

Besluit

Besluit strekkende tot het verlenen van accreditatie aan de opleiding wo-master Transport, Infrastructure and Logistics van de Technische Universiteit Delft

Gegevens

datum	Naam instelling	:	Technische Universiteit Delft
17 juli 2013	Naam opleiding	:	wo-master
onderwerp			Transport, Infrastructure and Logistics (120 ECTS)
Definitief besluit	Datum aanvraag	:	27 december 2012
accreditatie wo-master	Variant opleiding	:	voltijd
Transport, Infrastructure and	Locatie opleiding	:	Delft
Logistics van de Technische	Datum goedkeuren		
Universiteit Delft	panel	:	3 juli 2012
(001398)	Datum locatiebezoeken	:	3 en 4 oktober 2012
uw kenmerk	Datum visitatierapport	:	december 2012
O&S-UIT-706AEL\dt	Instellingstoets kwaliteitszorg	:	ja, positief besluit 21 november 2011
ons kenmerk			
NVAO/20132420/ND			

bijlagen

Beoordelingskader

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

Bevindingen

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

Inlichtingen

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

Standard 1, Intended learning outcomes

Transport has traditionally been considered a typical civil engineering discipline (road and railway engineering). Today, the domain Transport, infrastructure and Logistics (TIL) consists of many scientific and engineering disciplines, ranging from policy engineering, urban planning and regional economics, via transport network planning and design, traffic and transport engineering, mechanical engineering, control, ICT and applied mathematics, to human factors, traffic and travel behavior, and so forth.

TIL professionals work in a highly multidisciplinary and interdisciplinary environment, where they are increasingly required to look beyond their own specializations and justify their work not just in the light of their own expertise and peers, but also under the scrutiny of stakeholders from a much broader domain. This holds not just for practice but also for academia, in which transport is no longer dominated by civil engineers. The MSc programme TIL aims to offer a helicopter view and a common understanding of different engineering approaches and vocabularies applying a systems' approach. The deepening and broadening field of TIL asks for multidisciplinary and interdisciplinary transport engineers. TIL aims to educate these transport engineers.

The visitation committee observes that the final requirements of the TIL programme are well described and that they meet international standards of the domain of transportation, infrastructure and logistics. Also the academic level (MSc) is well defined. The visitation committee is of the opinion the TIL programme has high ambitions with its goal to offer an interdisciplinary studying 'transportation engineering'. The visitation committee however, observes that the interdisciplinary fundamentals of the programme are loosely described. The final requirement - able to work in an interdisciplinary setting - needs a more detailed description and elaboration. This objective should describe more clearly how the interaction between disciplines and integration of knowledge can be organised (with an own set of tools and theories on interdisciplinary studies). A more detailed elaboration will help the programme direction to make sharper choices regarding the content of the TIL programme.

The visitation committee assesses standard 1 for the master programme in Transport, Infrastructure and Logistics as satisfactory.

Standard 2, Teaching and learning environment

Students are well informed about the MSc programmes in Transport, infrastructure and Logistics. All modules give proper information on the intended learning outcomes, the content of the modules, the forms of education, assessment methods and the number of contact hours and hours of individual study.

All final qualifications are covered throughout the TIL programme by means of various didactical approaches, ranging from coursework (lectures) and individual practical work/assignments, to group assignments and projects. The visitation observes that there is a clear relation between the content of the programme and the final qualifications.

According to the visitation committee, the academic orientation of MSc TIL is made visible and operational in the curriculum.

Pagina 3 van 8 The content of modules and assignments meets master level standards. Students are satisfied with the balanced mix of research oriented components and practice oriented components (such as the projects and graduation work).

Students are satisfied with the methods of instruction used in the MSc programme in Transport, Infrastructure and Logistics. The visitation committee is positive about the mix of instruction methods used: lectures and tutorials, assignments, case studies, internships and thesis work. The central theme throughout the MSc programmes is to teach each student how to deal with open-ended and often poorly defined design problems creatively and effectively.

Students are satisfied with the way they are guided by the lecturers and informed about the program. Students are very positive about the way students in heterogeneous groups work together on assignments and projects. In these work groups students learn from each other by teaching each other. The visitation committee is positive about the way students are guided during their study and especially during their MSc thesis work.

The teaching staff are strongly embedded in research and practice. All staff members have an academic background and many are involved in projects that combine academic research and business practice. The TIL programme is delivered by a well-qualified staff.

The visitation committee is of the opinion that the facilities of Transport, infrastructure and Logistics are well-equipped and more than adequate in comparison to other (international) schools.

According to the visitation committee, the quality of the MSc programme in TIL is well-monitored by the programme management. Students play a vital role in the quality assurance system of the TIL programme. In 2010-2011 much work (in terms of quality assurance) has been done to overcome some weaknesses of the programme (feasibility, coherence of the programme and organisational setting within the three cooperating faculties). Measures to improve the programme have been implemented in 2011. Results of the changes cannot yet be ascertained, but it is plausible that the measures taken, contribute in a positive way to realising the objectives set for the new programme. According to the visitation committee, the programme direction is well aware of the sub-optimal organisational setting in which it has to operate (three cooperating faculties with their own autonomous policy making processes). The present learning environment of the MSc in TIL is the best that can be achieved under the present circumstances. The visitation committee has given the organisational aspects less weight in its final judgement than the realised quality of the programme (content, structure and quality of staff and facilities). The visitation committee assesses standard 2 for the BSc and MSc programme in Civil Engineering and the MSc programme in Transport, Infrastructure and Logistics as good.

Assessment practice in the MSc TIL programme is similar to the practice in the MSc CE. TIL students are assessed for each module they follow in the TIL programme. Modes of testing are oral or written examinations, a review, paper or report, or a combination of the former methods. MSc TIL has a number of arrangements in place to ensure that the learning outcomes are on a par with the quality standards set by the steering committee of the TIL programme. Graduation committees see to it that the final thesis is properly assessed.

Pagina 4 van 8 An extra safeguard for arriving at objective assessments, is the review of final thesis reports by the TIL Board of Examiners. According to the visitation committee, the assessment procedure guarantees that the thesis is being judged from different perspectives and that the final grade is as objective as possible.

The visitation committee is positive about the way MSc students of the programme in TIL are guided during their thesis work, the feedback students get during the process of graduation and the assessment procedure of the theses.

Overall, the MSc TIL was ranked 'good' by all alumni (on a scale: bad, moderate, good, very good). Among the points of critique and recommendations for improvement, alumni mentioned the relative lack of scientific depth. Both issues were the main motivations for the faculty to reorganize the programme in 2011.

The visitation committee studied seven MSc theses of the TIL programme. In all cases the visitation committee judged more or less the same as the examiners of the theses. In some cases the motivation for the judgement according to the assessment format could have been clarified in more detail. In general the visitation committee is satisfied with the grading of these theses. However, the visitation committee considers these theses with a mark of 8,5- 9 or above, as being scored too favourably. MSc TIL has set itself high goals regarding interdisciplinary (see standard 1). According to the committee, the TIL theses reviewed by the committee certainly meet MSc standards but do not yet show a sufficient top-level of interdisciplinary. Therefore, according to the committee, there is still room for improvement in order to reach the high goals set in standard 1. The high ambition of TIL should be reflected in the grading of the thesis work.

Het gesprek tussen de NVAO en het panel op 23 april 2013 heeft opheldering gegeven over de kritische kanttekeningen die het panel plaatst bij de realisatie van de interdisciplinaire ambities van het programma. Het panel heeft vertrouwen in de verbeteringen die in het academisch jaar 2011-2012 zijn genomen om op dit punt verbeteringen te realiseren. De opleiding is organisatorisch onder Civiele Techniek geplaatst. Daarnaast heeft een herstructurering van het programma plaatsgevonden. Het panel onderstreept dat het gaat om een opleiding met een uniek profiel dat een duidelijke meerwaarde heeft voor de arbeidsmarkt. De opleiding is gesitueerd in een goede en relevante onderzoeksomgeving die internationaal vooraanstaand is. De docenten participeren in dit onderzoek en verbinden onderwijs en onderzoek in het programma. Het programma is van hoog niveau en is duidelijk onderscheidend. Op grond van deze toelichting kan de NVAO het vertrouwen van het panel in de verbetermaatregelen volgen.

Aanbevelingen

De NVAO onderschrijft de aanbevelingen van het panel om de interdisciplinaire ambities van de opleiding sterker uit te werken. Deze interdisciplinaire doelstelling geeft de opleiding een uniek profiel dat een duidelijke meerwaarde vertegenwoordigt voor het werkveld. Met het panel moedigt de NVAO de opleiding aan om de interdisciplinariteit gestructureerd vorm te geven binnen het programma. Het panel vraagt om een betere werkdefinitie van interdisciplinariteit en van de wijze waarop integratie en interactie tussen disciplinaire inzichten tot stand worden gebracht. "The final requirement - able to work in an interdisciplinary setting - needs a more detailed description and elaboration. This objective should describe more clearly how the interaction between disciplines and integration of knowledge can be organised (with an own set of tools and theories on interdisciplinary

Pagina 5 van 8 studies)". De NVAO merkt daarbij op dat bij de vorige visitatie kritische opmerkingen van gelijke strekking zijn gemaakt.

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 13 mei 2013 naar voren te brengen. Bij e-mail van 27 juni 2013 heeft de heer T.P.J. van Drunen namens de instelling laten weten dat het voornemen geen aanleiding heeft gegeven tot het plaatsen van opmerkingen.

Op grond van het voorgaande besluit de NVAO accreditatie te verlenen aan de wo-master Transport, Infrastructure and Logistics (120 ECTS; variant: voltijd; locatie: Delft) van de Technische Universiteit Delft te Delft. 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 2019.

Den Haag, 17 juli 2013

De NVAO
Voor deze:

A handwritten signature in blue ink, consisting of a large, stylized 'R' followed by a horizontal line extending to the right.

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.

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 opleidings specifieke voorzieningen maken het voor de instromende studenten mogelijk de beoogde eindkwalificaties te realiseren	G
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.

MSc Transport, Infrastructure and Logistics

Table 7 Number of diploma's by origin

Cohort	TU Delft (=100%)	Other Dutch university (=100%)	HBO (=100%)	Other than Dutch higher education (=100%)	Drop-out of total number of students
2005-2006	17 85%			1 100%	3+0+0+0 15%
2006-2007	18 86%			7 100%	2+0+0+0 7%
2007-2008	14 56%	0	0	5 56%	4+1+0+3 21%
2008-2009	14 40%	0	0	1 17%	3+1+1+0 10%
2009-2010	1 3%	0	0	0	2+0+0+0 5%
2010-2011*					1+0+0+0 5%

Table based on VSNU data, reference date 1 October

* TU Delft data, reference date 31 August (end of year cohort)

Table 8 Teaching staff MSc TIL

Staff in the MSc TIL	Number of staff	Number of FTE
Full professor	11	9,2
Assistant / Associate professor	17	22,8
Senior lecturer	18	13,7

Table shows only key lecturers, employed at the faculties of CEG, TPM and 3ME. All modules are included.

For the MSc in Transport, Infrastructure and Logistics the ratio is: 1:2

Pagina 8 van 8 **Bijlage 3: panelsamenstelling**

- Prof. Dr. Ir. R.E.C.M. van der Heijden (chairperson , representative profession /discipline Transportand Logistics);
- Prof. Dr. J.W. Kamphuis (representative profession/discipline Civil Engineering);
- Ir. R.P. Mulder (representative profession/discipline Civil Engineering and Building Construction);
- S.M. Kleinendorst BSc (student member).

Het panel werd ondersteund door Drs. Ing. A.G.M. Horrevorts, secretaris (gecertificeerd).