

Besluit

Besluit strekkende tot een oordeel positief van een aanvraag toets nieuwe opleiding van de wo-master Mechanical Engineering van de Rijksuniversiteit Groningen

Gegevens

datum	Instelling	: Rijksuniversiteit Groningen
31 juli 2018	Opleiding	: wo-master Mechanical Engineering
onderwerp		
Besluit	Variant	: voltijd
Toets nieuwe opleiding	Afstudeerrichtingen	:
wo-master	Locatie	: Groningen
Mechanical Engineering van de	Studieomvang (EC)	: 120
Rijksuniversiteit Groningen	Datum macrodoelmatigheidsbesluit	: 30 oktober 2017
(006376)	Datum aanvraag	: 9 januari 2018
uw kenmerk		
-	Datum locatiebezoek(en)	: 9 mei 2018
ons kenmerk	Datum adviesrapport	: 4 juli 2018
NVAO/20182147/ND	Instellingstoets kwaliteitszorg	: ja, positief besluit van 29 juli 2014

bijlage

2 Beoordelingskader(s)

Beoordelingskader voor de beperkte toets nieuwe opleiding van de NVAO (Stcrt. 2016, nr 69458).

Bevindingen

De NVAO stelt vast dat in het paneladvies deugdelijk en kenbaar is gemotiveerd op welke gronden het panel de kwaliteit van de opleiding positief heeft bevonden.

Advies panel

Samenvatting bevindingen en overwegingen van het panel.

The proposed two-year academic master programme in Mechanical Engineering of the University of Groningen has the objective to train and prepare students to apply principles of engineering, science and mathematics in the modelling, analysis, design and realization of physical systems, components and processes. The programme has four tracks: (1) Advanced Instrumentation, (2) Smart Factories, (3) Process Design for Energy Systems and (4) Materials for Mechanical Engineering.

Pagina 2 van 8 The panel considers the Mechanical Engineering programme well aligned with the strategic goals of the university. The programme strongly originates from and is embedded in an existing network of knowledge institutions and research groups from both the University of Groningen as well as regional partners from the industry. Therefore it connects to the challenges in the north of the Netherlands. The intended learning outcomes match the (international) 'domain specific' reference frameworks, they are however broadly formulated. The panel thoroughly questioned the connection between the intended learning outcomes and the requirements from the (international) field as defined in several frameworks. It had concerns on the level of mechanical design skills in some of the possible tracks. The panel suggests that a more specific Groningen focus could help. The professional field is involved and is eager to employ the future graduates, if they have sufficient technical knowledge and design skills. The expectations of the professional field are high and the potential employers are enthusiastic to contribute in further developing the programme (for example by handing cases for projects, internships). The two tracks that were designed first (Advanced Instrumentation and Smart Factories), are embedded well in the research and educational environment. The two other tracks: Process Design for Energy Systems and Materials for Mechanical Engineering, are in an earlier stage of development and need to be developed further. Considering the opportunities provided by the network, the means available and the results in the other tracks the panel trusts that the programme management is willing and able to do this successfully.

The programme meets standard 1.

The panel recommends the programme management to ensure that in the further development of the programme the intended learning outcomes are made more specific to better match the requirements as defined in the international 'domain specific' reference framework and stay aligned with the expectations from the professional field.

The structure of the programme is clear and the panel considers the intended learning outcomes on programme level being translated well into learning goals for the different components of the study programme. The use of a Course Unit Assessment Overview (CUAO) per course is helpful for staff as well as for the Board of Examiners and Programme Committee to have a clear programme overview.

Skills development is a point of attention for the programme, according to the panel. Engineering and societal skills are integrated in the courses. Lecturers provided examples of how these skills are trained but the panel was not convinced of a systematic approach on these learning outcomes. Under the next standard the panel will come back to this since also the assessment of these skills is rather unclear. The panel considers this as an opportunity to connect more closely to the professional field.

Currently there are enough staff members to execute the programme and they have expertise in the field of Mechanical Engineering. Most staff members have a PhD and are experienced lecturers (most of them have a UTQ certificate or equivalent). The current staff members expressed their willingness to teach the courses (they also developed the courses) and have sufficient expertise to guide students. The programme also would benefit from new lecturers. The panel has confidence in the current actions being taken to attract new staff.

The admission of students was a recurring topic during the site visit. The deficiency matrix that was presented to the panel during the visit defines which Groningen bachelor programmes prepare for the mechanical engineering programme and what are the

Pagina 3 van 8 deficiencies of students graduating from these programmes. The focus of this document however is on the course titles from these programmes. The panel therefore advises the programme management to explain the deficiencies on the level of knowledge and skills. The panel acknowledges the plans for the minor programme (mainly intended for Groningen students) and pre-master programme (mainly meant for external students). These programmes will result in a more similar entrance level for all students starting the mechanical engineering programme.

The programme meets standard 2.

The panel recommends the programme management to explicitly outline the admission requirements by defining the specific knowledge and skills students need to be admissible to the programme and to apply the admission requirements and procedures strictly.

The University of Groningen is known for their clear format regarding the Board of Examiners' policies. The Faculty policy is in line with the university policy and the use of the CUAOs is helpful for the board to carry out their tasks, according to the panel. The choice to use the same assessment form for both the design and research project could be reconsidered. According to the panel a specific form for each type of project may fit the assessment better, since the outcomes of the project differ. The Board of Examiners, that will be formed, has a good overview of the actions that need to be taken and the instruments that are available. The panel trusts the board to also be pro-actively involved during the development of the new programme. A point of attention for the board and the management is that all lecturers obtain their UTQ certificate and continue to professionalise when it comes to testing and assessment.

The programme meets standard 3.

The panel comes to the conclusion that the programme meets all standards. Given these considerations, the panel advises NVAO to take a positive decision regarding the quality of the proposed wo-master programme Mechanical Engineering at the University of Groningen (RUG).

Advies van het panel

Het panel adviseert de NVAO om positief te besluiten ten aanzien van de kwaliteit van de nieuwe opleiding wo master Mechanical Engineering van de Rijksuniversiteit Groningen.

De NVAO onderschrijft de aanbevelingen van het Panel:

With regard to standard 1 the panel recommends the programme management to ensure that in the further development of the programme the intended learning outcomes are made more specific to better match the requirements as defined in the international 'domain specific' reference framework and stay aligned with the expectations from the professional field.

With regard to standard 2 the panel recommends the programme management to explicitly outline the admission requirements by defining the specific knowledge and skills students need to be admissible to the programme and to apply the admission requirements and procedures strictly.

Besluit

Ingevolge het bepaalde in artikel 5a.10, derde lid, in verbinding met artikel 5a.11, achtste lid, van de WHW heeft de NVAO het college van bestuur van de Rijksuniversiteit Groningen te Groningen in de gelegenheid gesteld zijn zienswijze op het voornemen tot besluit d.d. 9 juli 2018 naar voren te brengen. Bij e-mail van 24 juli 2018 heeft de instelling ingestemd met het voornemen tot besluit.

De NVAO besluit de aanvraag Toets nieuwe opleiding wo-master Mechanical Engineering (120 EC; variant: voltijd; locatie: Groningen) van de Rijksuniversiteit Groningen te Groningen als positief te beoordelen.

Advies Croho-onderdeel: techniek.

Visitatiegroep : nader te bepalen¹.

Van kracht tot en met 30 juli 2024

¹ De opleiding dient ten minste twee jaar voor de vervaldatum gebruik te maken van de zogenoemde aprilronde om zelf zorg te dragen voor een indeling in een visitatiegroep. Daarna neemt de NVAO het besluit over de indeling in een visitatiegroep.

The panel assessed the request of the institution for the extension of the programme according to the Protocol for programme extension of 8 October 2003.

In the assessment of applications for programme extension, NVAO primarily focuses on the question whether the programme demonstrably requires extension of the curriculum in order to meet one or both of the criteria below:

- attaining the exit level desired from an international perspective;
- attaining the exit level based on the requirements of the professional field.

International perspective

When the bachelors and masters were introduced in the Netherlands, technical academic programmes, leading to the title ir. (ingenieur) were set at a duration of five years (300 EC; three years bachelor; two years master) in order to allow the students to attain an internationally comparable level. The international standard for the programmes was five years. Offering an education of four years, implying a one-year master's programme, would have put graduates of Dutch programmes in an unfavourable position compared to their peers abroad, regarding the knowledge and skills they would have acquired.

The learning outcomes and outline of the programme are at a level that is comparable with those of similar (international) programmes.

The programme demonstrated that it aims for specialisation and technical knowledge as well as for a solid scientific focus with practice oriented components. According to the panel this requires, in addition to the theoretical education and training, a design project and a research (graduation) project. This justifies the additional workload.

Professional field

The learning outcomes to be attained by the students should enable them to meet the standards in the professional field on an equal basis with their peers from other countries. Therefor they will have mastered disciplinary expertise in the field of Mechanical Engineering as well as specialised expertise from one of the four specialisations. Moreover, and representatives of the professional field emphasised this, students not only should have obtained in-depth disciplinary knowledge, including the various methodologies, the relations between disciplines and their interdisciplinary integration, but also ought to have acquired research skills, communication skills, practical lab skills and business skills. The thesis should explicitly demonstrate the technical knowledge, applied to a specialised topic. This validates the workload of 40 EC.

The panel is convinced that these arguments are valid. It therefor agrees that the programme meets the two standards and advises to extend the programme to two years to cover all the qualifications that graduates should master in order to be competitive on the international academic Mechanical Engineering job market.

Het NVAO bestuur constateert dat het panel op grond van de twee criteria overtuigd is van de noodzaak van een programma van 120 EC. Het neemt dit advies over en adviseert de minister OCW om een studieduur van 120 EC toe te kennen.

Pagina 6 van 8 Den Haag, 31 juli 2018

De NVAO
Voor deze:

A handwritten signature in black ink, consisting of a large, loopy 'P' followed by 'Z' and 'B', with a long horizontal stroke extending to the right.

Paul Zevenbergen
Bestuurder

Dr. A.H. Flierman
(voorzitter)

Tegen dit besluit kan op grond van het bepaalde in de Algemene wet bestuursrecht door een belanghebbende bezwaar worden gemaakt bij de NVAO. De termijn voor het indienen van bezwaar bedraagt zes weken.

Standaard	Oordeel
<p>Beoogde leerresultaten <i>Standaard 1: De beoogde leerresultaten passen bij het niveau en de oriëntatie van de opleiding en zijn afgestemd op de verwachtingen van het beroepenveld en het vakgebied en op internationale eisen.</i></p>	<p>Voldoet</p>
<p>Onderwijsleeromgeving <i>Standaard 2: Het programma, de onderwijsleeromgeving en de kwaliteit van het docententeam maken het voor de instromende studenten mogelijk de beoogde leerresultaten te realiseren.</i></p>	<p>Voldoet</p>
<p>Toetsing <i>Standaard 3: De opleiding beschikt over een adequaat systeem van toetsing.</i></p>	<p>Voldoet</p>
<p>Gerealiseerde leerresultaten <i>Standaard 4: De opleiding toont aan dat de beoogde leerresultaten zijn gerealiseerd.</i></p>	<p>Voldoet</p>
<p>Algemene conclusie</p>	<p>Positief</p>

Pagina 8 van 8 **Bijlage 2: Samenstelling panel**

- Prof.dr. Joris De Schutter (chair) – Professor Mechanical Engineering, chair of Department Mechanical Engineering, KU Leuven;
- Prof.dr. Wim Van Petegem – Professor and Policy coordinator Learning Technologies, Faculty of Industrial Technology, KU Leuven;
- Ir. Janjoris van Díepen – Senior sustainability consultant at Blonk Consultants, board member KIVI department Sustainable Technology;
- Vera Broek (student member) - Student Biomedical Sciences, Leiden University.

On behalf of the NVAO, Frank Wamelink and Anke Schols were responsible for the process coordination and the drafting of the panel report.