Proposal for new organisation of the engineering area at TECH
Background and vision

Since 1999, Aarhus University (AU) and Aarhus School of Engineering have collaborated with the common goal to strengthen engineering programmes in western Denmark. In 2008, Aarhus School of Engineering (ASE) was formally established as a joint platform for activities in the technical area. In 2011, the Department of Engineering (ENG) was established in connection with establishment of the new Faculty of Science and Technology. In 2012, Aarhus School of Engineering and AU merged. This is the basis for the organisation we know today, in which development-based activities and Bachelor of Engineering programmes fall under ASE and research activities, and Master of Science in Engineering degree programmes are part of ENG.

In 2016, the AU board adopted the Engineering 2025 initiative, which launched an ambitious expansion of the engineering area with a view to meeting the high demand in society for more engineers and more technical research. Engineering 2025 was also testament to the increasing importance of the engineering and technical areas at AU. The division of the Faculty of Science and Technology into two faculties on 1 January 2020 was made with the aim to, among others, ensure continued development of the engineering area.

The establishment of a new Faculty of Technical Sciences (TECH) created a basis for stronger focus on the engineering area, and this has also been an important step towards realising the ambitious growth plans in Engineering 2025, as well as the vision that AU is to be among the top 100 in the world for education, research and innovation in the engineering area.

The potential to realise this vision is in place. Today, AU offers the best Bachelor of Engineering programmes in Denmark, and with the lowest unemployment rate. Furthermore, Engineering 2025 has initiated extensive work to develop and strengthen the MSc in Engineering programmes and research in the technical area. Since the adoption of Engineering 2025, nine new engineering study programmes have been opened, and 76 new academic staff members (VIPs) have been appointed across the engineering disciplines. There are plans to further develop the academic environments and increase admissions to both Bachelor and MSc engineering programmes.

The present is the background for the consultation process with a deadline of 1 September 2020. While a formal hearing of the authorised parties is conducted, there is also an aspiration to include input of the employees in order to shape the new departments. Therefore, an involvement process will run parallel to the consultation process.

Arguments for the new organisation

With the establishment of TECH – and further to developments that engineering at AU has already undergone – the Dean's Office at TECH has decided to initiate a process that will lead towards a new organisation of the engineering area. The engineering area at AU has grown and must continue to grow. The growth laid out in Engineering 2025 is no longer deemed to be adequate to support this development in the existing organisation with parallel academic environments at ASE and ENG.
Realising the great potential in the engineering area requires that the university intensify collaboration on education, research and development, and it must strengthen and merge the academic environments to ensure synergy between staff at ASE and ENG. This in turn requires a new organisation based on the disciplines in the technical area, rather than the current organisation, which is based on the distinction between development-based and research-based activities.

Therefore, a vertical organisation is proposed, with four new departments:

- Department of Biological and Chemical Engineering
- Department of Electrical and Computer Engineering
- Department of Civil and Architectural Engineering
- Department of Mechanical Engineering

This proposed organisation should be considered in light of the following arguments:

**A stronger educational area**

Gathering the academic environments across ASE and ENG within new departments will mutually benefit Bachelor and MSc programmes. AU offers Denmark’s best Bachelor of Engineering programmes with the lowest employment rate in the country. This is the result of continuous development and committed efforts by staff. This must continue and a defining factor in the future development will be to be able to bring Bachelors of Engineering closer to the research environments.

The academic environments at ASE have many years of experience in developing and running well-functioning degree programmes with a good reputation in the industry. This means that they have the ability to elevate the students and allow them to get an engineering education. This experience can be brought into new departments, and support didactic enhancement of the new MSc in engineering programmes.

The academic environments at ENG is in the midst of a massive recruitment initiative to attract international researchers. The high standard of the research environment contributes to a high academic level of the MSc programmes. The vocationally oriented and development-based approach of the Bachelor of Engineering programmes will contribute to the development of the MSc programmes, and similarly the research-based approach of the MSc programmes can strengthen the Bachelor programmes. In other words, there will be better conditions for mutual exchanges of expertise while maintaining the specific characteristics of the two types of programme, both of which are pivotal in meeting labour-market demand for engineers.

Finally, it should be noted that the proposed organisation establishes a better framework for utilising teaching resources across the existing departments and any co-teaching between Bachelor and MSc programmes. This can also help to free up resources for research and development. It will still be necessary to recruit VIPs to cover both job structures.

**Synergies between research and development**

Synergies between research-based activities and development-based activities will not only strengthen the educational area. In the funding landscape, projects increasingly contain research elements as well as development and innovation elements. This also calls for extended collaboration between the competencies
built up at ASE and ENG, respectively. It is therefore expected that – through a new organisation for the engineering area – TECH can strengthen the synergy between research and development, submit more applications, and have a higher success rate for applications. In this way, it is expected that ASE employees will be given a basis on which to prioritise more development and research work, and that this can be realised in close collaboration with the research environments.

By consolidating the academic environments so that they to the greatest extent possible can hold both research and innovation and development a greater appeal to the industry will appear. This will make it possible for AU to realise its strategy of being the preferred partner to the industry. When it comes to entrepreneurship and innovation it is expected that the wider subject knowledge that appears by consolidating employees and competences from ASE and ENG will have a positive effect.

**Stronger profile and visibility for the engineering area**

Bringing together the academic environments across ASE and ENG in a structure that reflects the classic technical disciplines will enhance the depth and breadth of the academic field. Sharper academic boundaries at department level will provide a better basis for collaboration and synergy between staff, stronger management focus and a stronger profile, as well as visibility for all the technical area. The stronger profile for engineering at AU will be characterised by strong academic environments with overlap and synergy between research-based activities and vocationally oriented and development-based activities.

The stronger profile and visibility will also forge a stronger basis for recruiting teaching staff, researchers and students, and this is crucial for achieving the ambitious growth goals for the entire engineering area. The intention is also to create more recognizable and meaningful portals for external stakeholders, who are typically looking for expert, professional dialogue and collaboration with engineers.

**Buildings and research, development and teaching facilities**

In the long run the engineering area will be more visible on campus. More space is expected to be freed up by sharing laboratory and teaching facilities to a greater extent with a vertical and academically based organisation. Thus, it is expected that new academic synergies will be reached as well as the optimisation of the use of facilities by sharing laboratories and teaching facilities to a greater extent. In the short and long terms, a new organisation can secure better physical location of the academic environments. In the long run the engineering area is able to be placed in the existing campus plan. Up to the realisation of Campus 2.0, there will be space for the various academic environments to move together, and this will ensure greater academic integration than today. The Department of Civil and Architectural Engineering and the Department of Mechanical Engineering will be placed together at Navitas in the short term. In connection with the realisation of Campus 2.0, the two departments will relocate to Katrinebjerg. The Department of Biological and Chemical Engineering will be located on Gustav Wieds Vej. The Department of Electrical and Computer Engineering will be located at Katrinebjerg in the immediate vicinity of the digital education and research environments at NAT and Arts.
Proposed new organisation

On the basis of the above, it is proposed to close down ASE and ENG and instead set up four new departments covering the four classic disciplines within engineering science. At ASE, these disciplines exist as subject areas, each with its own development manager and group of teaching staff. At ENG, the disciplines are research areas with affiliated heads of section and research groups. In other words, parallel academic environments have been built up within the engineering disciplines.

The aim of the new organisation is to bring together these academic environments across ASE and ENG in four new departments. Thus, we will move from a horizontal organisation, with parallel academic environments, to a vertical organisation, in which activities and academic environments are consolidated within the four engineering disciplines, see the illustration below.

From horizontal organisation to vertical organisation

The existing structure of ASE and ENG means that, to a large extent, it is fairly obvious how to place employees in the proposed new departments. The same applies for degree programmes at ASE and ENG, and the table below shows where these are proposed to be placed, and the number of students (as of April 2020) and employees (VIPs and TAPs).

Proposed placing of study programmes in the four new engineering departments:
A number of employees at ASE and ENG have not been placed under the academic areas, as they are responsible for functions that go across departments. In this context, joint functions include parts of department secretariats (see the next section), workshop operations, student guidance, “Research and test facilities” and “Business Relations and Partner”. Hourly-paid staff (DVIPs/DTAPs) have not been included. In addition, there is the ASE department Admission course, with responsibility for admission courses and supplementary courses. In the planned involvement process the placement of these functions will be subject to further consideration.

Proposed organisational structure for new departments

If a vertical organisation of the engineering area is to be set up, the departments should organised with focus on ensuring synergy in the educational area as well as integration between research and development. At the same time, a structure will be established to support joint tasks in areas where this is most appropriate. The proposed organisational structure of the new departments is shown in the figure and described in more detail below.

Proposed organisational chart:
Management and administration
The new departments will be established with the senior management comprising a head of department, a deputy head of department for education and a deputy head of department for development and innovation.

Department secretariats will be established at each department. However, it will be appropriate to have some functions and tasks performed jointly across the departments, either permanently or during a transitional period, in order to ensure that the secretariats have all the necessary competences. It should not be ruled out that certain tasks could best be done at faculty level. The organisation of inter-departmental collaboration and the identification of which tasks should be done where in the short and long terms will require additional consideration, and will thus be qualified in the future process.

Committees
In line with the current organisation, a number of committees will be established at each department to support the department’s planning and coordination in a number of areas. It is proposed that the following committees be established as a minimum:

- Liaison committee
- Occupational health and safety committee
- Departmental forum
- Education committee
- Research committee
- PhD Committee
- Business committee

Sections
It is expected that the new departments will establish themselves with a number of sections which will unify VIPs in academic communities. There will be different needs and different preferences across academic areas. Therefore, it is likely that the department management team will be able to decide about the establishment of sections during 2021.

Board of studies and programme management
It is proposed to maintain a joint board of studies covering all degree programmes at TECH, as is the case today. In addition, it is proposed to appoint one director of studies for the engineering area, who will cover both the MSc in engineering degree programmes and the Bachelor of engineering programmes across departmental boundaries. The role of the director of studies for all engineering programmes will be extensive, but it has been assessed that it will be appropriate in order to ensure interdisciplinary/interdepartmental coordination in the organisation of degree programmes. The programme management will also require in-depth collaboration with the deputy heads of department for education, and this is why it is considered appropriate to have a director of studies cover both Bachelor programmes and MSc programmes.

Process
The current proposal for the new organisation of the engineering area has emerged after thorough debate at the TECH Dean's Office and with the involvement of senior management at ASE and ENG. The proposal has also been presented to and discussed by the faculty management team.

The board has been informed that a process will be initiated to reorganise the engineering area. The plan is to submit the final proposal for a new organisation to the board on 8 October 2020.

If the board approves the proposal, a new organisation will come into force on 1 January 2021.

To plan the process the expanded chairmanship of the Faculty Liaison Committee (FSU) worked as sounding board. In order to validate the proposed new organisation and the subsequent implementation towards the turn of the year, thorough employee involvement is very important – partly through a consultation process and partly through establishment of a number of working groups. It is a deliberate priority to implement a relatively short process in order to minimise the time of uncertainty regarding the future organisation.

**Consultation**

The consultation will be based on this proposal for a new organisation and it will take place in the period from June to the beginning of September. It will include:

- ASE and ENG: The LSU, board of studies and student organisations will be consulted.
- TECH and NAT: The FSU, FAMU, all departments and the Nat-Tech Administrative centre will be consulted.
- The faculty management teams at Health, BSS and Arts will also be involved.

The consultation responses will be reviewed by the project group and the steering committee, who will assess whether the responses give cause for changes to the proposed new organisation. The recommendation regarding the decision and the consultation comments will be discussed at the senior management team meeting on 8 October 2020.

The consultation will therefore include background, objectives and proposals for the overall structure, and the results of the consultation will be included in the basis for the board's decision.

**Involvement through working groups**

In parallel with the consultation, a number of working groups will be established in June, tasked with providing input for how the framework described in the consultation material can be realised if the AU board decides to implement a new organisation in accordance with the principles outlined – this with due consideration for any modifications arising from the consultation process.

The purpose of the working groups is to include employees’ competences and experience in the design and implementation of the new structure, and to ensure the best possible preparation and administrative support for a new vertical organisation.

Among others a number of working groups will be established that should respond to education as well as research, development and industrial cooperation in the proposed departments as well as administrative support and building facilities for education and research.