

Besluit

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

Gegevens

datum	Naam instelling	: Technische Universiteit Delft
31 augustus 2017	Naam opleiding	: wo-bachelor Electrical Engineering (180 EC)
onderwerp	Datum aanvraag	: 26 april 2017
Besluit	Variant opleiding	: voltijd
accreditatie wo-ba	Locatie opleiding	: Delft
Electrical Engineering	Datum goedkeuren panel	: 22 augustus 2016
Technische Universiteit Delft	Datum locatiebezoek	: 5 oktober 2016
(005650)	Datum visitatierapport	: 17 november 2016
uw kenmerk	Instellingstoets kwaliteitszorg:	ja, positief besluit van 21 november 2011

Beoordelingskader

ons kenmerk NVAO/20172169/ND
bijlagen 2

Beoordelingskader voor de beperkte opleidingsbeoordeling van de NVAO (Strct. 2014, nr 36791).

Bevindingen

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

Advies van het visitatiepanel

Samenvatting bevindingen en overwegingen van het panel.

Standard 1

The programme's name, Bachelor Electrical Engineering, matches its contents and corresponds to the names of similar programmes.

The panel approves of the objectives of this programme and welcomes its focus to train the students in this domain at the Bachelor level and to prepare them for a number of relevant Master programmes.

The panel is particularly positive about the Domain-specific Frame of Reference Electrical Engineering that the management of the Electrical Engineering programmes of the three Dutch Technical Universities drafted.

Pagina 2 van 6 This Frame of Reference presents a sound and insightful description of this domain and links Dutch Electrical Engineering programmes to authoritative international concepts, notions and trends. The intended learning outcomes meet the requirements of this Domain-specific Frame of Reference.

The intended learning outcomes of the programme meet the objectives, reflecting the thorough foundation in mathematics, physics, computer science, systems and models, in-depth knowledge of the Electrical Engineering subdomains, research skills, academic skills and social and ethical awareness. Though these last subjects are covered in the learning outcomes, the panel feels the programme being predominantly technically oriented. The panel recommends the programme management to continue their line of thinking on the modern T-shaped engineer and to fit the learning outcomes to these requirements.

The learning outcomes meet the requirements of an academic Bachelor programme and prepare students for relevant Master programmes. The participation of industry in the programme, as exemplified by, among others, the Industrial Advisory Board is satisfactory.

These considerations have led the assessment panel to assess standard 1, Intended learning outcomes, to be satisfactory.

Standard 2

The panel considers the admission requirements to be in line with legal regulations and the admission procedures to be effective in informing the applicants about the challenging nature of the programme.

The intended learning outcomes are met in the curriculum. The curriculum is regarded very positively by the panel, being up-to-date, highly focused and very coherently structured, allowing students to acquire in-depth knowledge of and skills in the Electrical Engineering domain. The projects in the curriculum place knowledge and skills in a broader perspective, introducing practice and training in a number of academic skills. The teaching tracks ensure the coherence of the curriculum.

The educational principle, combining theory and practice, is effective to promote the study pace. The study methods such as lectures, tutorials, lectorials, lab sessions and projects are consistent with this principle. The panel welcomes the new study methods, being introduced in the programme.

The mentoring system and the actions of the academic counsellor are effective in promoting student study progress. The panel welcomes the honours programme, as an opportunity for talented students.

The panel considers the student success rates in recent years to be appropriate and regards the various measures of the programme management in this respect to have been effective.

The panel thinks very highly of the lecturers in the programme, being renowned experts in their fields and the majority of them having BKO-certificates. The panel supports the plan of the programme management to appoint and recruit dedicated and recognized tutors for the projects. The students indicated to be generally satisfied with the lecturers' educational qualities.

Pagina 3 van 6 The panel regards the facilities in the programme to be adequate. Having visited some of the laboratories, the panel considers these to be up-to-standard, allowing students to participate in up-to-date education and research.

The panel noted that the programme management followed up on the recommendations, made during the previous assessment in 2010. Among others, the programme management improved the relationship with the professional field, identified the learning tracks in the curriculum more clearly, fostered the coherence of the curriculum and took measures to improve the student success rates.

These considerations have led the assessment panel to assess standard 2, Teaching-learning environment, to be good.

Standard 3

The panel regards the policies and procedures of the tests and assessments in the programme to be adequate. The policies are meant to ensure valid, reliable and transparent tests and assessments. Tests are drafted by at least two lecturers. Test matrices and rubrics are being implemented. The test methods are varied, being attuned to the learning goals of the courses. The assessment of the projects in the curriculum is elaborate, several tutors being involved in multiple assessments. The panel is satisfied with the procedures for assessing individual performances of students in these group projects.

The panel is positive about the position, responsibilities and duties of the Board of Examiners. This Board monitors the test and assessment procedures, looks into the quality of the tests and inspects the Bachelor graduation projects to verify whether students have achieved the programme intended learning outcomes.

The assessment of the Bachelor graduation projects is regarded by the panel to be *appropriate, this being done by more than one examiner, on the basis of a set of relevant criteria*. The students' individual contributions in these group projects are being identified appropriately.

The considerations have led the assessment panel to assess standard 3, Assessment, to be satisfactory.

Standard 4

Having studied the tests of a number of courses, the panel concludes these to be satisfactory in breadth and depth and to reflect the learning goals. Not one of the Bachelor graduation projects, the panel studied, has been assessed as unsatisfactory. About 25 % of these projects are regarded by the panel to be graded slightly too high, whereas about half of these are assessed by the panel to be clearly of good to very good quality, being elaborate and exhibiting relatively high levels of knowledge and skills. In the panel's opinion, the graduation projects show the students to have achieved the intended learning outcomes of the programme and a substantial proportion of the students to have surpassed the required level. The figures on the graduates' follow-up education show that the graduates meet the demands of Master programmes and are able to continue their studies at Master level.

The considerations have led the assessment panel to assess standard 4, Achieved learning outcomes, to be good.

The panel assesses the Bachelor programme Electrical Engineering of the Delft University of Technology to be good and recommends NVAO to grant re-accreditation to this programme.

Besluit

Ingevolge het bepaalde in artikel 5a.10, derde 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 10 juli 2017 naar voren te brengen. Van deze gelegenheid heeft het college van bestuur geen gebruik gemaakt.

De NVAO besluit accreditatie te verlenen aan de wo-bachelor Electrical Engineering (180 EC; variant: voltijd; locatie: Delft) van de Technische Universiteit Delft te Delft. De NVAO beoordeelt de kwaliteit van de opleiding als goed.

Dit besluit treedt in werking op 31 augustus 2017 en is van kracht tot en met 30 augustus 2023.

Den Haag, 31 augustus 2017

De NVAO
Voor deze:

bla 

Dr. A.H. Flierman
(voorzitter)

Paul 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.

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.	voldoende
2. Onderwijsleeromgeving	Het programma, het personeel en de opleidings specifieke voorzieningen maken het voor de instromende studenten mogelijk de beoogde eindkwalificaties te realiseren.	goed
3. Toetsing	De opleiding beschikt over een adequaat systeem van toetsing.	voldoende
4. Gerealiseerde eindkwalificaties	De opleiding toont aan dat de beoogde eindkwalificaties worden gerealiseerd.	goed
Eindoordeel		goed

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

Pagina 6 van 6 **Bijlage 2: Panelsamenstelling**

- Prof. ir. A. van Ardenne, strategic advisor ASTRON, director Ardenne Consultancy (panel chair);
- Prof. dr. D. De Zutter, professor Electromagnetics, Ghent University (panel member);
- Dr. C. van der Klauw, director of the research activities and programmes, Philips Lighting (panel member);
- E. Leo BSc, student Master programme Educational Sciences, University of Amsterdam, (student member).

Het panel is ondersteund door drs. W. Vercouteren RC, secretaris (gecertificeerd).