

Besluit

Besluit strekkende tot het verlenen van accreditatie aan de opleiding wo-bachelor Biomedische Technologie van de Universiteit Twente

Gegevens

datum	Naam instelling	: Universiteit Twente
10 december 2013	Naam opleiding	: wo-bachelor Biomedische Technologie (180 ECTS)
onderwerp	Datum aanvraag	: 19 december 2012
Definitief besluit	Variant opleiding	: voltijd
accreditatie wo-bachelor	Locatie opleiding	: Enschede
Biomedische Technologie van	Datum goedkeuren	
de Universiteit Twente	panel	: 4 september 2012
(001298)	Datum locatiebezoeken	: 13 en 14 september 2012
uw kenmerk	Datum visitatierapport	: 4 december 2012
S&B/399.281/jb		
ons kenmerk	Instellingstoets kwaliteitszorg	: aangemeld en geaccepteerd voor het invoeringsregime van
NVAO/20133852/ND	de instellingstoets kwaliteitszorg als bedoeld in artikel 18.32 b en c van de WHW	
bijlagen		
3		

Aanvullende informatie

De NVAO heeft bij brief van 23 april 2013 de instelling aanvullende informatie gevraagd over de werking van de examencommissie. Bij brief van 20 juni 2013 heeft de NVAO de aanvullende informatie ontvangen.

Beoordelingskader

Beoordelingskader voor de beperkte opleidingsbeoordeling van de NVAO (Stcrt. 2010, nr 21523).

Bevindingen

De NVAO stelt vast dat in het visitatierapport en de aanvullende informatie deugdelijk en kenbaar is gemotiveerd op welke gronden het panel de kwaliteit van de opleiding voldoende heeft bevonden. Het visitatierapport geeft de bevindingen en overwegingen weer van het panel over de opleidingen bachelor Biomedische Technologie en master Biomedical Science van de Universiteit Twente. Het panel heeft beide opleidingen gezamenlijk beoordeeld.

Samenvatting bevindingen en overwegingen van het panel (hierna ook: the committee).

This report presents the findings and considerations of the committee that assessed the bachelor's programme Biomedical Technology of University of Twente. The committee studied the information available and discussed the programme with representatives of the institution and the programme during a site visit. The committee weighed their positive comments and the points for improvement found and concluded that the programme meets the current generic quality standards and shows an acceptable level across its entire spectrum. Therefore, the committee assesses the bachelor's programme Biomedical Technology as 'satisfactory'.

Since 2001, the Faculty of Science and Technology of the University of Twente offers the bachelor's programme Biomedical Technology. The bachelor's programme focusses on the fundamentals in biomedical engineering.

Standard 1: Intended learning outcomes

The committee assesses Standard 1 as satisfactory for the bachelor's programme.

The objective of the bachelor's programme Biomedical Technology of the University of Twente is described in the domain statement. According to this domain statement, biomedical engineering is an interdisciplinary field, combining engineering disciplines and natural and life sciences.

The universities offering degree programmes biomedical engineering agreed upon the domain specific requirements. The committee is satisfied with the use of the competence areas of the ACQA as a framework for the seven competences of both programmes. The competences are elaborated into specific intended learning outcomes for the bachelor's programme Biomedical Technology. According to the committee, these intended learning outcomes are well described in terms of level and orientation and are in line with the domain-specific requirements for biomedical engineering.

The committee established that the bachelor programme intends to offer students a thorough general, broad and up to date education in the field of biomedical engineering.

Standard 2: Teaching-learning environment

The committee assesses Standard 2 as satisfactory for the bachelor's programme.

According to the committee, the content and structure of the bachelor's programme enable the admitted students to achieve the intended learning outcomes. The facilities are adequate for realising the programme. The staff is enthusiastic and supportive for the students.

In September 2010, the bachelor's programme Biomedical Technology started developing a new curriculum for the bachelor's programme and, from September 2011, started implementing the new curriculum gradually. In the new curriculum, the goal is to integrate the subjects of the various mother disciplines. The committee agrees with the programme management that the cohesion of the old curriculum needed improvement in particular in regard to the mathematics courses. The committee regrets however that a lot of the information on the new curriculum only became available during the site visit. At the same time, the committee appreciates that the Biomedical Technology curriculum was acting as a pilot for the new bachelor structure at UTwente.

Pagina 3 van 9 In the new curriculum, each year consists of four quartiles of 15 EC. Each quartile contains a project, which assigns a number of different tasks linked to the theme of the quartile. The project themes represent major questions of the research profiles. The pedagogical concept of the programme is based on project-based learning, because it offers the possibility to really challenge the students with assignments derived from the societal context of the professional profile.

Vertical and horizontal learning lines are developed for the new curriculum. Vertical learning lines are defined by disciplinary background and levels of competence, horizontal lines are based on the general academic competences. Not all horizontal and vertical learning lines of the new curriculum are fully designed and implemented yet. However, the committee feels the new curriculum has a good balance between theory, practical work and research and design projects. Learning outcomes and competences to be achieved by the students in the courses are built on what was learned previously. The committee feels this teaching-learning concept does structure the programme and is in the view of the committee supportive for the learning process of the students.

The committee is impressed by the clear description of the quartiles in the manuals. Learning outcomes, project assignments, practicals and courses of the quartile are described in a coherent way. In addition, the committee thinks that during the courses, up-to-date scientific literature is used and actual cases in science and technology are regularly incorporated into the various projects throughout the curriculum. Connections with current research developments are also strongly emphasized in project courses, according to the committee.

Standard 3: Assessment and achieved learning outcomes

The committee assesses Standard 3 as satisfactory for the bachelor's programme.

Within the bachelor's programme Biomedical Technology, a variety of assessment methods are used. The committee examined the learning assessment procedure and looked into a selection of assessments. The committee concludes that assessments are adequately related to the programme. There is a variety of assessment forms and there is a good balance between individual and group assignments.

In the new programme, students receive a mark per quartile but are also assessed on the different courses per quartile. Each quartile students need to make sufficient grades for all assessments but one. For this one a score of minimal five is accepted.

For the new curriculum, assessment matrices ('toetsmatrijzen') are developed per quartile. In these matrices per course, the connection between the learning objectives and the assessment and the weighing factors for all grades is made clear. The committee studied several assessment matrices and concludes these make a contribution to valid assessments.

The committee has established that the bachelor's programme has adequate assessment systems and assessment procedures. The assessment procedures are sufficiently implemented in the programme.

The Board of Examiners performs most of its legal tasks, but does not yet pro-actively control the quality of the exams, the assessment procedures or graduation theses. The committee strongly recommends the Board to develop in a short timeframe a specific plan on how to carry out the assurance of the assessment.

The committee assessed fifteen recent bachelor theses and established that all theses met the requirements for graduation. On average the theses are of sufficient quality.

Pagina 4 van 9 The committee has not seen theses that were on the whole unsatisfactory. The theses illustrate that the students have achieved the intended learning outcomes as formulated by the programme.

In recent years the assessment form used to assess the final assignments of bachelor and master students did not contain grading. The committee strongly recommends to develop a uniform assessment form to be used for assessment of all final assignments. It needs to be clear how the comments on every aspect of the assessment come together in a final grade. In addition, a more systematic use of a scoring chart and the use of own grading descriptions is needed. The committee recommends to make sure this document is well known by the students and staff, and to keep the completed forms as a record. Finally, the committee recommends to develop an assessment form on which every member of the assessment committee can make his or her remarks independently.

Aanbevelingen

De NVAO onderschrijft de aanbevelingen van het panel, in het bijzonder de aanbevelingen omtrent de coherentie van het programma, de bewaking van de technisch-wetenschappelijke diepgang en de Examencommissie, met nadruk de beoordelingssystematiek voor eindwerken.

Bestuurlijke afspraak

Gelet op het belang van borging van toetskwaliteit en in lijn met de opmerkingen hierover in het visitatierapport, maakt de NVAO met de instelling een bestuurlijke afspraak. Uiterlijk 1 april 2015 zal de instelling een jaarverslag van de examencommissie over het academiejaar 2013-2014 toezenden aan de NVAO.

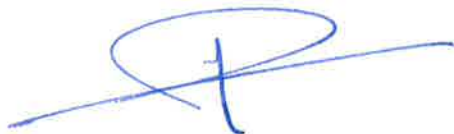
Ingevolge het bepaalde in artikel 5a.10, derde lid, van de WHW heeft de NVAO het college van bestuur van de Universiteit Twente te Enschede in de gelegenheid gesteld zijn zienswijze op het voornemen tot besluit van 15 juli 2013 naar voren te brengen. Bij e-mail van 6 december 2013 heeft de instelling gereageerd op het voornemen tot besluit. Dit heeft geleid tot aanvulling van bijlage 2 in het definitieve besluit.

De NVAO besluit accreditatie te verlenen aan de wo-bachelor Biomedische Technologie (180 ECTS; variant: voltijd; locatie: Enschede) van de Universiteit Twente te Enschede. De NVAO beoordeelt de kwaliteit van de opleiding als voldoende.

Dit besluit treedt in werking op 1 januari 2014 en is van kracht tot en met 31 december 2017 (2019)¹.

Den Haag, 10 december 2013

De NVAO
Voor deze:



R.P. Zevenbergen
(bestuurder)

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.

¹ Gelet op het bepaalde in artikel 18.32c, derde lid, van de Wet op het hoger onderwijs en wetenschappelijk onderzoek (WHW) bedraagt de geldigheidsduur van de accreditatietermijn van de opleiding maximaal vier jaar zolang de instelling nog niet beschikt over een positieve instellingstoets kwaliteitszorg. Zodra de instellingstoets is verkregen, wordt de accreditatietermijn verlengd naar zes jaar.

Onderwerp	Standaard	Beoordeling door het panel <i>voltijd</i>
1. Beoogde eindkwalificaties	De beoogde eindkwalificaties van de opleiding zijn wat betreft inhoud, niveau en oriëntatie geconcretiseerd en voldoen aan internationale eisen	V
2. Onderwijsleeromgeving	Het programma, het personeel en de opleidingsspecifieke voorzieningen maken het voor de instromende studenten mogelijk de beoogde eindkwalificaties te realiseren	V
3. Toetsing en gerealiseerde eindkwalificaties	De opleiding beschikt over een adequaat systeem van toetsing en toont aan dat de beoogde eindkwalificaties worden gerealiseerd	V
Eindoordeel		V

De standaarden krijgen het oordeel onvoldoende (O), voldoende (V), goed (G) of excellent (E). Het eindoordeel over de opleiding als geheel wordt op dezelfde schaal gegeven.

Tabel 1: Uitval na 1, 2, en 3 jaar.

Cohort	2006	2007	2008	2009	2010	2011
Uitval na 1jr	21%	21%	16%	13%	21%	27%
Uitval na 2jr	21%	23%	19%	22%	38%	32%
Uitval na 3jr	28%	27%	32%	34%	40%	

Tabel 2: Rendement (vwo-instroom).

Cohort	2006	2007	2008	2009
Rendement na 3 jaar	5%	10%	4%	33%
Rendement na 4 jaar	30%	40%	40%	43%
Rendement na 5 jaar	50%	53%	56%	47%
Rendement na 6 ⁽⁺⁾ jaar	59%	58%	56%	

Tabel 3: Rendement (totale instroom).

Cohort	2006	2007	2008	2009
Rendement na 3 jaar	6%	6%	7%	29%
Rendement na 4 jaar	34%	34%	39%	40%
Rendement na 5 jaar	49%	52%	52%	43%
Rendement na 6 ⁽⁺⁾ jaar	60%	56%	55%	

Tabel 4: Docentkwaliteit.

Graad	MA	PhD
Percentage	100%	100%

BKO	
BKO behaald	20%
Traject gestart	16%
Traject (nog) niet gestart	10%
Ontheffing (>20 jaar aangesteld of kleine onderwijstaak)	39%
Vrijstelling (vergelijkbare kwalificatie behaald)	15%

Pagina 8 van 9 **Tabel 5: Student-docentratio.**

Calendar year	Primary lecturers	Total lecturers incl. secondary, guest, etc.	Registered students BSc	Students per primary lecturer
2008	42	61	169	4,0
2009	45	74	183	4,1
2010	43	67	190	4,4

Tabel 6: Contacturen.

Studiejaar	1	2	3
Contacturen	17	17	17

Pagina 9 van 9 **Bijlage 3: panelsamenstelling**

- Prof. dr. ir. J. Vander Sloten, professor in Engineering Sciences, KU Leuven, Belgium;
- Dr. J. Struijk, associate professor at the Department of Health Science and Technology, Aalborg University, Denmark;
- Prof. dr. ir. J.A.E. Spaan, professor in Medical Physics, Academic Medical Center, University of Amsterdam;
- Prof. dr. R. Reilly, professor in Neural Engineering, Trinity College, Dublin;
- S. van Tienhoven, BSc, master student Biomedical Engineering, Eindhoven University of Technology.

Het panel werd ondersteund door drs. L. van Grijspaarde, secretaris (gecertificeerd).