

**Development Dialogue concerning the bachelor's and the master's degree programmes
Physics, Applied Physics and Astronomy, University of Groningen.**

May 15, 2019 12.30-13.30

Programmes discussed:

Bachelor's degree programmes Natuurkunde, Technische Natuurkunde and Sterrenkunde

Master's degree programmes Physics, Applied Physics and Astronomy

Representatives of degree programmes:

Gerco Onderwater, Patrick Onck, Niels Bos, Rien van de Weijgaert, Reynier Peletier

Representatives of assessment panel:

Reinder Coehoorn, Margriet van Bael, Garrelt Mellema, Sjoerd Stallinga, Jeffrey van der Gucht

QANU:

Peter Hildering, Barbara van Balen

The following issues were discussed:

- Assessment and training of teamwork skills;
- Industrial internship;
- The profile of applied physics.

1. Multidisciplinary teamwork skills

During the dialogue it was explored whether it is possible to include multidisciplinary teamwork projects in the degree programmes of Physics, Applied Physics and Astronomy. It was suggested that the existing research cooperation with chemistry and mathematics could be used as a starting point. The most important aspect is that the goal of the project is interesting for the students.

It should not be difficult to define projects on the crossroads of disciplines, in which students from different programmes have to work together. There was some negative experience in the Faculty of Science and Engineering with the faculty-wide ethics course. That course was not very well evaluated by the students, as they did not find it useful. On the other hand, students do like to cooperate in competitive projects like the solar cars competition.

The assessment of the learning objective 'teamwork' was also discussed. A teamwork project is a collective responsibility. How can we assess whether the individual student has achieved the learning goal? Several suggestions were presented:

- Add a PhD student or a postdoc to the team, who can reflect on the contribution of all team members;
- Every student has to reflect personally on what has been achieved in the team;
- Define the team roles in advance;

2. Industrial internship

For the master's degree programme in Applied Physics as well as for the Instrumentation and Informatics specialisation in Astronomy, an industrial internship is a valuable component of the programme.

Some suggestions for the process were presented during the dialogue:

- Define the learning goals of the internship on the assessment form;
- The position and the project of the internship have to be scientifically challenging;

- Appoint an internal internship coordinator;
- Consider contracting companies for internship positions and recording in advance what the conditions for an internship are in the university's view.

3. Profile of Applied Physics

The student cohorts for Applied Physics are small. This has its advantages, but makes the programme vulnerable. It is a fact that students from the western part of the Netherlands do not come to Groningen for a master's degree programme, but bachelor graduates from Groningen do go to the Randstad for their master's programme. It could be beneficial for the promotion of the Applied Physics programme to define an attractive profile. Astronomy, for instance, has invested a lot in an outreach programme, which has resulted in increasing student numbers.

The focus in Applied Physics is now on advanced materials, which is in line with the expertise and research quality of the staff, but this could be promoted better. More possibilities to specialise could also be attractive for students from other universities. It was suggested to look from an outside perspective. What is the appeal of the research and subjects of Applied Physics Groningen? What is the societal need for which this programme can be the answer? According to the panel, Applied Physics in Groningen is special because of its position in a broad general university, with the possibility to change between two perspectives: fundamental and applied.