

Bachelor programme in Biosystems Engineering

Summary of judgement

This report provides the findings and considerations of the committee on the bachelor programme in Biosystems Engineering at Wageningen University. The assessment is based on information provided in the critical reflection, interviews during the site visit and a review of a selection of theses.

Standard 1: Intended learning outcomes

The bachelor programme in Biosystems Engineering and the master programme in Agricultural and Bioresource Engineering are in the domain of Biosystems Engineering. It is a science-based engineering discipline that integrates engineering science and design with applied biological, environmental and agricultural sciences. This leads to broadening the area of application of engineering sciences to the biological sciences in general, including agriculture. The programmes have chosen a systems approach. The international developments in agricultural engineering, in which biology plays an increasingly important role, are reflected in the objectives and profiles of both programmes. To match better the expectations, the name of the master programme was changed from Agricultural and Bioresource Engineering to Biosystems Engineering.

Similar to the master programme, the objective is to deliver academic professionals who are able to solve technology-related problems in the field of biosystems engineering. The differences in level and complexity between the bachelor and master programme are reflected in the intended learning outcomes. They are well thought out and show the importance of the systems approach and the academic orientation. The programmes meet international requirements for both the discipline and professional field, and they are closely related to the strategic themes of Wageningen University. In fact, the committee is of the opinion that the programmes in Agricultural and Bioresource Engineering (Biosystems Engineering) are at the heart of the university, and as such, should be protected.

Standard 2: Teaching-learning environment

For both programmes, the objectives and intended learning outcomes are reflected in the curricula, but the programmes in the domain of Biosystems Engineering are challenged as they are the only 'real' engineering programmes in Wageningen University. This means there is a limited choice of engineering courses and a dependence on sharing courses with other programmes less focussed on engineering. The committee is very positive about how the programme is kept up to date and in line with international developments in biosystems engineering. The choice for a systems approach puts slightly less pressure on offering a specialised engineering curriculum, but the committee is a bit concerned that the engineering part in the bachelor programme might be too focused on application, and not enough on design.

Overall, the programme has found several ways to offer a good teaching-learning environment despite the lack of a rich engineering environment. The minor in the bachelor programme offers students the possibility to specialise more in certain engineering domains at other universities. Also, the programme has a very good staff, strong and structured curriculum, and well organised student support.

Standard 3: Assessment and achieved learning outcomes

The Examining Boards are in the process of strengthening their role in ensuring the quality of assessment and seem committed to formalising the assessment system. Having only four Examining Boards is stimulating the consistency and equality of the procedures. However, these four Examining Boards are responsible for a total of 49 programmes, which might lead to a

certain distance from the programmes, making it difficult for the Examining Boards to really be in control at the programme level. The programme provided a balanced set of assessments and a transparent assessment system.

Most of the students who re-enrol after the first year complete the bachelor programme, but they take quite a long time to do so. Since students have been allowed to start master courses without finishing their bachelor programme first, this information does not give an accurate indication of the success rates. Most graduates chose to continue with the master programme in Agricultural and Bioresource Engineering, which is in line with the generally held view that a bachelor of science is more of a pivotal point to continue studying than a start qualification for a job. However, the committee believes that if the bachelor and master programmes in Biosystems engineering are to be seen as two distinct programmes instead of one, it is important to pay attention to preparation for the professional field in the bachelor programme as well.

The quality of the thesis work in the bachelor programme is reasonable for a 12-credit thesis. The committee suggests turning the bachelor research project into a design project. This would put more emphasis on design engineering and might prepare students better for the professional field.

Conclusion

The committee assesses the standards from the Assessment Framework for Limited Programme Assessments in the following way:

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Standard 1: Intended learning outcomes	good
Standard 2: Teaching-learning environment	satisfactory
Standard 3: Assessment and achieved learning outcomes	satisfactory
General conclusion	satisfactory