INITIAL ACCREDITATION INCLUDING THE DISTINCTIVE FEATURE 'SMALL-SCALE AND INTENSIVE EDUCATION'

HBO-BACHELOR
APPLIED DATA SCIENCE & ARTIFICIAL INTELLIGENCE
Breda University of Applied Sciences

SUMMARY REPORT
1 March 2022

1 Peer Review

The quality of a new programme is assessed by means of peer review. A panel of independent peers including a student reviews the plans during a site visit to the institution. A discussion amongst peer experts forms the basis for the panel's final judgement and the advisory report. The focus is on the curriculum, the teaching and learning environment, and student assessment. Additionally, the panel assesses the distinctive feature 'Small-scale and intensive education'.

The Accreditation Organisation of the Netherlands and Flanders (NVAO) takes a formal decision on the quality of the new programme based on the outcome of the peer review. This decision can be positive, conditionally positive or negative. Following a positive NVAO decision with or without conditions the institution can proceed to offer the new programme. Upon completion of the programme graduates are entitled to receive a legally accredited degree. NVAO also advises the minister of Education on granting the distinctive feature. Following approval, the institution can select students and impose tuition fees that are higher than those set down by law for standard programmes.

This summary report contains the main outcomes of the peer review. A full report with more details including the panel's findings and analysis is also available. NVAO bases an accreditation decision on the full report. Both the full and summary reports of peer reviews are published on NVAO's website www.nvao.net. There you can also find more information on NVAO, peer reviews of new programmes and the distinctive feature.

Because of COVID-19 temporary measures apply for this peer review.

2 Panel

Peer experts
1. Prof. Dr. Rob Koper (*chair*); University professor at the Open University, focusing on educational innovation educational sciences, ICT in education and data science;
2. Fiona Schrage MSc; Program manager Bachelor Creative Media & Game Technology. Project leader (TNO) Associate Degree Mechatronics in the Smart Industry and teacher of Professional Skills Engineering;
3. Drs. Frans van den Akker; Business developer at Industry BL Digital RHDHV. Program manager Digitalization TKI E&I, TKi Nieuw Gas and Liason officer NL AI Coalition. Member at research & innovation Nl AI coalition;
4. Kevin Voorn (*student*); Studied at the HBO-ICT course of the Hanzehogeschool Groningen. He has experience in both central and decentralized employee participation.

Assisting staff
–   Yvet Blom, secretary;
–   Lotte Ninaber van Eijben, NVAO policy advisor and process coordinator.

Site visit (online)
15 December 2021

3 Outcome

The NVAO panel reaches a conditionally positive conclusion about the quality of hbo-bachelor Applied Data Science and Artificial Intelligence (ADS&AI) offered by Breda University of Applied Sciences (BUas).

The hbo-bachelor ADS&AI is a four-year programme. During the programme, students work on real-life data related matters to learn how to apply data and AI solutions in practice. The profile for the ADS&AI was designed in close collaboration with the The Hague University of Applied Sciences (THUAS) and local professionals. Both these parties will continue to play an active role during the programme. The panel believes that the involvement of educational and professional partners is a positive thing. Other positive elements of the ADS&AI programme include the curriculum's structure, the realistic DataLabs, the digital learning environment and the enthusiastic team of lecturers.

The panel notes, however, that a number of matters need further clarification. The current research methods within the programme are too 'problem-solving' oriented. Research must be transferable to contexts outside of the university and is more than just solving problems. In order to bring the current research part of the programme up to par, Breda University of Applied Sciences (BUas) needs to provide a better methodological foundation for the research methods. Another concern is the amount of self-study hours. The theoretical foundation is reliant mainly on self-study. The panel fears that students may find it difficult to motivate themselves for self-study three days a week. The responsibility for developing the required level of knowledge should not lie primarily with the students. Buas should at least carry part of this responsibility by offering theory related work during contact hours. A third point of concern is the small teaching team. The current team is too vulnerable due to its size. Although Buas intends to recruit new staff, there is a chance that Buas will not be able to do so before the start of the programme. To ensure that Buas can achieves their ambitions, the programme must come up with a plan that describes what will happen if only part of the vacancies get filled in time.

With the hbo-bachelor's degree ADS&AI, Buas introduces a practical oriented programme that allows students to gain experience with real-life data related matters. However, on the points mentioned above, the programme requires a more detailed description. This leads to the following three conditions that must be adhered to before 1 June 2022:

Firstly, expand the research methods and approaches used during the programme to cover problem-solving as well as being able to transfer knowledge to contexts outside of the programme.

Secondly, offer a learning environment where students don't have to primarily rely on self-study to acquire the necessary knowledge and skills. The main responsibility should lie with BUas, not with the students.

Lastly, provide a realistic contingency plan that deals with the situation in which BUas is not able to recruit enough teaching staff before the start of the programme.

The panel reaches a negative conclusion about the qualification for the distinctive feature 'Small-scale and intensive education'.

BUas wants to offer a state-of-the art programme that has a higher graduation rate than comparable programmes. Positive elements of the programme include the great amount of extracurricular activities, the DataLabs and the digital learning environment.

However, the panel found that, at the time of the online site visit, BUas did not provide sufficient evidence to show that the ADS&AI programme achieves an above-average level. The panel has based this conclusion on the fact that the features described by BUas are not unique for an hbo-bachelor

programme and that the programme and final level is no different than that of the ADS&AI programme of THUAS. THUAS and BUas designed the ADS&AI bachelor programme together, but THUAS has not applied for the distinctive feature "small scale and intensive education". Another point of concern is that the panel believes that the current team of lecturers is too vulnerable due to its small size. BUas wants to solve this issue by employing more lecturers before the start of the programme. However, the severe shortage of data professionals on the labour market can be an issue for recruiting lecturers. The panel advises BUas to think about what happens if they can only recruit part of the lecturers they need or none at all.

All in all, Breda University of Applied Sciences introduces an exciting hbo-bachelor programme with a stimulating learning environment. However, in order to achieve the distinctive feature of small-scale intensive education, BUas needs to proof that the university will indeed offer an above-average level programme. BUas also has to come up with a plan that describes what they will do if the required vacancies can't be filled, or only partially be filled. These shortcomings stand in the way of a positive decision. The panel therefore concluded that the hbo bachelor ADS&AI is not granted the distinctive feature of small scale and intensive education.

4 Commendations

The programme is commended for the following features of good practice.

1. Strong partnerships – The programme was developed in collaboration with the THUAS and local professionals. Both partners are excited about the profile and continue to stay involved.

2. Coherent curriculum – The curriculum has a strong structure. The courses that students take become more and more complex as the programme progresses.

3. DataLabs – In the DataLabs students work on projects consisting of real-life data related cases.

4. Digital learning environment – The digital learning environment allows students to collaborate in the learning communities and on projects online. The learning environment enables lecturers to provide students with feedback and offer remote support.

5. Experienced team of lecturers – BUas has put together an enthusiastic, experienced and diverse team of lecturers.

5 Recommendations

For further improvement to the programme, the panel recommends a number of follow-up actions.

1. Lectors – Build a stronger connection with the research centre and its lectors and utilise the (research) skills and experience of the lectors better.

2. Mathematics – Analyse the mathematics component of the real-life cases and topics offered in the DataLabs and ensure that students learn the necessary mathematics skills for those topics.

3. Learning communities – Broaden the concept of the learning communities that is applied in the programme. The current set-up is purely focused on one-issue projects. A more general set-up of the learning communities creates a stronger learning and a better industrial focus of the programme

4. National AI Course – Use the National AI Course only as an informative tool for prospective students and not as a means to determine knowledge and skills.

5. Reduce reflection – Reduce the number of (self) reflection moments as they could end up being counterproductive.

6. Graduation rubric – Outline the self-assessment graduation rubrics in more detail as they are not transparent enough in terms of grading.

6 What comes next?

NVAO grants initial accreditation to a new programme on the basis of a panel's full report. The decision is valid for a maximum of six years. For conditional accreditation other regulations apply. Upon accreditation the new programme will follow the NVAO review procedures for existing programmes. NVAO publishes the accreditation decision together with the full report and this summary report.[1]

Each institution has a system of quality assurance in place ensuring continuous follow-up actions and periodic peer-review activities. Peer reviews help the institution to improve the quality of its programmes. The progress made since the last review is therefore taken into consideration when preparing for the next review. The follow-up activities are also part of the following peer-review report. For more information, visit the institution's website.[2]

7 Summary in Dutch

Het panel oordeelt positief onder voorwaarden over de kwaliteit van Applied Data Science & Artificial Intelligence (ADS&AI) van Breda University of Applied Sciences (BUas). Dit is de uitkomst van de kwaliteitstoets uitgevoerd door een panel van *peers* op verzoek van de Nederlands-Vlaamse Accreditatieorganisatie (NVAO). Voor deze beoordeling heeft het panelgesprekken gevoerd met de opleiding op 15 december 2021.

De hbo-bacheloropleiding ADS&AI duurt vier jaar. Gedurende de opleiding werken studenten aan realistische datagerelateerde zaken om de benodigde vaardigheden op te doen om data en AI-oplossingen in een commerciële context te implementeren. Bij de ontwikkeling van de opleiding zijn verschillende hogescholen, universiteiten en het regionale werkveld betrokken geweest. Deze partijen zullen ook tijdens de uitvoering van de opleiding een actieve rol blijven spelen. Het panel vindt de betrokkenheid van onderwijs- en werkveldpartners positief. Overige sterke punten vindt het panel de opbouw van de opleiding, de praktijkgerichte DataLabs, de digitale leeromgeving en het enthousiaste docententeam.

Het panel constateert echter dat enkele zaken verdere uitwerking behoeven. De huidige onderzoeksmethoden binnen het programma bijvoorbeeld zijn te 'probleemoplossend' georiënteerd. Onderzoek moet overdraagbaar zijn naar andere situaties buiten de universiteit en is meer dan alleen het oplossen van theoretische problemen. Om het huidige onderzoeksdeel van het programma op peil te krijgen, dient BUas de onderzoeksmethoden beter methodologisch te onderbouwen. Een ander punt van zorg is de hoeveelheid zelfstudie-uren. De theoretische onderbouwing is voornamelijk gebaseerd op

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[1] https://www.nvao.net/nl/besluiten
[2] https://www.buas.nl/en

een vast zelfstudieprogramma. Het panel vreest dat studenten het misschien moeilijk zullen vinden om zich drie dagen per week te motiveren voor zelfstudie. De verantwoordelijkheid om het vereiste kennisniveau te behalen hoort niet bij een hbo-student te liggen. Volgens het panel dient BUas ten minste een deel van deze verantwoordelijkheid te dragen door de theorie ook tijdens contacturen aan te bieden. Een derde zorgpunt is het te kleine docententeam. Hoewel BUas voornemens is nieuw personeel aan te trekken, bestaat er door de krapte op de arbeidsmarkt binnen het Data Science en AI-domein een reële kans dat BUas voor aanvang van de opleiding niet genoeg gekwalificeerd personeel kan vinden. Om zeker te zijn dat BUas de gestelde ambities kan waarmaken, dient de opleiding een risicoanalyse uit te voeren en adequaat plannen op te stellen voor het geval dat bewaarheid wordt.

Al met al introduceert BUas met de hbo-bachelor ADS&AI een praktijkgericht programma dat studenten de mogelijkheid geeft ervaring op te doen met actuele datagerelateerde vraagstukken. Het programma dient echter op de eerder omschreven punten concreter uitgewerkt te worden. De voorwaarden waaraan voor de start van de opleiding moeten worden voldaan zijn:

Voorwaarde 1: breid de onderzoeksmethoden en -benaderingen die tijdens het programma worden gebruikt om problemen op te lossen uit en pas deze methoden en benaderingen toe om te kunnen gebruiken in situaties buiten het programma.

Voorwaarde 2: bied een leeromgeving waar studenten niet alleen op zelfstudie hoeven te vertrouwen om de nodige kennis en vaardigheden te verwerven. De hoofdverantwoordelijkheid moet bij BUas liggen en niet bij studenten.

Voorwaarde 3: zorg voor een realistisch calamiteitenplan dat inspeelt op de situatie waarin BUas niet in staat is om voor aanvang van de opleiding voldoende docenten te werven.

Aanvullend oordeelt het panel negatief over de toekenning van het Bijzonder Kenmerk 'Kleinschalig en intensief onderwijs'.

Meer informatie over de NVAO-werkwijze en de toetsing van nieuwe opleidingen is te vinden op www.nvao.net. Voor informatie over de Breda University of Applied Sciences verwijzen we naar de website van de instelling.[3]

Als gevolg van de beperkende omstandigheden door COVID-19 geldt voor deze kwaliteitstoets een tijdelijke procedure.

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[3] https://www.buas.nl/

The full report was written at the request of NVAO and is the outcome
of the peer review of the new programme
Applied Data Science & Artificial Intelligence of
Breda University of Applied Sciences

Application no: <AV-1109 >

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