AQ Austria, 1190 Wien, Franz-Klein-Gasse 5

Agentur für Qualitätssicherung und Akkreditierung Austria

Expert opinion on the accreditation procedure for the Master's degree programme "Digital Construction Management" of the Carinthia University of Applied Sciences - non-profit company mbH and Bochum University of Applied Sciences as a joint programme, carried out in Spittal an der Drau and Bochum

Vienna, 13.05.2025

Programme content

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Brief information on the accreditation procedure

Information on the applicant institution	
Applicant institution	Carinthia University of Applied Sciences
Location(s) of the institution	Spittal an der Drau
Legal form	non-profit organisation mbh
Start of study programmes	1995/96
Number of students	2711
Accredited degree programmes	40

Information on the partner university	
Name of the university	Bochum University of Applied Sciences
Location/s of the institution	Bochum
Type of university	University of Applied Sciences
Number of students	8400
Number of degree programmes	approx. 60

Information on the application for accreditation	
Programme title	Digital Construction Management
Type of degree programme	Master's degree programme
ECTS credits	90
Standard duration of study	3 semesters
Planned number of study places per academic year	30 beginner places per academic year (FH Kärnten) 30 beginner places per academic year (HS Bochum)
Academic degree	Master of Science (M.Sc. or MSc)
Organisational form	Joint Degree Programme

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Language/s used	German/ English
Place(s) where the degree programme is held	Spittal a. d. Drau/ Bochum
Tuition fee	Tuition fee of 363.36 €+ ÖH contribution (FH Kärnten) Semester fee in the current amount (currently around € 330) (Bochum University of Applied Sciences)

The applicant institution submitted the accreditation application on 01/08/2024. The Board of AQ Austria appointed the following experts on 22 January 2025:

Name	Function and institution	Field of expertise
Prof. Dr.-Ing. Habeb Astour	Professor for Digital Civil Engineering, Darmstadt University of Applied Sciences	Scientific qualification in the field of digital civil engineering
Dipl.-Ing. Solmaz Fahimian	Project Manager, Procom Invest GmbH & Co KG	Relevant professional experience in the construction and property sector
Aileen Schubert, MSc	PhD student at the Chair of Construction Process Management and Property Development, TU Munich	Student experience in the Department of Civil Engineering - Chairwoman
Dr Katalin Szondy	EU.ACE Project Manager, Service Centre for International Relations, University for Continuing Education Krems	Qualification in the area of quality management

On 21 March 2025, an on-site visit took place at the premises of the applicant institution in Spittal a. d. Drau/Bochum.

Preliminary remarks

This degree programme is based on the excellent long-term cooperation between the two universities. The submitted documents were complete, sufficient and reader-friendly. The team of experts was able to gain a good first impression of the degree programme from the written documents. The on-site visit was characterised by constructive discussions in a positive atmosphere. The reviewers' questions were clarified in detail during the discussions.

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Assessment and evaluation based on the Standards for Quality Assurance of Joint Programmes in the EHEA

1. Eligibility

1.1 Status

> The institutions that offer a joint programme should be recognised as higher education institutions by the relevant authorities of their countries. Their respective national legal frameworks should enable them to participate in the joint programme and, if applicable, to award a joint degree. The institutions awarding the degree(s) should ensure that the degree(s) belong to the higher education degree systems of the countries in which they are based.

The two cooperating universities are recognised, accredited institutions. Both the Austrian and the German system allow the establishment of joint study programmes and the awarding of a joint degree. In addition, the principles of the European Standards and Guidelines for Quality Assurance (ESG) are applied in both higher education systems. Master's programmes are assigned to level 7 of the National Qualifications Framework.

In the opinion of the expert team, the criterion is **fulfilled**.

1.2 Joint design and delivery

> The joint programme should be offered jointly, involving all cooperating institutions in the design and delivery of the programme.

The documents submitted clearly show that the degree programme to be accredited was designed in joint cooperation. On the one hand, this is evidenced by the composition of the development team, which is listed in detail in the application. On the other hand, the development of the curriculum and the individual modules also shows that mutual expertise has been incorporated into the degree programme. For example, existing and well-proven modules at the universities were integrated into the curriculum. Both the documents submitted and the discussions with the participants during the on-site visit show that there has been good cooperation between the two universities for years, which has continued well during the Covid-19 pandemic via virtual channels. As part of this partnership, a comprehensive needs and acceptance analysis was carried out for the design of the joint degree programme, which confirmed the added value of the degree programme to be accredited for both the education sector and the labour market. The degree programme attempts to close a gap in these sectors and addresses the lack of in-depth courses at the two universities. It should also be mentioned at this point that students were included in the needs and acceptance survey, which they also confirmed in the interview.

From the perspective of the expert team, it is noted that the criterion can be assessed as **fulfilled**.
can be assessed as fulfilled.

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1.3 Cooperation agreement

The terms and conditions of the joint programme should be laid down in a cooperation agreement. The agreement should in particular cover the following issues:

- Denomination of the degree(s) awarded in the programme
- Coordination and responsibilities of the partners involved regarding management and financial organisation (including funding, sharing of costs and income etc.)
- Admission and selection procedures for students
- Mobility of students and teachers
- Examination regulations, student assessment methods, recognition of credits and degree awarding procedures in the consortium.

For the preparation of the on-site visit by the experts, the documents relevant to this point were submitted in good time and in full, together with all the annexes specified in the cooperation agreement.

The signed cooperation agreement contains all elements necessary for the accreditation and implementation of the joint degree programme.

The awarding of the academic degree is regulated in Cooperation Agreement VII. I. Upon successful completion of the programme, graduates are awarded the academic degree "Master of Science" (M.Sc. or MSc). National differences regarding the awarding of degrees have been taken into account in the cooperation agreement. Samples of the final documents are attached to the cooperation agreement.

The coordination of the cooperation is regulated in Cooperation Agreement VIII. I. Funding is regulated in Chapter IX. and contains country-specific information on the funding of study places. In addition, the distribution of tasks and the respective resources required are described in detail and conclusively. A spreadsheet is attached to the cooperation agreement.

Admission to the degree programme is described in the cooperation agreement. The formal admission requirements are checked by the head of the degree programme at the Carinthia University of Applied Sciences. A possible admission procedure, as stated during the on-site visit and clearly described in the cooperation agreement, will only be carried out if the number of applicants exceeds the number of available study places. This also corresponds to the provisions of the Austrian Universities of Applied Sciences Act. The prerequisite for the allocation of a study place and enrolment at Bochum University of Applied Sciences is the submission of the training contract with the Carinthia University of Applied Sciences, which thus confirms the completion of the admission process. Admission to the degree programme is possible in both the winter and summer semesters. This was taken into account in the development of the curriculum and could be conclusively explained to the reviewers upon request.

The Master's degree programme is designed to be part-time and takes place exclusively online, with the exception of two block weeks in attendance per semester. Arrangements have already been made for online teaching and the corresponding online tools have been trialled. Students are responsible for travelling to the face-to-face weeks themselves. Information on accommodation in and around the Spittal an der Drau site will be provided accordingly. During the on-site visit, the reviewers were also given the opportunity to

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It was announced that further accommodation is currently being built or remodelled at the site so that cohorts can be accommodated well together, particularly in terms of team building. The fact that this is necessary was also confirmed by the students in the interview. Traditional mobility as in full-time programmes is not planned, but will be supported individually if required. Erasmus+ mobility funding can be utilised. The Carinthia University of Applied Sciences is part of two European University Alliances. When asked by the experts, the participants in the discussion rounds were able to confirm that new offers are currently being created within this framework, from which students on the degree programme could also benefit.

The degree programme also offers the opportunity for teacher and staff mobility. The focus here is particularly on exchanges to acquire intercultural and language skills as part of the so-called International Staff Weeks, but also for further didactic training and traditional job shadowing in the area of curriculum development. Participation is voluntary. During the discussions during the inspection, the evaluators were credibly informed that the didactic further training measures in particular are gladly accepted. In addition, it was also taken into account during the design process that teachers receive sufficient support and counselling at both universities.

Separate examination regulations were drawn up for the degree programme, which contain and describe in detail all the points listed in accordance with the European Approach for Quality Assurance of Joint Programmes. When asked, representatives of both universities were able to confirm that the harmonisation of the two existing examination regulations (albeit only for the present degree programme) could be carried out without any problems, as there were hardly any differences, but many similarities. The Head of Quality Management at the Carinthia University of Applied Sciences also emphasised in the interview that the administrative staff receive special training to ensure that everyone knows that there are separate examination regulations for the degree programme.

Based on the detailed descriptions in the submitted documents (application for accreditation, signed cooperation agreement, examination regulations) that are relevant for this point and based on the detailed and conclusive answers to the questions during the on-site visit, the criterion can be considered **fulfilled**.

Recommendations:

- The expert team recommends promoting close networking through European University Alliances in the sense of promoting different aspects of internationalisation and networking.
- With regard to didactic competences, the team of experts recommends ensuring that external lecturers in particular, who may need didactic upgrades, also receive them. This applies in particular to dealing with a heterogeneous student body and distance learning.

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2. Learning Outcomes

2.1 Level [ESG 1.2]

The intended learning outcomes should align with the corresponding level in the Framework for Qualifications in the European Higher Education Area (FQ-EHEA), as well as the applicable national qualifications framework(s).

The Master's degree programme in Digital Construction Management is formally assigned to the second cycle of the European Qualifications Framework (EQF Level 7) and fulfils the requirements of a Master's degree. The programme prepares students for new, practice-oriented roles in the construction and real estate industry, such as BIM manager, project manager or digitalisation officer. The programme is therefore aimed at potential students who are expected to take on complex digital and organisational tasks in the construction industry after completing their studies. Students acquire skills in areas such as digitalisation in construction operations, project development in the life cycle, construction informatics and transformational project management. Further learning outcomes relate to the ability to collaborate across disciplines, the application of modern project management methods and active participation in shaping digital change in the construction industry. The didactic concept of the programme is based on "constructive alignment" and provides for a close interlinking of learning objectives, teaching methods and examinations. It takes into account the diversity of the students and supports the development of specialist, interdisciplinary and academic skills through practical project work and cooperation with companies.

From the reviewers' point of view, the criterion is **fulfilled**.

2.2 Disciplinary field

The intended learning outcomes should comprise knowledge, skills, and competencies in the respective disciplinary field(s).

The degree programme combines content from civil engineering, digitalisation, project management and sustainability. This combination addresses key challenges of the current and future construction industry and reflects the requirements of a dynamically changing job profile. The interdisciplinary approach makes it possible to address students with different specialist backgrounds, even beyond traditional civil engineering. From the evaluators' point of view, this is a positive aspect, as it promotes interdisciplinary exchange and thus actively supports the transformation process of the construction industry.

In terms of content, the degree programme teaches technical, methodological, scientific, social and subject-specific skills. The intended learning outcomes include, among others

- the ability to apply digital methods of planning and construction,
- the integration of life cycle-based requirements into project processing,
- the consideration of sustainability and CO_2 reduction targets in the context of action,

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- the promotion of cooperation in transformation processes involving the human factor,
- as well as the ability to recognise and evaluate current technological developments and integrate them into their own actions.

During the on-site visit, it was also emphasised that the consistent use of browser-based tools and digital collaboration tools is a central component of the teaching concept and contributes significantly to teaching the desired digital skills.

The intended learning outcomes are clearly and differentiatedly described, methodologically and professionally appropriate for an interdisciplinary Master's programme, comprehensibly related to the Master's level and correspond to the disciplines covered in the programme, from construction informatics and sustainability management to organisational management tasks. In the view of the assessors, the learning outcomes are appropriate for the professional profile of the programme and conclusively cover the scope of the disciplines. The existing disciplinary breadth and heterogeneity of the student body is addressed both didactically and organisationally.

The evaluators consider the criterion to be **fulfilled**.

Recommendation: The labour market demand in the area of digital transformation in the construction industry is proven to be high. As the digital transformation progresses, the professional profiles of future graduates will become considerably more important. In order to further strengthen the professional connectivity of graduates, the expert team recommends that interfaces with existing professional fields, chamber structures or certification systems be examined and, if necessary, expanded. This could further improve the positioning of graduates on the labour market.

2.3 Achievement [ESG 1.2]

The programme should be able to demonstrate that the intended learning outcomes are achieved.

The intended learning outcomes of the programme are clearly formulated and include professional and methodological skills as well as key social and digital qualifications. The focus is on topics such as digitalisation in the construction industry, sustainable project development, interdisciplinary teamwork and the use of and reflection on industry-specific software solutions such as BIM applications or scheduling tools.

To ensure that these learning outcomes can actually be achieved, the programme provides for several interlinked measures:

- Didactic concept (constructive alignment): Teaching content, learning objectives and examinations are systematically harmonised. The application explicitly emphasises the orientation towards competence-based teaching and learning with clear links between curriculum objectives, teaching methods and performance assessments.
- Practical implementation: The programme specifically focuses on project-oriented work, particularly in the form of project modules that integrate real issues from construction and real estate practice.

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and property practice. These projects are designed to promote independent, co-operative work and the application of theoretical content in specific professional contexts.

- International and interdisciplinary perspective: The cooperation between the two universities in Germany and Austria and the thematic focus on international developments (e.g. BIM, sustainable project development) promotes the development of interdisciplinary and internationally compatible skills.
- Structured curriculum: The curriculum matrix has a balanced relationship between basic modules, specialisations and project units. The learning objectives are assigned to the modules and reflect the competence logic set out in the application. All areas of expertise are brought together in the Master's thesis. In addition, students are supported by individually supervised Master's theses, regular reflection sessions and targeted support during the attendance weeks to continuously develop their competences and deepen them in a targeted manner.

In the view of the evaluators, the overall concept for achieving the learning objectives is viable. Nevertheless, there are indications that the implementation is not yet consistently described in detail - especially in the review of complex competences such as teamwork, project management or digital application. An even clearer operational structure between the acquisition of competences and the assessment of learning outcomes would be helpful here. The numerous examination formats - from traditional written examinations and project-based group work to presentations and digital examination formats - provide a solid basis, but should be closely linked to the intended learning outcomes during implementation.

Furthermore, the variety of topics covered in the degree programme and the heterogeneous target group of students pose a challenge. The degree programme addresses a heterogeneous target group with varying levels of prior specialist knowledge. Students should achieve the necessary academic and practical depth for all the intended learning outcomes, even without a traditional construction background, which could prove difficult from the perspective of the reviewers, particularly given the short duration of the programme of three semesters. The aspect of the diversity of the target group was also discussed in detail during the on-site visit. The future programme directors explicitly emphasised that both universities prefer to be open to diverse student groups and that they also experience this as beneficial in other study programmes at their universities. As a result, the expert group can conclude that there is a good awareness of how to deal with a heterogeneous student body at both institutions and that students also receive support when needed. Various support services are also already available, such as preliminary courses (e.g. mathematics, physics, scientific work), accompanying courses on study organisation as well as services offered as part of the central student advisory service and a structured admissions interview, which may include recommendations for preparatory courses. During the on-site visit, it also became clear that the selection process for applicants is not only formally controlled by structured admissions interviews, but also qualitatively. The head of the degree programme and subject representatives individually check whether previous specialist knowledge - particularly in civil engineering - is sufficient or needs to be supplemented by preparatory measures. In this context, the head of degree programme expressly emphasised that applicants with a lack of basic knowledge can already be given specific recommendations for preliminary courses or basic modules during the admissions interview, which can also be taken in other degree programmes. In addition, it was mentioned that a broad approach is seen as an opportunity to combine competences from other study programmes.

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related disciplines into the degree programme, with targeted support provided in particular for career changers.

Opening up universities to diversifying student groups is in keeping with the times and in line with developments in the European Higher Education Area. At the same time, dealing with these student groups poses a didactic challenge. Particularly for students without a traditional construction background, it must be ensured that they also achieve the technical depth in the relevant subjects and acquire the necessary foundations. The conscious handling of this and the existing conceptual measures, in particular the individual examination of admission requirements, preparatory courses and the consistent competence-orientated design of the curriculum, make it possible in principle for students without a traditional construction background to achieve the desired learning outcomes at Master's level. These elements speak in favour of a well thought-out overall concept that is capable of achieving the desired learning outcomes and thus ensuring the required level of qualification. The review team is therefore not critical of the formal suitability of the concept, but rather whether it can actually guarantee the connectivity of all students in practical implementation. This process must be carefully monitored, evaluated and further developed as the degree programme progresses.

In the view of the experts, the criterion is **fulfilled**.

Recommendations:

- As part of further curriculum development and evaluation, the team of experts recommends paying particular attention to ensuring that the implementation of the teaching, learning and examination concepts is systematically aligned with the intended learning outcomes, especially with regard to practical and digital competences. The extent to which these can be validated using suitable formats such as project work, portfolios or reflective work should also be examined.
- The team of experts recommends systematically evaluating after the first run of the degree programme whether the current open access - especially for applicants without relevant previous technical experience - is sustainable in the long term. If it turns out that students without a background in civil engineering do not have sufficient basic technical knowledge to fulfil the content requirements, consideration should be given to strengthening preparatory measures (e.g. compulsory modules) or more clearly limiting the admission requirements. This measure does not serve to restrict, but rather to ensure successful participation and the quality of the degree programme.

2.4 Regulated professions

If relevant for the specific joint programme, the minimum agreed training conditions specified in the European Union Directive 2005/36/EC, or relevant common training frameworks established under the Directive, should be taken into account.

The degree programme is not a i m e d at a regulated profession in the sense of legally protected professional titles, so this criterion is not relevant for the joint programme.

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3. Study Programme [ESG 1.2]

3.1 Curriculum

The structure and content of the curriculum should be fit to enable the students to achieve the intended learning outcomes.

The part-time degree programme consists of three standard semesters, each worth 30 ECTS credits. Most of the courses are taught online. In both the winter and summer semesters, two weeks of attendance are planned at the beginning and end of each semester at the Carinthia University of Applied Sciences or Bochum University of Applied Sciences.

According to the application, the first academic year consists of two semesters. The winter semester contains six compulsory modules and the summer semester consists of four compulsory modules and two further modules from the compulsory elective programme. The Master's thesis is completed in the second or third semester and the degree programme is concluded.

The modules from the first year of study are integrated modules. They are not divided into sub-modules, courses or partial examinations. A module must be completed within one semester. An exception to this is the final Master's module, which is divided into three parts.

There is no link between the course content in the first and second semesters of the first year of study and there are no prerequisites for participation in the corresponding modules. The aim is to offer students the opportunity to begin their studies in both the winter and summer semesters.

Practical relevance is ensured through visits to companies and construction sites, guest lectures by external experts from business and research, as well as practical examples as assignments in project work within the modules. This was also discussed during the on-site visit. In addition, tasks for Master's theses are defined in collaboration with experts who may also be involved in supervising the work.

The content, structure and didactic design of the curriculum and the modules it contains correspond to the professional (academic) and practical requirements. The content and learning objectives of the associated courses are presented clearly and comprehensibly. The course content is well coordinated, as students are taught basic methods of digitalisation in the construction industry as well as aspects of project development in the life cycle, lean management, contract and claim management, etc. The course content is a good mix of theoretical principles and practical application.

The criterion is **fulfilled** in the view of the assessors.

3.2 Credits

The European Credit Transfer System (ECTS) should be applied properly and the distribution of credits should be clear.

All achievements in the degree programme are shown in the application with ECTS credits. The Master's programme comprises three semesters, each with 30 ECTS credits, resulting in a total of 90 ECTS credits. Students generally receive 5 ECTS credits for all modules, with the exception of the Master's thesis and the Master's examination (module M-11: Master's degree), which is assessed with 30 ECTS credits. The attendance times of the individual modules correspond to the semester hours per week (SWS) specified in the module descriptions. The self-study component results from the difference between the planned ECTS credits and the attendance component.

The European Credit Transfer System (ECTS) is applied carefully in the view of the assessors. The ECTS credits awarded for the workload per module are realistic and manageable.

In the view of the assessors, this criterion is **fulfilled**.

3.3 Workload

A joint bachelor programme will typically amount to a total student workload of 180-240 ECTS-credits; a joint master programme will typically amount to 90-120 ECTS-credits and should not be less than 60 ECTS-credits at second cycle level (credit ranges according to the FQ-EHEA); for joint doctorates there is no credit range specified.

The workload and the average time to complete the programme should be monitored.

The Master's programme comprises a total of 90 ECTS credits and extends over three semesters, each with 30 ECTS credits. This corresponds to a workload of 750 hours per semester. Each module is designed in such a way that the ECTS credits awarded realistically reflect the amount of learning required by the students. A teaching unit, defined as a semester hour per week (SWS), lasts 45 minutes.

According to the application, the appropriateness of the workload of individual modules and the entire degree programme is regularly assessed and evaluated with the help of course evaluations. During the on-site visit, the team of experts also learnt that student representatives will also take part in the monthly jour fixes with representatives of the Carinthia University of Applied Sciences and Bochum University of Applied Sciences. This provides an additional opportunity to give feedback to the programme management regarding the workload.

In addition to the subject-specific requirements of the degree programme, students also have to cope with the change between Carinthia and Bochum. This change can pose challenges due to the different structures and processes at both locations. However, the experts were able to see for themselves that both university administrations provide students with the best possible support during these transitions.

From the experts' point of view, the criterion is therefore **fulfilled**.

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4. Admission and Recognition [ESG 1.4]

4.1. Admission

The admission requirements and selection procedures should be appropriate in light of the programme's level and discipline.

There are 30 places available for the Master's degree programme in Digital Construction Management in both the winter and summer semesters.

According to the application, the requirements for admission to the Master's degree programme in Digital Construction Management are the fulfilment of the admission requirements, the successful completion of the admission procedure and the allocation of a study place.

The admission and admission procedures are described in detail in the joint application of the two universities and are also published transparently on the websites of both universities.

Admission requirements for the Master's degree programme include various relevant degrees, in particular: Architecture, Civil Engineering, Environmental Engineering, Renewable Energy Systems, Industrial Engineering, Sustainable Development and Sustainable Property Management. In addition, German language skills of at least C1 level and English language skills of at least B2 level are required.

After the formal admission requirements have been checked by the Carinthia University of Applied Sciences, an admission procedure is carried out with the co-operation of both universities on the basis of clearly defined selection criteria. These include motivation and interest, previous education (basic knowledge and relevant competences acquired in professional life) and the result of the admission interview. All applicants who fulfil the admission requirements are invited to the interview. It takes place on agreed dates at the Carinthia University of Applied Sciences. During the interview, the selection criteria are specifically checked. In addition to the fulfilment of the formal admission requirements, these interviews are included in the ranking of applicants. The results are documented in a protocol. The head of the degree programme at the Carinthia University of Applied Sciences then informs the candidates in writing about the outcome of the admission procedure.

The assessments that lead to the creation of the ranking list are documented in a comprehensible and verifiable manner. The implementation and handling of the admission regulations are the responsibility of the head of degree programme.

The admission and admission requirements as well as the entire admission process are clearly regulated in the application, as described and summarised above, and correspond to the profile of the degree programme and its faculty.

From the reviewers' point of view, the criterion is **fulfilled**.

4.2. Recognition

Recognition of qualifications and of periods of studies (including recognition of prior learning) should be applied in line with the Lisbon Recognition Convention and subsidiary documents.

The handling of students who already have competences in individual subject areas of the Master's degree programme is regulated in the joint examination regulations of the Carinthia University of Applied Sciences and Bochum University of Applied Sciences and complies with the applicable national legal requirements and the Lisbon Recognition Convention.

The recognition process is described in detail in the application and the procedure is clearly defined. The recognition of proven knowledge takes place at the student's request and relates to specific modules. The application must be accompanied by copies of the necessary evidence such as module descriptions, ECTS certificates or evidence of relevant professional experience.

In order to fulfil the legal requirements of both universities, a distinction is made between modules for which the Carinthia University of Applied Sciences and Bochum University of Applied Sciences are responsible. Students are informed transparently and in good time about the respective responsibilities.

The regulations are thus clearly and comprehensibly presented and correspond to university standards.

In the view of the experts, the criterion is **fulfilled**.

5. Learning, Teaching and Assessment [ESG 1.3]

5.1 Learning and teaching

The programme should be designed to correspond with the intended learning outcomes, and the learning and teaching approaches applied should be adequate to achieve those. The diversity of students and their needs should be respected and attended to, especially in view of potential different cultural backgrounds of the students.

The degree programme is based on a didactic concept that is oriented towards the principle of constructive alignment. The aim is to systematically harmonise teaching content, learning objectives and examination formats in order to specifically promote the acquisition of subject-specific, methodological and social skills. This basic principle is clearly presented in the application and is implemented in teaching in particular through project-orientated, collaborative and digital formats.

The following didactic methods are used as examples during the course: project-based learning using realistic case studies (e.g. in the "Collaborative project management" module), group work in interdisciplinary teams, digital self-study phases (e.g. via Moodle) and regular synchronous reflection formats with lecturers. Practical software applications (e.g. Revit, Dalux, Powerproject) also support the application of content in a professional context. The attendance weeks are specifically designed to promote team building and social skills.

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The diversity of the students - both in terms of previous subject knowledge and cultural backgrounds - is taken into account in the didactic concept. The individual admissions interview enables an initial assessment of the level of competence and serves as targeted preparation for the degree programme. Teachers are encouraged to organise the learning content in such a way that different entry requirements are addressed and intercultural perspectives are included. Collaborative digital tools (e.g. Microsoft Teams) enable flexible, location-independent collaboration and promote communication even in heterogeneous groups.

During the on-site visit, it became clear that the didactic concept is actively supported by the teaching staff and is brought to life in particular through digital collaboration, regular feedback sessions and practical project work. The programme director referred to existing experience with weekly online reflection formats and the targeted composition of interdisciplinary groups to promote cooperative learning processes. The use of flexible, browser-based tools such as Microsoft Teams and Moodle was also emphasised as a central element for the implementation of constructive alignment.

There are currently still challenges in the consistent implementation of the didactic concept, particularly by external lecturers who may not yet be sufficiently familiar with it. It is also not yet clear throughout the individual module descriptions in the application to what extent central concepts such as competence-orientated teaching or the structured use of digital tools are systematically applied.

The overall didactic concept is viable and fundamentally suitable for promoting the desired learning outcomes. The implementation should be systematically monitored and reflected upon in the further course - particularly with regard to external teachers.

The evaluators consider the criterion to be **fulfilled**.

Recommendation: The team of experts recommends offering students targeted didactic support in order to ensure didactic quality in the long term, particularly with regard to the competency-based teaching approach and the use of digital teaching and learning formats. This support could take the form of introductory workshops on the implementation of constructive alignment and the integration of digital tools (e.g. Moodle, Microsoft Teams, Revit), for example. In addition, regular collegial feedback sessions on teaching practice could be established in order to promote dialogue between teaching staff and support the continuous development of teaching as well as offering any necessary didactic upgrades. The higher education didactics centres at both universities already provide a solid basis for this and could be integrated even more specifically in the future.

5.2 Assessment of students

The examination regulations and the assessment of the achieved learning outcomes should correspond with the intended learning outcomes. They should be applied consistently among partner institutions.

The forms of examination in the degree programme are generally diverse and, according to the application, are linked to the respective acquisition of skills. Traditional written examinations, project-based group work, presentations and digital examination formats are used. The project work in particular serves to develop complex content in a practical manner and

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develop and test interdisciplinary skills - for example in teamwork or project management - in a targeted manner.

The examination system provides for two regular examinations per semester; a third option is offered as a board examination. This model offers students transparency, fairness and reliability in the course of their studies.

The Master's thesis is supervised by a supervisor from the home university and a second examiner from the partner university. The assessment is based on a standardised criteria grid that takes into account subject depth, formal quality, independence and student commitment. Practically relevant topics are expressly encouraged. For Master's theses with sensitive content - particularly in the case of business collaborations - transparent regulations on embargoes are in place.

During the on-site visit, students and lecturers confirmed that a variety of examination formats are actively used at the universities, in particular project-based work with colloquial elements, open-book examinations and oral examinations. Students emphasised the advantages of written and practical examination formats, but also expressed a desire for clearer time structures and reduced group complexity. It was also positively emphasised that online exams with tools such as the Safe Exam Browser have already been tested and have proven their worth, particularly during the Covid pandemic. The use of digital examination formats was rated by teachers as practical but didactically challenging - particularly with regard to group sizes, time coordination and fair assessment.

At the same time, it is evident that the link between the selected examination formats and the intended learning outcomes in individual modules is not yet consistently clear and the link between the selected examination formats and the intended learning outcomes should be further strengthened. A clearer assessment system would be particularly helpful for project-based tasks and group work in order to reliably map competences such as digital application, teamwork or sustainability-related decision-making. Digital examinations offer additional potential for further development - particularly with regard to establishing identity and equal opportunities. The use of tools such as the Safe Exam Browser, which was mentioned and explained during the on-site visit, represents a relevant building block in this regard.

The examination formats are generally suitable for reflecting the intended learning outcomes. The overall system is transparent, student-orientated and provides a solid basis for skills assessment.

In the view of the expert team, the criterion is **fulfilled**.

Recommendation: In order to better ensure the coherence of examination methods and specific learning objectives, particularly with regard to digital and practical competences, more systematic feedback would be desirable. The team of experts recommends the continuous further development of the examination formats, tailored to the specific learning objectives of the degree programme, as well as the clear and transparent communication of the assessment schemes. This can make a significant contribution to ensuring quality and fairness in the examination system.

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6. Student Support [ESG 1.6]

The student support services should contribute to the achievement of the intended learning outcomes. They should take into account specific challenges of mobile students.

Both universities have contact points for students with subject-specific and organisational questions. According to the application, access to these centres should be as low-threshold as possible. During the on-site visit, it was also emphasised that the individual needs of students are taken into account. In the application, the Carinthia University of Applied Sciences is named as the primary point of contact for such matters, as it is responsible for the organisation of the degree programme, although Bochum University of Applied Sciences is also involved where appropriate and expedient.

Due to the mobility associated with the part-time Master's degree programme as a result of the two different locations in Germany and Austria, there is an increased need for information. This is met in a targeted manner with a wide range of support services for students. The application lists the options for students to obtain information: Info Centre, Psychological Student Counselling, teaching staff, Student Support Centre, International Relations Office, Business & Career Service, etc. It was also mentioned during the on-site visit that the needs and concerns of potential international students should also be addressed. During the on-site visit, it was confirmed that the universities are strongly committed to actively supporting students in their search for accommodation and other mobility-related challenges.

The comprehensive description in the application and the impressions gained during the on-site visit make it clear to the experts that student welfare is a high priority at both universities and is personally important to those responsible.

In the view of the experts, the criterion is **fulfilled**.

7. Resources [ESG 1.5 & 1.6]

7.1 Staff

The staff should be sufficient and adequate (qualifications, professional and international experience) to implement the study programme.

The proposed teaching staff for all courses are listed by name in the application. There is sufficient staff available to meet the requirements of the degree programme. The supervision of students can therefore be ensured accordingly. The reviewers assess the teaching staff named in the application as professionally and academically qualified. The teaching and research staff to cover the determined teaching load consists of the full-time programme directors of the Carinthia University of Applied Sciences and Bochum University of Applied Sciences as well as full-time lecturers and qualified part-time lecturers from both universities. The proportion of part-time and full-time lecturers is equal.

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The lecturers have the relevant experience and qualifications to teach the content of the Master's degree programme competently. They are characterised by a high level of academic aptitude, extensive professional experience and international expertise. Many hold doctorates and have in-depth knowledge in areas such as the construction industry, architecture, building materials technology, digitalisation and sustainability. In addition, many lecturers have many years of professional experience in leading positions as entrepreneurs or consultants. Their practical work includes projects in the construction industry, construction logistics, lean management, facility and project management as well as innovative digital transformation processes. In addition, some lecturers have international experience, be it through their academic careers, research collaborations or professional activities abroad. This international perspective enables a versatile and future-orientated knowledge transfer that offers students practical insights into global developments and challenges.

The discussions on site confirmed the positive impression already gained from the application: the future lecturers impressed with their professional expertise, obvious teaching skills and practical experience.

In the view of the experts, this criterion is **fulfilled**.

7.2 Facilities

The facilities provided should be sufficient and adequate in view of the intended learning outcomes

The on-site visit took place at the Carinthia University of Applied Sciences in Spittal an der Drau. The premises could be inspected in this context. This made it more difficult to assess the location of Bochum University of Applied Sciences. However, the representatives of the university and the students from Bochum confirmed that the existing infrastructure offers good conditions for a successful degree programme. The inspection of the Carinthia University of Applied Sciences in Spittal an der Drau revealed that the university has a sufficient number of modern lecture theatres and seminar rooms that enable modern and efficient learning.

The experts emphasised the Carinthia UAS's modern technical equipment as well as the BIM laboratory, the BIM library and the BIM experience room at Bochum UAS. These are modern and extensively equipped. The interdisciplinary BIM Institute offers a BIM laboratory with high-performance computers, a specialised library, an experience room with innovative technology such as VR glasses and 3D touch monitors as well as advanced software solutions. This equipment optimally supports students in achieving their learning objectives and practice-orientated research.

In the view of the experts, the criterion is **fulfilled**.

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8. Transparency and Documentation [ESG 1.8]

Relevant information about the programme like admission requirements and procedures, course catalogue, examination and assessment procedures etc. should be well documented and published by taking into account specific needs of mobile students.

The websites of both universities are up-to-date, user-friendly and offer all relevant information for prospective and current students at a glance. The websites of the Carinthia University of Applied Sciences and Bochum University of Applied Sciences provide all important information (application deadlines, programme content and specialisations, counselling dates, requirements, contact persons) at a glance and are very clearly laid out. The respective websites are also linked to each other, which provides a simple overview of the entire Master's programme.

The criterion is **fulfilled** in the view of the assessors.

9. Quality Assurance [ESG 1.1 & part 1]

The cooperating institutions should apply joint internal quality assurance processes in accordance with part one of the ESG.

Both universities have a well-established and functioning quality assurance system, which is well described in the accreditation application. The application of the ESG is visible in the application and is also evident from the interviews: there is a clear process for the development of study programmes involving all relevant stakeholders, the principles of student-centred learning are taken into account, the so-called student life cycle is fully implemented. The selection of teaching staff and their further training plays an important role at both universities and therefore also in the degree programme. Students have access to numerous laboratory facilities and the infrastructure required for the degree programme at the Carinthia University of Applied Sciences in Spittal an der Drau or via remote access. The team of experts was able to see this very clearly during the inspection of the premises. The Bochum site was not the subject of the visit, but the experts were able to gain a good impression of the infrastructure from discussions with the degree programme and support team and the students. The quality management system provides for regular evaluation of the degree programme.

The joint quality assurance of the degree programme in question is described in detail in the accreditation application. This joint quality assurance is summarised as follows:

The Carinthia University of Applied Sciences is responsible for the administration of the degree programme at the Spittal an der Drau site. Administration takes place via the "aCTIons" system, in which employees of Bochum University of Applied Sciences are also involved. A shared e-mail address enables direct contact between students, lecturers and the administration. Administrative tasks include timetabling, exam organisation and enrolment/registration in order to ensure a smooth process and optimal support. Cooperation between the universities is based on close coordination between the heads of the degree programmes at both institutions. Support is provided by the Carinthia University of Applied Sciences, while the QM team at Bochum University of Applied Sciences is responsible for quality assurance. Student representatives become active

in order to promote feedback and further development. Monthly jours fixes are used for coordination and monitoring. Other university units support the controlling and further development of the programme at a third organisational level.

When asked whether this approach might not be excessive, both quality management and the programme representatives emphasised that this intensive approach was deliberately chosen at the start. Adjustments would be made if necessary on the basis of initial practical experience.

It is clear from the presentations and discussions that there is a coherent quality management system that represents a closed control loop. The experts therefore consider this criterion to be **fulfilled**.

From the reviewers' point of view, the pronounced collegial and trusting cooperation between the subject experts and the administrative staff of the degree programme is particularly positive. The close coordination and joint solution-oriented action are evidence of a strong team spirit and make a significant contribution to the success of the degree programme.

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Summary and final evaluation

1. Eligibility

The two cooperating universities are recognised, accredited institutions. Both universities are authorised to set up joint study programmes and award a joint degree. A signed cooperation agreement is in place.

In the view of the assessors, this criterion is **fulfilled.**

2. Learning outcomes

The "Digital Construction Management" degree programme is formally assigned to the second cycle of the European Qualifications Framework (EQF Level 7) and fulfils the requirements of a Master's degree.

The learning outcomes are clearly formulated and divided into professional, methodological and social competences.

The evaluators consider the criterion to be **fulfilled**.

3. Study Programme [ESG 1.2]

The degree programme is part-time. The standard duration of the programme is three semesters of 30 ECTS credits each. A large part of the degree programme takes p l a c e via distance learning; in the first two semesters there is one attendance week at the beginning and one at the end of the semester, which takes place at the Carinthia University of Applied Sciences in Spittal an der Drau.

The content, structure and didactic design of the curriculum and the modules it contains correspond to the professional (academic) and practical requirements. Appropriate ECTS credits are allocated to the modules.

In the view of the experts, the criterion is **fulfilled**.

4. Admission and Recognition [ESG 1.4]

The admission criteria are aligned with the legal requirements of the respective countries of the applicant universities. Admission and recognition procedures are explained in great detail in the application of both universities. In addition, the entire admission procedure can be viewed transparently on the websites of both universities.

The recognition of proven knowledge is regulated in the joint examination regulations and complies with European and national requirements and framework conditions. Proven knowledge is recognised on a module-specific basis at the student's request.

In the view of the experts, the criterion is **fulfilled**.

5. Learning, Teaching and Assessment [ESG 1.3]

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The didactic concept of the degree programme is designed in accordance with constructive alignment. Both teaching and learning as well as examination formats are varied and tailored to the requirements of the respective module.

The evaluators consider the criterion to be **fulfilled**.

6. Student support [ESG 1.6]

The students are undoubtedly the focus of this degree programme. Contact points for students are described in the accreditation application. The questions regarding support services were also answered during the on-site visit. In addition, the students also confirmed the good communication and willingness to provide support at both universities.

The evaluators consider this criterion to be **fulfilled**.

7. Resources [ESG 1.5 & 1.6]

The lecturers listed in the application have the necessary qualifications and professional experience to teach the intended course content. During the tour of the site, the team of experts was able to see the excellent facilities and remote options for themselves.

The evaluators consider the criterion to be **fulfilled**.

8. Transparency and Documentation [ESG 1.8]

All necessary information is carefully documented and published transparently. The websites of both universities contain all the necessary documents on the new degree programme and are easy to find.

The criterion is fulfilled in the view of the evaluators**.**

9. Quality Assurance [ESG 1.1 & part 1]

Both universities have a modern quality management system in which the degree programme is integrated accordingly. The division of responsibilities with regard to quality assurance is coherent and described in detail in the application.

In the view of the experts, the criterion is **fulfilled**.

Particularly noteworthy good practice: The experts praise the fact that the Carinthia University of Applied Sciences and Bochum University of Applied Sciences, as the applicant universities, have designed a joint Master's programme in an intensive and carefully prepared process and on the basis of a trusting and established cooperation, which creates an innovative and particularly appealing study programme for students.

The experts **recommend that** the **Board of AQ Austria accredit** the Master's degree programme "Digital Construction Management" at Carinthia University of Applied Sciences in Spittal a. d. Drau/Bochum.

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Viewed documents

- Application for accreditation of the Joint Master's degree programme "Digital Construction Management" of the Carinthia University of Applied Sciences, conducted in Spittal a. d. Drau/ Bochum, dated 01.08.2024.

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