

## Institutional accreditation 2014

### Overall assessment and recommendation

Technical University of Denmark (DTU) is actively involved in quality assurance and development of education and teaching. In its work on the accreditation process, the accreditation panel encountered a university where responsibility for—and a desire to ensure—development and ongoing improvement constituted a consistent theme. The educational coordinators and lecturers prepare the study programmes to align closely with the very latest research and with input from focus groups. Every study programme has a focus group where lecturers, students, and employers engage in close and ongoing dialogue on programme content and relevance.

The quality assurance of study programmes at DTU comprises three main tools: the *development goals and measures* (UMV) process, the fundamental basis for administrative quality assurance processes at the Office for Study Programmes and Student Affairs (AUS), and the deans' knowledge and linking of all activities via ongoing dialogue with all key players.

For a number of years, DTU has focused on strategic management of the institution and the study programmes based on the Board of Governor's strategy. The UMV process serves as the implementation tool for the strategy and involves action plans and follow-up reports. The strategy is supported by policies: the quality assurance policy, the educational policy, and the study environment policy. The quality assurance policy sets out the overall objectives of the quality assurance work throughout DTU. The educational policy serves as a basis for development and improvement of the study programmes in that it "defines the approach to teaching and is reflected in the behaviour and performance of the staff". Based on the educational policy, the main objective of the study environment policy is to ensure that DTU is "an attractive place to study with attractive research and learning environments for both students and lecturers". A study environment committee is responsible for following up on the study environment policy.

DTU's development contract with the Danish Ministry of Higher Education and Science (UFM) also constitutes a central development tool. The objectives defined in the development contract and the strategy form the basis for the UMV work. The UMV process provides the institution with a tool for ensuring coherence in the implementation of strategic decisions—from the Board of Governors, through the Executive Board, to departments and individual researchers or lecturers—and for gathering and communicating information from the programmes via the departments to the Executive Board and, ultimately, the Board of Governors. The UMV plans and reports prepared at departmental level are therefore the result of a clearly structured and continuous follow-up and dialogue on the departments' strategy work and the objectives set out in the development contract.

The deans serve as the main link between the Executive Board and the rest of the organization. Thus, they participate in various activities related to cross-institutional coordination at DTU, including advisory committee meetings with heads of studies and departmental study committee representatives. These meetings are intended to ensure that cross-institutional activities share a common goal.

All DTU activities are governed by the overarching management philosophy described in the *DTU Leadership Foundation*. Self-management is a core value, requiring that "the employees have the responsibility and the courage to act on this responsibility to do things a little better every time they

face a new task.” The accreditation panel has seen a strong quality culture at the institution in the form of a general commitment among the employees to continually improve programmes and courses. Lecturers and management give serious consideration to student feedback provided through course evaluations, surveys, or direct dialogue. The same applies to external stakeholders with whom DTU maintains an ongoing dialogue via an overall Employer Panel and Advisory Boards set up at every DTU department. DTU is also working to strengthen this ongoing dialogue by establishing focus groups for each study programme. The focus groups consist of lecturers, students, and employers. In 2014, all DTU study programmes had established focus groups to ensure continuous development of the programme.

The advisory committees, the departmental study committees, and the heads of studies are supported by AUS, which is the joint administrative body. AUS establishes procedures for all activities contributing to ensuring the quality of study programmes. AUS also collects statistical key figures related to study programmes and processes them for further use by deans and heads of studies in the StudielederNet platform. AUS supports and promotes the implementation of all study programme activities related to the curriculum and systematic development of the programmes, including commencement of studies evaluations, first-year evaluations, annual meetings with the external examiners’ chairmanship, and study environment and graduate surveys.

The study programmes form part of a matrix structure, where the heads of studies are responsible for the development and quality assurance of the study programmes, while course development is handled by the departmental study committee and the chairman of the board of studies. The heads of studies are appointed by and report directly to the dean, whereas the boards of studies are affiliated with the departments and report to the deans and the Executive Board via the UMV process. In this context, the deans play a central role in striking a balance between the interests of the heads of studies and the departmental study committees.

DTU provides the knowledge base for the study programmes. The programmes and the teaching build on a knowledge base corresponding to the level at which the programmes are offered, and the knowledge base provides a solid foundation for achieving the respective goals of the study programmes. Virtually all lecturers on the engineering programmes (BSc and MSc programmes) are active researchers. 675 out of a total of 1,900 DTU researchers are members of the teaching staff, while the others participate in connection with student projects and assignments, thereby further strengthening the knowledge base of the study programmes.

The BEng programmes are organised on the basis of the Conceive, Design, Implement, and Operate model (CDIO model). It is intended to create a practical problem-solving and application-oriented focus in the teaching and to facilitate coherence and progression in the course of the programme. The concept has proven successful and also comprises the revised BEng programmes commenced in summer 2014, which were developed following the merger with the Copenhagen University College of Engineering—IHK. DTU’s focus in the revision of the programmes was to ensure and enhance the study programmes’ affiliation with the research environments and the business community.

DTU decides the level and content of the study programmes. Procedures have been established to ensure that the programmes reflect the specific goals defined for the individual programmes, and procedures have also been established for evaluating the programmes and individual courses and for following up on the results. This applies to BEng internships as well. Building and maintaining the pedagogical qualifications of lecturers also feature in the UMV process and the recruitment procedures.

When applying key figures, e.g. course evaluations or exam statistics, in connection with the individual programmes or courses, each quality assurance manager must assess whether quality is improving. The overall management philosophy describes individual leadership priorities as a key management tool. In practice, this requires an overview of the results from previous years which the study administration system does not sufficiently provide. Also, no standards have been adopted that may be included when making leadership priorities. Nevertheless, these challenges can be addressed due to the individual manager's qualifications to process data and commitment to quality assurance.

DTU is ready to assume full responsibility for study programme evaluations with external participants. DTU has experience with preparing and following up on previous programme accreditations according to a rota plan and with programme benchmarking in the Nordic Five Tech alliance (N5T), constituting an integral part of the programme evaluation procedure. In addition, DTU has experience with similar processes involving external panels in connection with continuous research evaluations, and an evaluation plan has been prepared for all DTU study programmes until 2020.

Programme relevance is established through dialogue with relevant stakeholders. The dialogue contributes to the development of the study programmes and their adaption to labour market needs, and to ensuring that the graduates acquire the relevant competences. The implementation of focus groups has contributed to the systematization of the dialogue on the individual programmes. Furthermore, procedures have been established to facilitate the evaluation and development of programmes based on graduate and employer surveys. DTU has a culture which encourages lecturers, course managers, and heads of studies to take responsibility for applying any input from external stakeholders in the ongoing quality development of courses and study programmes.

The procedure for developing new programmes states that it is firmly anchored in DTU's management, and that key external stakeholders, including employers and, possibly, authorities, etc., must be involved in the development and evaluation of new study programmes.

The new employment statistics have provided DTU with a significantly better tool to continuously monitor the employment situation of graduates from the individual study programmes, thus ensuring the quality of the programmes. There are still programmes which are not included in a way that provides the necessary data. However, the establishment of focus groups affiliated with the individual programmes generally compensates for this. Furthermore, DTU's management focuses on the employment situation of the total population of graduates, and processes have been implemented to ensure continuous follow-up at an overall level.

In the opinion of the accreditation panel, DTU has a finely detailed and well-founded quality assurance system, and has proved that it functions in practice.

Based on the above, Technical University of Denmark is awarded positive institutional accreditation.

*Translated by DTU, May 2016.*