related scientific papers require. For instance, students mentioned to the panel that the use of the academic literature is mostly left to their own initiative and is often not a prerequisite for a course. According to the teachers, the assessment of academic skills is addressed in the course rubrics. Students mentioned that academic skills are addressed, but according to them the differences, the possible links and the close combinations between academic research and design could be explored more explicitly. The panel thinks that research skills, and in particular experiencing the empirical cycle, needs to be practiced throughout the courses. Academic writing could receive more attention during the programme, for instance by incorporating the taught academic skills better in the programme as a whole, especially in the second year. This observations align with the panel's conclusion about the end work of the students (see the discussion under standard 4). In particular the panel observed how the required academic papers reflecting on the design project show difficulties to position the student's personal work within an ongoing scientific reflection, to deal with references, to distinguish between a regular design investigation and research by design.

### *Bachelor's programme AUBS: Teaching methods*

Although the bachelor's programme AUBS has a fairly large number of students (2016: 1077 in total, of which 369 are first-year students), it manages to take a personalised approach in the modes of instruction. A large part of the teaching takes place in small groups of ten to twenty students, guided by a teacher. Students mentioned to the panel that they appreciate the experience of working in small groups, finding inspiration in each other's work and receiving feedback on, for instance, a design process in a small group. Studios address alternating theoretical and practical issues. The multi-actor role play is particularly interesting, during which a group design (for which students are individually assessed) integrates the different parts of the bachelor's programme AUBS. The panel compliments the programme management on managing to teach a large number of students in small groups, which is a strong asset contributing significantly to the strength of the programme.

### *Bachelor's programme AUBS: Feasibility and student-centeredness*

The feasibility of the programme is monitored by a Quality Assessment Department. Since 2013, the bachelor's programme AUBS has been shaped along six learning trajectories to improve its coherence. Modules and learning trajectories are evaluated by students. Coordinators of the learning trajectories and modules develop and carry out action plans to improve the modules and the coherence between them. Students and teachers attest that the workload is effectively spread out over the programme. Students can only take two modules at the same time. Final tests are offered twice a year: once regularly after completion of one module, and a retake. For design projects, a two-week 'retake studio' is organised every summer, during which students who have failed one of the projects in a design module can work on improving their project, and their end product is re-evaluated. Students mentioned to the panel that the feasibility has improved since the programme was redesigned along these lines. Teachers confirmed that they closely monitor the amount of time students put into a project, and care is taken that everyone spends the same amount of time on a project, minimalizing the risk of too much competition between students. Taking these observations into account, the panel is pleased to see a feasible and coherent programme.

The bachelor's programme AUBS also has a programme-specific honours programme, in which extracurricular assignments are organised that address current (societal) questions. Students experience some room for electives in the minor, but otherwise there is no room for electives because the bachelor's programme AUBS aims to offer a broad programme preparing for specialisation in the master's phase. The panel is satisfied with the amount of freedom of choice for students within the programme, and agrees with the programme's aim of reserving specialization for the master's programme.

The programme management is considering offering the bachelor's programme AUBS in English. Both teachers and students alike have expressed mixed feelings about this proposal. For instance, students mentioned the importance of the bachelor's programme AUBS for the Dutch professional field, and the associated Dutch context and terminology. They also fear that the quality of the education will be affected by a sharp increase in international (and predominantly non-EU) students, and are concerned that Dutch students could be eclipsed by the international students. The panel advises the programme to carefully assess why, how, and to what extent the bachelor's programme AUBS should be offered in English.

### *Master's programme AUBS: Curriculum and teaching methods*

The English-language master's programme AUBS consists of two years of two semesters each, worth 30 ECTS per semester, adding up to 120 ECTS. Each student selects one of the five specialised master's tracks: Architecture, Urbanism, Landscape Architecture, Building Technology or Management in the Built Environment. Each track consists of theoretical subjects and project-based teaching, for either a quarter or a semester. Part of the programme consists of electives. The second year focusses mainly on the final project, which is worth at least 9 ECTS in the third semester and 30 ECTS in the fourth semester. The teaching philosophy in the master's programme AUBS is centred on the encouragement and support of self-study and independent learning. The panel observed a variety of different teaching methods: design studios, laboratory courses, tutorials, lectures,



excursions, and thesis and research supervision. In the second year, students conduct a graduation project consisting of a design and research task.

For design teaching, students work in small groups in a single area: a studio. They are supervised by an experienced designer: the lecturer. Students also learn from each other. In the studios, they discuss their work, carry out design experiments, create work models, and present their work. The teaching is given in themed studios or laboratories, which are programme paths built around a particular theme or with a specific approach. Final projects are also done within the context of a studio. The studios Health, City of the Future, Veldacademie, and Transitional Territories have a multidisciplinary character. Twice a year, the "Explore Lab" is started. In this lab, students can complete their studies (after approval) based on a project which they have set up themselves and which does not fit within an existing studio. They indicated that they highly value this as a possibility for personal and tailored development within the programme. The panel appreciates this approach.

Each track of the master's programme AUBS teaches integrated knowledge and skills. Design teaching has a central place, along with fixed, studio-specific and elective curriculum components of a theoretical nature. Like the bachelor's programme AUBS, the master's programme AUBS has an honours programme of 20 additional credits for motivated and outstanding students. Seven students chose this option in 2017-2018. After studying the programme and speaking to teachers and students, the panel is of the opinion that the creative and technical level of the programme is up to standard and that the programme adequately addresses all relevant parts of the ILOs. Students mentioned the small groups, the link with practical work, and the real-life applicability of the teachings (i.e. real-life examples and field trips) as clear, strong parts of the programme. The panel agrees and compliments the programme on these strong assets, which contribute significantly to the strength of the programme. The panel appreciates the professional relevance and the 'real-life applicability' of the master's programme but at the same time observes that the academic mission of the AUBS programme and the critical and innovative objectives contained in its ILO's encourage the programme to go beyond current thought and practice. In that sense, the panel was able to witness a critical and innovating attitude in several course components, in students' works and in conversations with staff and students.

Judging from the self-evaluation report and the interviews with students and teachers, the panel sees a coherent programme with five tracks. The tracks together shape a strong and coherent programme. This makes the programme manageable and clear to the students. The learning trajectory Research Methods builds on the similar track from the bachelor's programme AUBS, and together with the papers that reflect on design in the graduation phase (AC3), it is a good addition to the programme. The panel visiting the programme in 2012 recommended that it enhance the multidisciplinary cohesion between the tracks. Since then, the electives have been more closely harmonised in order to improve multidisciplinary, making it easier for students to take subjects from different tracks. However, the students indicated to the panel that they miss the opportunity to work in a multidisciplinary way and across the limits of the tracks; the teaching staff is aware of this and indicated to the panel that there is a recent and growing interest in multi-, inter- or transdisciplinary work. Cross-domain studios are currently being developed to better integrate disciplines from the different tracks and encourage border crossing. In these studios, projects are done by students from different tracks. The panel is pleased that this is being addressed and is curious to know how this will work out in the future.

Similar to what the panel observed in the bachelor's programme AUBS, the Research Methods trajectory is still a bit isolated from the rest of the programme. It is useful to address various academic skills in different courses but it might be particularly helpful for students to rehearse and practise academic skills in courses that deal with modes and methods of research that are relevant for the graduation project and the solid research this project requires. In studying the students' final projects (see Standard 4), the panel sometimes encountered mistakes related to certain basic skills, such as referencing own and others' work, presenting a clear research plan, knowledge of different

paradigms and definitions of research, which showed that paying additional attention to these skills within the curriculum would be advisable.

Some students stated their concern about a different level of quality in the student population because of a strong influx of international students. The teaching staff and management of the programme indicated that the programme is selective in its admission of international students, and uses clear quality requirements to this end. The balance of international students and EU/non-EU students is experienced as an asset at the moment, but should be monitored. The panel values this policy.

In all tracks, a clear academic reflection framework is in place, with attention being paid to the interrelationship between research and design. In talking to students and staff, the panel found that attention is paid to the architectural practice; the relevant design and research projects are set up in consultation with parties from professional practice, such as companies and local authorities. The panel observed that the programme has a strong inherent link with the professional field of the built environment because a substantial number of the teachers in the programme are guest lecturers, working in the professional architectural field or regular lecturers who are practising architects. Throughout the faculty, contact is maintained with all alumni via the study association Stylos. The various departments also maintain contact with the professional field and alumni via study associations such as Argus (Architecture), Polis (Urbanism), BouT (Building Technology), and BOSS (Management in the Built Environment). The departments maintain a good relationship with municipalities, provinces and other bodies, which also provide input on topics for studios and graduation projects. The panel applauds this. It also thinks that the programme could expand this internationally to match its international character. Alumni suggested to the panel that additional links to the professional field could be made by asking members of the professional field to reflect on the students' work. The panel suggests that the programme explores this option. However, as mentioned already, the academic mission of the AUBS programme and the critical and innovative intentions contained in its ILO's, imply that the programme goes beyond current thought and practice. The panel was pleased to witness a critical and innovating attitude in several course components, in students' works and in conversations with staff and students.

#### *Post-master's programme Berlage: Curriculum*

The Berlage post-master's programme sets the groundwork for its graduates to think, investigate, and intervene in the built environment in a more informed, appropriate, and sustainable fashion. Rapidly changing conditions of building necessitate new modes of analysis and intervention. In its curriculum, Berlage approaches this analysis and intervention through three modes: 'thinking,' 'projecting,' 'acting'. In all three modes, exchange is explicitly sought with external stakeholders and experts (policy makers, developers, real estate managers, designers, historians, theorists, scholars, practitioners). Stakeholders are involved in the programme in an ongoing process from the start. They are exposed to the ideas and work of the students, receive critical and innovative impulses from the students, respond to them, get adapted proposals and once again respond to them. Through this process, both students and stakeholders are offered a broad perspective from various viewpoints on the possible innovative thinking, projecting, and acting of the architect. This reflective, critical and reality-based approach, which is focused on the interchange between the theory and practice of architecture, is one of the program's unique attributes.

The programme consists of three semesters (1.5 years) of 30 ECTS each, for a total of 90 ECTS. The three semesters relate to the three modes in the approach of architectural practice: thinking, projecting and acting. In both the first and the second semester, students participate in four main components related to the core curriculum, complemented by master classes on design and theory. The first semester focuses on 'thinking' by developing existing theoretical knowledge (concepts and methods) in dialogue with different cultural, social, economic, and political stakeholders. Students participate in four main components related to the core curriculum: Project NL, Proseminar, The Berlage Sessions, and Research Colloquium. In the second semester, aimed at 'projecting', students articulate a design project from the components developed in the first semester, focussed on



concerns a design project should touch upon, stakeholders to whom it should appeal, and what the main dimensions should be to secure successful implementation of the project. Students participate in the following core curriculum: Project Global, Proseminar, The Berlage Sessions, and Thesis Preparation. This core curriculum is complemented in the first two semesters by master classes (Design Master Class and Theory Master Class) and fieldwork. The third semester focuses on 'acting'; students implement a design project in the form of an individual thesis project developed under a collective framework. Students prepare their own research question and methodology, design strategy and project, synthesizing the knowledge gained in the previous two semesters. This third and final part of the programme aims to induce a new awareness of the spatial agency of architects: students are asked to show that there are ways of doing architecture and urban design which reach beyond the more traditional notions of the design project.

#### *Post-master's programme Berlage: Teaching philosophy*

Education takes place in a collaborative process, with a focus on individual growth and contribution. Students can shape their own personal programme within the core provided by the programme. The programme director checks for each student whether the ILOs of the postinitial master's programme Berlage are adequately addressed and assessed throughout the programme. Additionally, the Director of Education, together with the responsible professors, coordinates each semester and subsequently each area of study to ensure consistency in learning outcomes and pedagogical structure. The panel is impressed with this design of the programme, and deems the mechanisms in place adequate to ensure consistency in the programme and achieving the ILOs and fitting for the individual character of the programme.

The panel assessed that Berlage focuses on the attitude and methodology of the architect, and has an adaptive content. The content of each programme is individual by nature and is shaped jointly by the students and teachers. Students are offered project studios, expert lectures and work groups. Through discussions with the students, tutors shape the lectures and content of project studios and expert lectures for that specific audience of students. This approach is focused on new forms of architectural thinking, alternative modes of defining a design project, and innovative ways of practising as a designer and a researcher, also focussing on social and cultural sustainability. Berlage challenges and sharpens the academic skills students have already acquired at the master's level and is more focussed on developing soft skills, which the panel deems fitting for a post-master's programme. As discussed under Standard 1, the panel thinks that the programme does have the potential to improve its connectivity with PhD research in terms of advanced research methodology. A more intensive interaction with PhD students who attend Berlage programme components can be explored. An increased attention to advanced and innovative research within the Berlage programme might attract more students wanting to continue in PhD research after completion of the programme. After studying the programme and talking to teachers and students, the panel is of the opinion that the creative and technical level of this post-initial master's programme is up to standard and that the personalised programmes adequately address all relevant parts of the ILOs.

Berlage is an international programme with students originating from various cultures, which allows for cross-cultural learning. It has a small student population, between 9 and 12 students in recent years. Although the panel considers this quite low, students appreciate that the current group sizes (between 9 and 12 students) are very manageable, and enable peer learning among the students in the group. Students and teacher together co-create the programme, and the panel observed a clear coherence in the individualised learning routes. Developing individual skills is central in Berlage, and coherence is added by means of tailored individual coaching. Students feel very much part of the Berlage programme. The panel thinks this is suited to the special, elite character of Berlage and its related ILOs.

#### *Post-master's programme EMU: Curriculum and teaching methods*

The EMU programme lasts two years, each year comprising two semesters of 30 EC each, for a total of 120 EC. The programme is taught in English. The semesters have a comparable set-up. They consist of a Research & Design Studio (15 EC), augmented by theoretical, methodological and

technological courses of 5 EC each. The semesters have a thematic approach; the first semester is Urban Region Networks, the second semester Constructing the Sustainable Delta City. The second year starts with an exchange semester of 30 EC, which the student spends at one of the three partnering universities in Leuven, Barcelona or Venice. Students conclude the programme at Delft with a semester titled Frontiers, in which they carry out a 30 EC research and design-oriented graduation project.

Semester 1 starts with a Research & Design Studio: Urban Region Networks (15 EC), which focuses on the effects of the growing demand for mobility on the urban structure and on the strategies for responding to this demand. Theories of Urbanization, Regionalization & Networks (5 EC) introduces students to a range of theories on the city as a complex historical artefact, with economic and social developments as driving forces, as a product of global and regional flows, migration and mobility, as a focus of planned rationalization and reform, and as a socially and culturally meaningful construct. Regional Strategies & Territorial Governance (5 EC) introduces students to the general concepts of contemporary strategic planning in Europe. They are encouraged to seek original planning alternatives for the area chosen in the Urban Region Networks Design Studio. Design & Planning Support Tools (5 EC) introduces the students to different design support tools. In semester 2, students take a studio Constructing the Sustainable Delta City (15 EC), which concentrates on the design for the transformation of a complex urbanized landscape, former industrial or port site, including one of the Netherlands' big cities. The Sustainable City – Theories of Urban Design (5 EC) covers the debate and background of the factual influence of the urban design profession on the task of sustainability. Research & Design (5 EC) elaborates on research and design methods in landscape architecture and urban design. Urban Design & Engineering (5 EC) addresses the adaptability of the plans we make, and the effects of climate change and especially the changing balance in the hydrological cycle. Semester 3 addresses the European dimension of the programme, with an Exchange semester (30 EC) at one of the other EMU universities. In semester 4, students start their graduation project within the contemporary urban design and planning profession. The final thesis covers the relation between academia and practice, theory and design, and rhetoric and reality. The graduation project consists of a design and research task, which is carried out under the supervision of two mentors of TU Delft and one mentor from one of the partnering universities.

The panel is impressed by the set-up of the curriculum. The build-up of the semesters offers a balance between theoretical courses and practical design studios. Students learn to work on design exercises, linked to real problems, and to reflect academically on their design choices. The programme aims to include research, in particular 'research by design', for instance by jointly working with partnering institutions on current spatial challenges, as part of a joint studio, a pilot project investigation or an international event. The programme centres around the European urban landscape design and planning practice, with TU Delft focussing on the metropolitan structures, urban development and delta areas. During their semester abroad, students experience alternative approaches to urban development. This is highly valued by the panel.

EMU tends to expand the academic skills students have already acquired at the master's level, and is focussed on deepening the student's knowledge with an international outlook, which the panel deems fitting for a post-master's programme. The Director of Education coordinates each term and subsequently each area of study together with the responsible professors to ensure consistency in ILOs and pedagogical structure. The panel deems the mechanisms in place to ensure consistency in the programme and achieving the ILOs to be adequate and fitting the character of the programme.

Students mentioned that they acquire tools for critical academic reflection and are taught a scientific approach, but sometimes not the methodology that would enable them better to tackle new problematics and scales. The panel observed as an effect that, while the EMU theses are of a high quality, some remain somewhat descriptive or got disconnected from reality (see discussion under standard 4). Parts of the programme are also followed by PhD students. A better integration of research and research methodology in the programme could be beneficial to both PhD students and the students of the programme.



Students indicated that in some cases the groups become too small, reducing opportunities for debate and learning from others. In practice, this is often solved by adding EMU exchange students and PhD candidates to the groups, so the courses are taken by 15-20 students. Half of the students are PhD students who follow part of the course. Students and teachers acknowledged in speaking with the panel that the programme's visibility needs improvement to help ensure a steadier intake of students. The programme management is considering also granting planners, sociologists and urbanists access to the programme. The panel sees small groups as a chance to enable peer learning, which is important in a programme such as the master's programme EMU, but encourages the programme to keep a keen eye on the group size, which should not become too small.

After studying the programme and talking to teachers and students, the panel is of the opinion that the creative and technical level of this post-initial master is up to standard and that the programme adequately addresses all relevant parts of the ILOs in a challenging, clear and coherent programme.

#### *Post-master's programme EMU: International focus*

The programme centres around the European urban landscape design and planning practice, with TU Delft focussing on the metropolitan structures and urban development in delta areas. During their semester abroad, students experience alternative approaches to urban development. They also participate in annual international workshops. In the self-evaluation report and through speaking with the panel, the programme management indicated that strengthening cooperation with the partnering EMU universities is one of their spearheads for further development of the programme. Annual short workshops are organised by the EMU consortium in cooperation with scientific, governmental and societal partners. During these workshops, EMU students work on current spatial questions on different scale levels and in different countries. The results of these workshops are presented in a book and sometimes by means of an exhibition.

The panel applauds these international approaches, but also gets feedback from students that they miss the actual exchange between the partnering universities. It would be appreciated, for instance, if courses were provided jointly by the partnering universities. This could be a valuable experience, as these universities take different approaches to the subject matter, allowing valuable experience to be acquired in a variety of cultural, disciplinary and physical landscapes, which is the core of the master's programme EMU. The panel wants to encourage the programme to follow up on their intent to emphasize the international character of the programme further by strengthening cooperation with the partnering EMU universities and benefitting from their complementarity.

#### *Teaching staff*

The four programmes aim to retain a mix of academic teachers as well as teachers working in the professional architectural field, in order to incorporate both academic and professional practice. Students mentioned that they value these lecturers with clear links to the practice as architects and designers. The associated effect of including teachers from the professional field is that not all teaching staff holds a doctoral degree. The panel understands this, and thinks that this is fitting given the nature of the programme. It is pleased to notice that the programmes have still managed, despite this limitation, to increase the number of teaching staff with a doctoral degree.

The panel is also pleased to observe that the number of teachers with a UTQ has sharply increased: currently 72 percent of all permanently employed teachers have a UTQ, and this number is rising. The panel gathered from studying an overview of the teaching staff that the staff has a very international profile, which is positive given the international orientation of most of the programmes. Students in general expressed that they are very pleased with their teachers.

Student numbers within the programme have risen substantially in recent years. The management of the bachelor's programme AUBS and master's programme AUBS has taken measures to deal with the large number of students, so the teaching load remains feasible for the teachers. For the bachelor's programme, a numerus fixus has been introduced, limiting the number of first-year students to 400. Additionally, the staff uses ICT solutions in organizing their teaching, with the

Brightspace digital learning environment, the OSIRIS administrative system, and the Collegerama recording facility playing key roles. Various Massive Open Online Courses (MOOCs) and Professional Education Courses (ProfEds) have also been set up online for both master's and bachelor's students. For instance, in the bachelor's programme AUBS, the learning trajectories Fundamentals and Society, Practice and Process are deploying online clips – partly as substitution for traditional lectures – and use the time saved for more interactive course elements such as seminars, workshops, guidance for assignments and discussion. The panel is convinced that the management is taking sufficient measures to ensure the number of students does not become too big, and is pleased that steps are being taken to keep the teachers' workload manageable. Teachers are involved in shaping learning trajectories, tracks and goals and keep a close eye on the amount of set time they have for assessment and feedback, to keep the workload manageable.

In the Berlage programme, teachers act more as advisors; they are able to provide more guidance because of the limited number of students. Many guest lecturers contribute to the programme, who often have a large international stature. Teachers purposely give their own, sometimes contradictory techniques and views; it is up to the students to navigate and develop their own discourse. This is fitting to the programme and highly valued by the panel.

In the EMU programme, courses are taught by staff members of the Urbanism Department, who also act as mentors to the students. Teachers are able to provide ample guidance because of the limited number of students, which is valued by the panel. In speaking with the students and the teachers, the panel sees further opportunities in deploying teachers of partnering universities within EMU, as discussed above.

#### *Facilities*

The Faculty of Architecture and the Built Environment is housed in the former main building of the university, and is known as BK City. The building features various facilities, such as a shop for books and materials needed for scale modelling, the Service Desk, the Faculty Student Council (FSR), ICT support and the Stylos study association. It also contains a hall of 1500 square meters, where students can work on scale models on large tables, aided by modern equipment. The lecturers' workspaces in the building are clearly indicated, and students have easy access to these areas. Students mainly work in the studios located inside the building. The faculty also has an Additive Manufacturing Lab, a Robotics Lab, and a Virtual Reality Lab. The library is well equipped. The building and work spaces seem spacious enough despite the large groups of students working in them. Students of the different programmes indicated that the setup of the building stimulates an open atmosphere in which students and teachers can look each other up and interact with one another. The panel is impressed by the programme's facilities and their role in enabling interaction between students and teachers.

#### **Considerations**

The panel assessed a clear, adequate relationship of the curricula with their respective ILOs. The academic orientation meets the standard, as well as coupling with the professional field and the acquired skill set. The teaching staff is well-qualified and has a good mix of academically highly qualified staff and staff rooted in the architectural practice, fitting the nature of the different programmes, and safeguarding a link with architectural practice within the programme. The programmes have managed to increase the number of teaching staff with a doctoral degree. The number of teachers with a UTQ has sharply increased, and this number is still rising. The teaching staff has a very international profile. Teachers are involved in shaping learning trajectories, tracks and goals and keep a close eye on the amount of set time they have for assessment and feedback, to keep the workload manageable. Students in general expressed that they are very pleased with their teachers and obtain valuable feedback on their projects and courses, and are involved in the programmes and able to shape their own studies, proportional to the nature of the programme followed. Where possible, options are explored to augment the teaching by means of MOOCs or online clips. The panel is impressed by the strength of the building and its facilities in enabling interaction between students and teachers.



### *Bachelor's programme AUBS*

AUBS is a coherent programme with clearly defined learning trajectories. It provides students with a broad foundation in architecture, urbanism and building sciences; specialisation can then take place in a relevant master's programme. It is well-aligned with the professional field. Students and teachers have mixed feelings about the plans for an English language bachelor's programme AUBS. The panel advises the programme to carefully assess why, how, and to what extent the bachelor's programme AUBS should be offered in English. The Research Methods trajectory is a good and necessary component of the programme, but is a bit isolated from the rest; various academic skills are addressed in separate courses but it might be particularly helpful to strengthen skills in courses that deal with research modes and methods that are relevant to the graduation semester and the related scientific papers. The panel sees a coherent and feasible programme, and is impressed with the complementarity in the different modules, the logical build-up and the contemporary subjects addressed in the courses, and compliments the programme on this. The panel also praises the programme for managing to teach a large number of students in small groups, which is a strong asset contributing significantly to its strength.

### *Master's programme AUBS*

Students experience that there are possibilities for personal and tailored development within the programme. The programme has a clear link with the professional field of the built environment, and in the present curriculum has taken steps to enhance the multidisciplinary cohesion by means of cross-domain studios. The Research Methods trajectory is a good and necessary component of the programme, but is a bit isolated from the rest; various academic skills are addressed in separate courses but it might be particularly helpful to strengthen skills in courses that deal with research modes and methods that are relevant for the graduation project and the solid research this project requires. Moreover, a better integration of research and research methodology in the programme could be beneficial not only for the graduation project but for all study assignments and for the later career of the student. The panel is impressed with the complementarity in the different tracks, the logical build-up and the contemporary subjects addressed in the courses, and compliments the programme on this. The small groups, the link with practical work and the real-life applicability of the teachings are clear, strong parts of the programme.

### *Berlage*

Berlage focuses on innovation of the attitude and methodology of the architect, and has an adaptive content based on the students' needs. The content of each curriculum is individual by nature and is co-shaped between students and teachers, aiming at current problems. Education takes place in a collaborative process, with a focus on individual growth and contribution. Teachers act more as advisors; they are able to provide a lot of guidance because of the limited number of students. Many guest lecturers, often with a large international stature, contribute to the programme. Teachers purposefully give their own, sometimes contradictory techniques and views; it is up to the students to navigate and develop their own discourse. This is fitting to the programme and highly valued by the panel. The panel is impressed with this design of the programme, and deems the mechanisms in place to ensure consistency and achieving the ILOs adequate and fitting the character of the programme. Berlage is focused on developing soft skills and on challenging and sharpening the academic skills students have already acquired at the master's level, which the panel deems fitting for a post-master's programme. The panel thinks that the programme would benefit from an increased attention towards innovative modes and methods of research. Moreover the close interaction between design and research, proper to the cherished 'mongrel position' of Berlage is able to stimulate innovation in both design and research. The programme attracts a small number of students. Steps should be taken to keep the student groups sufficiently large to enable peer learning.

### *EMU*

EMU has a unique international component, in which students experience alternative approaches to urban development. This is highly valued by the panel. The panel is impressed by the setup of the curriculum. EMU refreshes the academic skills students have already acquired at the master's level,

and is focussed on deepening their knowledge with an international outlook, which the panel deems fitting for a post-master's programme. The panel sees a challenging, clear and coherent programme in the given courses and in the complementary setup of its explicitly international approach. It wants to encourage the programme to follow up on their intent to emphasize the international character of the programme further by strengthening cooperation with the partnering EMU universities and benefitting from their complementarity. A better integration of research and research methodology in the programme could be beneficial to both PhD students and the students of the programme. Teachers are able to provide much guidance because of the limited number of students, which is valued by the panel. Steps should be taken to keep the student groups sufficiently large to enable peer learning.

### **Conclusion**

*Bachelor's programme Architecture, Urbanism & Building Sciences:* the panel assesses Standard 2 as 'satisfactory'

*Master's programme Architecture, Urbanism & Building Sciences:* the panel assesses Standard 2 as 'satisfactory'

*Master's programme Berlage Post-master Architecture and Urban Design:* the panel assesses Standard 2 as 'satisfactory'

*Master's programme European Post-master in Urbanism:* the panel assesses Standard 2 as 'satisfactory'

### **Standard 3: Student assessment**

The programme has an adequate system of student assessment in place.

### **Findings**

#### *Assessment policy*

By reading the self-evaluation report and speaking with the programme management, teachers and Board of Examiners (BoE), the panel was able to get a clear and positive picture of the assessment policy and the factual implementation of this policy by teachers in the programmes that were assessed.

The assessment policy consists of two parts: the Teaching and Examinations Regulations (TER) and the Rules and Guidelines of the Board of Examiners (RRE). The Director of Education, with input from the Board of Studies and the Faculty Student Council, draws up the assessment policy, while the Board of Examiners oversees compliance and rules on any disputes. Each educational trajectory of the bachelor's programme AUBS and each track of the master's programme AUBS has a coordinator who ensures that the trajectory's/track's objectives are adequately assessed. Because of the individual nature of the post-initial master's programmes EMU and Berlage, the Directors of Education of these programmes check if their ILOs are adequately addressed and assessed throughout the programmes. In practice, tests are prepared and administered by the lecturers (examiners).

The bachelor's programme AUBS, master's programme AUBS and Berlage employ various methods of testing and assessment, which primarily include a design assessment, oral presentation, practical assignment, analysis assignment, essay or thesis, or a written examination. The EMU programme predominantly uses design assessment, oral presentation, paper or thesis.

Specific assessment methods are chosen depending on what students are expected to know or be able to do at the end of the course (the learning objectives). For example, if a course mainly focuses on knowledge acquisition, a written examination is usually used. If the main objective is to learn how to design, then assessment usually takes the form of a design project (drawings and models) which



must be presented. Other forms of assessment are mainly used for assessing understanding and skills. Which form of assessment will be used is indicated in the description of the relevant units of study in the prospectus. The panel is pleased to see that the forms of assessment align with the relevant courses and goals.

The faculty has developed the "golden rules of Examination". They are applied throughout the assessment and testing process and are subdivided into two parts: general rules and rules relating to written examinations. In the case of project-based teaching, designs and presentations are assessed using an assessment form or rubric that is communicated to the students beforehand. All assessments should also be graded by at least two lecturers in order to improve the transparency and intersubjectivity of the grading. The panel is pleased to hear, in talking to students, teachers and the Board of Examiners, that the "golden rules" and the "peer-review principle" are consistently applied.

Students feel that teachers are approachable for questions and feedback. The assessment forms are made available to the students after grading. In all cases, the programme's coordinator ensures that the assessments of all papers are centrally calibrated by regular consultations between teachers in which the assessments are discussed. Written examinations are composed using an assessment matrix, which guarantees a balanced link between questions and learning objectives. The questions are marked using an answer model.

The EMMA feedback and assessment model was introduced for the master's programme AUBS and EMU in September 2017. EMMA is a feedback and assessment model that contains what the programme considers as being the essential components of a design or research project. Design and research are assessed in terms of their cohesion, value, level of detail, accuracy, and innovation, and presentations in terms of their clarity, readability, reflection, and involvement. The panel found that the EMMA system is suitable to provide students with timely and coherent feedback on their work in terms of formal and procedural requirements, and it helps the teachers to provide a large number of students with personal feedback. It judges the rubrics used to be adequate in maximizing transparency and fairness. On the other hand, the panel observes that it would be useful to complement the rubric and the related assessment forms by a written qualitative comment on the achievements of the student's work in terms of for instance reflection, research findings, design decisions and aesthetics. Such comments are often given to students in an oral way in the course of the process or during the presentation of the work. The Berlage post-master doesn't use EMMA, as it is a small and very personalised programme, whereas the bachelor's programme uses its own assessment strategy for the graduation semester, which consists of two design projects with their own rubrics, and two courses: one with a written exam and one with four scientific papers.

#### *Graduation project: bachelor's programme AUBS and master's programme AUBS*

In order to ensure that the graduation process in each programme proceeds according to the fixed protocol, a Graduation Manual has been drawn up, which sets out the requirements for students and lecturers as well as the required products for each programme (bachelor's programme AUBS, master's programme AUBS's, Berlage and EMU) and the associated assessment criteria.

For the bachelor's programme AUBS, the graduation semester consists of two design tasks: a redevelopment assignment of a certain area (ON5) accompanied by literature and lectures, and a (re)design of an energy-neutral public building (ON6), accompanied by a reflection on the design processes of ON6 in the shape of four scientific papers (AC3). ON5 is implemented in the shape of a *management game*, in which students play the roles of the stakeholders. Two teachers grade the individual work of each student by means of a special rubric. The teachers indicated to the panel that the management game was explicitly introduced to create a link to the architectural practice, and students confirmed to the panel that they value this approach. The panel is very positive about this design of the graduation phase and the use of the rubric, which it deems to be suitable for a systematic, transparent and fair grading of this work. The assessment forms reproduce the main topics of the rubric. As mentioned above, it would be useful to complement the merely formal criteria

of the rubric and related assessment forms by a written qualitative comment that synthesizes the qualitative comments given orally by supervisors or examiners. For ON6, students in small groups are supervised by a teacher while working on their individual designs. Their design and its presentation are graded by a design teacher and a co-design teacher. The four scientific papers of AC3 are graded by two the student's supervisor, and another (external) teacher. In talking to the panel, students mentioned that the papers make a positive contribution and augment the design process.

For the master's programme AUBS, the graduation project consists of a design and research task, which is carried out under the supervision of two or three mentors from the graduation studio from at least two different sections. This ensures that there are always two (or even three) supervisors. In addition, each graduating student is assigned a dedicated external examiner from another master's track, who acts as an independent representative of the Board of Examiners. This representative advises the examiners and monitors the academic level of the graduation project and the questions asked by the mentors during the formal assessment phases. As for the bachelor's programme, the panel is very positive about the use of the rubric, which it deems to be suitable for a systematic, transparent and objective assessment of the graduation work. At the same time, as mentioned already, the assessment forms could be complemented by a written qualitative and critical comment on the theoretical, scientific, conceptual, aesthetic and societal achievements of a student's graduation work. At present such comment is merely provided in an oral way.

#### *Graduation project: Berlage*

In the third and final term of Berlage, students implement a design project in the form of an individual thesis project developed within a collective framework. They prepare their own research question and methodology, design strategy and project, synthesizing the knowledge gained in the previous two terms. Within the context of reality-based assignments (for example, the commission for new buildings or building groups within the framework of rapid urban development), they articulate important research questions, develop and apply research strategies, and define and implement a fully fledged design project. However, for the Berlage a 'reality-based' assignment doesn't mean reproducing current practice. The ambitions of the programme reach far beyond professional training in designing 'buildable' projects. Students are expected not only to take into account the cultural, social, economic, and political determinants of a particular situation, but also to show that they can act (research and design) within these conditions in innovative ways and that they are able to position their work in a meaningful and personal way within the contemporary challenges faced by society

Every thesis project is evaluated at three moments, E1, E2, and E3. Each student is assigned one main examiner from the thesis exam committee to monitor the entire process (E1, E2, and E3). Under the supervision of the responsible professor for the thesis semester, the thesis exam committee consists of five professors from the Department of Architecture. There are two Go/No Go moments: E1 and E2. The main examiner, in consultation with the Director of Studies and thesis advisors, determines the final grade for E1, E2, and E3. If one of the four main examiners is unable to attend, a member of the thesis exam committee serves as a replacement.

#### *Graduation project: EMU*

For the EMU programme, the graduation project consists of a design and research task, which is carried out under the supervision of two mentors of TU Delft and one mentor from one of the partnering universities, who jointly assess it. In addition, each graduating student is assigned a dedicated external examiner from another master's track, who acts as an independent representative of the Board of Examiners. This representative advises the examiners and monitors the academic level of the graduation project and the questions asked by the mentors during the formal assessment phases. The start and progress of the project are monitored during four phases. During the last reflection phase, a go/no go is given for preparation of the presentation of the graduation project. In this phase, the mentors and the representative of the Board of Examiners decide if the project is complete and of sufficient quality and if the student reflects on his/her own work sufficiently.



### *Assessment of the graduation project*

The panel studied the rubrics used in the graduation phase of all programmes, and found them to be transparent and adequate for assessing the theses. For all programmes, it noted a graduation process proceeding according to a fixed protocol, resulting in a transparent assessment of the project's goals for each individual student. It concluded that written qualitative feedback would be valuable for the bachelor's programme AUBS and master's programme AUBS theses, to further clarify the awarded grade. Especially for the master's programme theses such comments could be rather elaborated and deal in a critical way with the qualitative achievements of the student's work in terms of for instance reflections, research findings, design decisions, aesthetics, contributions to societal and ecological transitions. Talking to students and teachers, it established that this feedback is given, but orally. Students indicated that they would appreciate receiving the feedback for their theses in writing as well. In the post-master's programmes Berlage and EMU, there is extensive written feedback for the end projects, which is valued by the students.

In assessing the theses of Berlage students, a different way of assessment of the graduation project is used, due to the expert status of this programme. Very specific criteria are not applicable here, as the ILOs mostly specify the students' growth in their *soft skills* rather than in domain-specific knowledge and skills. The Berlage programme explicitly aims at personal development and innovative thinking and practice with is difficult to grasp in rubrics. A group of five experts determines whether the students have met these ILOs. The Board of Examiners evaluated this different method and judged that it fits the character of the programme, and that the quality is safeguarded by utilising several experts to assess the graduates' final level. The panel agrees with this conclusion.

### *Board of Examiners (BoE)*

The assessment policy is set up and monitored by the Board of Examiners (BoE). The BoE is responsible for the programmes within the Faculty of Architecture and the Built Environment. Its main focus is the quality of assessment of course units and projects, monitoring the exit level of individual students through rules and regulations, and the quality assurance of the assessment of graduation projects.

The panel appreciates that this BoE has successfully designed and implemented an adequate assessment plan. From the interview with the BoE, the panel got the impression that it takes a proactive role in monitoring whether the assessment policy is followed and regularly samples bachelor's and master's theses to check whether students achieve the ILOs.

The Board of Examiners consists of eight members, including a chair and an external member, and is professionally supported by a secretary (0,6 fte). It is proactive and keeps itself informed on the assessments within the various programmes. Each year it selects a sample of several courses and checks the assessments for connection with the ILOs and checks if the assessment methods used are up to standard. When final projects or theses are graded, a representative of the BoE is always present at the assessment panel's final deliberation. In 2017, the BoE took the initiative to let an external advisory committee check a sample selection of graduation projects of all programmes, which concluded that the graduation projects accurately reflect the master's level.

### **Considerations**

The four programmes use an adequate and effective assessment policy. The assessment methods align with the relevant courses and goals. In assessing the courses, the "golden rules" of testing and the "peer-review principle" are consistently applied. All programmes use assessment matrices and provide suitable and sufficient feedback to students. The EMMA feedback and assessment models used for the master's programme AUBS and EMU are suitable and strong, providing students with timely and coherent feedback on their work, and are consistently applied in the various stages of the programmes. Due to the combination of a small and very personalised, high-profile programme, Berlage uses a different, individualised assessment model, which is sufficient and fits the character of this programme.

The panel is very positive about the design of the graduation phase and the use of a rubric, which it deems to be suitable for a systematic, transparent and objective grading of this work. For all programmes, the graduation process proceeds according to a fixed protocol. The panel felt that written qualitative feedback would be valuable for the bachelor's programme AUBS graduation work and especially for the master's programme AUBS graduation project, to further clarify the grade awarded. In fact such qualitative feedback would synthesize in written form the oral comments given by supervisors or examiners. Especially for the master's graduation work it would help to critically appreciate the student's work for instance in terms of reflections, research findings, design decisions, aesthetics, contributions to societal and ecological transitions. The Board of Examiners is operating actively and adequately to ensure that the assessment remains at a high level, and is proactively safeguarding the assessment quality.

### **Conclusion**

*Bachelor's programme Architecture, Urbanism & Building Sciences:* the panel assesses Standard 3 as 'satisfactory'.

*Master's programme Architecture, Urbanism & Building Sciences:* the panel assesses Standard 3 as 'satisfactory'.

*Master's programme Berlage Post-master Architecture and Urban Design:* the panel assesses Standard 3 as 'satisfactory'.

*Master's programme European Post-master in Urbanism:* the panel assesses Standard 3 as 'satisfactory'.

### **Standard 4: Achieved learning outcomes**

The programme demonstrates that the intended learning outcomes are achieved.

### **Findings**

To assess the achieved learning outcomes of the programmes, the panel studied a sample of 15 graduation projects for each programme, and interviewed several alumni. It found the graduation projects for each of the assessed programmes to be of sufficient quality, both in terms of content and structure. The topics are relevant and match the level that can be expected of end projects for the respective programmes. Graduates have clearly achieved the ILOs of each of the respective programmes.

#### *Bachelor's programme AUBS and master's programme AUBS*

The panel found the sampled theses for the bachelor's programme AUBS and the master's programme AUBS to be very interesting in terms of topic and execution, and they clearly show the design capacities and academic level achieved by the graduates. It noted a wide variety of topics, which it considers an asset of the programmes. Some students are more design-oriented, while others are more research-based. The intention to blend research and design is clearly visible to the panel, but could be stronger in some of the theses and reflection papers. The panel considered them as somewhat descriptive. The methodological approach could be more extensive in both programmes. Sometimes basic academic skills could be strengthened, for instance extensively referring to their own and other work, application of the research cycle in presenting a clear research plan, awareness of different paradigms and schools of thought, knowledge of relevant literature, understanding of different modes and methods of research. This aligns with its previous observations (see standard 2), for which the panel recommends integrating academic skills better beyond the present Academic Skills line and letting students actively rehearse and practise academic skills relevant to the graduation work in other courses. For the end projects, written feedback along with the rubric is missing. The panel recommends adding written feedback.



In speaking with the panel, graduates of the master's programme AUBS indicated that they feel well prepared for the professional field and have no difficulty getting employed, for instance in real estate development, as a civil engineer, in architectural bureaus, and as project managers for projects in the built environment, for instance, for the municipalities of Amsterdam and Rotterdam. Alumni indicated that they feel they have learnt a sufficient amount of knowledge and skills to carry out their current jobs. Working as an architect for two years and completing a professional traineeship within this period, graduates can register as Architect, Landscape Architect or Urban Designer at the Dutch Register of Architects. It could be interesting for the programmes to investigate to what extent the AUBS alumni contributed to certain improvements or innovations in academic or professional practices.

### *Berlage*

Judging from the theses and the interview with alumni, the panel found that graduates of the Berlage programme have learned how to define intriguing research and design questions, are very well able to question and reflect upon conceptual options, know how to communicate these challenges to practitioners, stakeholders and professionals of other disciplines and are capable of translating challenges into innovative visions of design. It observed that elaboration on research methodology is less prominent in the graduation papers compared to the other programmes it assessed, which leads it to suggest that students might benefit from expanding or sharpening the academic skills acquired in their previous master's programme a bit more in this post-master's programme.

Nonetheless, the panel concluded that the post-master's programme strongly challenges the students in terms of their intellectual capacities. It observed a broad scope in topics and design of the end projects, which varied from a report to a film. The very high international reputation of the programme is clear to the panel. Graduates are highly valued and often obtain influential positions internationally, for instance at major architectural bureaus, governmental institutions, and architectural think tanks. The majority of students enrolling in the programme have previous experience in the architectural field. They feel they can learn how to apply theoretical knowledge and research in an urban environment. According to the teachers and alumni, the students seem to grow much faster as an architect afterwards, have developed critical thinking and advanced personally. In current practice students experienced or witnessed a stark division between the academic and professional field, and they feel the Berlage programme bridges this gap by enabling them to develop their own discourse and to freely navigate between research and design. As one student put it, Berlage is like the 'mongrel' between academia and practice. Ten to fifteen percent of the graduates continue with a PhD after completing Berlage. Specific attention is paid to the challenges of our time and the need for innovation in current academic and professional practice which ensures that the programme will retain its urgency and fits very well with both academic and the professional practices in search for innovation and transition.

### *EMU*

With regard to the post-master's programme EMU, the panel read very good and complete, high-level theses, in which the academic skills of the graduates are clearly visible. The thesis material is published regularly in the periodical *Blauwe Kamer*. The theses address very complex issues on the scale of urban and metropolitan structures. They are of a high quality and demonstrate strong professional abilities. The panel observed sufficient fundamental reflection in the theses, but some theses remain somewhat descriptive by nature while some other tend to be a bit disconnected from reality. Parts of the programme are also followed by PhD students. A better integration of research and research methodology in the programme could be beneficial to the students of the programme (of whom roughly one-third enters a PhD programme after completing EMU).

Alumni enrol in relatively top positions in the academic world and in practice, working for governments and bureaus as designers, researchers, managers, contractors, entrepreneurs and speakers. Around forty percent of the Delft alumni start or return to an academic career. About one-third of the alumni start a PhD at Delft or elsewhere. Another forty percent works at well-known bureaus such as OMA, Secchi-Vigano, or BUUR. Ten percent starts their own bureau, five percent

works for governments and five percent for NGOs. Based on the information obtained, the panel assessed that graduates enter the job market with a sufficient set of knowledge and skills.

### **Considerations**

Based on the quality of the studied theses and the interviews with teachers and alumni, the panel concluded that graduates of the programmes master the intended learning outcomes and are sufficiently skilled to work in the architectural and urbanist field, both in academic and professional settings. The programmes convincingly manage to do what they intend to do.

The bachelor's programme AUBS clearly succeeds in producing Bachelors of Science with a broad knowledge of architecture, who master the basic knowledge and principles of the trade and are able to apply them in research and design. It prepares students for the master's programme AUBS. In turn, the master's programme AUBS manages to both broaden and deepen the knowledge and principles of architecture and their application in research and design, focussing on integration, complexity, originality and research skills at an academic level. The panel assessed that both the bachelor's programme AUBS and master's programme AUBS could pay attention to infusing academic skills and a stronger methodological approach more clearly into the theses, for instance by more extensively addressing academic skills and methodology not only in the Academic Skills (BSc) and Research Methods (MSc) modules but also in courses leading up to the graduation project (see also standard 2).

Berlage focusses intensively on how architects and urban designers practise in a globalized world, concentrating on the complex development of the built environment within different contexts, and manages to let students find their own discourse and develop critical thinking about the built environment and its challenges and opportunities. Based on the limited display of research methodology in the theses (in some cases), the panel thinks that students can benefit from expanding or sharpening their academic skills a bit more during the post-master. The programme teaches the application of theoretical knowledge and out-of-the-box research, thus acting as a 'mongrel'. The panel understood and noticed 'mangrove' in stead of 'mongrel' and in order to qualify the position of the Berlage still prefers the image of a 'mangrove' in which a 'tidal movement' between the academic and professional fields engenders a particular creative and intellectual ecology that offers a breeding ground for personal development and disciplinary innovation

EMU clearly manages to produce international leaders of urbanism for the next generation, with a unique, complementary view on urban design, landscape architecture and planning, and an interdisciplinary approach to urban development. The international set-up and the opportunity of international experience constitute major assets of the programme. The theses contain sufficient fundamental reflection, but some remain somewhat descriptive by nature while some other tend to be a bit disconnected from reality. A better integration of research and research methodology in the programme could be beneficial to the students.

### **Conclusion**

*Bachelor's programme Architecture, Urbanism & Building Sciences:* the panel assesses Standard 4 as 'satisfactory'.

*Master's programme Architecture, Urbanism & Building Sciences:* the panel assesses Standard 4 as 'satisfactory'.

*Master's programme Berlage Post-master Architecture and Urban Design:* the panel assesses Standard 4 as 'satisfactory'.

*Master's programme European Post-master in Urbanism:* the panel assesses Standard 4 as 'satisfactory'.



## GENERAL CONCLUSION

The panel assesses Standard 1, 2, 3 and 4 of the respective programmes as 'satisfactory'.

According to the decision rules of NVAO's Framework for limited programme assessments, the panel assesses the respective programmes as 'satisfactory'.

### **Conclusion**

The panel assesses the *bachelor's programme Architecture, Urbanism & Building Sciences* as 'satisfactory'.

The panel assesses the *master's programme Architecture, Urbanism & Building Sciences* as 'satisfactory'.

The panel assesses the *master's programme Berlage Post-master Architecture and Urban Design* as 'satisfactory'.

The panel assesses the *master's programme European Post-master in Urbanism* as 'satisfactory'.

# APPENDICES



# APPENDIX 1: DOMAIN-SPECIFIC FRAMEWORK OF REFERENCE

## **Bachelor's programme Architecture, Urbanism & Building Sciences**

Opleidingen kunnen naar de aard van het object van studie dat centraal staat en naar de aard van de invalshoek die zij gekozen hebben, keuzes maken en accenten leggen. Studenten die een Bachelor hebben afgerond in een van de opleidingen binnen dit onderwijsvisitatiecluster beschikken in ieder geval over de onderstaande domeinspecifieke kennis en vaardigheden.

- a. Kennis. Afgestudeerde Bachelors hebben basiskennis van de bovenbeschreven taakprofielen en kennen de bouwkunde als een divers beroepsveld dat altijd in verandering is en vele facetten kent.
- b. Vaardigheden. Afgestudeerde Bachelors bezitten volgende vaardigheden:
  1. toepassen en beheersen van de gangbare bouwkundige, ontwerp- en onderzoeksmethoden, van de onderliggende principes en technieken van één of meerdere bouwkundige (sub)discipline(s);
  2. kennen van de ontwikkelingslijn in westerse architectuur, stedenbouwkunde, bouwtechniek, bouwmanagement en volkshuisvesting en die kunnen relateren aan theorieën, stromingen en tendensen en precedents, alsmede aan de culturele en maatschappelijke context;
  3. reflecteren op de beroepsuitoefening van de bouwkundig ingenieur en daarbij de eigen rol en productie kunnen plaatsen in het eigentijds maatschappelijk kader;
  4. de processen en procedures die bij de totstandkoming van de gebouwde omgeving een rol spelen, beheersen;
  5. op basis van een programma van eisen en een gegeven locatie, met bestudering van relevante precedents en de fysische en intellectuele context, binnen een tevoren gefaseerde tijdsperiode, een ontwerp of een herontwerp maken voor een gebied of een gebouw en dat (gedeeltelijk) uitwerken tot op het niveau van de bouwkundige detaillering;
  6. de capaciteit om met bouwkundige middelen ruimten af te stemmen op menselijke behoeften en milieueisen rekening houdend met de relatie tussen mens en omgeving, rekening houdend met maatschappelijke en juridische normen voor vorm en constructie, kosten en duurzaamheid;
  7. een opgave in bouwtechnisch opzicht conceptueel kunnen oplossen. Dit wil zeggen de bouw- en productwijze, de keuze van bouwmaterialen, de aard van de bouwelementen en bouwsystemen kunnen kiezen en de beoogde comfort-, klimaat- en milieuprestaties realiseren. Dit betekent ook dat de draagconstructie(s) op basis van kennis van en inzicht in de krachtswerking worden ontworpen en gedimensioneerd, respectievelijk worden aangepast in geval van herontwerp;
  8. bij het creëren van ruimtelijke concepten en constructies creatief kunnen omgaan met kennis en informatie uit andere, bij de ruimtelijke ordening betrokken disciplines. Het gaat meer bepaald om de informatie- en communicatietechnologie, wiskunde en natuurkunde, sommige deelgebieden van de civiele techniek en geowetenschappen, sommige deelgebieden van de humane wetenschappen (sociologie, psychologie, et cetera);
  9. bij de presentatie van het ontwerp en de onderzoeksresultaten diverse media toepassen, het ontwerp zowel grafisch, mondeling als schriftelijk presenteren, argumenteren en verantwoorden en op een wetenschappelijk verantwoorde manier bevindingen rapporteren en presenteren, afgestemd op een gegeven forumconceptuele denkkraft.
- c. Academische attitude en vaardigheden. De afgestudeerde Bachelors zijn in staat zich op het gebied van het object van de studie een kritisch en gefundeerd oordeel te vormen, mede gebaseerd op het afwegen van relevante sociaal-maatschappelijke, wetenschappelijke of ethische aspecten. Ook zijn zij instaat tot reflectie op eigen verantwoordelijkheid. De typerende attitude van een Bachelor bouwkunde en derhalve de eigenheid van de opleiding bouwkunde ligt in de ontwerpmatige benadering van de fysieke omgeving: dat wil zeggen geschoold in breed denken, met open geest, met kennis van de intellectuele en maatschappelijke context, met de blik van een creatief en constructief denker.

## **Master's programme Architecture, Urbanism & Building Sciences**

### *Aim*

The objective of the AUBS Master's degree programme is to educate students to become full-fledged Masters of Science. It builds further on the knowledge and understanding gained in the Bachelor's degree programme. These qualifications are broadened and deepened, with a focus on integration,



complexity, originality and research skills at an academic level. Each student selects one of the five specialised Master's tracks: Architecture, Urbanism, Landscape Architecture, Building Technology, or Management in the Built Environment.

#### *Domain-specific frame of reference*

The domain-specific frame of reference is based on five components. First of all, Appendix I (of the Self-evaluation Report M AUBS 2018) contains the frame of reference as established by the visitation committee of 2006. Knowledge in the area of five task profiles is a prerequisite: architectonic design, urbanism, constructional design, process and management and installation technology design (and also at TU Delft: landscape architecture design). Besides this, students must have an appropriate academic attitude and nine specific skills. The second reference is formed by the requirements of university degree programmes, laid down in the European final qualifications, known since 2004 as the Dublin Descriptors. These have five distinct qualifications: knowledge and understanding, application of knowledge and understanding, formation of judgements, communication and learning skills.

Third, it concerns degree programme requirements in European Directive 2005/36/EC (Qualifications Directive). Paragraph 1 of Article 46 outlines 11 requirements that degree programmes that lead to the qualification of architect must satisfy (see Appendix I, letters a to k).

Fourth, reference is made to the requirements for inclusion on the Architects Register (except the Building Technology and Management in the Built Environment tracks), as an architect, landscape architect, or urban planner (as a result of the Academic Titles (Architects) Act and additional regulations).

However, because of the introduction of the two-year professional work experience period an intermediate stage between the intended learning outcomes and the registration requirements has been created. For the Master's degree programme, a fifth reference is the requirement that the degree programme should prepare students for a possible subsequent PhD programme as a doctoral candidate. The Bachelor's degree programme should likewise prepare students for the Master's degree programme.

### **Master's programme Berlage Post-master Architecture and Urban Design**

#### *Domain-specific frame of reference*

The domain-specific frame of reference is based on five components. First of all, Appendix I contains the frame of reference as established by the visitation committee of 2006. Knowledge in the area of five task profiles is a prerequisite: architectonic design, urbanism, constructional design, process and management and installation technology design (and also at TU Delft: landscape architecture design). Besides this, students must have an appropriate academic attitude and nine specific skills. The second reference is formed by the requirements of university degree programmes, laid down in the European final qualifications, known since 2004 as the Dublin Descriptors. These have five distinct qualifications: knowledge and understanding, application of knowledge and understanding, formation of judgements, communication and learning skills. Third, it concerns degree programme requirements

in European Directive 2005/36/EC (Qualifications Directive). Paragraph 1 of Article 46 outlines 11 requirements that degree programmes that lead to the qualification of architect must satisfy (see

Appendix I, letters a to k). Fourth, reference is made to the requirements for inclusion on the Architects Register (except the Building Technology and Management in the Built Environment tracks), as an architect, landscape architect, or urban planner (as a result of the Academic Titles (Architects) Act and additional regulations).

However, because of the introduction of the two-year professional work experience period an intermediate stage between the intended learning outcomes and the registration requirements

has been created. For the Post-Master's degree programme, a fifth reference is the requirement that the degree programme should prepare students for a possible subsequent PhD programme as a doctoral candidate.

### **Master's programme European Post-master in Urbanism**

#### *Task profiles*

Postgraduate MSc courses in Architecture must have one or more of the following task profiles:

- Architectural design
- Urban design
- Structural design
- Process and management
- Design of technical systems and fittings
- Landscape architecture design.

#### *Exit qualifications for a postgraduate Master's course*

A postgraduate Master's programme builds on the knowledge and skills developed during a Master of Science course in architecture or a related discipline. Depending on the nature of the main study objective and the chosen perspective, there is room for choices and accents in particular courses. Students who have completed a postgraduate Master's programme must possess the following knowledge and skills:

##### 1. Knowledge

Graduates of the Master's programme have thorough, specialized knowledge and understanding of a specialized field. Depending on the field, they have a thorough knowledge and understanding of the most important theories, principles, research methods and techniques. The actual practice of architectural disciplines is characterized by the necessity of integration. Based on their specialization, architectural engineers participate constructively in the integration process. A graduate should have gained an understanding of the integration process and the various disciplines that play a role in this.

##### 2. Skills

Once they have graduated, postgraduate Master's must possess the following skills within the field of architecture:

- Ability to apply and command the current commonly used design and research methods as well as the underlying principles and techniques of one or more architectural disciplines or subdisciplines.
- Familiarity with the development process in the respective field and be able to relate this to theories, movements, tendencies and precedents, as well as to the cultural and social context.
- Ability to reflect on the professional work of the postgraduate and awareness of the position of the own role in the contemporary social conditions.

Depending on the task profile:

- Ability to draw up and make a design or redesign for an area or a building on the basis of a programme of requirements and the specific site, including a study of the relevant precedents and the physical and intellectual context, within predefined periods and phases, and implement or partially implement the design.
- Ability to solve an architectural problem in a conceptual manner.
- Ability to use architectural measures to create spaces that meet human needs and environmental requirements, taking into account the relationship between humans and their environment and the social and legal standards for form and structure, costs and sustainability.
- Mastery of the processes and procedures that play a role in the development of a built environment.
- Ability to make creative use of knowledge and information from other related disciplines in the creation of spatial concepts and structures. This mainly concerns information and communications technology, mathematics and physics, some areas of civil engineering and geosciences, some fields of human sciences (sociology, psychology, economy, etc.).



- Ability to use various media in the presentation of the design and the results of studies, including presenting, reasoning and justifying the design in graphical, verbal and written form, as well as the ability to report and present findings in an academically sound manner in a way suited to the particular forum.

Additionally:

- Possession of advanced research skills (fundamental, innovational or applied), development, advice.
- Ability to contribute creatively to the quality of the built-up environment.
- Ability to apply knowledge and insight into new and unfamiliar circumstances within a broader multidisciplinary context.
- Ability to formulate professional judgments based on incomplete or limited information.
- Ability to enter into dialogue with other disciplines involved with the particular object of interest.

### 3. Academic attitude and skills

After graduating, a postgraduate Master possesses a sound attitude towards research. He or she is able to formulate and test research problems and hypotheses and reflect critically on his or her own actions. A postgraduate Master has learned how to learn and keep on learning throughout his or her life. If the postgraduate Master goes on to do a PhD, he or she can skip some of the material.

4. The programme also has to comply with the entry qualifications of various registers.

5. The programme must comply with the 3TU criteria for academic skills at a postgraduate level.

## APPENDIX 2: INTENDED LEARNING OUTCOMES

### **Bachelor's programme Architecture, Urbanism & Building Sciences**

Studenten met een Bachelor diploma zullen (Academische criteria, 4 TU):

1. kundig zijn in één of meer wetenschappelijke disciplines
2. bekwaam zijn in onderzoeken
3. bekwaam zijn in ontwerpen
4. een wetenschappelijke benadering toepassen
5. intellectuele basisvaardigheden bezitten
6. bekwaam zijn in samenwerken en communiceren
7. rekening houden met de temporele en maatschappelijke context.

Daarnaast zal de student met een Bachelordiploma Bouwkunde:

1. Een ontwerp kunnen maken voor een stedelijk gebied, stedelijk fragment (of ensemble), gebouw en bouwdeel, op de daarvoor geëigende schaal, met oog voor de samenhang tussen de verschillende planniveaus:
  - op basis van analyse van de opgave
  - met begrip van de maatschappelijke betekenis van het programma
  - afgestemd op mens en milieu
  - voor een gegeven locatie
  - met bestudering van relevante precedentes
  - met begrip van technologie en materialisatie
  - met gelijktijdige toepassing van kennis uit relevante wetenschapsgebieden
  - gefaseerd, binnen een gegeven tijdsbestek.
2. Gevoel hebben voor functionaliteit en het vermogen tot analyse van functionele vraagstukken en tot synthese in ontwerp oplossingen.
3. Kunnen denken in systemen, kunnen ontwerpen in varianten en afgewogen keuzes kunnen maken in bouwopgaven in relatie tot de sociale, milieu- en economische aspecten van duurzame ontwikkeling en op grond hiervan ontwerpbeslissingen kunnen nemen.
4. In de loop van het ontwerpproces en bij de presentatie van het ontwerp en van onderzoeksresultaten geschikte media kunnen toepassen, het ontwerp zowel mondeling als schriftelijk kunnen verantwoorden en op een wetenschappelijke manier bevindingen kunnen rapporteren en presenteren, afgestemd op een gegeven forum.
5. Inzicht hebben in het theoretisch en methodologisch kennisdomein van de architectuur.
6. Passende kennis hebben van typologie van gebouwen, architectonische compositie, materialisatie van gebouwen, woningbouw, interieur en restauratie.
7. Een gebouwontwerp methodisch kunnen beargumenteren en bij een ontwerp opgave gemotiveerd uitgangspunten kunnen kiezen in relatie tot de context.
8. Kennis hebben van de basisbegrippen op het gebied van theorie en methoden van stedenbouwkundig ontwerpen, landschapsarchitectuur en ruimtelijke planning.
9. Begrip hebben van de samenhang tussen stedenbouwkundige compositie, landschappelijke context en functioneel programma, en deze samenhang in verband kunnen brengen met een maatschappelijke context.
10. De ontwikkelingslijnen kunnen beschrijven in de geschiedenis van de westerse architectuur, stedenbouw en (beeldende) kunst en deze kunnen relateren aan theorieën en precedentes, alsmede aan de maatschappelijke en culturele context.
11. Van gebouwen de bouwconstructies kunnen ontwerpen en globaal dimensioneren, op grond van inzicht, uitgaande van eisen van veiligheid, gezondheid, bruikbaarheid, energiezuinigheid en milieu en met randvoorwaarden voortkomend uit het architectonisch en stedenbouwkundig ontwerp, de vervaardiging en de uitvoering, gebruik makend van algemene bouwconstructieve principes en van de bouwfysica, materiaalkunde, statica en sterkteleer.
12. Van gebouwen de draagconstructies kunnen ontwerpen en globaal dimensioneren, op grond van inzicht, uitgaande van eisen van veiligheid en bruikbaarheid en met randvoorwaarden voortkomend uit het architectonisch en stedenbouwkundig ontwerp, de vervaardiging en de uitvoering, gebruik makend van statica en sterkteleer.



13. Van gebouwen het klimaatconcept in samenhang met de bouwkundige context kunnen ontwerpen en globaal dimensioneren, op grond van inzicht, uitgaande van eisen van veiligheid, gezondheid, comfort, energiezuinigheid en milieu en met randvoorwaarden voortkomend uit het architectonisch en stedenbouwkundig ontwerp, de vervaardiging en uitvoering, gebruik makend van kennis van bouwfysica, installatietechniek en duurzaamheid.
14. Op basis van de resultaten van (empirisch) onderzoek voor een ontwerpogave een programma van eisen (in ruimtelijke, functionele en technische zin) kunnen opstellen.
15. Op basis van programmatische uitgangspunten ontwerpbeslissingen kunnen plaatsen, beargumenteren en afstemmen in de maatschappelijke, economische, technische, bestuurlijke, juridische en management context, afzonderlijk maar ook in samenhang.
16. De stand van zaken in het bouwmanagement kunnen relateren aan theorieën en precedënten, alsmede aan de culturele en maatschappelijke context.
17. Op basis van een analyse van bouwprojecten de rol kunnen aangeven van relevante processen, procedures en participanten bij de totstandkoming van de gebouwde omgeving.
18. De stand van zaken in vastgoedmanagement en volkshuisvesting kunnen relateren aan theorieën en precedënten, alsmede aan de culturele en maatschappelijke context.
19. De beheer- en (her)ontwikkelingsopgave van een gebouw en een gebied mede kunnen onderbouwen vanuit kennis van de gebruikers(eisen) en economische en juridische randvoorwaarden.
20. Gemotiveerd een onderzoekbare bouwkundige vraag kunnen stellen of een bouwkundig probleemveld kunnen definiëren en deze empirisch of formeel respectievelijk praktisch onderzoeken, en de resultaten wetenschappelijk kunnen vastleggen binnen een gegeven tijd.
21. Observaties en bevindingen wetenschappelijk kunnen vastleggen: beschrijven, illustreren, vergelijken, interpreteren, bekritisieren, evalueren, binnen een gegeven tijd.
22. Statistische en analytische basiswiskunde kunnen toepassen.
23. Weloverwogen vaardigheden kunnen toepassen bij de documentatie en communicatie van resultaten van leren, denken en beslissen in het ontwerpproces.
24. Effectieve ruimtelijke (schaal)modellen kunnen vervaardigen, gebruikmakend van uiteenlopende maquette technieken, gericht op beeldvorming en begrip en ten behoeve van de presentatie.
25. Een actieve, onderzoekende houding hebben ten aanzien van vormgevende vraagstukken en het vermogen hebben tot het synthetiseren en analyseren van een formele probleemstelling, gebruikmakend van verschillende ontwerp- en presentatiemedia.

### **Master's programme Architecture, Urbanism & Building Sciences**

#### *1. Specific final attainment levels for the programme Architecture*

The domain-specific final attainment levels for the Master's tracks are as follows. A student graduating with a Master's in Architecture, Urbanism & Building Sciences, Architecture track:

##### 1. Is competent in the discipline of architecture

An architecture graduate has a thorough knowledge of architecture -its theories, methods, techniques as well as its history- and its relations to technical, urban, societal, cultural, art, historical, political and other relevant disciplines; as well as their position within the architectural discipline and its development.

##### 2. Is competent in conducting design research and research-by-design

An architecture graduate can systematically employ design research (plan analysis, comparative analysis) and research-by-design (experimental design study, design study) as means for knowledge-based architectural design. The graduate is proficient in using analogue and digital tools for drawing, mapping and model-making for research and design.

##### 3. Is competent in architectural design

An architecture graduate demonstrates the capacity to develop an innovative, complex, problem based, high-quality, sustainable architectural design. The graduate knows how to choose and use appropriate analysis and design methods and techniques; involves contextual, situational, functional, spatial, constructive, structural and aesthetic aspects to build up an integrated architectural design; is able to work at different levels of abstraction (related to different stages of design) and to interconnect different scale levels; and draws upon other disciplines where necessary. The graduate

has the skill to make design decisions and to justify and evaluate these in a systematic and well-reasoned manner; and has the capacity to position his or her design within a given discourse.

#### 4. Has a scientific approach

An architecture graduate has a systematic approach to research and design, recognizes the value of academic research, and links science with building practice, using appropriate theories, methods and (modelling) techniques to critically investigate and analyse existing, newly proposed and self-formulated architectural projects. The graduate is able to critically examine existing theories, models or interpretations in the area of his or her graduation project. The graduate is prepared to be a 'life-long learner' in order to continue to acquire, interpret, reflect upon, and employ new knowledge and skills independently. The graduate is able to document adequately and critically reflect upon the results of research and design, hereby contributing to the development of knowledge in the field of architecture and the built environment.

#### 5. Possesses intellectual and inquisitive skills

An architecture graduate has a critical and academic attitude towards the analysis, setting and solutions of complex problems. The graduate is able to ask adequate questions, to evaluate the validity of knowledge claims, to form a well-reasoned opinion, and to reflect on a design process. The graduate contributes to discussions concerning complex matters related to the built environment.

#### 6. Is competent in collaborating and communicating

An architecture graduate is prepared to be a collaborative professional who works with relevant agents in the built environment. This includes skills such as commitment, accuracy, perseverance, a sense of responsibility and leadership. The graduate is competent in translating data into information and in visualizing results, is able to explain complex ideas and can effectively communicate design proposals to a range of different professional and public audiences by combining oral, written and graphic media (e.g., drawings, models).

#### 7. Takes account of the temporal and the societal context

An architecture graduate is prepared to be a reflective professional who is aware of the rootedness of ideas, designs and plans in a particular temporal, cultural, environmental and international socio-economic context. The graduate takes position in debates on societal and environmental challenges from the perspective of architecture and is aware of the dilemmas facing professionals in practice. The graduate adopts the highest professional ethical standards in which personal reflection on value positions and ethical practice takes place, and strives for a sustainable and fair future by producing designs that are valuable and responsive to the needs of society.

### *2. Specific final attainment levels for the programme Building Technology*

A student graduating with a Master's in Architecture, Urbanism & Building Sciences, Building Technology track:

#### 1. Is competent in the discipline of building technology

A building technology graduate Masters technical building design, positioned midway between the architect and building engineer, and has the capability to bridge the disciplines of architecture and building engineering. The graduate has the skills and capacity to analyse, evaluate and create - from an academic viewpoint- different concepts, designs and details in structural design, façade design and climate design in terms of structural mechanics, physical and physiological mechanisms, material behaviour, construction methods, manufacturing techniques and processes, climate control, and energy systems. The graduate is an expert in innovation and sustainability for the built environment and is able to translate concepts of circularity, carbon neutrality and adaptability to novel technical solutions. The graduate is capable of delivering valuable contributions, as a generalist or specialist, to the scientific and technical areas of structural design and/or façade design and/or climate design.

#### 2. Is competent in conducting research

A building technology graduate can systematically employ experimental and methodological research in the academic area of structural design, façade design and climate design, and is able to translate research results into integrated, innovative and sustainable designs. The graduate is proficient in using analogue and digital tools for drawing, mapping and model-making for research and design.

#### 3. Is competent in designing

A building technology graduate Masters the integrated design, technical elaboration and (possible)



realisation of innovative and sustainable solutions for the built environment, which satisfy the needs of users, comply with technical, functional and aesthetical requirements, respect prevailing regulations and norms and achieve high technical performances. The graduate has expert skills in design informatics and is able to apply these in structural design, façade design and climate design, for instance by means of parametric design. The graduate is capable of bringing the conception of ideas to manually and/or computer-generated designs, and to constructed models, mock-ups, prototypes or real products. The graduate has the skill to make design decisions and to justify and evaluate these in a systematic and well-reasoned manner.

#### 4. Has a scientific approach

A building technology graduate has a systematic approach to research and design, recognizes the value of academic research and Masters to link science to building practice (new built as well as transformations). The graduate uses appropriate theories, methods and (modelling) techniques to critically investigate and analyse existing, newly proposed and self-formulated projects. The graduate is prepared to be a 'life-long learner' in order to continue to acquire, interpret and reflect upon, and employ new knowledge and skills independently. The graduate is able to document adequately the results of research and design, hereby contributing to the development of knowledge in the field of building technology.

#### 5. Possesses intellectual and inquisitive skills

A building technology graduate has a critical and academic attitude towards the analysis, setting and solutions of complex problems. The graduate is able to ask adequate questions, to evaluate the validity of knowledge claims and to form a well-reasoned opinion. The graduate contributes to discussions concerning complex matters related to the built environment.

#### 6. Is competent in collaborating and communicating

A building technology graduate is prepared to be a collaborative professional who works with relevant agents in the built environment and is able to play a leading role in a multidisciplinary environment. This includes skills such as commitment, accuracy, perseverance, a sense of responsibility and leadership, negotiation techniques and advocacy skills). The graduate is competent in translating data into information and in visualizing results, is able to explain complex ideas and can effectively communicate design proposals and technical solutions to a range of different professional and public audiences by combining oral, written and graphic media (e.g., drawings, models).

#### 7. Takes account of the temporal and the societal context

A building technology graduate is prepared to be a reflective professional who is aware of the rootedness of ideas, designs and plans in a particular temporal, cultural, environmental and international socio-economic context, between strict technical boundary conditions, under various circumstances (e.g. climatic), aiming at high performance targets. The graduate takes position in debates on societal and environmental challenges from the perspective of building technology and is aware of the dilemmas facing professionals in practice. The graduate adopts the highest professional ethical standards in which personal reflection on value positions and ethical practice takes place, and strives for a sustainable and fair future by producing designs that are valuable and responsive to the needs of society.

### *3. Specific final attainment levels for the programme Landscape Architecture*

A student graduating with a Master's in Architecture, Urbanism & Building Sciences, Landscape Architecture track:

#### 1. Is competent in the discipline of landscape architecture (LA1)

A landscape architecture graduate is able to synthesize the particularities of landscape: its spatiality, temporality and materiality including technical, ecological and social aspects (e.g., geophysics, land reclamation and landscape development, settlement forms, urbanisation and the architectonic landscape). The graduate Masters and integrates the most relevant perspectives on landscape architecture: landscape as history (palimpsest), landscape as spatial-visual structure, landscape as scale-continuum, landscape as process.

#### 2. Is competent in conducting design research and research-by-design

A landscape architecture graduate can systematically employ design research (plan analysis, comparative analysis) and research-by-design (experimental design study, design study) as means for knowledge-based and spatial design. The graduate is able to translate research results into

integrated, innovative and sustainable designs. The graduate is proficient in using analogue and digital tools for drawing, mapping and model-making for research and design.

### 3. Is competent in landscape design

A landscape architecture graduate is in the first place a designer positioned within the field of the built environment, strongly interrelating the disciplines of architecture and urbanism. The graduate integrates the most relevant perspectives on landscape architecture (see LA1) and technology and science in design. The graduate is acquainted with the role of landscape design as a synthesizing activity that explores the dynamic between structure and process in natural, cultural and urban landscapes. The graduate starts the design from the specifics of the place (genius loci) and employs design principles by using landforms, vegetation, water, routes and built constructions as part of ecological and social processes. The graduate has the skill to make design decisions and to justify and evaluate these in a systematic and well-reasoned manner.

### 4. Has a scientific approach

A landscape architecture graduate has a systematic approach to research and design, recognizes the value of academic research and uses appropriate theories, methods and techniques to critically investigate and analyse existing, newly proposed and self-formulated landscape architectonic projects and theories. The graduate is prepared to be a 'life-long learner' in order to continue to acquire, interpret and reflect upon, and employ new knowledge and skills independently. The graduate is able to document adequately the results of research and design, hereby contributing to the development of knowledge in the field of spatial design.

### 5. Possesses intellectual and inquisitive skills

A landscape architecture graduate has a critical and academic attitude towards the analysis, setting and solutions of complex problems. The graduate is able to ask adequate questions, to evaluate the validity of knowledge claims and to form a well-reasoned opinion. The graduate contributes to discussions concerning complex matters related to the built environment.

### 6. Is competent in collaborating and communicating

A landscape architecture graduate is prepared to be a collaborative professional who works with relevant agents in the built environment. This includes skills such as commitment, accuracy, perseverance, a sense of responsibility and leadership, negotiation techniques and advocacy skills. The graduate is competent in translating data into information and visualizing results, is able to explain complex ideas and can effectively communicate spatial visions to a range of different professional and public audiences by combining oral, written and graphic media (e.g., drawings, models).

### 7. Takes account of the temporal and the societal context

A landscape architecture graduate is prepared to be a reflective professional who is aware of the rootedness of ideas, designs and plans in a particular temporal, cultural, environmental and international socio-economic context. The graduate takes position in debates on societal and environmental challenges from the perspective of landscape architecture and is aware of the dilemmas facing professionals in practice. The graduate adopts the highest professional ethical standards in which personal reflection on value positions and ethical practice takes place, and strives for a sustainable and fair future of territories and sites worldwide by producing designs that are valuable and responsive to the needs of society.

## *1. Specific final attainment levels for the programme Management in the Built Environment*

A student graduating with a Master's in Architecture, Urbanism & Building Sciences, Management in the Built Environment track:

### 1. Is competent in the discipline of management in the built environment

A management in the built environment graduate has thorough knowledge of design and construction management, real estate management, housing management and urban development management. The graduate is able to critically select appropriate managerial approaches, methods, techniques and instruments, aiming to add value in its broadest sense to projects in the built environment. The graduate demonstrates an advanced level of understanding of the design, realisation, use and re-use of all scales of the built environment in their own work and processes, and has advanced knowledge and understanding of societal, legal, financial, economic, commercial, entrepreneurial,



policy and informational processes and procedures, so that these can be used, separately and together, for management in the built environment.

#### 2. Is competent in conducting research

A management in the built environment graduate can systematically employ quantitative, qualitative and engineering research methods, techniques and tools to design, conduct and evaluate research for complex issues in the field of management in the built environment and is able to translate research results into integrated and innovative management processes, business models and governance strategies.

#### 3. Is competent in designing

Based on his or her design skills, a management in the built environment graduate has the ability to analyse projects and organisations and to design and plan appropriate context-sensitive management processes, business models and governance strategies. The graduate integrates all forms of built environment design within complex projects, while interacting with designers and understanding the intrinsic and extrinsic values connected. The graduate has the skill to make design and planning decisions and to justify and evaluate these in a systematic and well-reasoned manner.

#### 4. Has a scientific approach

A management in the built environment graduate has a systematic approach, recognizes the value of academic research, and uses his/her analytical skills to perform evaluations and to define knowledge gaps. The graduate is prepared to be a 'life-long learner' in order to continue to acquire, interpret and reflect upon, and employ new knowledge and skills independently. The graduate is able to document adequately the results of research and design hereby contributing to the development of knowledge in the field of management in the built environment.

#### 5. Possesses intellectual and inquisitive skills

A management in the built environment graduate has a critical and academic attitude towards the analysis, setting and solutions of complex problems. The graduate is able to ask adequate questions, to evaluate the validity of knowledge claims and to form a well-reasoned opinion. The graduate contributes to discussions concerning complex matters related to the built environment.

#### 6. Is competent in collaborating and communicating

A management in the built environment graduate is prepared to be a collaborative professional who works with relevant agents in the built environment. The graduate operates as a key agent in a multidisciplinary environment and is able to assume different roles within complex assignments. This includes skills such as goal setting, managing uncertainties, problem solving, commitment, accuracy, perseverance, a sense of responsibility and leadership, team building, negotiation techniques and advocacy skills). The graduate is competent in translating data into information and in visualizing results, is able to explain complex ideas and can effectively communicate plans and strategies to a range of different professional and public audiences by combining oral, written and graphic media (e.g., drawings, models).

#### 7. Takes account of the temporal and the societal context

A management in the built environment graduate is prepared to be a reflective professional who is aware of the rootedness of ideas, designs and plans in a particular temporal, cultural, environmental and international socio-economic context. The graduate takes position in debates on societal and environmental challenges from the perspective of management in the built environment and is familiar with the operation of power in society and the dilemmas facing professionals in practice. The graduate adopts the highest professional ethical standards in which personal reflection on value positions and ethical practice takes place, ultimately striving for a sustainable and fair future.

### *5. Specific final attainment levels for the programme Urbanism*

A student graduating with a Master's in Architecture, Urbanism & Building Sciences, Urbanism track, is able to produce, on various scales, spatial and urban designs which satisfy aesthetic, technical and functional requirements, and can effectively utilise the knowledge, learning and skills referred to below for urban design purposes:

#### 1. Is competent in the discipline of urbanism

An urbanism graduate is educated in the integrated approach of urbanism, which is characterised by the combination of knowledge and skills in urban design, spatial planning and engineering. The

graduate is able to work within a complex creative process and to propose solutions that address critical challenges.

#### 2. Is competent in conducting design and planning research

An urbanism graduate can systematically employ design and planning research (plan analysis, comparative analysis) and exploration by design (experimental design study, design study) to develop new knowledge and insights in spatial planning and urban design which are strongly related to the complementary disciplines of landscape architecture, architecture and civil engineering. The graduate is proficient in using analogue and digital tools for drawing, mapping and model-making for research and design.

#### 3. Is competent in urban design and urban planning

An urbanism graduate is competent in urban design and the integration of socio-economic objectives, technical and natural conditions, cultural and ethical dimensions into plans at regional to neighbourhood scale. In order to shape urban development, the graduate masters well-established design principles and is able to experiment with and formulate new design principles using historical precedents, land use principles, and financial and legal properties. The graduate is competent in spatial planning, understands the contribution of urbanism to critical challenges in society and is able to manage uncertainty. The graduate is competent in participating in the planning process and the use of a variety of tools from metropolitan to local scales and through different levels of public, private and civil society. The graduate understands the processes of creating plans and the role of urbanists in citizen engagement, facilitating dialogue and steering urban development. The graduate can reflect on the values underlying plans and the distributional consequences of planning policies. The graduate has the skill to make design and planning decisions and to justify and evaluate these in a systematic and well-reasoned manner.

#### 4. Has a scientific approach

An urbanism graduate has a systematic approach to planning and design, recognizes the value of academic research and uses appropriate theories, methods and techniques to critically investigate and analyse existing, newly proposed and self-formulated urban projects and theories. The graduate is prepared to be a 'life-long learner' in order to continue to acquire, interpret and reflect upon, and employ new knowledge and skills independently. The graduate is able to document adequately the results of research and design, hereby contributing to the development of knowledge in the field of urbanism.

#### 5. Possesses intellectual and inquisitive skills

An urbanism graduate has a critical and academic attitude towards the analysis, setting and solutions of complex problems. The graduate is able to ask adequate questions, to evaluate the validity of knowledge claims and to form a well-reasoned opinion. The graduate contributes to discussions concerning complex matters related to the built environment.

#### 6. Is competent in collaborating and communicating

An urbanism graduate is prepared to be a collaborative professional who works with relevant agents in the field of urbanism and assumes the role of boundary spanner. This includes skills such as commitment, accuracy, perseverance, a sense of responsibility and leadership, negotiation techniques and advocacy skills. The graduate is competent in translating data into information and visualizing results, is able to explain complex ideas and can effectively communicate research, planning and design products to a range of different professional and public audiences by combining oral, written and graphic media (e.g., drawings, models).

#### 7. Takes account of the temporal and the societal context

An urbanism graduate is prepared to be a reflective professional who is aware of the rootedness of ideas, designs and plans in a particular temporal, cultural, environmental and international socio-economic context. The graduate takes position in debates on societal and environmental challenges from the perspective of urbanism and is familiar with the operation of power in society and the dilemmas facing professionals in practice. The graduate adopts the highest professional ethical standards in which personal reflection on value positions and ethical practice takes place, and strives for a sustainable and fair future by producing plans and designs that are valuable and responsive to the needs of society.



### **Master's programme Berlage Post-master Architecture and Urban Design**

A student graduating with the Berlage Post-Master of Science in Architecture and Urban Design programme has:

#### 1. Design and design methods

The ability to analyze spatial concepts and architectural design projects across different international contexts and at various scales; the ability to critically assess, develop, and apply different design methods, including research by design as a method of research concerning capacities and possibilities of a place for architectural and urban development.

#### 2. Research and research methods

The ability to analyze and interpret the territorial, morphological, typological, network, social and historic characteristics of a specific site; the ability to draw conclusions from the analysis toward defining existing and potential spatial qualities of the site; the ability to elaborate these qualities in a design project; the ability to critically assess research methods and then reformulate and refine these methods in relation to specific (cultural, political, and economic) conditions.

#### 3. Theory

Appropriate knowledge of contemporary theories of cross-culturalism and social sustainability; the ability to reflect on these theories in a critical way and to take a position; the ability to link these theoretical concepts and notions with research and design concepts.

#### 4. Social sustainability

Knowledge and ability of application of concepts of sustainable design, especially in a cultural and social sense; the ability to develop an integrated design approach geared toward a more sustainable global future.

#### 5. Cross-cultural contexts

Knowledge of different approaches and practices in different countries and regions over the world; the ability to analyze and define the differences and influences in an international context (globalization) on the possibilities for development on the specific local conditions and characteristics of a site; the ability to investigate issues that engage architects on a global scale through the comparative exploration of different sites throughout the world.

#### 6. Reality-based engagement

Knowledge and a critical understanding of the contemporary that the design domain maintain in different societies; knowledge of the changing role of the architect in relation to the role of different stakeholders in the development of the built environment; the ability to assess the changing position of the design project in relation to new developments and transformations.

#### 7. Cooperation and communication

The ability to perform teamwork; knowledge and understanding of the limits of the fields of architecture and urban design and of the possibilities of incorporating knowledge from other disciplines; the ability to communicate and present design ideas and positions with a broader audience in an intercultural setting; appropriate knowledge of advanced techniques in drawing, modeling, and writing.

#### 8. Profession

Insight into the evolving profession of architects and urban designers in a globally oriented practice (which can also include teaching, curating, and writing).

### **Master's programme European Post-master in Urbanism**

The EMU exit qualification consists of the 3TU Generic Exit Qualifications and Specific EMU Exit Qualifications. The generic final attainment levels for the European Post-Master in Urbanism Program are the 3TU Generic Exit Qualifications.

#### *Specific EMU Generic final attainment levels*

A student graduating with a European Post-Master in Urbanism Degree:

1. Is skilled in one or more academic disciplines. A university graduate is familiar with existing academic knowledge and is capable of expanding this through study.
2. Is able to perform research. A university graduate is capable of acquiring new academic knowledge through research. In this connection, 'research' means developing and discovering new knowledge and insights in a purposeful and methodical manner.

3. Is able to design. Many university graduates will formulate designs in addition to performing research. Designing is a synthetic activity geared towards bringing about new or modified artefacts or systems, for the purpose of creating values in accordance with the requirements and wishes stated beforehand (for example, mobility or health).
4. Has an academic approach. A university graduate follows a systematic approach, characterized by developing and using theories, models and coherent interpretations, has a critical attitude and has an understanding of the unique nature of science and technology.
5. Possesses basic intellectual skills. A university graduate is able to reason, reflect and for judgments. These are skills which are learned or sharpened in the course of a discipline, and are generically applicable afterwards.
6. Is able to cooperate and communicate. A university graduate has the capacity to work with and for others. This requires not only sufficient interaction, a sense of responsibility, and leadership, but also good communication with individuals both in and outside the profession. In addition, the university graduate is able to participate in academic or public debates.
7. Takes into account the temporal and social context. Science and technology are not isolated, but rather, always have a temporal and social context. Opinions and methods have a background; decisions have social consequences over time. A university graduate realizes this and is able to integrate these insights into their academic work.

*Specific final attainment levels for the European Post-Master in Urbanism (EMU)*

The Specific EMU Exit Qualifications cover the following. A student graduating with a European Post-Master in Urbanism Degree has:

1. Design and design methods

The ability to produce spatial concepts and urban designs at various levels of scale; the ability to apply different design-methods, including research by design as a method of research concerning capacities and possibilities of a place for urban and landscape development.

2. Urban and landscape analysis

The ability to analyse and interpret the territorial, morphological, typological, network, social and historic characteristics of an urban site or landscape; the ability to draw conclusions from the analysis towards defining existing and potential spatial qualities of the site; the ability to elaborate these qualities in a design-concept.

3. Theory

Appropriate knowledge of contemporary theories concerning urban design, urban planning and landscape architecture; the ability to reflect on these theories in a critical way and to take a position; the ability to link theoretical concepts and notions with design concepts.

4. Technology

Appropriate knowledge and ability of application of advanced techniques in drawing, mapping, communication and presentation.

5. Sustainability

Knowledge and ability of application of concepts of sustainable design, as well in technical sense as in economic, cultural and social sense (people-planet-profit); the ability to develop innovative concepts concerning sustainable design.

6. International context

Knowledge of traditions and contemporary developments of European urbanism and processes of urbanization in European cities, landscapes and regions; the ability to relate present-day design tasks with this tradition and comment on this tradition; knowledge of different approaches and practices in different countries and regions over the world ('best practices'). The ability to analyse and define the difference and influence of the international context (globalization) on the possibilities for development on the specific local conditions and characteristics of a site.

7. Strategy and governance

Knowledge and a critical attitude on the changing position of design in spatial policies; the ability to define the role of different actors in the spatial development and to define strategies and governance models for long term and large scale spatial developments and transformations; the ability to define the role of design-interventions in these developments and transformations.



#### 8. Co-operation and communication

The ability to work in a team; knowledge and understanding of the limits of the discipline of urbanism and of the possibilities and tasks of linking disciplines; the ability to communicate designs and planning-strategies with external people.

#### 9. Profession

Insight into the profession of urban designers and urban planners, and the role of these.

## APPENDIX 3: OVERVIEW OF THE CURRICULUM

### **Bachelor's programme Architecture, Urbanism & Building Sciences**

#### *Didactisch concept*

Het uitgangspunt van de Bacheloropleiding Bouwkunde is zoals aangegeven een brede opleiding, rond zes intern en onderling samenhangende leerlijnen, door de semesters heen:

- |   |                 |
|---|-----------------|
| • Ontwerpen (6 modulen ON van 10 studiepunten)                    | 60 studiepunten |
| • Technologie (5 modulen TE van 5 studiepunten)                   | 25 studiepunten |
| • Grondslagen (4 modulen GR van 5 studiepunten)                   | 20 studiepunten |
| • Academische Vaardigheden (3 modulen AC van 5 studiepunten)      | 15 studiepunten |
| • Maatschappij, Proces en Praktijk (2 modulen van 5 studiepunten) | 15 studiepunten |
| • Overdracht en Vorm (drie modulen OV van 5 studiepunten)         | 15 studiepunten |

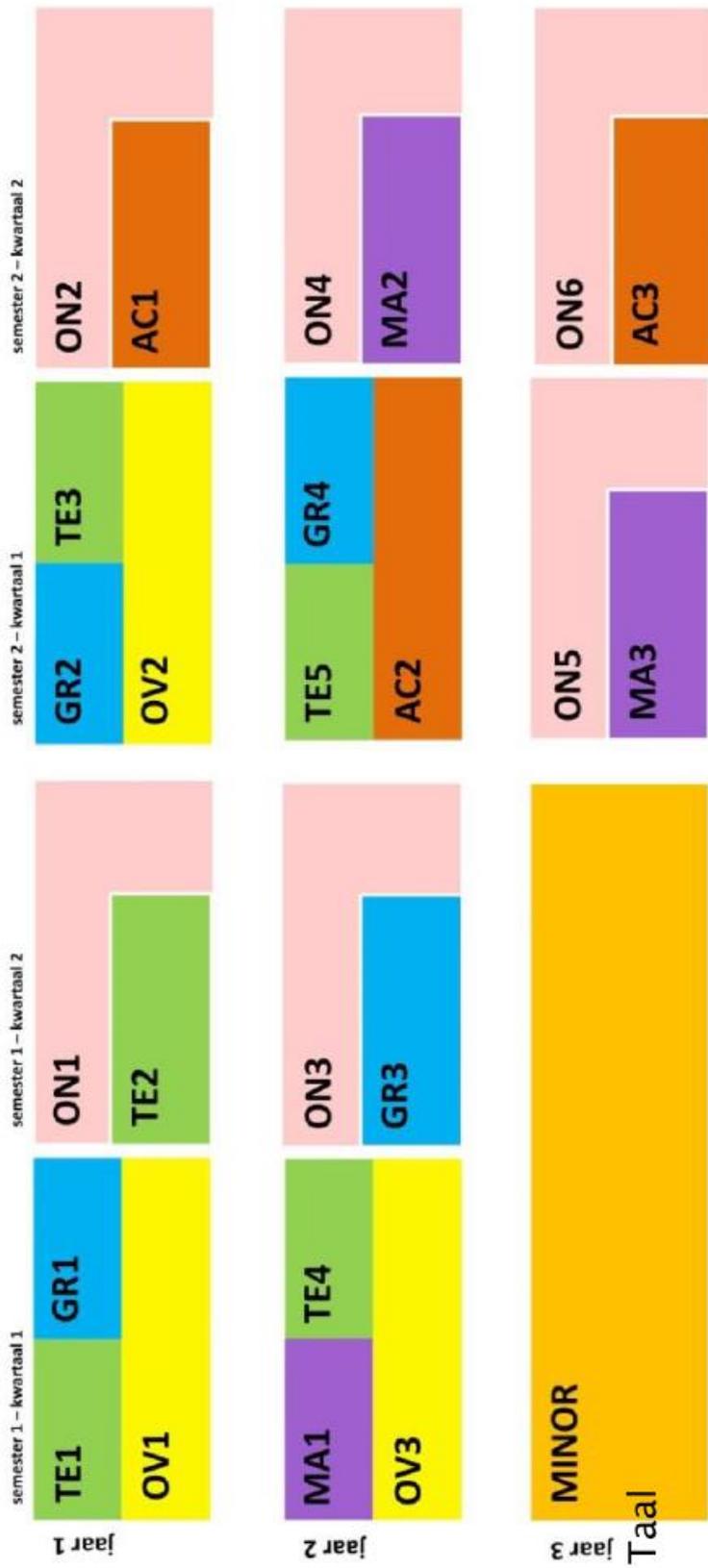
Alle studieonderdelen maken derhalve deel uit van een leerlijn. Zowel binnen de leerlijnen als binnen de kwartalen wordt door module coördinatoren en leerlijnteam:

- De inhoudelijke opbouw bewaakt
- De literatuur afgesproken, en
- De toetsing afgestemd

Elke leerlijn begint met basiskennis waaraan vervolgens meer diepgaande en specifieke kennis wordt toegevoegd. In bijlage III van het rapport Zelfevaluatie Bacheloropleiding Bouwkunde 2018 worden alle leerlijnen gepresenteerd zoals ze te zien ware op de facultaire tentoonstelling in 2016. Het complete programma staat in de online studiegids.

#### *Opbouw*

De Bacheloropleiding Bouwkunde duurt drie jaar. Elk jaar is opgebouwd uit twee semesters van 30 studiepunten, met elk twee kwartalen van tien weken. Ieder kwartaal bestaat hetzij uit drie modulen van 5 studiepunten, hetzij uit een ontwerpmodule van 10 studiepunten en een andere module van 5 studiepunten. Omdat per kwartaal steeds één module tien weken duurt en de andere vijf of zeven weken, volgen studenten nooit meer dan twee modulen tegelijk. Het onderstaande schema toont het volledig curriculum, met vijf semesters of tien kwartalen van in totaal 150 studiepunten. In het vijfde semester is 30 studiepunten gereserveerd voor de minor. Met het oog op verbreding en flexibiliteit worden steeds meer minoren van 15 studiepunten aangeboden. Ook kan eventueel een stage worden gevolgd.



## Master's programme Architecture, Urbanism & Building Sciences

### Track Architecture

Academic year 2018 - 2019

First year	
1 <sup>st</sup> semester	2 <sup>nd</sup> semester
Delft Lectures on Architectural Design (3 ECTS)	Delft Lectures on Architectural Sustainability (3 ECTS)
Delft Lectures on Architectural History (3 ECTS)	Thesis Architectural History or Theory (6 ECTS)
Delft Seminars on Building Technology (6 ECTS)	Electives (21 ECTS), including an approved MSc 2 Architecture design project worth 12 ECTS
Design Studio (12 ECTS)	
Studio Specific courses (6 ECTS)	
Second year	
3 <sup>rd</sup> semester	4 <sup>th</sup> semester
Lecture Series Research Methods (6 ECTS)	Graduation Studio (30 ECTS)
Studio Specific courses (9 ECTS)	
Graduation Studio (15 ECTS)	

ECTS = European Credit Transfer System  
One academic year = 60 ECTS (1680 hrs study, 1 ECTS 28hrs)  
Total amount of credits Msc programme = 120 ECTS  
For more information on all courses, please visit: [www.studyguide.tudelft.nl](http://www.studyguide.tudelft.nl)

## Track Building Technology

Academic year 2018 - 2019

First year	
1 <sup>st</sup> semester	2 <sup>nd</sup> semester
Innovation & Sustainability (6 ECTS)	<b>Choose two electives from:</b> Technoledge Structural Design (6 ECTS) Technoledge Facade Design (6 ECTS) Technoledge Climate Design (6 ECTS) Technoledge Design Informatics (6 ECTS) Zero Energy Design (6 ECTS) Bridge Design (6 ECTS) 1:1 Interactive Architecture Prototypes workshop (6 ECTS)
Bucky Lab Seminars (12 ECTS): Research Methodology Building Physics Structural Mechanics Material Science	<b>Choose one design project from:</b> EXTREME technology (12 ECTS) MEGA (12 ECTS) Solar Decathlon (12 ECTS) 1:1 Interactive Architecture Prototypes (12 ECTS)
Bucky Lab Design (12 ECTS): Design   CAD   Production techniques	
Second year	
3 <sup>rd</sup> semester	4 <sup>th</sup> semester
<b>Choose one from:</b> SWAT Studio (15 ECTS) EARTHY (15 ECTS)	Sustainable Design Graduation Studio (45 ECTS)

One academic year = 60 ECTS (1680 hrs study, 1 ECTS 28 hr)

ECTS = European Credit Transfer System

Total amount of credits MSc programme = 120 ECTS

For more information on all courses, please visit: [www.studyguide.tudelft.nl](http://www.studyguide.tudelft.nl)

# Track Landscape Architecture

Academic year 2018-2019

First year			
1 <sup>st</sup> semester		2 <sup>nd</sup> semester	
1 <sup>st</sup> quarter	2 <sup>nd</sup> quarter	3 <sup>rd</sup> quarter	4 <sup>th</sup> quarter
Design Project Villa Urbana: Design of an Experimental Ensemble (6 ECTS)	Design Project Dutch Waterscapes: Design of a Leisure Landscape (6 ECTS)	Design Project Teatro Project: Park Design in Urban Transformations (6 ECTS)	Electives, including a Design Project (15 ECTS)
Lecture Series Landscape as an object of Architecture (3 ECTS)	Lecture Series The Fine Dutch Tradition (3 ECTS)	Lecture Series Urban Landscapes in History and Thought (3 ECTS)	
Seminar TOPOS: Understanding the Landscape (3 ECTS)	Seminar Reflecting Ideas on Landscape (3 ECTS)	Seminar Urban Landscape Systems Typologies and Strategies (3 ECTS)	
Workshop Designing with Plants (3 ECTS)	Workshop Landscape Components Green and Blue (3 ECTS)	Workshop Engineering and Technology in Urban Landscape Design (3 ECTS)	
Second year			
3 <sup>rd</sup> semester		4 <sup>th</sup> semester	
1 <sup>st</sup> quarter & 2 <sup>nd</sup> quarter		3 <sup>rd</sup> quarter & 4 <sup>th</sup> quarter	
Graduation Studio Landscape Architecture: Flowscapes (20 ECTS)		Graduation Studio Landscape Architecture: Flowscapes (30 ECTS)	
Research Methodology in Landscape Architecture (5 ECTS)			
Space and Society (5 ECTS)			

One academic year = 60 ECTS (1680 hrs study, 1 ECTS 28 hr)  
 ECTS = European Credit Transfer System  
 Total amount of credits MSc programme = 120 ECTS  
 For more information on all courses, please visit: <http://studyguide.tudelft.nl>

## Track Management in the Built Environment

Academic year 2018-2019

First year	
1 <sup>st</sup> semester	2 <sup>nd</sup> semester
Design and Construction Management (7 ECTS)	Urban (re)development game: Integrating Planning, Design and Property Development (10 ECTS)
Real Estate Management (7 ECTS)	Re-design: from area to building block (10 ECTS)
Housing Policy, Management and Sustainability (7 ECTS)	Management and Finance 2 (10 ECTS)
Research Methods Introduction (3 ECTS)	
Management and Finance 1 (6 ECTS)	
Second year	
1 <sup>st</sup> semester	2 <sup>nd</sup> semester
Free Electives (15 ECTS)	Graduation Laboratory (30 ECTS)
Compulsory Choice (2 out of 3):	
<i>Case study methods (3 ECTS)</i>	
<i>Operations research methods (3 ECTS)</i>	
<i>Applied statistics (3 ECTS)</i>	
MSc 3 Laboratory (9 ECTS)	

One academic year = 60 ECTS (1680 hrs study, 1 ECTS 28 hr)

ECTS = European Credit Transfer System

Total amount of credits MSc programme = 120 ECTS

For more information on all courses, please visit: <http://studyguide.tudelft.nl>

## Track Urbanism

Academic year 2018-2019

First year			
1 <sup>st</sup> semester		2 <sup>nd</sup> semester	
1 <sup>st</sup> quarter	2 <sup>nd</sup> quarter	3 <sup>rd</sup> quarter	4 <sup>th</sup> quarter
R&D Studio: Analysis and Design of Urban Form (10 ECTS)	R&D Studio: Designing Urban Environments (10 ECTS)	R&D Studio: Spatial Strategies for the Global Metropolis (10 ECTS)	Electives (15 ECTS)
History and Theory of Urbanism (5 ECTS)	Sustainable Urban Engineering of Territory (5 ECTS)	Research & Design Methodology for Urbanism (5 ECTS)	
Second year			
3 <sup>rd</sup> semester		4 <sup>th</sup> semester	
Graduation Lab Urban Transformations and Sustainability (20 ECTS)		Graduation Lab Urban Transformations and Sustainability (30 ECTS)	
Graduation Orientation (2 ECTS)			
Analytical Methods of Urban Planning and Design (4 ECTS)			
Theories of Urban Planning and Design (4 ECTS)			

ECTS = European Credit Transfer System

One academic year = 60 ECTS (1680 hrs study)

Total amount of credits MSc programme = 120 ECTS

For more information on all courses, please visit [www.studyguide.tudelft.nl](http://www.studyguide.tudelft.nl)

**Master's programme Berlage Post-master Architecture and Urban Design**

<b>Programme structure</b>		<b>Current</b>
<b>Previous</b>		
Semester 1		
Cultures, Methods, and Instruments (30 credits)		
Project (12 credits)		ARB101 Project NL (12 credits)
Project-related seminar (6 credits)		ARB102 Proseminar (6 credits)
Colloquium (8 credits)		ARB106 The Berlage Sessions (3 credits)
Master class (4 credits)		ARB107 Research Colloquium (6 credits)
		ARB108 Design Master Class (3 credits)
Semester 2		
Societies, Environments, and Economies (30 credits)		
Project (12 credits)		ARB201 Project Global (12 credits)
Project-related seminar (6 credits)		ARB202 Proseminar (6 credits)
Thesis preparation lecture series (4 credits)		ARB206 The Berlage Sessions (3 credits)
Thesis preparation seminar (4 credits)		ARB208 Theory Master Class (3 credits)
Master class (4 credits)		ARB215 Thesis Preparations (6 credits)
Semester 3		
Final Thesis (30 credits)		
ARB301 Thesis Project (30 credits)		ARB301 Thesis Project (30 credits)

## Master's programme European Post-master in Urbanism

The EMU is a two-year, full-time, English-taught Post-Master's degree programme, for which students must earn 120 credits (see table below). The first year comprises two semesters each worth 30 credits, in which students take various advanced modules. The design of the semesters is similar: a Research & Design Studio worth 15 credits is backed by theoretical, methodological and technological modules, each worth 5 credits. The theme of the first semester is Urban Region Networks, and that of the second is Constructing the Sustainable Delta City (see appendix IV for the full programme). The second year begins with an exchange semester worth 30 credits. The exchange is with one of the three partner universities in Leuven, Barcelona or Venice. The programme concludes with a semester entitled Frontiers, for a research and design-oriented final project at TU Delft, again worth 30 credits.

Semester 1 R&D studio			FALL
Urban Regions Network			15sects
Theory Theories of Urbanisation, Regionalisation & Networks	Technology Design & Planning Support Tools	Methodology Regional Strategies & Territorial Governance	
5sects	5sects	5sects	
Semester 2 R&D studio			SPRING
Constructing The Sustainable City			15sects
Theory The Sustainable City: Theories of Adaptive Urban Design	Technology Urban Design & Engineering	Methodology Research & Design	
5sects	5sects	5sects	
Semester 3			FALL
THE EUROPEAN DIMENSION			
Courses IUAV Venezia Prof. Paola Vigano	KU Leuven Prof. Bruno de Meulder	UPC Barcelona Prof. Joaquin Sabate Antonio Font	30ects
Semester 4 Frontiers			SPRING
FRONTIERS: EMU THESIS			
different mentors for individual mentoring			30ects

## APPENDIX 4: PROGRAMME OF THE SITE VISIT

Programme site visit bachelor's programme Architecture, Urbanism & Building Sciences, master's programme Architecture, Urbanism & Building Sciences, master's programme Berlage Post-master Architecture and Urban Design, and master's programme European Post-master in Urbanism.

Location: TUD, Faculty of Architecture and the Built Environment, Julianalaan 134, 2628 BL Delft.

<b>Zondag 25 november 2018</b>	
16.00 – 19.00	Aankomst en startoverleg

<b>Maandag 26 november 2018</b>	
09.00 – 10.15	Welkom en voorbereiding
10.15 – 11.00	Opleidingsmanagement
11.00 – 11.15	Pauze
11.15 – 11.55	Studenten bachelor
12.05 – 12.45	Docenten bachelor
12.45 – 13.15	Lunch
13.15 – 13.45	Rondleiding
13.45 – 14.00	Pauze / uitloop
14.00 – 14.30	Studenten Berlage
14.30 – 15.00	Docenten Berlage
15.00 – 15.30	Intern overleg
15.30 – 16.00	Studenten EMU
16.00 – 16.30	Docenten EMU
16.30 – 16.45	Pauze
16.45 – 17.30	Examencommissie
17.30 – 18.00	Intern overleg

<b>Dinsdag 27 november 2018</b>	
09.00 – 09.45	Aankomst en voorbereiding
09.45 – 10.15	Alumni master
10.20 – 11.00	Studenten master
11.00 – 11.15	Pauze
11.15 – 12.00	Docenten master
12.00 – 13.00	Lunch / intern overleg
13.00 – 13.45	Opleidingsmanagement
13.45 – 15.30	Opstellen oordelen
15.30 – 15.45	Mondelinge terugkoppeling
15.45 – 16.45	Ontwikkelgesprek
16.45 – 17.30	Afronding

## APPENDIX 5: THESES AND DOCUMENTS STUDIED BY THE PANEL

Prior to the site visit, the panel studied 15 theses of the bachelor's programme Architecture, Urbanism & Building Sciences, 15 theses of the master's programme Architecture, Urbanism & Building Sciences, 15 theses of the master's programme Berlage Post-master Architecture and Urban Design, and 15 theses of the master's programme European Post-master in Urbanism. Information on the selected theses is available from QANU upon request.

During the site visit, the panel studied, among other things, the following documents (partly as hard copies, partly via the institute's electronic learning environment):

- For the bachelor's programme Architecture, Urbanism & Building Sciences, master's programme Architecture, Urbanism & Building Sciences, master's programme Berlage Post-master Architecture and Urban Design, and master's programme European Post-master in Urbanism:
  - Student Charter, including Teaching and Examination Regulations (TER)
  - 2017-2018 Graduation Manual
  - 2017 External Programme Audit final projects
  - The golden rules of Examination
  - Year report Quality Assurance
- For the bachelor's programme Architecture, Urbanism & Building Sciences:
  - Zelfevaluatie koersen op studiesucces 2016
  - Lijst van gelieerde universiteiten
  - Jaarrapport bacheloropleiding
  - Leerlijnvisies 2017-2019
  - 2018 National Student Survey
  - Figures from the Association of Universities in the Netherlands
- For the master's programme Architecture, Urbanism & Building Sciences:
  - 2017 Work Situation Survey
  - Exchange Partner Universities
  - EMMA feedback and assessment tool
  - Figures from the Association of Universities in the Netherlands
  - 2018 National Student Survey
- For the master's programme Berlage Post-master Architecture and Urban Design:
  - Points of attention Berlage programme
  - Overview staff Berlage
  - Graduation Manual 2017-2018
  - Final Thesis Assessment Model
- For the master's programme European Post-master in Urbanism:
  - EMU Graduation Manual 2017-2018
  - EMMA feedback and assessment tool
  - Evaluaties Kwaliteitszorg