

# Report development dialogue BSc Computer Science and Engineering and MSc Computer Science

Delft, 27 June 2019

## Introduction

On 26 and 27 June 2019, the site visit of the assessment panel for the bachelor's programme Computer Science and Engineering and the master's programme Computer Science took place.

After the various rounds of panel discussions, the development dialogue took place on 27 June. In this report you will find a summary of this conversation between the programme and the committee.

The panel that assessed the bachelor's programme Computer Science and Engineering and the master's programme Computer Science consisted of:

- Em. prof. dr. T. (Theo) D'Hondt, emeritus professor in Software Languages and Software Engineering at the Faculty of Sciences and Bioengineering Sciences of Vrije Universiteit Brussel (Belgium) [chair];
- Prof. dr. ir. W.E.A. (Wim) Van Petegem, professor and policy coordinator Learning Technologies at the Faculty of Industrial Engineering Technology of KU Leuven (Belgium);
- Prof. dr. S. (Sjouke) Mauw, professor in Security and Trust of Software Systems at the Department of Computer Science of the University of Luxembourg (Luxembourg);
- A. (Tonny) Wildvank, owner and manager of the company Wildvank Management en Advies;
- B. (Baran) Erdogan, third year bachelor's student Computer Science at the University of Amsterdam [student member].

The panel was supported by M. (Mark) Delmartino MA, [Secretary] and P. (Peter) Hilderling [Educational Assessment Coordinator] of quality assurance agency QANU.

On behalf of TU Delft the development dialogue was attended by:

- Dr. W.P. (Willem-Paul) Brinkman, Director of Studies MSc CS
- Prof.dr. A.E. (Andy) Zaidman, Director of Studies BSc CSE
- Prof. dr. A. (Arie) van Deursen, Chair Department Software Technology
- Dr. J.F.M. Tonino, Director of Studies MSc ES, former Director of Studies MSc CS
- S. (Stefan) Hugtenburg, Teaching Team BSc CSE
- M.A. (Gosia) Migut, Teaching Team BSc CSE

## Teaching quality with high student numbers

The programme wants to develop methods to:

- provide student with personalised formative and summative feedback in all areas of the programme, including research skills;
- (digitally) assess students, also when it comes to group assignments and assignments that are made during several weeks;
- prevent fraud, specifically in graded group work.

## Reflections

Giving high quality education to large numbers of students entails a lot of responsibilities. Alternative learning technologies (blended learning, Weblab) are important to maintain and improve the education quality and extra mentoring and teaching classes will be necessary for guidance (teaching assistants, people managers). Together with the Extension School new technologies can be developed for large active group assignments and the latest techniques can be used (fraud detection in Weblab). This has to be embedded in thorough procedures which requires good communication skills and co-operation.

The large organisational change requires a lot of manpower. The teaching team provides support with help of teaching assistants and grading tools. Some courses are capped and this could be scaled up when necessary. It is very important to look at long term possibilities for scaling up.

### The International classroom

#### Questions bachelor CSE:

- What are potential study goals that could lead up to the international aspects of Intended learning outcome 6?
- Where can we embed them (in parts of) the curriculum?
- Which teaching and assessment methods should we use?
- Which role could Mentoring in the first year take to start students off?

#### Reflections by the committee

The programme wanted to create an international classroom. For the first year projects it was decided to mix all cultures. The panel notes that, according to the feedback of the students, the 50/50 division is appreciated. The programmes also have to be more international within the faculty. The following focus points are mentioned:

- a virtual classroom with virtual teams in several countries: this requires intercultural competences.
- courses for students to learn the Dutch language.
- a buddy system to connect a Dutch student to a foreign student.
- a structural interdisciplinary co-operation with other universities.
- a structural interdisciplinary co-operation with other faculties (law, psychology).
- an interdisciplinary co-operation within the scientific field (scientists and students).
- more co-operation within industry areas (minor entrepreneurship, start-ups).
- more business-like topics in the program (student's requests).
- multidisciplinary assignments within larger groups in the programme.

### The CSE Teaching Team as leaders of educational innovation

#### Questions bachelor CSE:

- How are responsibilities divided between teaching team members and scientific staff? Which responsibilities are shared and which not?
- How do we create an environment in which there is natural, shared ownership in course teams?
- How can we ensure that there is room for innovation in times of high workload? Also: How should members of the teaching team initiate educational innovation?

#### Reflections by the committee

The teaching team works well in bachelor's and can be extended to the master's. Scaling up is necessary quantitatively and qualitatively, and can be achieved by strengthening co-operation (instructional designers, contacts from industry areas, PhD candidates, Teaching and Learning services).