

NOKUTs tilsynsrapporter

# Civil Engineering, Mechanical Engineering and Instrumentation and Control Engineering

Bachelor Degrees in Engineering at Noroff University College (joint programmes with Teesside University)

November 2015



NOKUT 

NOKUT (Norwegian Agency for Quality Assurance in Education) is the controlling authority for educational activity at all Norwegian higher educational institutions. This is achieved, among other, through accreditation of new study programs. Institutions that provide higher education have different authorization to create new study programs. If an institution want to create a provision outside of its field of authorization, it must apply to NOKUT for accreditation.

<b>Institution:</b>	Noroff University College (joint programmes with Teesside University)
<b>Name of Educational provisions:</b>	Civil Engineering, Mechanical Engineering and Instrumentation and Control Engineering
<b>Degree/Credits (ECTS)</b>	Bachelor Degrees (180 ECTS)
<b>Mode of Delivery</b>	Campus/on-line, full time/part-time
<b>Expert Committee:</b>	Ph.d. Ian Smith, Head of School of Engineering and Built environment, Edinburgh Napier University Professor Gabriella Tranell, Norwegian University of Science and Technology Professor Kjell Gunnar Robbersmyr, University of Agder Senior Advisor Einar Meier University of Oslo Senior Advisor Mette Mo Jakobsen, The Norwegian Association of Higher Education Institutions
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## Introduction

The external quality assurance performed by NOKUT consists of evaluating the institution's quality assurance systems, accreditation of new provisions and revision of accredited provisions. Universities and university colleges have different self-accrediting powers. For an institution without self-accrediting powers to establish a provision in a certain cycle an application must be made to NOKUT.

Hereby NOKUT presents the accreditation report of Bachelor Degrees in Civil Engineering, Mechanical Engineering and Instrumentation and Control Engineering at Noroff University College (joint programmes with Teesside University). The expert evaluation in this report is part of the accreditation process following Noroff University College's applications for accreditation of Bachelor Degree in Civil Engineering, Mechanical Engineering and Instrumentation and Control Engineering submitted before the application deadline on 1<sup>st</sup> of February 2015. This report clearly indicates the extensive evaluation performed to ensure the educational quality of the planned educational provision.

Bachelor Degrees in Civil Engineering, Mechanical Engineering and Instrumentation and Control Engineering at Noroff University College (joint programmes with Teesside University) do not fulfil the conditions for accreditation in the Regulation concerning NOKUT's supervision and control of the quality in Norwegian higher education.



Terje Mørland  
Director general

Information on accreditation of educational provisions (in Norwegian):

<http://www.nokut.no/no/Norsk-utdanning/Universitet-og-hogskole/Akkreditering-av-studietilbod/Korleis-sokje-akkreditering/>

All of NOKUT's assessment are public and this assessment along with similar quality assurance reports are available electronically on our web pages [www.nokut](http://www.nokut.no).

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## 1 Information regarding the applicant institution

Noroff is one of Norway's largest private educational institutions. The institution consists of a university college, vocational schools, online studies and secondary schools. Noroff University College (NUC) is situated in Kristiansand and shares locations with a number of vocational studies, Noroff Secondary School and the central administration office.

NUC is a university college with accredited study programs. NUC must apply to NOKUT for accreditation of study programs of all cycles.

NUC has the following accredited study programs:

- Bachelor in Interactive Media (campus program) (180 credits), 2012
- Bachelor in Interactive Media (on-line program) (180 credits), 2012
- Bachelor in Digital forensics (campus program) (180 credits), 2012
- Bachelor in Digital forensics (on-line program) (180 credits), 2012

## 2 Description of procedures

NOKUT makes an administrative assessment to ensure that all basic conditions for accreditation are fulfilled as expressed in the Regulation concerning NOKUT's supervision and control of the quality in Norwegian higher education.<sup>1</sup> (Hereafter referred to as the Quality Assurance Regulation on Higher Education.) For applications that have been approved administratively, NOKUT appoints external experts for the evaluation of the application. The external experts have declared that they are legally competent to perform an independent evaluation, and carry out their assignment in accordance with the mandate for expert assessment passed by NOKUT's board, and in accordance with the requirements for educational quality as determined by the Quality Assurance Regulation on Higher Education.

Following their assessment, the expert committee shall conclude either with a yes or no as to whether the quality of the educational provision complies with the requirements in the Quality Assurance Regulation on Higher Education. NOKUT also requests that the expert committee advise on further improvements of the educational provision. All criteria must be satisfactorily met before NOKUT accredits an educational provision.

If the conclusion reached by the expert committee is negative, the report is sent to the applicant institution, which is then given three weeks to comment. Thereafter NOKUT decides whether the comments should be sent to the committee for additional consideration. The committee is given two weeks to submit the revised assessment. The director general then reaches a final decision about accreditation.

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<sup>1</sup> <http://www.lovdato.no/cgi-wif/ldles?doc=/sf/sf-20110127-0297.html>

### 3 Expert assessment

This chapter is the expert committee's assessment. The term "we" refers to the expert committee as such.

#### 3.1 Summary of report

Overall, the applications lack a clear structure and do not provide the necessary details to convince the reviewers that these will be satisfactory **bachelor** programmes in civil engineering, mechanical engineering or instrumentation and control engineering.

Several parts of the applications are repetitive and cut-and-paste from the civil engineering application to the two other applications. As a result, the applications appear to be too general and do not provide sufficient information as to how the study programmes will fulfil the criteria set out in the Regulations concerning supervision of the educational quality in higher education (Studietilsynsforordningen). The applications also lack sufficient justification of many of the choices made.

The expert committee has four major concerns regarding the proposed study programmes:

1. In our opinion, these are not true joint degrees, but outlines of an articulation process where students complete one year at Noroff and then transfer to another institution. The programme structures do not convincingly convey that the programmes are joint degree programmes. The consortium agreements included with the applications only demonstrate a willingness to cooperate on part of the institutions, but do not provide enough details about the actual cooperation. Satisfactory procedures for joint development and administration of the programmes do not seem to be in place.
2. From the applications, it is not evident that the proposed study programmes will comply with Norwegian National Curriculum Regulations.
3. There is no mention of the UK professional bodies (accreditation agencies) IET and IMechE in the documentation. Will the proposed joint degrees be accredited in the UK? It should be clear whether the UK degrees achieved by the Norwegian students would be fully accredited.

Moreover, Teesside University offers both BEng and Integrated Masters programmes (MEng). Are the MEng routes open to the NUC students as well as the BEng routes? Do the Teesside regulations permit this? If the route to MEng is open to NUC students, would the professional qualifications (e.g. CEng) of the NUC teaching staff satisfy the requirements of the UK professional bodies? It is unclear if the Norwegian students will remain with the same cohort that they join at Teesside (at the beginning of Year 2) for the duration of the programme, if the Teesside students are streamed BEng or MEng at the end of Year 2. It seems possible that the Norwegian students will mix with the English students, but neither be able to get the English MEng nor fulfil the National Curriculum Regulations back home. The students could well be disappointed if they are not able to join the MEng. The students would have to study two more years in Norway to get the master degree if they leave Teesside with a BEng (in comparison, students continuing at a UK university only have to study one additional year to be awarded the MEng degree). Some clarity is required so that the students know from the outset the pathway options open to them.

4. Furthermore, the academic environment associated with the programmes seem to be fragile in terms of both actual size and competence. The information provided in the applications regarding the academic environment's research and development work is deficient and NUC seems to lack a clear research strategy in the field of engineering.

Overall, the applications are very long, but fail to address the central issues (quality over quantity).

We do not recommend that the programmes should be accredited. The applications should be thoroughly revised to correct all the issues raised in this report. We strongly suggest that NUC spend more time developing the study programmes, and submit revised applications for approval at a later stage.

## **3.2 Basic prerequisites for accreditation (§ 7-1)**

### **3.2.1 Requirements assessed by NOKUT**

§ 7-1 (1) The following requirements laid down in the Universities and Colleges Act shall be assessed for accreditation:

- a) Internal regulations and governance
- b) Appeals committee
- c) Learning environment committee
- d) Education plan
- e) Diplomas and Diploma Supplement
- f) Quality assurance system.

### **Assessment**

The descriptions and justifications of how the basic requirements for accreditation are met are the same for all applications. The assessment is therefore the same for all.

Noroff University College (NUC) is regulated by bylaws, by instructions for the board and by regulations (general regulations and specific regulations for both the learning environment committee and the complaints committee), all dated January 2013. NUC's regulations are in accordance with the act relating to universities and university colleges of 1 April 2005 (hereafter "the Act"), except for the matters discussed below.

#### **a) Internal regulations and governance**

The following stipulations relating to NUC's board are not in accordance with the Act:

- According to the Act § 8-1, the board is the highest executive body and this needs to be stipulated in the bylaws (not in the instructions for the board). In addition, the board cannot be overruled by the general assembly; regulations of the Act precede company law. NUC's bylaws need to be amended accordingly.
- According to the Act § 8-1, representatives from students and staff are full members of the board with equal rights e.g. voting rights. Their rights cannot be limited to attend board meetings, speak and make proposals. NUC's bylaws paragraph 5 need to be amended accordingly.

#### b) Appeals Committee

The following stipulations relating to NUC's complaints committee are not in accordance with the Act:

- According to the Act § 5-1 (7) cf. §§ 4-7 (3), 4-8 (10), 4-9 (5) and 4-10 (4) and the regulation of 10 October 2005 on a national appeals body for appeals according to the Act, the national appeals body is the only body competent to process complaints on expulsion and exclusion, complaints on annulment of examinations or tests and complaints on cheating (as a second instance organ).

The NUC complaints committee is the only competent organ to process the abovementioned procedures as a first instance organ according to the same regulations. NUC's regulations on the complaints committee paragraph 3 need to be altered accordingly.

It is correctly stipulated that NUC's complaints committee is competent to process appeals as a second instance organ on other matters such as complaints on local admission, complaints on decisions regarding exemption from examination, complaints on approval of courses, complaints on procedural errors in exams and other matters the board refers to the complaints committee.

The complaints committee regulations paragraph 2 on the power of the administration to decide on appeals, constitutes in essence a reversal of a previous decision. Regarding the abovementioned matters where NUC's complaints committee is the only competent body according to the Act to decide as a first instance organ (and the national appeals body as a second instance organ), there is logically no possibility for NUC's administration to reverse a decision. NUC's regulations on the complaints committee paragraph 2 need to be amended accordingly.

#### c) Learning Environment Committee

The mandate for NUC's learning environment committee and its composition as described in in NUC's regulations paragraphs 13 and 44, is in accordance with the Act.

#### d) Education plan

As NUC has accredited studies on bachelor level and has not made any changes to their education plan in these applications, this criterion is not assessed here.

#### e) Diplomas and Diploma Supplement

The NUC diploma has a simple design, and includes the elements recommended by UHR.

With regard to UHR guidelines for [diploma supplement](#)<sup>2</sup>, some formal elements are missing: a diploma supplement for a joint degree should mention that this is a joint degree and the length of the period of study abroad should be mentioned.

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<sup>2</sup> [http://www.uhr.no/documents/Kort\\_versjon\\_mal\\_for\\_vitnemaal\\_og\\_vitnemaalstillegg.pdf](http://www.uhr.no/documents/Kort_versjon_mal_for_vitnemaal_og_vitnemaalstillegg.pdf)



The diploma supplements include a reference to the title “Høgskolekandidat” on page 4. This title is, since 2012, no longer part of the Norwegian degree system, and this reference should be deleted.

In addition, the diploma supplements states that “*Noroff University College is a private university college that has undergone external quality assurance by agency NOKUT in Norway in 2012 with satisfactory results.*” This is not the case, and the text must be removed (see assessment under f) in this section).

The learning outcomes listed on the diploma supplement for the Instrumentation and Control Engineering degree are not the same as those described in the application, and seem to belong to a cyber defence programme. The learning outcomes in the diploma supplement must be corrected so that they are identical to the learning outcomes in the application.

Another minor note is that NOKUT’s address is wrong.

Ernst V. Sundt’s title is spelled in three different ways on the transcript of records, the diploma and diploma supplement (rektor/rector/ректор). The correct spelling is “rektor”.

The diploma supplement from Teesside should be included with the application.

According to the documentation, the articulation is to the *IEng-accredited* BEng, with no mention of access to the *CEng-accredited* MEng. The diploma supplement should ideally specify the level of accreditation for the benefit of the Norwegian students (graduating with either BEng or MEng).

#### f) Quality assurance system

NUC’s quality assurance system will be evaluated by NOKUT for the first time during the autumn of 2015. As a consequence, the quality assurance system has not been not assessed as part of this accreditation process.

### **Conclusion**

No, the criteria are not fulfilled in any of the three applications.

NUC must:

- Amend NUC’s bylaws in accordance with the Act § 8-1, so that Noroff’s board is the highest executive body and cannot be overruled by the general assembly
- Alter NUC’s bylaws paragraph 5, in accordance with the Act § 8-1, so that student and staff representatives are full board members (with voting rights)
- Alter NUC’s complaints committee regulation, paragraph 3, in accordance with the Act § 5-1 (7) cf. §§ 4-7 (3), 4-8 (10), 4-9 (5) and 4-10 (4) and the regulation of 10 October 2005 on a national appeals body for appeals.
- Amend NUC’s complaints committee regulation paragraph 2, in accordance with the Act § 5-1 (7) cf. §§ 4-7 (3), 4-8 (10), 4-9 (5) and 4-10 (4), so that the administration’s competence to reverse previous decisions is limited to those matters where NUC’s complaints committee is a second instance appeals body.

- Amend the diploma supplements to include the period of study at a university outside Norway and the fact that the candidate has completed a joint/multiple degree.
- Check the diplomas, diploma supplements and transcript of records for inconsistencies, factual mistakes and spelling mistakes.

### 3.2.2 Requirements in applicable regulations and curricula

§ 7-1 (2) Requirements of applicable regulations and curricula set by the Ministry of Education and Research must be satisfied.

#### Assessment

The description and the justification of how the requirements of applicable regulations and curricula are met is the same for all applications. The assessment is therefore the same for all.

The admissions requirements must comply with the Norwegian admission regulations as dictated in “opptaksforskriften”. The text in all three applications is identical in this section but the reasoning only holds true for the civil engineering degree. The instrumentation and control engineering application refers to civil engineering and not instrumentation and control engineering. This is likely “copy and paste” from the civil engineering application. The admission requirements refer to “opptaksforskriften” and the National curriculum regulations for engineering degrees (rammeplanen)<sup>3</sup>.

According to the applications, the main entry requirements are as follows:

- Norwegian certificate of upper secondary education (generell studiekompetanse) with the added qualification criteria of specialization in natural science math (R1+R2) and physics (F1). In addition, the students have to document English language proficiency equivalent to level B2 in the Common European Framework of Reference for Languages.

Furthermore, the students can enter the programme through a variety of other routes, including the Norwegian “Tress” and “Y-vei”. The different routes to intake described in the applications are not clear, and the applicant must describe the different admission routes more clearly. The Norwegian Association of Higher Education Institutions (UHR) has approved guidelines for such routes in accordance with the National Curriculum Regulations.

The applicant states that the study programmes comply with the National Curriculum Regulations for engineering degrees, but does not describe how this is achieved. Therefore, the expert committee is not able to fully assess if the study programmes actually comply with the National Curriculum Regulations. However, we refer to the assessment in section 3.3 for the expert committee’s assessment of compliance with the National Curriculum Regulations.

The applications lack a description of when the students will start their studies and the frequency of intakes. The applications also lack a justification of the entry requirements.

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<sup>3</sup>

The applicant states that all three study programmes are in line with the UK professional body Joint Board of Moderators (JBM). However, JBM is only relevant for the civil engineering degree. The correct professional bodies for *mechanical engineering* and *instrumentation and control engineering* degrees are IMechE and IET, respectively. Professional body accreditation is well known among all UK institutions that offer engineering degrees, and the fact that the applicant has not provided the correct information makes the expert committee question how much Teesside University has actually been involved in the application process.

The descriptions and the justifications in the applications are not clear and must be clarified before the expert committee can make a new assessment. The texts must be adjusted to individually fit the three different study programmes.

## Conclusion

No, the criterion is not fulfilled in any of the three applications.

NUC must:

- Describe the admission criteria and account for how the admission criteria correspond to the Norwegian regulation - “opptaksforskriften”
- Describe the admission criteria according to the study programme in question and clearly describe the different possible entry routes
- Describe and account for how the three proposed study programmes fulfil the Norwegian National Curriculum Regulations for engineering programmes
- Refer to the correct professional UK body for the individual study programmes

### 3.2.3 Recruitment of students

§ 7-1 (3) The recruitment of students to the programme should be large enough to enable the institution to establish and maintain a satisfactory learning environment and a stable programme.

## Assessment

The description and the justification of the recruitment procedures is the same for all applications. The assessment is therefore the same for all.

The applicant describes an intake of 10-40 students. It is not clear if NUC intends to recruit 10-40 students each year for each of the three programmes, or if 10-40 is the total number of students for all three programmes combined. The expert committee is under the impression that NUC will recruit 10-40 students for each programme each year, and the assessment is based upon this.

It depends on the larger environment at NUC whether this is a realistic estimate and if this will support a good learning environment. The expert committee has been informed that NUC handed in applications for three engineering programmes and two data/computer programmes to NOKUT’s application deadline of 1<sup>st</sup> February 2015. The two data/computer programme applications will be evaluated by a separate committee and are not discussed beyond this point here. In the event that all the five programmes are accredited, NUC in theory plans an uptake of up to 200 students each year

divided between the different programmes. NUC should go through the economics and evaluate whether the plans are realistic for all five programmes: Is this student recruitment plan realistic considering administrative capacity, infrastructure and academic staff? Does the institution have the staff to support all these students?

The potentially large number of new students will have a dramatic impact on the learning environment. The implications for the learning environment are not discussed in the application and must be addressed. In addition, NUC plans to deliver the programme in several different ways (campus based or internet based, or a mix of the two; full time or part time). NUC must specify implications for the different groups of students in relation to the learning environment.

Moreover, the expert committee questions the argument that employees at companies and organizations will find the blended delivery of the programmes attractive as this only applies to the first year delivered at NUC. Considering the very basic content of the first year courses at NUC and the fact that these students will have to take a two-year leave of absence from work to continue at Teesside, we do not find the argument convincing.

In this part of the applications, the expert committee finds a number of inconsistencies within each individual application and between the applications and the consortium agreement. For example, NUC states under *student retention* that one of the main reasons for students dropping out of a programme is cost. At the same time, NUC's main strategy to avoid student dropout is the fact they charge student tuition fees. The expert committee fails to see how costs at the same time can be the major dropout reason *and* the main strategy for keeping students. Furthermore, under student recruitment, the applicant states that one of the main target groups for recruitment is students from the UK. In the consortium agreement, however, the UK market is explicitly marked as off-limits. NUC must proof read the applications and make sure that inconsistencies are corrected.

## **Conclusion**

No, the criterion is not fulfilled in any of the three applications.

NUC must:

- Justify the student recruitment plan in consideration to number of students, recruitment groups, administrative capacity, infrastructure and academic staff
- Justify more clearly the institution's strategy for assuring a good learning environment for the students, especially for internet-based and part time studies
- Revise the applications to ensure that inconsistencies are corrected

### **3.2.4 Agreements regarding professional training**

§ 7-1 (4) For programmes including professional training, there must be adequate agreements regulating material issues of importance to the students.

## Assessment

The study programme does not include professional training, and according to the application this criterion is therefore not relevant in this assessment. However, the expert committee questions how the applicant facilitates a close contact with the vocational field as required by the National Curriculum Regulations: “The study programmes must have close contact with relevant business and working life. The study programmes shall use laboratory work and practical training to show how technology may be applied and complement the theoretical part of the education. Practical training that awards credits and is relevant to the student’s technical specialisation, may make up part of elective courses or be part of his/her courses of technical specialisation with up to 10 credits.

## Conclusion

No, the criterion is not fulfilled in any of the three applications.

NUC must:

- Justify either how the study programmes facilitate practical training and close contact with the vocational field or include professional training in the programmes.

## 3.3 Plan for the programme (§ 7-2)

### 3.3.1 Programme name

§ 7-2 (1) The programme must have an appropriate title.

## Assessment

As the three study programmes have different names, the assessment under this criterion is individual. However, the expert committee would like to point out that the different applications often refer to another degree than the one in question. This is yet another example of inconsistency, and seems to be a result of cut and paste from the civil engineering application to the others. NUC must proofread its applications better.

*Bachelor of Civil Engineering/ Bachelor i bygg- og ingeniørfag*

The English name derives from and is identical with an already existing Teesside programme. The Norwegian name covers the programme profile and complies nicely with the English name. However, the correct English term is Bachelor of Engineering in Civil Engineering, and the programme name should be adjusted accordingly.

*Bachelor of Engineering in Mechanical Engineering/ Bachelor i Maskin Ingeniørfag:*

The English name derives from and is identical with an already existing Teesside programme. The Norwegian name complies with the English name. However, some of the courses do not fit well with the mechanical field at bachelor level - like for example rocket science. See section 3.3.3 for further assessment of this.

NUC should note that the correct spelling in Norwegian would be lowercase after Bachelor: Bachelor i maskiningeniørfag.

*Bachelor in Instrumentation and Control Engineering/bachelor i instrumentering og regulering ingeniørfag:*

The English name derives from and is identical with an already existing Teesside programme. The programme is strongly linked to and has a curriculum overlap with an electrical engineering programme at Teesside University. The programme corresponds well with the National Curriculum Regulations for engineering. The Norwegian name covers the programme profile and complies with the English name. However, the correct English term is Bachelor of Engineering in Instrumentation and Control Engineering, and the programme name should be adjusted accordingly.

## Conclusion

No, the criterion is not fulfilled in any of the three applications.

NUC must:

- Change the names of the study programmes according to both English and Norwegian standards and make them coherent for all programmes, and within the curriculum descriptions.

### 3.3.2 Overall learning outcome

§ 7-2 (2) The programme must be described with reference to learning outcomes, cf. National Qualification Framework for Lifelong Learning. The overall learning outcome for each programme, defined in knowledge, skills and general competence, shall be described.

Overall learning outcome listed in the applications:

#### *Civil Engineering programme*

##### *Knowledge*

- The candidate has extensive knowledge providing a holistic system perspective on the engineering profession in general, with specialization in the field of construction
- The candidate has a basic knowledge of mathematics, science, relevant social and economics and how these can be integrated in building scientific problem solving.
- The candidate should be focusing on building design, having knowledge of technology history, technology, engineer's role in society and the consequences of the development and use of technology.
- The candidate knows the research and development in the field of construction, as well as relevant methods and ways of working within the engineering profession.
- Candidates can update their knowledge in the field, both through information gathering and contact with communities and practice.

##### *Skills*

- The candidate can apply knowledge and relevant results from research and development to address theoretical, technical and practical issues in building trades and justify their choice.

- The candidate has professional digital engineering expertise, can work in relevant laboratory / field and master methods and tools as a basis for targeted and innovative work.
- The candidate can identify plan and implement building professional projects, assignments, tests and experiments both independently and in teams.
- Candidates can find, evaluate use and refer to information and technical material and present it so that it highlights a problem.
- The candidate can contribute new ideas, innovation and entrepreneurship through participation in the development and implementation of sustainable and socially beneficial products, systems and / or solutions.

#### *General Competences*

- The candidate has knowledge of environmental, health, social and economic impacts of products and solutions in their area of the building and put them in an ethical perspective and a lifetime.
- The candidate can convey building professional knowledge to various audiences both in writing and orally in Norwegian and English and can help to highlight the importance of technology and the consequences.
- Candidates can reflect on their professional practice, as well as a team and in an interdisciplinary context and can adapt it to the current employment situation.
- The candidate can contribute to the development of good practice by participating in discussions in the field and share their knowledge and experiences with others.

#### ***Mechanical Engineering programme***

##### *Knowledge*

- The candidate has basic knowledge of design and / or manufacturing, materials and knowledge of holistic systems and product development. The candidate has knowledge that contributes to the relevant specialization, width or depth
- The candidate has a basic knowledge of mathematics, science and relevant social and economics and how they integrate into the system and product development, design and production.
- The candidate has knowledge of the history, development and engineer's role in society. The candidate has knowledge of the consequences of the development and use of technology.
- The candidate knows the research and development, relevant methodology and work practices within their own disciplines.
- Candidates can update their knowledge in the field, both through information gathering and contact with communities and practice.

##### *Skills*

- The candidate can apply knowledge of mathematics, physics, chemistry and technology topics to formulate, specify, plan and solve technical problems in an informed and systematic manner
- The candidate master development methodology, and can use programmes for modelling / simulation and can realize solutions and systems.
- The candidate can identify, plan and implement projects, experiments and simulations, as well as analyze, interpret and use the data obtained, both independently and in teams.
- Candidates can find, evaluate and utilize technical knowledge in a critical way in their area and prepare it so that it highlights a problem, both written and oral

- The candidate can contribute new ideas, innovation quality management and entrepreneurship through the development and implementation of sustainable and socially beneficial products, systems and / or solutions.

#### *General Competences*

- The candidate has knowledge of environmental, health, social and economic impacts of products and solutions in their area and can put them in an ethical perspective and a lifetime.
- The candidate can provide engineering technical knowledge to various audiences both in writing and orally in Norwegian and English and can help to highlight the importance of technology and the consequences
- Candidates can reflect on their professional practice, as well as a team and in an interdisciplinary context and can adapt it to the current employment situation.
- The candidate can contribute to the development of good practice by participating in discussions in the field and share their knowledge and experiences with others.

#### *Instrumentation and Control Engineering programme*

##### *Knowledge*

- The candidate has extensive knowledge providing a holistic system perspective on the engineering profession in general, with a major in electrical discipline. The candidate has knowledge of electrical and magnetic fields, broad knowledge of electrical components, circuits and systems.
- The candidate has a basic knowledge of mathematics, science including electromagnetism and relevant social and economics and how these can be integrated in electro technical problem solving.
- The candidate has knowledge of the history of technology and development with emphasis on instrumentation and Control engineering, engineers role in society and the impact of the development and use of technology.
- The candidate knows the research and development within their field of study, and relevant methods and ways of working in the electrical field.
- Candidates can update their knowledge in the field, both through information gathering and contact with communities and practice skills.

##### *Skills*

- The candidate can apply knowledge and relevant results from research and development to address theoretical, technical and practical issues in the electrical field and justify their choice.
- The candidate has professional digital engineering expertise, can work in relevant laboratories and master the methods of measurement, troubleshooting methodology, use of relevant instruments and software, as a basis for targeted and innovative work.
- The candidate can identify, plan and implement technical engineering projects, assignments, tests and experiments both independently and in teams.
- Candidates can find, evaluate, use and refer to information and technical material and present it so that it highlights a problem.
- The candidate can contribute new ideas, innovation and entrepreneurship through participation in the development, quality assurance and implementation of sustainable and socially beneficial products, systems and solutions.



### *General Competences*

- The candidate has knowledge of environmental, social and economic impacts of products and solutions in their area and can put them in an ethical perspective and a lifetime.
- The candidate can convey electrical professional knowledge to various audiences both in writing and orally in Norwegian and English and can help to visualize electromagnetic technology's importance and consequences.
- Candidates can reflect on their professional practice, as well as a team and in a interdisciplinary context and can adapt their professional practice to the actual work situation.
- The candidate can contribute to the development of good practice by participating in discussions in the field and share their knowledge and experiences with others.

The overall learning outcomes should follow the overall learning outcomes as described in the National Curriculum Regulations for Engineering Education:

The wording of the learning outcomes descriptors is based on the approved Norwegian Qualifications Framework (NQF).

A candidate who has successfully completed a 3-year bachelor's degree in engineering shall have achieved the following total learning outcomes defined in terms of knowledge, skills and general competence:

### *Knowledge*

- The candidate has broad knowledge that provides an integrated systems perspective on engineering in general, with specialisation in his/her own engineering subject.
- The candidate has basic knowledge in mathematics, natural sciences and relevant social and economic subjects and about how these may be integrated in the resolution of engineering problems.
- The candidate has knowledge of the history of technology, the development of technology, the engineer's role in society as well as the consequences of the development and use of technology.
- The candidate is familiar with research and development work in his/her own field, as well as relevant methods and ways of working in engineering.
- The candidate is able to update his/her knowledge of the field, both by gathering information and through contact with professional communities and the practical field.

### *Skills*

- The candidate can apply knowledge and relevant results of research and develop work to solve theoretical, technical and practical problems in engineering and be able to give reasons for his/her choices.
- The candidate is digitally literate in engineering subjects, is able to work in relevant laboratories and masters methods and tools as a basis for goal-oriented and innovative work.
- The candidate is able to identify, plan and carry out engineering projects, tasks, trials and experiments both independently and in teams.
- The candidate is able to find, evaluate, use and refer to information and professional subject matter and present it in a manner that sheds light on a problem.

- The candidate can contribute to new thinking, innovation and entrepreneurship by his/her participation in developing and realising sustainable and socially useful products, systems and/or solutions.

#### *General competences*

- The candidate has insight into environmental, health-related, social and financial consequences of products and solutions in his/her field, and is able to put these into an ethical perspective and a life cycle perspective.
- The candidate is able to communicate knowledge of engineering to different target groups, both in writing and orally in Norwegian and English, and is able to contribute to making the significance and consequences of technology visible.
- The candidate is able to reflect on his/her own professional practice, also in teams and an inter-disciplinary context, and is able to adjust this to the relevant working situation.
- The candidate is able to contribute to the development of good practice by taking part in academic discussions in the subject area and share his/her knowledge and experiences with others.

Together with the Regulations and the accompanying notes, the National Guidelines for Engineering Education provide national standards and contribute to national coordination of study programmes and levels of programme options. The Guidelines also contain supplementary characteristics and indicators that ensure the quality of education in its implementation. Where there are defined learning outcome descriptors in these Guidelines they are to be followed. For the three fields of engineering in question here, there are learning outcome descriptors in the [guidelines](#)<sup>4</sup>.

### **Assessment**

#### *Overall assessment of all three programmes:*

By and large, the three sets of overall learning outcomes seem to be copied translations of the National Curriculum Regulations for Engineering Education - so in this respect they all comply with the Regulations. It is also evident that NUC has taken into consideration the National Guidelines for Engineering Education covering the different branches within the engineering field: The civil engineering programme and the mechanical engineering programme follow the learning outcomes for civil engineering and mechanical engineering, respectively. The instrumentation and control engineering programme follows the learning outcomes for the Electrical Engineering. However, the translations seems to be word by word from Norwegian to English, hence the language is not always precise as the sentences follows Norwegian sentence structure. We encourage NUC to use the official translation of the guidelines (see footnote 1).

The total learning outcomes are not well adapted to the specific engineering profiles at NUC. As a result, the learning outcomes are too general and would fit any engineering programme. The expert committee is aware that this is a problem for many programmes within engineering, but NUC should make an effort to make the learning outcomes their own and make sure that they reflect the course content better. Furthermore, the NQF and the National Curriculum Regulations for Engineering Education address Health and Safety (H&S) only on a very general level, for example in the learning outcome descriptors for civil engineering in the guidelines: *The candidate has insight into*

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<sup>4</sup> [http://www.uhr.no/documents/Nasjonale\\_retningslinjer\\_for\\_ingeni\\_rutdanning\\_ENGELSK.pdf](http://www.uhr.no/documents/Nasjonale_retningslinjer_for_ingeni_rutdanning_ENGELSK.pdf)

*environmental, health-related, social, and financial consequences of products and solutions in Civil Engineering, and is able to put these into an ethical perspective and a life cycle perspective.* Even so, the committee would have liked to see H&S included explicitly in the overall learning outcomes, as this is essential competence for working as an engineer.

#### Specific assessment of the individual programmes:

##### *Civil engineering*

The expert committee questions some choices of descriptors, such as *extensive knowledge* and *competent knowledge*. *Broad knowledge* would be a better descriptor, and would be in line with level 6 (bachelor degree level) of the National Qualification Framework (NKR).

On page 17 in the application, NUC states “(...) *the candidate knows the research and development in the field of construction as well as relevant methods and ways of working within the engineering profession*”. When we look at the course content, it looks like the focus is more on management of construction, yet NUC claims that graduates will have knowledge in R&D in construction. The expert committee has some concerns that the course is claiming more than it can deliver, in the range of graduate skills produced, because construction topics taught tend to focus more on management, than research and development. The committee would like NUC to comment on this.

##### *Mechanical engineering*

On page 17 of the application, the applicant states that the candidate should obtain basic knowledge of design and/or manufacturing. The National Curriculum Regulations for Engineering Education require that “the candidate has broad knowledge in construction and/or production, materials, and comprehensive systems- and product development, and other topics that contribute to relevant specialization or scope” and the intention is that the institution should make an active choice either between the two or to include both. If the institution chooses the latter, it should be clear if the students can choose their field of specialization. As of now, the learning outcomes cover all programmes of mechanical engineering and are not adjusted to fit the programme in question. Furthermore, it indicates specializations in the programme that are not evident in the rest of the application. The programme lacks a clear profile to support the learning outcomes. Dynamics, mechanics and materials are what NUC really specializes in, and this is not reflected in the overall learning outcomes. The overall learning outcomes are not reflected in the choice of the course content of the programme (see the expert assessment of § 7.2.3).

##### *Instrumentation and control engineering*

The programme content reflects its strong basis in electrical engineering. It is questionable if the differentiation in terms of specialized courses in the programme is enough to merit a degree title of *Instrumentation and Control Engineering* rather than *Electrical Engineering*.

As mentioned in the overall assessment, all three programmes lack a visible programme specific profile on the overall learning outcomes. Specifically for the Instrumentation and Control Engineering programme, the expert committee finds it questionable that an emphasis on control systems is not present.

## Conclusion

No, the criterion is not fulfilled in any of the three applications.

NUC must:

- Implement a programme specific profile into the learning outcomes that is in accordance with regulations and guidelines, but specific for the programmes offered by NUC.
- Comment on the focus on construction and/or management of construction in the learning outcomes for the Civil Engineering programme
- Comment on the focus on design and/ or manufacturing in the learning outcomes for the Mechanical Engineering programme
- Comment on the lack of focus on control systems in the learning outcomes for the Instrumentation and Control Engineering programme

### 3.3.3 Content and structure of programme

§ 7-2 (3) The following conditions shall correspond with and be adapted to the description of the learning outcome so that the learning outcome is achieved:

- a) Content and structure of the programme.

## Assessment

### Overall assessment of all three programmes:

This part of the three applications contains too much inconsistency for the expert committee to make a real assessment. As an example, the descriptions of the workload and credits of the specific courses contain a multitude of errors: The Structural Mechanics module of the Civil Engineering programme has a total of 220 hours workload, but the tutorial component alone is listed to contain 414 hours. The course *Engineering thermodynamics and heat transfer* is a 10-credit course according to the application, but according to the study plan it is 20 credits and only 200 hours workload (100 hours workload per 10 credits is far too little). These are only a few examples of the many inconsistencies between the study plan and application of the same programme, but also between identical courses given in two or all three of the programmes NUC has applied for accreditation of. Courses that give the same number of credits are expected to have roughly the same amount of workload.

This inconsistency makes the expert committee question the realism of NUC's plans, and whether the institution actually has the quality assurance and administrative capacity to run the programmes. The expert committee finds in particular the description and explanation on how the first year at NUC will be executed and organized to be incomplete. In this respect, the different modes of delivery (campus based or internet based, or a mix of the two; full time or part time), when and how the different courses will be taught etc. are aspects that should be addressed.

According to the Norwegian Curriculum Regulations for Engineering Education, all engineering degrees must have a minimum of 20 credits of mathematics during the three years of the programmes. In all three engineering programmes that NUC has applied for accreditation of, most of the mathematics is included in other courses without detailed description of how many course credits are in mathematics. Therefore, it is not possible for the expert committee to verify that the requirement of

a minimum of 20 credits in mathematics is met. NUC must clarify and explain how the students get enough mathematics at the proper level throughout the degree programme. The expert committee strongly suggests that NUC includes an introductory course in mathematics in the course portfolio, with reference to the regulations: “30 credits *common courses* consisting of basic mathematics, engineering systems thinking and introduction to engineering vocational practice and working methods. The common courses are shared by all study programmes”. “A course must have a scope of at least 10 credits”.

In addition, the National Curriculum Regulations for Engineering Education specifically state that all engineering degrees at bachelor level should have a bachelor project of 20 credits; “*A bachelor’s thesis is compulsory for all candidates and must be a part of courses of technical specialization with 20 credits. The thesis must be rooted in real problems from society and business life or research and development work, and contribute to an introduction to scientific theory and methods.*” One of the rationales behind this demand is that one longer and more comprehensive project is better suited to cater for the specific skillset the candidates are expected to acquire during the course of the project, rather than several smaller and limited projects. In all three applications, the bachelor project is set to only 15 credits with the explanation that many of the skills concerning research and independent learning is included in different courses in Group Design. NUC offers no explanation as to *how* this is achieved, other than simply state that it is so. For the Instrumentation and Control engineering programme, no course in Group Design is scheduled for the year 2 and 3 modules according to Teesside University’s webpages (A course in Group Design Project (Electronics and Control) is scheduled for the first year module). For the Civil Engineering degree, there is a Group Project course scheduled for both the year 2 and 3 module – but still it is not evident that this would compensate for the missing 5 credits. For the Mechanical Engineering degree, a Group Project course is scheduled for the year 2 module – but again, it is not evident that this would compensate for the missing 5 credits. The expert committee is therefore not convinced that the missing 5 credits of the bachelor project is compensated for in different Group Project courses, and hence do not see that the requirement of a bachelor project that can be evaluated as one 20 credits thesis is met.

Furthermore, one of the skills an engineering candidate should acquire according to the National Curriculum Regulations for Engineering degrees is to be able to communicate both written and orally in Norwegian. Again, there is a rationale behind this demand – namely that the working engineer should be able to effortlessly communicate with both colleagues, clients and the society at large concerning engineering questions in a Norwegian working environment. The expert committee questions how this is achieved when all the teaching is in English.

The first general competence listed in the overall learning outcomes in all three applications is that the candidate “(...) *has knowledge of environmental, health, social and economic impacts of products and solutions in their area and can put them in an ethical perspective and a lifetime*”. Although this corresponds well with the National Curriculum Regulations for Engineering Education, the expert committee cannot see that the ethical aspect and the life cycle perspective of all these areas are well implemented into the course portfolio. NUC must clarify and justify how the ethical aspect and life cycle perspective of environmental, health-related, social, and financial consequences of products and solutions is addressed throughout the degrees.

Specific assessment of the individual programmes:

*Civil engineering*

The programme has been approved by the JBM, which makes the expert committee confident that the content of the programme is well balanced and covers what is expected of a bachelor programme in civil engineering. With the exceptions mentioned in the overall assessment above, the content of the programme fits the learning outcomes well, and all aspects are covered in the proposed courses.

*Mechanical engineering*

There is an inconsistency between described learning outcome and selected/given courses. According to the regulations, there should be 30 credits *elective courses* that contribute to academic specialization, in either breadth or depth (Ref. section 3.3.1). E.g., the course Rocket Science might be such an elective course, but this course is not a natural choice either as part of *programme courses* or *technical specialization courses* given mechanical engineering as study area, and the chosen learning outcome within this broad area.

In the application, Fluid Mechanics is described as a course given by NUC, whereas in the study plan it seems like Teesside is giving this course under the name Fluid Mechanics and Electrical Principles. Which is correct?

This is the only application where laboratory sessions are mentioned explicitly, but the laboratory sessions are very poorly described. It is not specified how many credits the laboratory session contain and what the laboratory session consists of. In order to fulfil the requirements of the National Curriculum Regulations, NUC must clarify what the laboratory session consists of and what the students are supposed to learn during these sessions for all three applications.

*Instrumentation and control engineering*

At Teesside University, *Instrumentation and Control Engineering* and *Electrical and Electronic Engineering* has a common first year after which the students can choose either specialization. The learning outcome reflects this, and is heavily weighted towards the electrical field - rather than towards the field of instrumentation and control engineering. The learning outcome *could* fit an instrumentation and control engineering programme, but it fits an electrical engineering programme even better. The expert committee would like to see that the learning outcomes stress the instrumentation and control engineering aspect more, so that it would not be read as a (mainly) electrical engineering programme.

## **Conclusion**

No, the criterion is not fulfilled in any of the three applications.

NUC must:

- In detail justify how the demands in the National Curriculum Regulations for Engineering Education is fulfilled, in particular concerning the number of credits allotted to mathematics, statistics and bachelor projects in the three programmes - but also how Norwegian communication skills are covered in an all-English programme. The expert committee strongly suggests that NUC develops thread diagrams to verify that all the demands are met.

- Quality assure the study plans and applications for inconsistencies, in particular connected to credit points per course and the associated workload, when and where different courses are taught and who is responsible.
- Integrate the ethical and life cycle aspect more visibly, both related to environmental, health-related, social and financial consequences of products and solutions.
- Clarify what the laboratory session in all programmes consists of and what the students are supposed to learn during the sessions.

Advice for further development:

- NUC should emphasize the instrumentation and control engineering part of the learning outcomes in the Instrumentation and Control Engineering programme, so that it would not be read as a (mainly) electrical engineering programme.

### 3.3.4 Work and teaching methods

§ 7-2 (4) The following conditions shall correspond with and be adapted to the description of the learning outcome so that the learning outcome is achieved:  
b) Work and teaching methods.

#### Assessment

The description and the justification of the work and teaching methods is the same for all applications. The assessment is therefore the same for all.

The applicant lists a varied set of work and teaching methods for all three programmes, including lectures, tutorials, workshops, seminars and laboratory practice. The main focus during the first year of study is on lectures and tutorials/seminars. In addition, the expert committee notes that NUC has included more student-active work and teaching methods in the first year, and this is positive. Teamwork skills are developed through the different group project courses. This is particularly well covered in the Civil Engineering programme, but not so well in the Instrumental and Control Engineering programme as shown under the assessment of § 7-2 (3). For the Mechanical Engineering programme, it is not clear what the difference between *practice* and *time spent on assignments* is supposed to be.

However, for the courses taught at NUC where teaching assistance from Teesside University is involved it could be more clearly described how this will be carried out. For example, how will the professor from Teesside University be involved in the teaching of the Structural Mechanics course? He is listed as the course responsible, and the actual teaching is set to be given through a two-week intensive block. How does the amount of workload for the students correspond to the time the professors from Teesside are staying at NUC, and can the TU-staff cater to the students' needs in the (suggested) short time they are residing at NUC?

Work and teaching methods are also addressed as very important within the framework and guidelines for engineering education which is based on NOKUT's evaluation of engineering education (in 2008). This evaluation found engineering education to be very traditional based upon more lectures and less active learning. The guidelines highlight among other things that teaching methods should be based on

updated engineering didactics qualifications and that teaching methods should stimulate and activate critical, reflective and conscious thinking. Teaching methods and evaluation methods should also stimulate collaboration across engineering disciplines and interdisciplinary approaches in a broader perspective etc. As far as the committee can see, NUC has a way to go to reach these indicators. In the committee's opinion, NUC is just above the threshold and the committee therefore concludes with a yes. However to be at the forefront of new engineering programs, NUC should look to the guidelines to further develop the work and teaching methods.

## Conclusion

Yes, the criterion is fulfilled.

Advice for further development:

- Methods for developing the students' teamwork skills should be more extensively included in all three programmes.
- NUC should make a strategy for how to follow up students on courses taught by TU-staff residing at NUC for a limited time in connection with block teaching.
- NUC should look to the guidelines to further develop the work and teaching and methods.

### 3.3.5 Examination and other types of evaluation

§ 7-2 (5) The following conditions shall correspond with and be adapted to the description of the learning outcome so that the learning outcome is achieved:

- c) Examination and other types of evaluation

## Assessment

The description and the justification of the examination and other types of evaluation is the same for all applications. The assessment is therefore the same for all three programmes.

The applicant lists a varied set of examination and assessment forms for all three programmes, including different forms of written tests (open/closed book exams, reflection notes, various types of reports), oral exams and formative assessment tasks (workbooks/portfolios, quizzes, tutorials, practical work sessions). Overall, it looks like all the learning outcomes are being assessed and the variety of assessment forms assures that different aspects of a candidate's competencies are being tested.

However, the expert committee has some comments. In general, NUC should better describe the nature of the different assessment forms, what they contain and how they are assessed – and make this information available for the students. In addition, the assessment forms and exam descriptions should be more clearly implemented in the study plans. Moreover, an assessment form for mathematics is open book class test. We are not sure that this is the best assessment form for such a topic. Does this evaluation form drive the students to do their very best? This is dependent on how the test is organized, and we encourage NUC to develop this further or explore other options. A final point is on the choice of weighting of different exams: For several courses, the assessment consists of two exams that are weighted evenly 50/50. How would NUC go about setting the final mark on a candidate that is awarded A on one of the exams and B on the other? Clearly, NUC must have some additional criteria



for weighting these exams. NUC should make these extra criteria known for the student, or better yet choose another percentage of weighting – for example 40/60.

UHR has developed [grade descriptions and assessor information](#)<sup>5</sup> for bachelor's theses. The descriptions have been made in accordance with the NQF and the National Curriculum Regulations for Engineering Education. The descriptions should be used for all bachelor's theses in engineering that follow this curriculum, starting spring 2014. The expert committee advises NUC to use these guidelines.

In practical based programmes such as the three under submission, laboratory and other practical work can form a significant part of the student's learning experience. To this end, and specifically in later years of the programme, assessments (e.g. lab reports, experimental analyses, circuit designs) could typically carry a significant (20-30%) weighting of the overall marks available for the particular course. NUC should consider including assessment of laboratory and other practical work as part of the evaluation of courses where this comprise a substantial part of the course content.

As already discussed in 3.3.4, the guidelines also highlights the need for updated evaluation methods and more variation in learning and evaluation methods. NUC should consider the indicators for the guidelines when developing further exams and other types of evaluations.

## Conclusion

No, the criterion is not fulfilled.

NUC must:

- Better describe the nature of the different assessment forms, what they contain and how they are assessed – and make this information available for the students.
- Clarify how a final grade is awarded in courses that include two exams that are weighted 50/50, and consider weighting these two exams differently - for example 40/60.
- Implement the assessment forms more clearly in the study plans.

Advice for further development:

- Consider other form(s) of assessment of mathematics courses.
- Use grade descriptions and assessor information as developed by UHR for bachelor's thesis.
- Consider including assessment of laboratory and other practical work as part of the evaluation of relevant courses.
- NUC should look to the guidelines in the further development of exams and other types of evaluation.

### 3.3.6 Relevance of programme

§ 7-2 (6) The programme must have a clear academic relevance for employment and/or further studies.

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<sup>5</sup> [http://www.uhr.no/documents/ENG\\_grade\\_descriptions\\_and\\_assessor\\_information\\_bachelorthesis\\_\\_\\_UHR\\_Logo.pdf](http://www.uhr.no/documents/ENG_grade_descriptions_and_assessor_information_bachelorthesis___UHR_Logo.pdf)

## Assessment

The description and the justification for the relevance of the study programmes for working life is the same for all three applications. The assessment is therefore the same for all. The expert committee agrees with the applicant that the relevance for working life could be the same for all three programmes. Some different examples of employment for the three different programmes are also listed in the application.

When it comes to the Instrumentation and Control Engineering programme, contracting companies like Kværner, Sabic and Hundsman are mentioned as examples of relevant companies that would hire candidates with an instrumentation and control engineering degree.

For the Civil Engineering programme it is rather clearly described what the students are supposed to learn and how the students' learning outcome is relevant for working life. A number of working opportunities are mentioned, such as the building industry, construction and government agencies.

For the Mechanical Engineering programme, industrial manufacturing and contracting companies are mentioned as relevant opportunities for graduates.

The expert committee is overall satisfied with the way NUC has described the relevance of the programmes for working life and agree with NUC that there are many opportunities for engineering degree students. However, the expert committee would have liked to see a more general description of fields of work that the candidates would qualify for, not only specific companies. NUC should also have included relevant Norwegian pathways in the application. Many of the companies that are mentioned are UK-based and not necessarily connected to the Norwegian labour market.

According to the applications, the study programmes are supposed to be relevant both for working life *and* for further studies following completion of the degree at Teesside. The description of the relevance for further studies in the applications is too general. The applicant only states that the candidates will be eligible for entry to master's programmes in the UK and elsewhere in Europe without any further explanation. If the programmes are supposed to be relevant for further studies then NUC should contact different institutions and find out where the students will be able to apply. NUC must give realistic examples of different master's programmes to which the students could be admitted. The expert committee is under the impression that this programme does not automatically qualify for master's programmes at Norwegian institutions. Either way, the relevance of the programmes for further studies within Norway seems unclear. To make the programmes more relevant for further studies at Norwegian universities and university colleges, NUC should include appropriate elective courses that would qualify the students for further studies at master's level at Norwegian universities and university colleges.

To sum up, the experts find that the study programmes have a clear and good relevance for working life, whereas the opportunities for further studies are not clear from the applications.

## Conclusion

No, the criterion is not fulfilled in any of the three applications.

NUC must:

- Given that the study programmes are supposed to be relevant for further studies, NUC must contact a selection of universities and university colleges to find out where the graduates would be eligible to apply.
- Make it very clear to the students that the programme is only relevant for working life, or include more elective courses in the curriculum to enable the students to choose courses that will make them qualified for master's programmes in Norway as well as the UK.

### 3.3.7 Links to research, academic- and artistic development

§ 7-2 (7) The programme must have satisfactory links to research and academic and/or artistic development work, adapted to its level, scope and other characteristics.

#### Assessment

The description and the justification of the link between the study programmes and the research is the same for all applications. The assessment is therefore the same for all.

It is evident from the applications that the students meet relevant research through their bachelor theses, and they are introduced to the research at Teesside University in their second and third year. The expert committee has no doubt that the students will meet a very research active environment during their three years of study. It is especially in the second and third year of their bachelor's degree that the students will be introduced to the research done by the academic staff itself. The subjects taught in the first year at NUC are research based even if they are not based on the research of the academic staff itself. The subjects of the first year are basic and aim to provide the students with a solid foundation for the second and third year at Teesside. The expert committee is therefore under the impression that the minimum requirements are met.

NUC should however further develop the research based education in the first year, and perhaps already in the first year introduce the students to some relevant research questions. Moreover the teaching staff at NUC should be allowed time for research so that they will be able to integrate research more readily into the teaching from the beginning of the programmes. Teaching based on methods that are grounded on research, and in a research culture is also important for research-based education.

#### Conclusion

Yes, the criterion is fulfilled for all three applications.

Advise for further development:

- NUC is encouraged to introduce the students to research early on by using relevant examples even in the first year courses

### 3.3.8 Student exchange and internationalization

§ 7-2 (8) The programme must have student exchange and internationalization agreements, adapted to its level, scope and other characteristics.

#### Assessment

The description and the justification for student exchange and internationalization arrangements are overall the same in all three applications. The mechanical engineering application contains an extra section about international contacts. The expert committee wonders if there are more relevant international contacts for the mechanical engineering programme or if this just left out of the other applications by clerical error. The assessment is the same for all three applications.

When it comes to student exchange, NUC has *one* legally binding student exchange agreement with Teesside University and the applicant therefore meets the minimum formal requirement. This is also in accordance with the national curriculum plan which specifies that the institution should facilitate internationalization and student exchange.

As for internationalization arrangements, NUC has established other MoUs with other institutions as well. The expert committee compliments NUC for being very internationally active for such a small institution. However, the committee is surprised to see that NUC has established research cooperation with other institutions but has not specified this in the agreement with Teesside University. The committee wonders whether this is an active choice, and if so – what the reasons are. The expert committee sees no reason why research cooperation with Teesside should not be part of the agreement, and recommends NUC to include it in the agreement.

#### Conclusion

Yes, the criterion is fulfilled.

Advise for further development:

- Establish research cooperation with Teesside University

### 3.3.9 Infrastructure

§ 7-2 (9) The institution must have facilities, library services, administrative and technical services, ICT resources and working conditions for the students, which are adapted to the programme.

#### Assessment

The description of the infrastructure is the same for all applications. The assessment is therefore the same for all three programmes.

The application contains a general description of the facilities offered by NUC, but it is not satisfactorily related to the bachelor's degree programmes in engineering. A contract for renting a property in Kristiansand is enclosed. How much of this property will be used by the respective programmes, and how much is to be allocated to others needs to be addressed. In particular, the

application does not address the eventuality that all five applications for accreditation that NUC has presently in the NOKUT system will be granted. This will have a major impact on the total student number (a potential increase of almost 200 students).

However, the expert committee's major concern is the laboratory facilities. As mentioned above in section 3.3.3, the scope of the laboratory sessions is poorly described. In all three applications, the need for laboratory facilities is mentioned. For example, it is stated on page 40 of the Mechanical Engineering application: *The main laboratory practices will take place in years two and three at Teesside University. However, a first-year Mechanical Engineering laboratory will be constructed at NUC to ensure student receive practical experience in the subject.*

If NUC plan to include laboratory sessions in year one of these programmes (as we strongly suggest that they do), this is certainly not good enough. The laboratory facilities have to be up and running before accreditation. If NUC cannot provide their students with satisfactory laboratory facilities on campus, they must provide other adequate facilities – for example by rental/leasing from companies/educational institutions in the area.

## **Conclusion**

No, the programmes do not have infrastructure that is relevant for the programme levels, extents and specializations

NUC must:

- Provide laboratory facilities for the first year study programmes, either on campus or through by rental/leasing from companies/educational institutions in the area. If NUC chooses to rent/lease laboratory facilities, a legally binding contract must be enclosed
- Justify that the institution has facilities, library services, administrative and technical services, ICT resources and working conditions for the students, which are adapted to the programmes, and that can accommodate the potential large number of new students.

## **3.4 Academic environment associated with the programme (§ 7-3)**

### **3.4.1 The composition, size and competence of the academic environment**

§ 7-3 (1) The composition, size and collective competence of the relevant academic environment must be adapted to the programme as described by the programme description and also adequate for conducting relevant research and academic or artistic development work.

## **Assessment**

Overall assessment of all three programmes:

A great weakness of the applications is that the three main figures of the faculty staff are on employment contracts that are not valid until 2016. These three persons have the major responsibility for teaching of all three programmes, and the fact that they are not yet employed makes the academic

environment very fragile; there is too much uncertainty when it comes to the future employment plans. In addition, complete CVs for these three central persons are missing from the applications and therefore it is difficult for the experts to make a full assessment under this criteria. NUC must provide complete CVs for all relevant faculty staff in order for the expert committee to be able to make an assessment.

In addition to the overall fragile faculty staff involved in these programmes, there is a very heavy workload on each and every one of them. As mentioned above the three most central persons are hired on future contracts and they are not yet operating. Their background also seems to partly be a reason for choice of content within the programmes. What guarantees does NUC have that these persons will actually be available to offer their services if or when NUC gets accreditation for the proposed programmes?

Another concern is that the contribution of the Teesside faculty to year one is very poorly described. Questions arise like, how long does the teaching staff from Teesside reside at NUC? How involved is the Teesside staff in the teaching of the first year at NUC? The Teesside contribution in the first year must be clarified.

Furthermore, the expert committee has some concerns regarding the student to faculty staff ratio. In all three applications, the student intake number is set to 10-40 students per programme. The staff is appropriately sized to handle the minimum intake of students, but will struggle with the maximum number of students. The expert committee would like NUC to justify how the faculty staff is able to follow up the students.

#### *Specific assessment of the individual programmes:*

##### *Civil engineering*

One person is heavily involved in the teaching of this programme. He is defined as course leader for the following courses within the civil engineering programme: Structural Mechanics (10 credits), Sustainable Civil Engineering (10 credits), Principles of Civil Engineering Construction (10 credits) and Civil Engineering Surveying (10 credits). In addition, he is defined as course leader for the following courses within the Mechanical Engineering programme: Engineering Thermodynamics and Heat Transfer (10 credits) and Fluid Mechanics (10 credits). Moreover, he is also involved in teaching Introduction to the Role of the Professional Engineer (10 credits) also in the Mechanical Engineering programme. In total, he is therefore heavily involved in teaching 70 credits. His workload is very heavy and the expert committee questions if he really will have time to teach all of these courses and still find time to do research that is relevant for the programmes.

Furthermore, the expert committee notes that this person finished his PhD in the spring of 2014, consisting of two articles with a profile that does not really fit the Civil Engineering programme, which he is set to teach. His profile is more compatible with teaching the mechanical engineering courses, but as mentioned above it is difficult to make a full assessment without a complete CV. It is the opinion of the experts that NUC is putting too much pressure on a person that has just finished his PhD.

It is the expert committee's opinion that only two members of the faculty staff are competent to teach courses in civil engineering. The first staff member is involved in teaching Introduction to the Role of

the Professional Engineer and Structural Mechanics. The other staff member is involved as TU staff/liaison on the Civil Engineering Surveying course. It is therefore evident that the faculty staff does not have the right competence to teach the civil engineering programme.

### *Mechanical engineering*

With reference to the assessment under the Civil Engineering programme, the person responsible for this programme is also heavily involved in the Mechanical Engineering programme together with another faculty staff member. This second staff member is the same person that is described as the main teacher under the assessment of the Instrumentation and Control Engineering programme, and his profile fits well with the Mechanical Engineering programme. However, once again the expert committee question the amount of workload put on every single one person.

### *Instrumentation and control engineering*

The competence of the faculty staff set to teach the Instrumentation and Control Engineering programme is slightly better than for the Civil Engineering programme. As for the Civil Engineering programme, one person is heavily involved in the teaching, being defined as course leader on four 10-credit courses and involved in two further 10-credit courses. He has evidently the right background to teach electrical engineering courses (although his PhD is in computer engineering), but again it is difficult to make a full assessment without the complete CV. Similarly as above, the expert committee feels that this person is overloaded (heavily involved in teaching 60 credits) with no time for research.

The person defined as course leader for Engineering Mathematics course (10 credits) is a good match with the above mentioned faculty staff member as she has a computer science background. This course is common for all three programmes and she is listed to contribute 0,2 full time equivalent (FTEs) in each programme – that is 0,6 FTEs in total. However, the expert committee notes that NUC plans to use this person 1,0 FTEs in two other programmes that the institution is applying for accreditation of (0,6 FTEs in Data science and 0,4 in Computer science). The committee asks for a justification of how this person's time will be distributed between the five programmes and the realism of this plan.

## **Conclusion**

No, the criterion is not fulfilled in any of the three applications.

NUC must:

- Provide complete CV's for all faculty staff members in order for the expert committee to make a full assessment
- Justify how the faculty staff size is large enough to handle the maximum number of students suggested for the intake
- Clarify the competence of the faculty members involved in the teaching of the Civil Engineering, Instrumentation and Control Engineering and Mechanical Engineering programmes, respectively
- Set aside time for research so that the faculty staff is capable of delivering a research-based education from the first semester

### 3.4.2 The academic environment's external participation

§ 7-3 (2) The academic environment must actively participate in national and international collaborations and networks relevant for the programme.

#### Assessment

The information given under this criterion is more or less the same for all three applications. The applicant lists a number of national and international networks and collaborators, but fails to relate these initiatives to the engineering programmes. The descriptions are brief, but from the provided information it looks like they are more relevant to a computer/data science programme. The expert committee needs more information to be able to assess this criterion.

The expert committee would like to commend NUC's participation in the NODE-network, which seems to be relevant for all three programmes. However, NUC must provide more information on the nature of this collaboration, if it is still active and demonstrate how this network is relevant for the proposed study programmes.

A major concern on the expert committee's behalf, is that no proposed scientific collaboration with Teesside University is listed other than the invitation to become an associated member of the Technology Futures Institute. Seeing that this is supposed to be joint degrees, the partners must establish a formal and more elaborate research based collaboration. This would also be of benefit for NUC's research (see section 3.4.4 for further assessment).

#### Conclusion

No, the criterion is not fulfilled.

NUC must:

- Demonstrate and elaborate networks that are active and relevant for the programmes, both nationally and internationally
- Establish a formal and more elaborate research based collaboration with Teesside University.

### 3.4.3 Academic staff and employment

§ 7-3 (3) At least 50 per cent of the academic FTEs allotted to the programme must be staff with their primary employment at the institution. Of these, teachers with competence at the level of at least associate professor must be represented among those who teach the core elements of the programme.

For the different cycles, the following additional requirements apply:

- a) For first cycle programmes, at least 20 per cent of the collective academic environment must have competence at the level of at least associate professor.
- b) For second cycle programmes, at least 10 per cent of the collective academic environment must be professors or docents, and an additional 40 per cent with competence at the level of at least associate professor.



## **Assessment**

### Overall assessment of all three programmes:

For the Civil Engineering and the Instrumentation and Control Engineering programmes, it is indicated in the applications what the core elements are. For the Mechanical Engineering programme, no core elements are mentioned. None of the applications links faculty staff members with the correct formal competence (at least at the level of associate professor) to the core elements. It is therefore not possible for the expert committee to assess whether this part of the criterion is fulfilled.

### Specific assessment of the individual programmes:

#### *Civil engineering:*

0,7 of 1,8 FTEs is occupied by persons who hold a PhD. 1,0 of 1,8 FTEs is occupied by persons that have their main position at NUC.

#### *Mechanical engineering:*

0,7 of 2 FTEs is occupied by persons who hold a PhD. 1,2 out of 2 FTEs is occupied by persons that have their main position at NUC.

#### *Instrumentation and control engineering:*

1,0 of 2,3 FTEs is occupied by persons who hold a PhD. 1,7 of 2,3 FTEs is occupied by persons that have their main position at NUC.

The specific assessment of the three programmes shows that the minimum quantitative requirements are fulfilled. Note that this quantification has been based on faculty staff members that have completed a PhD only. For several of the staff members there is a discrepancy between the title of the positions given in the application and those given in the corresponding CVs. It is therefore not evident if these are hired in a position at least at the level of associate professor or not. NUC is an institution with already accredited study programmes and NOKUT therefore presupposes that the institution follows the Regulations concerning appointment and promotion to teaching and research posts (Forskrift om ansettelse og opprykk i undervisnings- og forskerstillinger, FOR-2006-02-09-129), and that the procedures of the recruitment process are in accordance with these regulations.

## **Conclusion**

No, the criterion is not fulfilled.

NUC must:

- Define the core elements of all three programmes and justify that these are covered by staff with the correct formal competence (at least at the level of associate professor)
- Make sure that the titles of the positions given in the application and those given in the corresponding CVs are the same, and that the Regulations concerning appointment and promotion to teaching and research posts are followed in the recruitment process

### 3.4.4 The academic environment's research and development work

§ 7-3 (4) The academic environment must be actively engaged in research, academic and/or artistic development work.

For the different cycles, the following additional requirements apply:

- a) For first cycle programmes, the academic environment must have documented results at a level that is satisfactory in relation to the content and level of the programme.
- b) For second cycle programmes, the academic environment must have documented results at a high international level of quality, with satisfactory academic breadth.

#### Assessment

The text under this criterion in the three applications is basically the same as the text under section 7.3.2. In addition, the publication lists of the academic staff are not updated, and the applicant has not made a relevant selection of publications related to the three engineering programmes. As an example, one publication is dated as submitted for publication in 2012 in one of the publication lists. We are now in 2015 – what is the status of this publication? Surely, it cannot still be in the submitted-category. The applications contain too little information under this criterion for the expert committee to make an assessment. However, the expert committee would like to point out as mentioned in several sections above that NUCs contribution to research relevant to the programme seems to be very limited. NUC must develop its own research relevant to the programme. It is not enough to rely on the contribution from Teesside University for year two and three. A good starting point would be to establish a formal research collaboration with Teesside University (as required under the assessment in section 3.4.2.)

#### Conclusion

No, the criterion is not fulfilled.

NUC must:

- Describe the relevant research of the faculty during the last five years and document results that are at a level that is satisfactory in relation to the content and the level of the programme
- Update the publication lists
- Develop research relevant for the study programmes at NUC, preferably in collaboration with Teesside University.

### 3.4.5 Supervision of professional training

§ 7-3 (5) For programmes with supervised professional training, the academic environment and external mentors must have appropriate experience in the field of practice.

#### Assessment

The study programmes do not include professional training, and according to the applications, this criterion is therefore not relevant in this assessment. However, the expert committee questions how the applicant facilitates a close contact with the vocational field as required in the National Curriculum Regulations for Engineering Education (confer section 3.2.4).

## Conclusion

No, the criterion is not fulfilled

NUC must:

- Justify either how the study programmes facilitate a close contact with the vocational field and practical training or include professional training in the programmes as mentioned under the assessment in section 3.2.4.
- If NUC chooses to include professional training, then the applicant must justify that the academic environment and external mentors have appropriate experience in the field of practice.

### 3.4.6 Supplementary provisions for joint degrees

*All applicants applying for joint degrees must answer the supplementary criteria for joint degrees. NUC has not answered these criteria explicitly. However, some of the information can be found in other parts of the applications and appendices.*

§ 7-4 (1) It must be clearly defined which parts of the programme are the responsibility of each cooperating institution.

## Assessment

The applications clearly states that the first year will be given at NUC, whereas the following second and third year will be given at Teesside University. However, as mentioned earlier in the assessment, the involvement of TU staff in teaching the first year at NUC must be more thoroughly described. Furthermore, it seems that the students coming from NUC to Teesside University in the second year will go through a second admission process. This is not in accordance with the notion of a joint degree programme where the students are accepted to one *common* programme, and not two separate programmes.

The students receive two diplomas on completion of the programme, which is acceptable for a joint degree, even if one diploma would be preferable.

Overall, it is difficult for the committee to see the justification for the relationship with Teesside University. What is bringing the two institutions (Teesside University and NUC) together? It is not clear to the expert committee whether it is a vision of providing good quality study programmes that is driving this cooperation or if it something else.

## Conclusion

No, the criterion is not fulfilled.

NUC must:

- Justify that this is a joint degree that follows the regulations for joint degrees as given in the Ministerial Regulations concerning Quality Assurance and Quality Development in Higher Education and Tertiary Vocational Education.

Advice for further development:

- NUC and Teesside University should consider issuing one joint diploma for the degree.

§ 7-4 (2)

There must be satisfactory procedures in place for the development of and quality assurance of the programme as a whole.

## Assessment

The applicant refers to the quality assurance systems at the two institutions, but fails to show how these two separate systems will work together to ensure that the joint degree programme has satisfactory procedures in place for development and quality assurance of the programme as a whole. The consortium agreement covers overall management and financial aspects of the dual degree pathway. The governing bodies mentioned in the consortium agreement cover the administrative aspect, but according to the consortium agreement, further development of the programmes is not included in the list of tasks. Planning and Development is listed as a task for the Programme Director, but it is not specified what kind of development is included in his/her job description. It is therefore not evident to the expert committee that quality assurance routines for the joint degrees are adequately covered. The two partners seem to have separate quality assurance procedures but not programme-specific quality assurance procedures.

The consortium agreement enclosed with the application state that the articulation agreement detailing the specifics of relationship between the first year at NUC and the following years at Teesside will be drafted and signed after completion of the recognition process. This will include a process of mutual recognition of QA-systems and a site visit by TU staff to NUC to ensure that the NUC facilities are adequate. According to the supplementary provisions for joint degrees, the details of the articulation agreement must be in place before applying for accreditation of a joint degree study programme.

Several elements of the consortium agreement seem to be heavily skewed to the benefit of Teesside University: NUC has to follow the rules and regulations of Teesside University. It is also difficult to see that this is a joint degree rather than NUC simply providing students for Teesside University. There is no plan for student exchanges from the UK to Norway, and the joint degree students only include Norwegian students going to the UK for their final two years of the bachelor's degree. The expert committee would like to remind NUC of the Ministerial Regulations concerning Quality Assurance and Quality Development in Higher Education and Tertiary Vocational Education, where one of the criteria for joint degrees in § 4.2.3 is that *students that are admitted to provisions that included as a part of a joint degree must be allowed periods of study of a certain lengths at collaborating institutions*. As long as there are no plans for UK students going to NUC for the first year, the expert committee cannot see that this is in fact a joint degree.

It is our opinion that this collaboration looks more like an elaborate articulation agreement rather than an actual consortium agreement for a joint degree programme. It does indeed provide a pathway for the Norwegian students to obtain a bachelor's degree in engineering, but it does not seem to be a truly joint endeavour.

## Conclusion

No, the criterion is not fulfilled for any of the three applications.

NUC must:

- Describe and justify the routines for programme development and quality assurance for the programme as a whole.
- Justify that these routines are satisfactory
- Justify that both partner institutions are equally involved in the process.

§ 7-4 (3) The constituent parts of the programme must make up a whole, as seen in relation to the programme's level and learning outcomes

## Assessment

As mentioned in sections 3.3.2 and 3.3.3, the overall learning outcomes given for each programme are not adequately developed or implemented in a satisfactory way in the content and structure of the programmes. Most importantly, it is not evident if the proposed study programmes fulfil the Norwegian National Curriculum Regulations. Consequently, the expert committee is not convinced that the constituent parts of the programme make up a whole.

## Conclusion

No, the criterion is not fulfilled for any of the three applications.

NUC must:

- Describe and justify how the constituent parts of the programme make up a whole, as seen in relation to the programme's level and learning outcomes.

NUC should:

- Consider if it is possible to offer a joint degree programme with Teesside University that also fulfils the Norwegian National Curriculum Regulations.

## 4 Conclusion

Based on the written application with attached documentation, the expert committee concludes as follows:

**The committee does not recommend accreditation of the Bachelor Degrees in**

- 1) **Civil Engineering**
- 2) **Mechanical Engineering**
- 3) **Instrumentation and Control Engineering**

**at Noroff University College (joint programme with Teesside University)**

The expert assessment details which further requirements the institution must meet in order to achieve accreditation. In addition, the committee has provided advice for the further development of the study programmes.

The following requirements are not satisfied:

- §7-1 (1) Requirements laid down in the Universities and Colleges Act must be satisfied.
- § 7-1 (2) Requirements of applicable regulations and curricula set out by the Ministry of Education and Research must be satisfied.
- § 7-1 (3) The recruitment of students to the programme should be large enough to enable the institution to establish and maintain a satisfactory learning environment and a stable programme.
- § 7-1 (4) For programmes which include professional training, there must be adequate agreements regulating material issues of importance to the students.
- § 7-2 (1) The programme must have an appropriate name.
- § 7-2 (2) The programme must be described with reference to learning outcomes, cf. the National Qualification Framework for Lifelong Learning. The overall learning outcomes for each programme, defined in terms of knowledge, skills and general competence, must be described.
- § 7-2 (3) The following conditions must correspond with and be adapted to the description of the learning outcomes so that the learning outcomes are achieved: Content and structure of the programme.
- § 7-2 (5) The following conditions must correspond with and be adapted to the description of the learning outcomes so that the learning outcomes are achieved: Examination and other types of evaluation.
- § 7-2 (6) The programme must have a clear academic relevance for employment and/or further studies.
- § 7-2 (9) The institution must have facilities, library services, administrative and technical services, ICT resources and working conditions for the students, which are adapted to the programme.
- § 7-3 (1) The composition, size and collective competence of the relevant academic environment must be adapted to the programme as described by the programme description and must also be adequate for conducting relevant research and academic or artistic development work.
- § 7-3 (2) The academic environment must actively participate in national and international collaborations and networks relevant for the programme.
- § 7-3 (3) At least 50 per cent of the academic FTEs allotted to the programme must be staff with their primary employment at the institution. Of these, teachers with competence at the level of at least associate professor must be represented among those who teach the core elements of the programme.
- § 7-3 (4) The academic environment must be actively engaged in research, academic and/or artistic development work.
- § 7-3 (5) For programmes with supervised professional training, the academic environment and external mentors must have appropriate experience in the field of practice.

**Supplementary provisions for the accreditation of a programme or parts of a programme that are constituent parts of a joint degree:**

- § 7-4 (1) It must be clearly defined which parts of the programme are the responsibility of each cooperating institution.
- § 7-4 (2) There must be satisfactory procedures in place for the development of and quality assurance of the programme as a whole.
- § 7-4 (3) The constituent parts of the programme must make up a whole, as seen in relation to the programme's level and learning outcomes.

**The following requirements must be satisfied in order to achieve accreditation:**

- Amend NUC's bylaws in accordance with the Act § 8-1, so that Noroff's board is the highest executive body and cannot be overruled by the general assembly
- Alter NUC's bylaws paragraph 5, in accordance with the Act § 8-1, so that student and staff representatives are full board members (with voting rights)
- Alter NUC's complaints committee regulation, paragraph 3, in accordance with the Act § 5-1 (7) cf. §§ 4-7 (3), 4-8 (10), 4-9 (5) and 4-10 (4) and the regulation of 10 October 2005 on a national appeals body for appeals.
- Amend NUC's complaints committee regulation paragraph 2, in accordance with the Act § 5-1 (7) cf. §§ 4-7 (3), 4-8 (10), 4-9 (5) and 4-10 (4), so that the administration's competence to reverse previous decisions is limited to those matters where NUC's complaints committee is a second instance appeals body.
- Amend the diploma supplements to include the period of study at a university outside Norway and the fact that the candidate has completed a joint/multiple degree.
- Check the diplomas, diploma supplements and transcript of records for inconsistencies, factual mistakes and spelling mistakes.
- Describe the admission criteria and account for how the admission criteria correspond to the Norwegian regulation - "opptaksforskriften"
- Describe the admission criteria according to the study programme in question and clearly describe the different possible entry routes
- Describe and account for how the three proposed study programmes fulfil the Norwegian National Curriculum Regulations for engineering programmes
- Refer to the correct professional UK body for the individual study programmes
- Justify the student recruitment plan in consideration to number of students, recruitment groups, administrative capacity, infrastructure and academic staff
- Justify more clearly the institution's strategy for assuring a good learning environment for the students, especially for internet-based and part time studies
- Revise the applications to ensure that inconsistencies are corrected
- Justify either how the study programmes facilitate practical training and close contact with the vocational field or include professional training in the programmes.
- Change the names of the study programmes according to both English and Norwegian standards and make them coherent for all programmes, and within the curriculum descriptions.

- Implement a programme specific profile into the learning outcomes that is in accordance with regulations and guidelines, but specific for the programmes offered by NUC.
- Comment on the focus on construction and/or management of construction in the learning outcomes for the Civil Engineering programme
- Comment on the focus on design and/ or manufacturing in the learning outcomes for the Mechanical Engineering programme
- Comment on the lack of focus on control systems in the learning outcomes for the Instrumentation and Control Engineering programme
- In detail justify how the demands in the National Curriculum Regulations for Engineering Education is fulfilled, in particular concerning the number of credits allotted to mathematics, statistics and bachelor projects in the three programmes - but also how Norwegian communication skills are covered in an all-English programme. The expert committee strongly suggests that NUC develops thread diagrams to verify that all the demands are met.
- Quality assure the study plans and applications for inconsistencies, in particular connected to credit points per course and the associated workload, when and where different courses are taught and who is responsible.
- Integrate the ethical and life cycle aspect more visibly, both related to environmental, health-related, social and financial consequences of products and solutions.
- Clarify what the laboratory session in all programmes consists of and what the students are supposed to learn during the sessions.
- Better describe the nature of the different assessment forms, what they contain and how they are assessed – and make this information available for the students.
- Clarify how a final grade is awarded in courses that include two exams that are weighted 50/50, and consider weighting these two exams differently - for example 40/60.
- Implement the assessment forms more clearly in the study plans.
- Given that the study programmes are supposed to be relevant for further studies, NUC must contact a selection of universities and university colleges to find out where the graduates would be eligible to apply.
- Make it very clear to the students that the programme is only relevant for working life, or include more elective courses in the curriculum to enable the students to choose courses that will make them qualified for master's programmes in Norway as well as the UK.
- Provide laboratory facilities for the first year study programmes, either on campus or through by rental/leasing from companies/educational institutions in the area. If NUC chooses to rent/lease laboratory facilities, a legally binding contract must be enclosed
- Justify that the institution has facilities, library services, administrative and technical services, ICT resources and working conditions for the students, which are adapted to the programmes, and that can accommodate the potential large number of new students.
- Provide complete CV's for all faculty staff members in order for the expert committee to make a full assessment
- Justify how the faculty staff size is large enough to handle the maximum number of students suggested for the intake
- Clarify the competence of the faculty members involved in the teaching of the Civil Engineering, Instrumentation and Control Engineering and Mechanical Engineering programmes, respectively



- Set aside time for research so that the faculty staff is capable of delivering a research-based education from the first semester
- Demonstrate and elaborate networks that are active and relevant for the programmes, both nationally and internationally
- Establish a formal and more elaborate research based collaboration with Teesside University.
- Define the core elements of all three programmes and justify that these are covered by staff with the correct formal competence (at least at the level of associate professor)
- Make sure that the titles of the positions given in the application and those given in the corresponding CVs are the same, and that the Regulations concerning appointment and promotion to teaching and research posts are followed in the recruitment process
- Describe the relevant research of the faculty during the last five years and document results that are at a level that is satisfactory in relation to the content and the level of the programme
- Update the publication lists
- Develop research relevant for the study programmes at NUC, preferably in collaboration with Teesside University.
- Justify either how the study programmes facilitate a close contact with the vocational field and practical training or include professional training in the programmes as mentioned under the assessment in section 3.2.4.
- If NUC chooses to include professional training, then the applicant must justify that the academic environment and external mentors have appropriate experience in the field of practice.
- Justify that this is a joint degree that follows the regulations for joint degrees as given in the Ministerial Regulations concerning Quality Assurance and Quality Development in Higher Education and Tertiary Vocational Education.
- Describe and justify the routines for programme development and quality assurance for the programme as a whole.
- Justify that these routines are satisfactory
- Justify that both partner institutions are equally involved in the process.
- Describe and justify how the constituent parts of the programme make up a whole, as seen in relation to the programme's level and learning outcomes.

**The committee offers the following advice to develop the study programme further.**

- NUC should emphasize the instrumentation and control engineering part of the learning outcomes in the Instrumentation and Control Engineering programme, so that it would not be read as a (mainly) electrical engineering programme.
- Methods for developing the students' teamwork skills should be more extensively included in all three programmes.
- NUC should make a strategy for how to follow up students on courses taught by TU-staff residing at NUC for a limited time in connection with block teaching.
- NUC should look to the guidelines to further develop the work and teaching and methods.
- Consider other form(s) of assessment of mathematics courses.
- Use grade descriptions and assessor information as developed by UHR for bachelor's thesis.

- Consider including assessment of laboratory and other practical work as part of the evaluation of relevant courses.
- NUC should look to the guidelines in the further development of exams and other types of evaluation.
- NUC is encouraged to introduce the students to research early on by using relevant examples even in the first year courses
- Establish research cooperation with Teesside University
- NUC and Teesside University should consider issuing one joint diploma for the degree.
- Consider if it is possible to offer a joint degree programme with Teesside University that also fulfils the Norwegian National Curriculum Regulations.

## 5 Comment from the institution

### **NUC comments to joint report from Nokut and Expert Committee on**

#### **1. Bachelor Degree in Civil Engineering – joint degree with Teesside University**

#### **2. Bachelor Degree in Mechanical Engineering – joint degree with Teesside University**

#### **3. Bachelor Degree in Instrumentation and Control Engineering – joint degree with Teesside University**

NUC received the report from Nokut in end of August and is responding with our comments within the time limit of 18 September 2015. Noroff University College wishes to thank the Expert Committee for its assessment of our application to offer accredited joint degree programmes with Teesside University, and for the helpful comments, feedback and suggestions on how the proposal can be improved.

NUC has carefully gone through the report and provided justifications and made changes. The modifications are documented in the following appendixes:

Appendix 1: Detailed Comments from NUC to Expert Committee on Bachelor in Engineering

Appendix 2 : NUC Bylaw

Appendix 3 : Firmaattest

Appendix 4 : Klagenemd/Complaint Committee

Appendix 5 : Diploma

Appendix 6 Transcript

Appendix 7 : Diploma Supplement

Appendix 8 : CV of Dr. Mikhaila Burgess

Appendix 9 : CV of Dr. Mehdi Hassanzadel

Appendix 10 : CV of Dr. Yuosef Adraider

The expert committee in their assessment have expressed a number of concerns relating to the proposed joint programmes and we believe that we have taken appropriate action to address completely all of these concerns. We have done this by a combination of adjustments to the proposal in direct response to explicit items in the expert committee's assessment and by providing a more comprehensive and detailed explanation as to how the proposed joint programme structures and study plans fully meet the requirements of the relevant professional bodies, the quality and regulatory thresholds, and are sufficiently robust to meet the significant challenges of providing students with a truly enriching cross-national higher education experience.

This is the beginning of a journey with two institutions, one a private institution which is embarking on developing study programmes in engineering and the other a well long-established publicly funded institution with a history stretching back over 85 years in training and educating skilled engineers, working in partnership to develop and deliver engineering study programmes which offer students the unique opportunity of a cross-national educational experience and the enhanced knowledge and skill-set this can offer. Both partner institutions fully recognise the significant challenges to be overcome by NUC in establishing itself as a high quality provider of engineering study programmes and the particular challenges that arise from the cross-national aspect of the programmes.

Our primary objectives and the drivers behind the structure of the programmes are:

- To gradually build-up the capacity at NUC in terms of expertise, physical and human resources, in order to enable it to deliver an increasingly greater proportion of the joint engineering programmes at NUC.
- All programmes from day one must provide students with a route to the award of a professionally accredited degree (the programme structures and content meet this requirement)
- To utilise tried and tested Quality Assurance and Student Support systems already operating at both institutions, but to have in place 'joint programme' management committees and structures that will ensure the joint programmes and students on these programmes are fully integrated into the existing systems.
- To ensure the joint programmes can adapt to current and any future changes to national immigration laws (students on the joint programmes will be recruited from Norway but also from across the rest of the world), ensuring that students are fully informed from the outset on what the requirements are for progression when this requires a change of location (i.e. from study in Norway to study in the UK), and are fully supported in becoming eligible for progression.

The expert committee has expressed four major concerns, which we will fully address in our response below.

1. **The expert committee questions (a) if the proposed programmes are true joint degrees, (b) if satisfactory procedures for joint development and administration of the programmes are in place. We will address each one of these points individually.** The proposed study programmes lead to the award of two separate degrees from NUC and Teesside University but with a diploma supplement that will clearly show where the constituent parts of the programme were studied. The key driver behind the choice to opt for two separate awards rather than a single 'joint degree' is that this enables students from day one to study for an accredited degree awarded by Teesside University – the joint programme structures comply with the rules for the award of a Teesside University accredited degree. We

do not rule out further development towards a single 'joint degree' in the future, after consultation with the relevant professional bodies and the regulatory authorities in each country. However, it is important to note that the current programme structures and our approach in offering two national degrees is consistent with Nokut policy which builds on the UNESCO Recommendation on the Recognition of Joint Degrees

(<https://wcd.coe.int/com.instranet.InstraServlet?command=com.instranet.CmdB>) from which the following extract is reproduced here for convenience:

*"A joint degree should ... be understood as referring to a higher education qualification issued jointly by at least two or more higher education institutions or jointly by one or more higher education institutions and other awarding bodies, on the basis of a study programme developed and/or provided by the higher education institutions, possibly in cooperation with other institutions. A joint degree may issued as:*

- *A joint diploma in addition to one or more national diplomas*
- *A joint diploma issued by the institutions offering the study programme in question without being accompanied by any national diploma*
- *One or more national diplomas issued officially as the only attestation of the joint qualification in question."*

Our approach is consistent with the 3<sup>rd</sup> bullet point above.

2. The management of the joint programmes is described in Chapter II of the Consortium agreement.
2. **Norwegian National Curriculum Regulations. The expert committee have expressed concerns over compliance with the Norwegian National Curriculum Regulations.**
    1. Each of the three engineering programs provides 20 ECTS of Mathematics. Details are documented in appendix1.
    2. Although final year degree projects in UK carry a lower number of credits (15 ECTS) than the Norwegian Regulations require, they are complemented with competencies students build in the Group Project module taught in the final year in which students' develop their research and independent learning skills and problem solving skills. Together these two modules contribute more than 20 ECTS. The final year Group Project module in each program has the following titles: Control Systems Design and Implementation (Group Project Instrumentation and Control), Interdisciplinary Group Project (10) (Mechanical Engineering), Group Project - Detailed Design Stage (10) (Civil Engineering)
    3. All three programs integrate the ethical and life cycle visibly, both related to environmental, health related, social and financial consequences of products and solutions.
    4. The joint programmes aim to recruit students from Norway and from other countries and will be taught entirely in English. English language is included in the entry requirements; we realize that Norwegian language is absent from the curriculum. There is a conflict between Opptaksforkriften §2.2 and Norwegian Regulation for Engineering. We assume Opptaksforkriften takes precedence. NUC will, however, offer Norwegian as extracurriculum Norwegian classes to all foreign students to the program the same way as many Norwegian businesses does when they recruit international staff.
  3. **The expert committee has requested clarification on (a) if the qualifications award to students completing the joint programmes will be accreditation, (b) the ability of students on the joint programmes to study for an Integrated Masters programme, (c) which cohort the students on joint programmes will belong to.**

1. We confirm that the proposed degree structure and programme content will provide all students successfully completing the joint programmes, including Norwegian students, the following professionally accredited degree awards:

2.

BEng (Hons) Mechanical Engineering (accredited by the IMechE<sup>1</sup>)  
BEng (Hons) Instrumentation and Control Engineering (accredited by the IET<sup>2</sup>) BEng (Hons) Civil Engineering (accredited by the JBM<sup>3</sup>)

Students successfully completing a joint study programme leading to the award of an accredited BEng degree will be able to apply for entry to one---year postgraduate Masters programmes at Teesside University or another University in the UK or overseas. Some universities may require a minimum degree classification. Most postgraduate Masters programmes at Teesside University require at least a 2.2 honours degree, but the MSc Civil and Structural Engineering requires at least a 2.1 honours degree.

<sup>1</sup>IMechE=Institute of Mechanical

Engineers <sup>2</sup>IET=Institute of Engineering and Technology

<sup>3</sup>The Joint Board of Moderators (JBM) represents the following four professional bodies:

[Institution of Civil Engineers](#)

[Institution of Structural Engineers](#)

[Chartered Institution of Highways and Transportation](#)

[Institute of Highway Engineers](#)

3. Although not specifically mentioned in the application, the design of the joint programme structures can easily accommodate study on an Integrated Masters degree. Students completing the first year of study at NUC and the second year of study at Teesside University, and who at the end of the second year meet the progression criteria for the Integrated Masters degrees, may, through simple internal transfer request, transfer to the Integrated Masters programme for the remaining two years of study of the award of a Masters degree. The relevant Integrated Masters degrees are

MEng (Hons) Mechanical Engineering

MEng (Hons) Instrumentation and Control Engineering MEng (Hons)

Civil and Structural Engineering

MEng (Hons) Instrumentation and Control Engineering has an application for accreditation with the IET pending (decision anticipated in 2016). The two other Integrated Masters programmes fully meet the exemplifying academic benchmark requirements, for registration as a Chartered Engineer (CEng) with the relevant professional bodies.

4. Students on the joint programmes of study will, after joining the second year of their studies at Teesside University, join and mix with British students and students of other nationalities on Teesside University programmes that share the same modules with the joint programmes. Students transferring to an Integrated Masters study programme will continue with the cohort of students on the integrated masters study programme.

**4. Academic Environment. The Expert Committee is concerned that the academic environment is fragile.**

We will argue that the opposite is the case. In our design there are four “layers” of academic staff involved:

1. NUC has a number of experienced tutors who will follow up the students in

- their day---to---day assignments and projects.
2. The next layer is NUC academic staff. Here we have PhD competency in all core elements of the programs.
  3. Visiting academics from TU will assist the NUC academic staff and be available online for lecturing and tutoring.
  4. The last "layer" is the TU liaison academic staff, which the above layers can call upon and consult with.

Altogether this constitutes a robust design, which makes it possible to find good solutions in cases of absence etc. NUC online systems for teaching and learning gives us flexibilities such that lectures can be delivered from practically anywhere, and communication can switch between synchronous mode and asynchronous mode. The dimensioning of the staff is made on the basis of years of practice, and a margin is provided for the unexpected.

We believe that we have answered comprehensively all the key questions in the Expert Committee assessment and addressed the expressed concerns, and request that the Committee considers providing conditional approval of our applications. The Expert Committee identified some typographical errors in the study plans and requested the presentation of the learning outcomes to be more program specific. The short time and the availability of key academics have made it difficult to deliver modified study plans now. But these can be provided to Nokut at a later date agreed with Nokut.

Kristiansand 18  
September 2015  
Ernst Sundt,  
Rector NUC

## 6 Additional expert assessment

In their comment to the expert assessment, NUC provides a very long reply including nine appendices - more than 50 pages in total. It is beyond the scope of the additional expert assessment to evaluate all of this in detail. Some of the requirements are therefore not re-assessed here, and have not been included in the decision. This does not necessarily mean that NUC fulfill the requirements of the criteria. In a new application, NUC must carefully examine the expert committee's assessment in the report above and adjust the study programme accordingly.

### 6.1.1 Requirements assessed by NOKUT

§ 7-1 (1) The following requirements laid down in the Universities and Colleges Act shall be assessed for accreditation:

- a) Internal regulations and governance
- b) Appeals committee
- c) Learning environment committee
- d) Education plan

- |  |
|--|
| e) Diplomas and Diploma Supplement<br>f) Quality assurance system. |
|--|

NUC must:

- Amend NUC's bylaws in accordance with the Act § 8-1, so that Noroff's board is the highest executive body and cannot be overruled by the general assembly
- Alter NUC's bylaws paragraph 5, in accordance with the Act § 8-1, so that student and staff representatives are full board members (with voting rights)
- Alter NUC's complaints committee regulation, paragraph 3, in accordance with the Act § 5-1 (7) cf. §§ 4-7 (3), 4-8 (10), 4-9 (5) and 4-10 (4) and the regulation of 10 October 2005 on a national appeals body for appeals.
- Amend NUC's complaints committee regulation paragraph 2, in accordance with the Act § 5-1 (7) cf. §§ 4-7 (3), 4-8 (10), 4-9 (5) and 4-10 (4), so that the administration's competence to reverse previous decisions is limited to those matters where NUC's complaints committee is a second instance appeals body.
- Amend the diploma supplements to include the period of study at a university outside Norway and the fact that the candidate has completed a joint/multiple degree.
- Check the diplomas, diploma supplements and transcript of records for inconsistencies, factual mistakes and spelling mistakes.

## Assessment

- a) Internal regulations and governance

NUC held an extraordinary board meeting of which the minutes are sent as Appendix 2 to NOKUT.

In this board meeting, the NUC board decided that student and staff representatives are registered as full members of the board, and that the NUC bylaws will be amended so that NUC's board is the highest executive body and cannot be overruled by the general assembly.

However, since NUC AS is a corporation, § 5-18 of the private limited companies act ("aksjeloven" in Norwegian) applies. Accordingly, only NUC's general assembly has the competency to amend NUC's bylaws, not NUC's board. The act relating to universities and university colleges ("the Act") only precedes the private limited companies act on those issues it regulates (e.g. the Act prescribes in § 8-1 that the board is the highest executive body, a stipulation which precedes the private limited companies act). The Act does not regulate the competency of a board to amend a corporation's bylaws, thus § 5-18 of the private limited companies act applies.

For the amendments to NUC's bylaws to be valid, they need to be decided upon by NUC's general assembly.

In addition, NOKUT requires to be presented the amended bylaws, as this is one of the obligatory appendices to an application for accreditation.

- b) Appeals Committee

NUC's board decided to alter the complaints committee regulation in accordance with NOKUT's remarks on the legal requirements prescribed by the Act.

NOKUT requires to be presented NUC's amended complaints committee regulation, as this is one of the obligatory appendices to an application for accreditation.

NUC commented in its response to the report that it does not understand the issue of reversing complaint decisions. In the complaints committee regulations paragraph 2, it states: *"If the administration at Noroff has no doubts that a complaint should be upheld, the decision on the complaint can be made by the administration itself. The Administration must inform the Noroff Board about decisions taken in relation to complaints."*

However, on those matters where the NUC's complaints committee is the only competent body to decide as a first instance organ according to the Act, it is also the only competent body to reverse ("omgjøre" in Norwegian) its own decisions, according to § 35 of the public administration act ("forvaltningsloven" in Norwegian). Therefore, NUCs administration cannot be accorded the power to decide upon complaints or reverse decisions made by the complaints committee.

#### e) Diploma and Diploma Supplement

In their comment, NUC states that they have revised the diploma and diploma supplement. However, as NUC has not provided a revised version of these documents we are not able to assess these new versions.

### Conclusion

No, the criterion is not fulfilled.

### 6.1.2 Requirements in applicable regulations and curricula

§ 7-1 (2) Requirements of applicable regulations and curricula set by the Ministry of Education and Research must be satisfied.

NUC must:

- Describe the admission criteria and account for how the admission criteria correspond to the Norwegian regulation - "opptaksforskriften"
- Describe the admission criteria according to the study programme in question and clearly describe the different possible entry routes
- Describe and account for how the three proposed study programmes fulfil the Norwegian National Curriculum Regulations for engineering programmes
- Refer to the correct professional UK body for the individual study programmes

### Assessment

The expert committee has only re-assessed how the proposed study programmes fulfil the Norwegian National Curriculum Regulations for engineering programmes.

It is not evident from the applications and NUC's comment that the proposed study programmes cover the obligatory 20 credits of mathematics. As the 20 credits in mathematics is partly integrated parts of



other courses, it is necessary to go into these courses to evaluate if the regulations requirements are met when it comes to level and content of mathematics. This has to be part of a new assessment.

From the curriculum regulations; “A Bachelor’s thesis is compulsory for all candidates and must be a part of courses of technical specialization with 20 credits.”

NUC have a 15 credits Bachelor’s thesis, and argue that together with the final year group project the two modules together are more than 20 credits. The group project module is also important, as part of the curricula to fulfil the requirements, but it cannot replace the missing credits of the thesis. According to the regulations, all engineering programs should have a comparable size Bachelor’s thesis of 20 credits.

From the curriculum regulations; “The candidate is able to communicate knowledge of engineering to different target groups, both in writing and orally in Norwegian and English, and is able to contribute to making the significance and consequences of technology visible”.

NUC claim there is a conflict between “Opptaksforkriften” § 2-2 and Norwegian National Curriculum Regulations. “Opptaksforkriften” regulates the requirements to get *into* the program, but the regulations is about the learning outcome of the program *itself*. As a pure English program, which NUC claims it to be, it will not be according to the regulations for a Norwegian engineering degree as they are today.

## Conclusion

No, the criterion is not fulfilled in any of the three applications.

### 6.1.3 Recruitment of students

§ 7-1 (3) The recruitment of students to the programme should be large enough to enable the institution to establish and maintain a satisfactory learning environment and a stable programme.

NUC must:

- Justify the student recruitment plan in consideration to number of students, recruitment groups, administrative capacity, infrastructure and academic staff
- Justify more clearly the institution’s strategy for assuring a good learning environment for the students, especially for internet-based and part time studies
- Revise the applications to ensure that inconsistencies are corrected

## Assessment

NUC gives a more detailed response regarding the student recruitment plan. In their response NUC writes that “when needed we have an agreement for the extra 1000m<sup>2</sup> finished built according to needs within 6 months”. It is positive that NUC plans ahead, but the infrastructure needed for the program should be in place before NUC gets accreditation. The expert committee has not been provided with the agreement in question, and is therefore unable to see that the recruitment plan is realistic. NUC has a similar statement regarding library services: “When Engineering is approved we will add resources

for engineering and also look to establish IEEE Digital library access for relevant topics”. Once again we would like to point out that NUC has to have adequate plans for assuring the students learning environment even before accreditation. In the comment, NUC underlines that they do not plan to offer part-time studies until they have experience with full-time students. Further information of the study environment for part-time students is not provided beyond what is already in the original application. As long as NUC plan to offer part-time studies for these programmes, they must show that students can be guaranteed a satisfactory study environment.

## **Conclusion**

No, the criterion is not yet fulfilled.

### **6.1.4 Agreements regarding professional training**

§ 7-1 (4) For programmes including professional training, there must be adequate agreements regulating material issues of importance to the students.

NUC must:

- Justify either how the study programmes facilitate practical training and close contact with the vocational field or include professional training in the programmes.

## **Assessment**

NUC provides little new information and frequently refers to the optional placement year to justify close contact with the vocational field. However, the optional placement year is not relevant in this respect, as this does not include all students. NUC has not provided enough new information to convince the expert committee to change its original conclusion.

## **Conclusion**

No, the criterion is not fulfilled.

### **6.1.5 Programme name**

§ 7-2 (1) The programme must have an appropriate title.

NUC must:

- Change the names of the study programmes according to both English and Norwegian standards and make them coherent for all programmes, and within the curriculum descriptions.

## **Assessment**

NUC has changed the names of the study programmes according to standards as requested by the expert committee.

## Conclusion

Yes, the criterion is fulfilled.

### 6.1.6 Overall learning outcome

§ 7-2 (2) The programme must be described with reference to learning outcomes, cf. National Qualification Framework for Lifelong Learning. The overall learning outcome for each programme, defined in knowledge, skills and general competence, shall be described.

NUC must:

- Implement a programme specific profile into the learning outcomes that is in accordance with regulations and guidelines, but specific for the programmes offered by NUC.
- Comment on the focus on construction and/or management of construction in the learning outcomes for the Civil Engineering programme
- Comment on the focus on design and/ or manufacturing in the learning outcomes for the Mechanical Engineering programme
- Comment on the lack of focus on control systems in the learning outcomes for the Instrumentation and Control Engineering programme

## Assessment

In their comment, NUC writes: *“The Expert Committee identified some typographical errors in the study plans and requested the presentation of the learning outcomes to be more program specific. The short time and the availability of key academics have made it difficult to deliver modified study plans now. But these can be provided to Nokut at a later date agreed with Nokut.”*

The Expert Committee must have an updated study plan in order to a re-assessment, but as we do not find the study programmes to be in accordance with Norwegian National Curriculum Regulations it is difficult to see how this criterion could be met at this stage. Furthermore, NOKUT does not accredit based on plans. NUC must revise the learning outcomes and study programmes so that they are in accordance with regulations and guidelines and at the same time specific for the programmes offered by NUC.

## Conclusion

No, the criterion is not fulfilled in any of the three applications.

### 6.1.7 Content and structure of programme

§ 7-2 (3) The following conditions shall correspond with and be adapted to the description of the learning outcome so that the learning outcome is achieved:  
d) Content and structure of the programme.

NUC must:

- In detail justify how the demands in the National Curriculum Regulations for Engineering Education is fulfilled, in particular concerning the number of credits allotted to mathematics, statistics and bachelor projects in the three programmes - but also how Norwegian communication skills are covered in an all-English programme. The expert committee strongly suggests that NUC develops thread diagrams to verify that all the demands are met.
- Quality assure the study plans and applications for inconsistencies, in particular connected to credit points per course and the associated workload, when and where different courses are taught and who is responsible.
- Integrate the ethical and life cycle aspect more visibly, both related to environmental, health-related, social and financial consequences of products and solutions.
- Clarify what the laboratory session in all programmes consists of and what the students are supposed to learn during the sessions.

## Assessment

As mention in the assessment above, the Expert Committee must have an updated study plan in order to do a re-assessment. The expert committee has only re-assessed how the proposed study programmes fulfil the Norwegian National Curriculum Regulations for engineering programmes. This assessment is the same as for §7-1 (2).

It is not evident from the applications and NUC's comment that the proposed study programmes cover the obligatory 20 credits of mathematics. As the 20 credits in mathematics is partly integrated parts of other courses, it is necessary to go into these courses to evaluate if the regulations requirements are met when it comes to level and content of mathematics. This has to be part of a new assessment.

From the curriculum regulations; "A Bachelor's thesis is compulsory for all candidates and must be a part of courses of technical specialization with 20 credits."

NUC have a 15 credits Bachelor's thesis, and argue that together with the final year group project the two modules together are more than 20 credits. The group project module is also important, as part of the curricula to fulfil the requirements, but it cannot replace the missing credits of the thesis. According to the regulations, all engineering programs should have a comparable size Bachelor's thesis of 20 credits.

From the curriculum regulations; "The candidate is able to communicate knowledge of engineering to different target groups, both in writing and orally in Norwegian and English, and is able to contribute to making the significance and consequences of technology visible".

NUC claim there is a conflict between "Opptaksforkriften" § 2.2 and Norwegian National Curriculum Regulations. "Opptaksforskriften" regulates the requirements to get *into* the program, but the regulations is about the learning outcome of the program *itself*. As a pure English program, which NUC claims it to be, it will not be according to the regulations for a Norwegian engineering degree as they are today.

## Conclusion

No, the criterion is not fulfilled in any of the three applications.

### 6.1.8 Examination and other types of evaluation

§ 7-2 (5) The following conditions shall correspond with and be adapted to the description of the learning outcome so that the learning outcome is achieved:

e) Examination and other types of evaluation

NUC must:

- Better describe the nature of the different assessment forms, what they contain and how they are assessed – and make this information available for the students.
- Clarify how a final grade is awarded in courses that include two exams that are weighted 50/50, and consider weighting these two exams differently - for example 40/60.
- Implement the assessment forms more clearly in the study plans.

#### Assessment

As mention in the assessment above, the Expert Committee must have an updated study plan in order to do a re-assessment.

#### Conclusion

No, the criterion is not fulfilled.

### 6.1.9 Relevance of programme

§ 7-2 (6) The programme must have a clear academic relevance for employment and/or further studies.

NUC must:

- Given that the study programmes are supposed to be relevant for further studies, NUC must contact a selection of universities and university colleges to find out where the graduates would be eligible to apply.
- Make it very clear to the students that the programme is only relevant for working life, or include more elective courses in the curriculum to enable the students to choose courses that will make them qualified for master's programmes in Norway as well as the UK.

#### Assessment

NUC states that these programs are accredited by relevant UK professional bodies and that this will make the students eligible to apply for further studies at master level at any UK or Norwegian university. However the expert committee would like to comment on one thing: Mathematics is claimed to be of a total of 20 credits, which would be enough for a Bachelor Degree per se, but not for further Master studies in technology at Norwegian institutions – then also an elective mathematics course has to be fulfilled. The students are therefore not adequately informed about their possibilities for further studies.

## Conclusion

No, the criterion is not fulfilled.

### 6.1.10 Infrastructure

§ 7-2 (9) The institution must have facilities, library services, administrative and technical services, ICT resources and working conditions for the students, which are adapted to the programme.

NUC must:

- Provide laboratory facilities for the first year study programmes, either on campus or through by rental/leasing from companies/educational institutions in the area. If NUC chooses to rent/lease laboratory facilities, a legally binding contract must be enclosed
- Justify that the institution has facilities, library services, administrative and technical services, ICT resources and working conditions for the students, which are adapted to the programmes, and that can accommodate the potential large number of new students.

## Assessment

Only the laboratory facilities are re-assessed in detail under this criterion. In for example the application for the Civil Engineering degree NUC writes: *“The main laboratory practices will take place in years two and three at Teesside University. However a first year Civil Engineering laboratory facility will be constructed at NUC to ensure student receive practical experience in the subjects.”* In their comment, NUC writes: *“Laboratory-based sessions are used to develop practical skills related to both bench scale and large-scale equipment and to reinforce the knowledge taught in the modules.”* In their further comment on how laboratory facilities are covered for the study programmes, NUC refers to appendix 15.3 in the original application together with a short description of the size and availability of three specific rooms. However, this only provides general information about the facilities, and does not justify that the rooms are adequately equipped to cover the planned teaching. For example, what kind of instruments and equipment are available, and how are the use of these implemented in the teaching so that the students develop practical skills as described in the learning outcomes?

NUC gives a detailed response regarding administrative resources and ICT resources. The expert committee would like to compliment NUC in this respect. However, the necessary infrastructure must be in place before accreditation, and suitable for the intake of students (see assessment under 6.1.3 for further detail). Conditional accreditation is possible if NUC has minor shortcomings when it comes to infrastructure. NUC would then be asked to deliver documentation within one year to prove they fulfil the criterion. However, conditional accreditation is only given when NUC is able to fulfil all other requirements in the regulation, which is not the case here. We would also like to point out that an institution is not at liberty to start up a study programme based on conditional accreditation. Only when the requirements of a conditional accreditation is met and full accreditation is granted can an institution initiate the programme.

## Conclusion

No, the criterion is not fulfilled.

## 6.2 Academic environment associated with the programme (§ 7-3)

### 6.2.1 The composition, size and competence of the academic environment

§ 7-3 (1) The composition, size and collective competence of the relevant academic environment must be adapted to the programme as described by the programme description and also adequate for conducting relevant research and academic or artistic development work.

NUC must:

- Provide complete CV's for all faculty staff members in order for the expert committee to make a full assessment
- Justify how the faculty staff size is large enough to handle the maximum number of students suggested for the intake
- Clarify the competence of the faculty members involved in the teaching of the Civil Engineering, Instrumentation and Control Engineering and Mechanical Engineering programmes, respectively
- Set aside time for research so that the faculty staff is capable of delivering a research-based education from the first semester

## Assessment

The content on pages 23 – 27 of the comment and the attached CVs go some way to enhance NUC's submission. However, the expert committee is of the opinion that NUC does not satisfy our concerns around NUC faculty staff capabilities and competency in all 3 engineering fields submitted.

In particular, we have the following concerns:

- The CVs suggest that there are no engineering qualified staff at NUC. The CVs confirm previous concerns of ours that the staff, although with good scientific backgrounds, do not have the right profiles for the degrees we are assessing
- Regarding the size of faculty staff – the concerns of the experts are about NUC, and not Teesside. The response provided tends to look at the whole "4-year" picture, which is rather irrelevant to the number of staff at NUC required to teach the large number of Year 1 students. Moreover, NUC refers to a number of experienced tutors that will have daily contact and follow up the students. This is not a solution to the problem outlined here (see additional assessment under §7-3 (3) and § 7-3 (4)).

## Conclusion

No, the criterion is not fulfilled in any of the three applications.

## 6.2.2 The academic environment's external participation

§ 7-3 (2) The academic environment must actively participate in national and international collaborations and networks relevant for the programme.

NUC must:

- Demonstrate and elaborate networks that are active and relevant for the programmes, both nationally and internationally
- Establish a formal and more elaborate research based collaboration with Teesside University.

### Assessment

In their comment, NUC refers to the original applications and the networks listed there. Further argumentation under this section seems to be copied from a Teesside-document pertaining the Technology Futures Institute. What we asked for was a description of how NUC is involved in national and international networks relevant for the proposed study programmes. NUC has not provided enough new information to convince the expert committee to change its original conclusion.

### Conclusion

No, the criterion is not fulfilled.

## 6.2.3 Academic staff and employment

§ 7-3 (3) At least 50 per cent of the academic FTEs allotted to the programme must be staff with their primary employment at the institution. Of these, teachers with competence at the level of at least associate professor must be represented among those who teach the core elements of the programme.

For the different cycles, the following additional requirements apply:

- a) For first cycle programmes, at least 20 per cent of the collective academic environment must have competence at the level of at least associate professor.
- b) For second cycle programmes, at least 10 per cent of the collective academic environment must be professors or docents, and an additional 40 per cent with competence at the level of at least associate professor.

NUC must:

- Define the core elements of all three programmes and justify that these are covered by staff with the correct formal competence (at least at the level of associate professor)
- Make sure that the titles of the positions given in the application and those given in the corresponding CVs are the same, and that the Regulations concerning appointment and promotion to teaching and research posts are followed in the recruitment process

### Assessment

In their comment, NUC simply states that the core elements of the first year study is mathematics, physics and the respective engineering fields – and that the NUC staff has PhD level competency in



these three fields. As mentioned in the assessment above, the expert committee does not agree that the proposed NUC staff has the proper background to cover the three engineering fields. Moreover, we would like to point out that the teachers covering the core elements of the programme must have competence at the level of at least associate professor. Having a PhD does not automatically qualify a person for associate professor as defined in the Regulations concerning appointment and promotion to teaching and research posts. NUC has not provided enough new information to convince the expert committee to change its original conclusion.

## Conclusion

No, the criterion is not fulfilled.

### 6.2.4 The academic environment's research and development work

§ 7-3 (4) The academic environment must be actively engaged in research, academic and/or artistic development work.

For the different cycles, the following additional requirements apply:

- a) For first cycle programmes, the academic environment must have documented results at a level that is satisfactory in relation to the content and level of the programme.
- b) For second cycle programmes, the academic environment must have documented results at a high international level of quality, with satisfactory academic breadth.

NUC must:

- Describe the relevant research of the faculty during the last five years and document results that are at a level that is satisfactory in relation to the content and the level of the programme
- Update the publication lists
- Develop research relevant for the study programmes at NUC, preferably in collaboration with Teesside University.

## Assessment

The research environment description refers wholly to Teesside University. We requested and expected to see something about NUC's research capabilities and environment. NUC provides little new information and has not convinced the expert committee to change its original conclusion

## Conclusion

No, the criterion is not fulfilled.

### 6.2.5 Supervision of professional training

§ 7-3 (5) For programmes with supervised professional training, the academic environment and external mentors must have appropriate experience in the field of practice.

NUC must:

- Justify either how the study programmes facilitate a close contact with the vocational field and practical training or include professional training in the programmes as mentioned under the assessment in section 3.2.4.
- If NUC chooses to include professional training, then the applicant must justify that the academic environment and external mentors have appropriate experience in the field of practice.

### **Assessment**

Again, under the comment about supervision of professional training, - the description provided is solely about Teesside University and mainly about the optional placement year. There is no mention of NUC. NUC provides little new information and has not convinced the expert committee to change its original conclusion

### **Conclusion**

No, the criterion is not fulfilled.

## **6.3 Supplementary provisions for joint degrees**

§ 7-4 (1) It must be clearly defined which parts of the programme are the responsibility of each cooperating institution.  
 § 7-4 (2) There must be satisfactory procedures in place for the development of and quality assurance of the programme as a whole.  
 § 7-4 (3) The constituent parts of the programme must make up a whole, as seen in relation to the programme's level and learning outcomes

NUC must:

- Justify that this is a joint degree that follows the regulations for joint degrees as given in the Ministerial Regulations concerning Quality Assurance and Quality Development in Higher Education and Tertiary Vocational Education.
- Describe and justify the routines for programme development and quality assurance for the programme as a whole.
- Justify that these routines are satisfactory
- Justify that both partner institutions are equally involved in the process.
- Describe and justify how the constituent parts of the programme make up a whole, as seen in relation to the programme's level and learning outcomes.

### **Assessment**

In their comment, NUC addresses the question of whether the proposed programmes are joint degrees:

In their comment on point a), NUC seems to think that the expert committee has questioned if the proposed programmes are true joint degrees because the students would be issued two separate diplomas on successful completion of the programme. This is not the case, cf. p. 31 of the expert assessment:

*“The students receive two diplomas on completion of the programme, which is acceptable for a joint degree, even if one diploma would be preferable.”*

This renders NUCs line of arguing on this point superfluous – the expert committee has already agreed that such a setup is acceptable for joint degrees.

In their comment on b), NUC simply state that “The management of the joint programmes is described in Chapter II of the Consortium agreement” (p. 2). In pp. 27-28 of the appendix, NUC provides a more detailed answer to the points raised by the expert committee on the content of the consortium agreement. However, the information provided does not significantly alter the initial impression that seems to be an agreement providing students for Teesside University rather than a truly joint degree programme, as stated in the expert assessment.

A more detailed reply would require an entire new assessment of the applications, which will be better suited for a new expert committee in case NUC should reapply for accreditation.

## **Conclusion**

No, the criterion is not fulfilled.

## **7 Decision**

We have assessed the criteria in NOKUT’s Regulations concerning supervision of the educational quality in higher education (Academic Supervision Regulations), and have reached the following **decision**:

Bachelor Degrees in Civil Engineering, Mechanical Engineering and Instrumentation and Control Engineering (180 ECTS) at Noroff University College (joint programmes with Teesside University) is not accredited.

The following requirements in NOKUT’s Regulations concerning supervision of the educational quality in higher education (Academic Supervision Regulations) are not met:

- § 7-1 (1) Requirements laid down in the Universities and Colleges Act must be satisfied.
- § 7-1 (2) Requirements of applicable regulations and curricula set out by the Ministry of Education and Research must be satisfied.
- § 7-1 (3) The recruitment of students to the programme should be large enough to enable the institution to establish and maintain a satisfactory learning environment and a stable programme.

- § 7-1 (4) For programmes which include professional training, there must be adequate agreements regulating material issues of importance to the students.
- § 7-2 (2) The programme must be described with reference to learning outcomes, cf. the National Qualification Framework for Lifelong Learning. The overall learning outcomes for each programme, defined in terms of knowledge, skills and general competence, must be described.
- § 7-2 (3) The following conditions must correspond with and be adapted to the description of the learning outcomes so that the learning outcomes are achieved: Content and structure of the programme.
- § 7-2 (5) The following conditions must correspond with and be adapted to the description of the learning outcomes so that the learning outcomes are achieved: Examination and other types of evaluation.
- § 7-2 (6) The programme must have a clear academic relevance for employment and/or further studies.
- § 7-2 (9) The institution must have facilities, library services, administrative and technical services, ICT resources and working conditions for the students, which are adapted to the programme.
- § 7-3 (1) The composition, size and collective competence of the relevant academic environment must be adapted to the programme as described by the programme description and must also be adequate for conducting relevant research and academic or artistic development work.
- § 7-3 (2) The academic environment must actively participate in national and international collaborations and networks relevant for the programme.
- § 7-3 (3) At least 50 per cent of the academic FTEs allotted to the programme must be staff with their primary employment at the institution. Of these, teachers with competence at the level of at least associate professor must be represented among those who teach the core elements of the programme.
- § 7-3 (4) The academic environment must be actively engaged in research, academic and/or artistic development work.
- § 7-3 (5) For programmes with supervised professional training, the academic environment and external mentors must have appropriate experience in the field of practice.

**Supplementary provisions for the accreditation of a programme or parts of a programme that are constituent parts of a joint degree:**

- § 7-4 (1) It must be clearly defined which parts of the programme are the responsibility of each cooperating institution.
- § 7-4 (2) There must be satisfactory procedures in place for the development of and quality assurance of the programme as a whole.
- § 7-4 (3) The constituent parts of the programme must make up a whole, as seen in relation to the programme's level and learning outcomes.

## 8 Documentation

15/53-1, Noroff University College - søknad om akkreditering av fellesgraden Bachelor of Engineering in Civil Engineering (180 studiepoeng)

15/53-22, Kommentar til sakkyndig rapport - Noroff University College - søknad om akkreditering av fellesgraden Bachelor of Engineering in Civil Engineering

15/55-1, Noroff University College - søknad om akkreditering av fellesgraden Bachelor of Engineering in Mechanical Engineering (180 studiepoeng)

15/55- 22, Kommentar til sakkyndig rapport - Noroff University College - søknad om akkreditering av fellesgraden Bachelor of Engineering in Mechanical Engineering

15/57-1, Noroff University College - søknad om akkreditering av fellesgraden Bachelor of Engineering in Instrumentation and Control Engineering (180 studiepoeng)

15/57- 22, Kommentar til sakkyndig rapport - Noroff University College - søknad om akkreditering av fellesgraden Bachelor of Engineering in Instrumentation and Control Engineering

## 9 Presentation of the Expert Committee

### **Ph.d. Ian Smith, Head of School of Engineering and Built Environment, Edinburgh Napier University**

Ian Smith has a PhD in Civil Engineering from Heriot-Watt University, Edinburgh (1994). He has been employed at Edinburgh Napier University since 1995 where he has taught in the field of geotechnological engineering, civil- and transport engineering and build engineering. He has held several leading offices at Napier University, has been actively involved, and led a number of processes of program- and subject development, including public accreditation processes at the institution. Smith is now Head of School of Engineering and Built Environment where he has overall responsibility for all of the school's activities and is head of all academic and administrative personnel, and about 1800 students on the various programs at the school. The school's portfolio is broad and includes programmes in Building & Surveying, Civil and Transportation Engineering, Electrical and Electronic Engineering and Mechanical and Materials Engineering. By virtue of his position, he has been involved in the development of several international joint degrees. Smith has extensive knowledge of the British Civil Engineering education in general and what is expected of newly graduated engineers in the UK.

### **Professor Gabriella Tranell, Norwegian University of Science and Technology, NTNU**

Gabriella Tranell is a professor at the Department of Materials Science and Engineering at NTNU. She took her PhD within the field of Materials Science and Engineering at the University of New South Wales, Australia in 1999. She is now associated with the Master Programme Innovative Sustainable Energy Engineering (ISEE) at NTNU where she teaches materials technology and energy techniques. Tranell was the Director of the Center of Renewable Energy (SFFE) until its termination in 2015. She has also been project manager for several projects hosted by SINTEF and NTNU, and has published

extensively within the field of engineering. Tranell has supervised a number of master- and PhD students and has been part of several expert committees for NOKUT – the assessment of a Master Degree Programme in Engineering being one of them.

**Professor Kjell Gunnar Robbersmyr, University of Agder (UiA)**

Kjell Gunnar Robbersmyr a professor at the Department of Engineering Sciences at UiA. He has broad experience from the field of engineering and has for numerous years done research on technology and industrial production (TIP) and mechatronics. He is head of the research group Dynamics where areas like machine construction, multibody dynamics, FEM/plastic shaping of materials, mathematical modelling, and monitoring and control are central. He has been particularly engaged in mathematical modelling, simulations and design in connection with vehicle crash studies. Robbersmyr is coordinator for the Master Programme in Mechatronics dealing with integration of machine techniques, instrumentation techniques, hydraulic and electrical power and industrial IT, and teaches analysis of dynamic mechanical systems at PhD-level. Robbersmyr has also been a Professor II at the Faculty of Engineering and Business Administration at Bergen University College.

**Senior Advisor Einar Meier - Management Support Unit, University of Oslo (UiO)**

Einar Meier is cand.philol in English and serves as senior adviser and coordinator for international affairs at the UiO Management Support Unit. Meier is responsible for development of strategy and counselling the University Board in connection with internationalization – in particular follow-up of UiO's strategic partnership abroad. He has worked with internationalization of study programmes at UiA and UiO since 2006. Meier has, together with UiO's joint degree team, advised the faculty staff in connection with the establishment of UiO's European Master in Health Economics and Management (EU HEM). He has previously been Institutional Coordinator of the Erasmus Programme at UiO and has extensive knowledge of EU's joint degree programme Erasmus Mundus. Meier has experience with management of study programs, signing and quality assurance of student exchange agreements, student mobility, staff- and teacher mobility, ECTS and Diploma Supplement, specific recognition of non-Norwegian education, ERAXESS. He also has experience from teaching and research.

**Senior Advisoar Mette Mo Jakobsen, The Norwegian Association of Higher Education Institutions (UHR)**

Mette Mo Jakobsen has a PhD in Engineering from NTNU in the field of systematic product development . The thesis from 1995 is called «Systematisk utvikling av konkurransedyktige produkter- en systematisk fremgangsmåte for små og mellomstore bedrifter». Mo Jakobsen has held several positions at Higher Education Institutions, such as associate professor at NTNU (1995-2003) – including a sabbatical leave in Germany, Dean of Studies at Akershus University College (2003-2007) and Head of Studies at Oslo University College (2007-2011). In 2010 she was secretary and leader of the National Council for development of new National Curriculum Regulations for Engineering Degrees formed by the Ministry of Education and Research. After that, she worked as a Senior Advisor in the Ministry of Education and Research before she joined UHR. Mo Jakobsen is Secretary of the National Council for Technological Education (NRT) and has responsibility for cooperation with the National Faculty Meeting for Natural Sciences, Innovation and Entrepreneurship in Higher Education. Her work includes implementation of new National Curriculum Regulations for Engineering Degrees, and cooperation, workflow and professional focus within natural sciences and technology subjects. Mo Jakobsen has by virtue of her experience in-depth knowledge of the Norwegian National Curriculum Regulations for Engineering.