



NVAO  THE NETHERLANDS

INITIAL ACCREDITATION

HBO-MASTER

MATERIALS & ENERGY TRANSITION

Avans University of Applied Sciences

SUMMARY REPORT

5 February 2024



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.

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.

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 and peer reviews of new programmes.

2 Panel

Peer experts

- Dr. Corina Vogt (chair), programme manager and teacher in the European Master for Renewable Energy (EMRE) and Master for Sustainable Energy System Management (SESyM), Hanzehogeschool Groningen;
- Dr. Ir. Marcel den Hollander, lector Circular Design & Manufacturing, Hogeschool Rotterdam;
- Dr. Nick Verkade, teacher-researcher Circular Economy, Hogeschool van Arnhem en Nijmegen;
- Anina Jonker BSc (student member), master student Climate Studies, Wageningen University.

Assisting staff

- Anne Martens MA, secretary;
- Drs. Jona Rovers, NVAO policy advisor and process coordinator.

Site visit

Breda, 18 December 2023.

3 Outcome

The NVAO approved panel reaches a positive conclusion regarding the quality of the master's programme Materials & Energy Transition (MET) offered by Avans University of Applied Sciences. The institution intends to offer the programme of 120 ECTS credits as a fulltime programme in Breda. The programme complies with the three standards of the limited NVAO assessment framework.

The programme addresses a relevant and complex topic in society: it intends to deliver 'transition engineers' who lead transition processes related to materials and energy, at various scales of operation. They have a practical-critical and inquisitive attitude and are able to communicate effectively with experts from different disciplines to make an impact and

contribute to a more sustainable society. The programme has thought carefully about the breadth, depth and complexity of the issue and how this can be conveyed to students. The master's programme goes beyond pure engineering and addresses the socio-economic context of science and technology. Students learn how to use in-depth knowledge of a specific domain as a tool to achieve results in a wide range of areas. MET also addresses professional skills related to project management, change management, interdisciplinary cooperation and communication. In addition, students learn to reflect on the usefulness and necessity of technology when developing solutions.

The MET curriculum consists of four themes – (1) generic knowledge and skills, (2) materials, (3) energy, and (4) transitions – that recur in different compositions. Throughout the programme, students work on authentic group projects that integrate all aspects of the curriculum and prepare students for project leadership. The outcome of one project is the input for the next project of a different team. This 'relay race' approach reflects professional reality. In a final graduation project, students specialise in material, energy or transitions, and experience what implementing transitions is like and how to deal with hiccups.

The panel is positive about the programme's qualified, enthusiastic and committed staff members. All core teachers have obtained a PhD and have a research assignment that is closely related to their educational assignment at MET. The panel appreciates the close involvement of lecturers and external stakeholders in the development and realisation of the programme. This ensures a strong connection between education, research and professional practice.

Assessments are well-designed and have a clear link to professional practice. The Examination Board members still have to take up their formal role. Given the available experience among the Examination Board members, the panel is confident that the Avans Graduate Institute will ensure the independent position of the Examination Board.

The panel concludes that MET is an attractive and relevant new programme. It enables students with a background in science and/or engineering to deepen their understanding of the materials and energy technologies as well as transition science. The panel agrees with the programme's argumentation regarding its choice for an English-taught curriculum and a study duration of 120 ECTS credits.

4 Commendations

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

1. Development – The programme has been developed in close cooperation with lecturers, researchers and representatives of the professional field.
2. Skills – Students develop technical in-depth knowledge and professional skills related to project management, change management and communication.
3. Projects – Small teams of students work on authentic projects that integrate all aspects of the curriculum and prepare students for project leadership. The outcome of one project is the input for the next project of a different team. This 'relay race' approach reflects professional reality.
4. Interdisciplinary – The programme strives for a diverse student body to foster students' ability to cooperate across disciplines.
5. Assessment – Assessment is authentic and matches professional practice.

5 Recommendations

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

1. Workload – Monitor the workload of the teaching staff.
2. Examiners – Formally require examiners of the graduation project to hold a PhD.
3. Examination Board – Ensure that the members of the Examination Board can take up their independent role, with a focus towards assessment procedures instead of the development of the programme.

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

¹ <https://www.nvao.net/nl/besluiten>

² <https://www.avans.nl/international>

7 Samenvatting

Het NVAO-panel oordeelt positief over de kwaliteit van hbo-masteropleiding Materiaal- en Energietransitie (MET) van Avans Hogeschool. De instelling is voornemens de opleiding van 120 ECTS (studiepunten) als voltijdse opleiding in Breda aan te bieden. De opleiding voldoet aan de drie standaarden van het NVAO beoordelingskader. Voor deze beoordeling heeft het panel gesprekken gevoerd met vertegenwoordigers van de opleiding op 18 december 2023 te Breda.

De opleiding richt zich op een relevant en complex onderwerp in de samenleving: MET beoogt 'transition engineers' af te leveren die transitieprocessen leiden op het gebied van materialen en energie, op verschillende schaalniveaus. Ze hebben een praktisch-kritische en onderzoekende houding en zijn in staat om effectief te communiceren met experts uit verschillende disciplines om bij te dragen aan een duurzamere samenleving. De opleiding heeft goed nagedacht over de opzet van het programma, dat een groot aantal onderwerpen behandelt en toch voldoende diepgang heeft. Naast techniek besteedt de opleiding aandacht aan de sociaaleconomische context van wetenschap en technologie. Studenten ontwikkelen professionele vaardigheden in projectmanagement, verandermanagement, interdisciplinaire samenwerking en communicatie. Ook leren ze nadenken over het nut en de noodzaak van technologie bij het ontwikkelen van oplossingen.

Het curriculum van de opleiding bestaat uit vier thema's - (1) generieke kennis en vaardigheden, (2) materialen, (3) energie en (4) transities - die in verschillende samenstellingen terugkomen. Tijdens de opleiding werken studenten aan authentieke groepsprojecten die alle aspecten van het curriculum integreren en studenten voorbereiden op de rol van projectleider. Het resultaat van het ene project is het startpunt voor het volgende project van een ander team. Deze 'estafette'-benadering weerspiegelt de professionele praktijk. In een afstudeerproject specialiseren studenten zich in materiaal, energie of transities, en ervaren ze hoe het is om een transitie te implementeren.

Het panel is positief over de gekwalificeerde, enthousiaste en betrokken medewerkers van het programma. Alle kerndocenten zijn gepromoveerd en hebben een onderzoeksoopdracht die nauw aansluit bij hun onderwijstaak binnen MET. Het panel waardeert de nauwe betrokkenheid van lectoren en externe stakeholders bij de ontwikkeling en realisatie van het programma. Dit zorgt voor een sterke verbinding tussen onderwijs, onderzoek en praktijk.

De opleiding maakt gebruik van diverse toetsvormen die een duidelijke relatie hebben met de beroepspraktijk. De leden van de examencommissie moeten hun formele rol nog gaan vervullen. Gezien hun ervaring heeft het panel er vertrouwen in dat het Avans Graduate Institute de onafhankelijke positie van de examencommissie zal waarborgen.

Het panel concludeert dat MET een aantrekkelijke en relevante nieuwe opleiding is. De opleiding stelt studenten met een technische achtergrond in staat hun kennis van materiaal- en energietechnologie en transitiewetenschappen te verdiepen. Het panel onderschrijft de keuze voor een Engelstalig curriculum en een studieduur van 120 studiepunten.

Meer informatie over de NVAO-werkwijze en de toetsing van nieuwe opleidingen is te vinden op www.nvaonet.nl. Voor informatie over de Avans Hogeschool verwijzen we naar de website van de instelling.³

³ <https://www.avans.nl>

The summary report was written at the request of NVAO and is the outcome of the peer review of the new master's programme Materials & Energy Transition offered by Avans University of Applied Sciences

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