

Besluit

Besluit strekkende tot het verlenen van accreditatie aan de opleiding wo-master Automotive Technology van de Technische Universiteit Eindhoven

Gegevens

datum	Naam instelling	:	Technische Universiteit Eindhoven
31 juli 2014	Naam opleiding	:	wo-master
onderwerp			Automotive Technology (120 EC)
Besluit	Datum aanvraag	:	22 oktober 2013
accreditatie wo-master	Variant opleiding	:	voltijd
Automotive Technology	Locatie opleiding	:	Eindhoven
van de Technische	Datum goedkeuren		
Universiteit Eindhoven	panel	:	22 juli 2013
(002121)	Datum locatiebezoeken	:	25 en 26 september 2013
uw kenmerk	Datum visitatierapport	:	27 november 2013
CvB 201311448794			
ons kenmerk	Instellingstoets kwaliteitszorg	:	ja, positief besluit van 6 mei 2014
NVAO/20142583/AH			
bijlagen			

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Aanvullende informatie

De NVAO heeft bij e-mail van 28 mei 2014 de instelling aanvullende informatie gevraagd over het bestaan van verwante opleidingstrajecten binnen de instelling. Bij e-mail van 28 mei 2014 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.

Advies van het visitatiepanel

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

This report provides an overview of the findings and considerations of the committee regarding the master's programme Automotive Technology at Eindhoven University of Technology. The committee based its judgement on information acquired from the critical

Pagina 2 van 7 reflection, a selected number of theses, the interviews during the site visit, additional reading material which was available during the site visit, and the digital learning environment. The committee found both positive aspects as well as points for improvement. After a careful consideration, it concluded that the master's programme Automotive Technology satisfies the requirements for accreditation.

Standard 1 : Intended learning outcomes

The committee studied the domain-specific framework of reference and is very positive about its clear link to the automotive industry. However, since this reference framework was initially designed in close collaboration with key automotive industry players united in the Hightech Automotive Systems (HTAS) Innovation Programme, which is now part of AutomotiveNL, it tends to limit the programme to searching for innovative processes beyond Dutch national borders. The committee therefore recommends that the programme links up its reference framework more explicitly to international developments. It thinks that this is a well-chosen vision for the programme, which matches the reference framework, and it would welcome an elaboration of this central vision. Nevertheless, it stresses that the domain-specific framework of reference is well formulated and clearly defined. It believes that the systems approach, which is identified as the central vision, could be further formalised and implemented throughout the programme. Further implementation of the systems approach would contribute to the programme's profile and orientation, as well as to its intended learning outcomes. The committee is convinced that the profile of the programme matches an academic master's level and argues that the balance between being research-driven as well as connected to the industry should be advertised more explicitly. The construction of an interdisciplinary programme in automotive technology, which has such a fine balance between research and industry, and derives from a systems approach, is a brave attempt to train engineers who are prepared for the future needs in the industry, according to the committee. It is very enthusiastic about this new, challenging programme and would like to support the management in continuing to develop and refine the programme's goals and vision. It believes that the intended learning outcomes are formulated adequately and fit the programme well.

Standard 2: Teaching-learning environment

The committee noticed that the curriculum has undergone continuous development over the past few years and believes that the curriculum is now nicely structured and that the intended learning outcomes are sufficiently embedded within the programme. With regard to the internship, however, it recommends implementing clear objectives and requirements to improve the procedure and assessment.

The teaching concepts and formats, which are based on the underlying notion that the bachelor student's perspective upon intake should develop into a professional attitude, are formulated adequately and contribute to the academic environment of the master's programme, according to the committee. In addition, it is impressed by the great laboratories that the students of Automotive Technology have access to.

The committee believes that the rather low intake numbers of the past few years can be related to several factors, such as the existence of an automotive track within the master's programme of Mechanical Engineering, the absence of a bachelor's programme in Automotive Technology, the master's programme is considered as a tough programme, it has a rather difficult bridging programme for students from higher vocational studies, it has frequently been counteracted regarding campaign issues, and it has witnessed an increase of international student fees and decrease of available scholarships. Nevertheless, the

Pagina 3 van 7 committee has faith in the expected growth of intake numbers in the near future. From next year onwards, there will be an influx of students from the new bachelor's programme Automotive Technology, the master's programme will advertise itself more actively within the university, and the new, personal approach of the Director of Education towards new applicants will stimulate international students especially to join the programme.

Despite the fact that the programme seems to house very motivated and enthusiastic students, the committee would like to stress that the course load should not increase any further; students already spend an average of 45-50 hours per week on their studies. Particularly the first semester with its mandatory courses is considered pretty tough, but the committee still thinks that the programme is feasible in general.

The committee is very positive about the relatively large number of international students in the master's programme. However, it would like to point out some deficiencies concerning international students that the programme must pay attention to: the possible difficulties of finding an internship in industry and struggling with extra costs in case of a delay in the graduation date. It is convinced that the programme has excellent teaching staff and praises their open attitude towards their students. Although it understands that teachers in the programme come from different departments and that the University Teaching Qualification (UTQ) demands a large time investment, it nevertheless recommends raising the UTQ target.

The student-staff ratio is adequate, and the committee is positive about the supervision of the quality assessment by the active Programme Committee. It appreciates the 'automotive lunches' as they seem to be fruitful sessions where new ideas are picked up.

Standard 3: Assessment and achieved learning outcomes

With regard to the assessment system, the committee believes that the Examination Committee should further implement a clear, explicit assessment monitoring system to improve the transparency while also reflecting on and developing its duties. For instance, the Examination Committee should compare the theses, examinations and internships with the outside world and not just accept that the teachers involved in the programme are carefully selected and therefore able to guarantee the quality of these 'products'. It is pleased to note that changes are already being planned, and a new Assessment Quality Assurance Committee will be formed. It also argues that all documents stating anything about rules and regulations should be translated into English and communicate them in a more proactive way. It suggests establishing an Industrial Advisory Board.

The committee studied a great variety of exams of a more than satisfactory academic level. Considering the thesis procedure, however, it has several recommendations to make: there should be detailed formal rules and regulations regarding the grading of the thesis, the process should depend less on peer reviews, the systems approach is worthwhile to be included in the process, and students should be provided with explicit criteria before they begin their final project. Nevertheless, the committee thinks that the rather informal but intensively coached thesis procedure of the past few years was of sufficient quality to guarantee a satisfactory final outcome.

The committee is satisfied with the overall level of the theses, and is very positive about the transition of the graduate students into their new careers; the entrance to the labour market in particular seems to work out rather well. The satisfaction expressed by the graduate students and the general level of the theses show that the learning outcomes are achieved.

Pagina 4 van 7 According to the committee, graduate students do match the requirements of an engineer who is able to work with a systems approach, integrating the different disciplines as necessary in a high-tech environment.

The committee assesses the standards from the Assessment framework for limited programme assessments in the following way:

Standard 1 (Intended learning outcomes): satisfactory

Standard 2 (Teaching-learning environment): satisfactory

Standard 3 (Assessment and achieved learning outcomes): satisfactory

General conclusion: satisfactory

Aanbevelingen

De NVAO onderschrijft de aanbevelingen van het panel, in het bijzonder die over een meer proactieve rol van de Examencommissie en het expliciteren en transparanter maken van de richtlijnen en beoordelingscriteria voor het afstudeerwerk.

Besluit

Ingevolge het bepaalde in artikel 5a.10, derde lid, van de WHW heeft de NVAO het college van bestuur van de Technische Universiteit Eindhoven te Eindhoven in de gelegenheid gesteld zijn zienswijze op het voornemen tot besluit van 23 juni 2014 naar voren te brengen. Per e-mail van 7 juli 2014 heeft de instelling laten weten geen opmerkingen te hebben.

De NVAO besluit accreditatie te verlenen aan de wo-master Automotive Technology (120 EC; variant: voltijd; locatie: Eindhoven) van de Technische Universiteit Eindhoven te Eindhoven. De NVAO beoordeelt de kwaliteit van de opleiding als voldoende.

Dit besluit treedt in werking op 31 juli 2014 en is van kracht tot en met 30 juli 2020.

Den Haag, 31 juli 2014

De NVAO
Voor deze:



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.

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

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

Tabel 1: Rendement

Cohort	2009	2010	2011
Rendement	62%	65%	-

Tabel 2: Docentkwaliteit

Graad	Ma	PhD	BKO
Percentage	100%	100%	12,5% *

**) alleen cijfer beschikbaar voor TU/e als geheel*

Tabel 3: Student-docentratio per 2011/2012

Ratio	
Fac. Elektrotechniek *	7,4 : 1
Fac. Werktuigbouwkunde *	20,7 : 1

** de betrokken toeleverende faculteiten*

Tabel 4: Contacturen op jaarbasis

Studiejaar	1	2
Contacturen	444	60

- ir. L. J. J. (Leo) Kusters MSc (chair), Managing Director TNO Transport and Mobility;
- ir. L. (Loek) van Seeters, Assistant Chief Engineer DAF Trucks/PACCAR;
- drs. M. J. H. (Kalinka) Grijpink–van den Biggelaar, Senior Educationalist, Faculty of Electrical Engineering, Mathematics and Computer Science, Delft University of Technology;
- prof.dr. L. (Lars) Nielsen, Full Professor in the chair Sten Gustafsson Professor of Vehicular Systems, Electrical Engineering, Linköping University, Head of Department of Electrical Engineering, Linköping University;
- W.R. (Roel) Brouwer BSc. (student member), master student of Mechanical Engineering, University of Twente.

The committee was supported by Mrs. J.J. (Jasne) Krooneman, MSc (certified) who acted as secretary