

Besluit

Besluit strekkende tot het verlenen van accreditatie aan de opleiding wo-master Mechanical Engineering van de Technische Universiteit Delft

Gegevens

datum	Naam instelling	: Technische Universiteit Delft
26 juni 2013	Naam opleiding	: wo-master Mechanical Engineering (120 ECTS)
onderwerp	Datum aanvraag	: 27 december 2012
Definitief besluit	Variant opleiding	: voltijd
accreditatie wo-master	Afstudeerrichtingen	: BioMechanical Design
Mechanical Engineering van de		Control Engineering
Technische Universiteit Delft		Materials Engineering & Applications
(001377)		Precision and Microsystems Engineering
uw kenmerk		Solid & Fluid Mechanics
O&S-UIT-698/EL/dt		Sustainable Processes & Energy Technologies
ons kenmerk		Transportation Engineering
NVAO/20131671/ND	Locatie opleiding	: Delft
bijlagen	Datum goedkeuren	
3	panel	: 10 juli 2012
	Datum locatiebezoeken	: 20 en 21 september 2012
	Datum visitatierapport	: 30 november 2012
	Instellingstoets kwaliteitszorg	: ja, positief besluit van 21 november 2011

Aanvullende informatie

De NVAO heeft bij brief van 1 maart 2013 de instelling aanvullende informatie gevraagd over de stand van zaken bij de verbeteringen om het aanbod mastertracks te vereenvoudigen zonder de diversiteit in het aanbod te verliezen en de beschikbare onderwijsformatie te vergroten. Bij brief van 9 april 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 goed heeft bevonden.

Inlichtingen

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Samenvatting bevindingen en overwegingen panel.

Standard 1

The Master's programme Mechanical Engineering has the ambition to provide students with a profound educational basis allowing them to find excellent job positions after their graduation, either in industry or in academia. The Master's programme Mechanical Engineering of the TU Delft has a strong ambition and an internationally well known profile. The international standards for the master level are reflected in the intended learning outcomes, both in general terms and for the domain of Mechanical Engineering (ABET, OECD, ASME). The intended learning outcomes are transparent and specific and in line with the ambitions of the programme. The programme attracts a lot of students and graduates are sought after on the labour market. The committee was however not convinced of the added value of defining seven tracks, further subdivided into 17 specialisations within the Master's programme. Some of the tracks are strongly related to other Master's programmes. For example, there is a large overlap between the elaborate final qualifications of the track Materials Engineering and Applications and the Master's programme in Materials Science and Engineering. The committee suggests reconsidering this track structure, without losing the advantages of diversity in the programme.

Standard 2

The basic structure of the Master's programme is similar for all tracks. They have a nominal study length of two years and are equivalent to 120 EC. The tracks are composed of a first year with obligatory core courses, a specialisation part and elective courses, which students choose in consultation with one of the track coordinators or their mentor. Elective courses provide students the opportunity to deepen or broaden their knowledge. The second year consists of 60 EC and focuses on research.

During the second master's year students have a graduation professor and, usually, a daily supervisor as coach. An internship provides students with the opportunity to have first-hand experience in the domain of their choice and it confronts them with setbacks as they could encounter in professional life and the intellectual level that is expected of them after graduation. The teaching forms in the Master's programme are adequate, but not innovative.

The quantity and the quality of the teaching staff is adequate and so are the facilities. Quality assurance on programme level is functioning adequately. The committee was impressed by the creativity of the management to find solutions for the large numbers of students it has to accommodate.

Standard 3

The committee has looked into the assessment system and the Master's theses to assess whether the intended learning outcomes are achieved. The committee is convinced that the assessment system is sufficiently valid and reliable. The committee has seen that the Board of Examiners is in control and has made a start with the implementation of an updated, adapted to renewed legislation, test policy.

The committee studied a selection of Master's theses which indicate that the graduates have achieved the level that can be expected in a master's degree programme. Graduates of the Mechanical Engineering programme of the TU Delft easily find employment in the international field of industry and academia. The level that is achieved by the graduates of the programme is high.

De NVAO onderschrijft de aanbeveling van het panel om de tracks binnen het programma te heroverwegen en aan te passen, zonder de diversiteit van het programma uit het oog te verliezen.

Besluit

Ingevolge het bepaalde in artikel 5a.10, tweede lid, van de WHW heeft de NVAO het college van bestuur van de Technische Universiteit Delft te Delft in de gelegenheid gesteld zijn zienswijze op het voornemen tot besluit van 3 mei 2013 naar voren te brengen. Bij e-mail van 7 juni 2013 heeft de instelling gereageerd op het voornemen tot besluit. Dit heeft geleid tot aanvulling van bijlage 2 in het definitieve besluit.

Op grond van het voorgaande besluit de NVAO accreditatie te verlenen aan de wo-master Mechanical Engineering (120 ECTS; variant: voltijd; locatie: Delft) van de Technische Universiteit Delft te Delft. De opleiding kent de volgende afstudeerrichtingen: BioMechanical Design, Control Engineering, Materials Engineering & Applications, Precision and Microsystems Engineering, Solid & Fluid Mechanics, Sustainable Processes & Energy Technologies, Transportation Engineering. De NVAO beoordeelt de kwaliteit van de opleiding als goed.

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

Den Haag, 26 juni 2013

Nederlands-Vlaamse Accreditatieorganisatie



Lucien Bollaert
(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.

Onderwerp	Standaard	Beoordeling door het panel
1. Beoogde eindkwalificaties	De beoogde eindkwalificaties van de opleiding zijn wat betreft inhoud, niveau en oriëntatie geconcretiseerd en voldoen aan internationale eisen	<i>Voltijd</i> G
2. Onderwijsleeromgeving	Het programma, het personeel en de opleidings specifieke 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	G
Eindoordeel		G

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: Rendement

It is not possible to give a reliable overview of the intake of Master's students in the programme. For graduates from the 3mE's Bachelor's programme it is often difficult to determine when they commenced the Master's programme. A lot of them participated in master's courses (long) before they have passed their bachelor's graduation. The Bachelor before-Master rule (Harde Knip) introduced in 2010 will put an end to this.

However accurate data is available for international students, who accomplish their MSc programme at TUDelft. Table 2.2 presents yield data for international students attending the MSc programme Mechanical Engineering.

cohort	cohort size	absolute cumulative MSc yield: relative to n years of study				average study duration	still enrolled	dropout cumulative	maximum yield
		<= 2	<= 3	<= 4	> 4				
2002	28	14	19	20	22	2.2		6	22
2003	22	10	16		18	2.2	1	3	19
2004	7	4	6	7		2.3		0	7
2005	6	1		2	4	3.9		2	4
2006	15	5	11			2.1		4	11
2007	16		8	10		2.7	1	5	11
2008	17	3	10			2.5	4	3	14
2009	21	7	8			1.8	10	3	18
2010	17						16	1	16
average	17					2.3			

[Table 2.2] MSc Mechanical Engineering: International-student yield data (EU and non-EU). Reference date January 20th, 2012.

Tabel 2: Docentkwaliteit

titulatuur / BKO	MSc	PhD	BKO
Percentage	93%	76%	18%

Titulatuur en behaalde BKO certificaten wetenschappelijke staf Faculteit 3mE

Zie ook de voetnoot bij Tabel 3

year	number of students 3mE as per December 1 st	total staff 3mE [FTE] as per December 31 st	student/staff
2005	1,803	113.2	15.9
2006	1,914	126.2	15.2
2007	2,090	133.7	15.6
2008	2,308	133.3	17.3
2009	2,525	136.3	18.5
2010	2,633	137.8	19.1
2011	2,809	135.9	20.7

[Table 2.3] Student-staff ratio for the faculty 3mE. All degree students enrolled in any of the 3mE programmes have been counted. All scientific staff members (full, associate, and assistant professors and other lecturers) have been counted with respect to their total appointment within 3mE.

Note:

3mE lecturers provide education for both Bachelor's programmes (Mechanical Engineering and Marine Technology) and the five Master's programmes (ME, MT, MSE, S&C, BME and ODE). Because of the complexity of determining exactly who the providers of the attended courses are, and of determining exactly which students are attending the different courses, it has been decided to restrict the calculation of the student-staff ratio to the total student population enrolled at 3mE and to the total number of staff appointed at 3mE.

Tabel 4: Contacturen

Studiejaar	1	2
Contacturen	420	135

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- Prof. dr. J.K.M. De Schutter, professor in Mechanical Engineering, KU Leuven, Belgium;
- Prof. dr. ir. M. Vantorre, professor in Maritime Technology, Ghent University, Belgium;
- Prof. dr. ir. P. Van Houtte, professor in Material Sciences, KU Leuven, Belgium;
- Ir. G. Calis, Chairman Division of Mechanical Engineers of the Royal Institute of Engineers in the Netherlands, former manager of Stork group of companies;
- Ir. H. Grunefeld, Educational Development and Training, Centre for Teaching and Learning, Utrecht University;
- E.M. Porte, master student Mechanical Engineering, University Twente.

Het panel werd ondersteund door dr. B.M. van Balen, secretaris (gecertificeerd).