TILSYNS-RAPPORT

Bachelor i Digital assurance og sikkerhetsledelse

NOROFF University College

2022

NOKUT

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Grad / studiepoeng	Bachelor / 180 studiepoeng
Sakkyndige	Vladimir A. Oleshchuk, Erik Hjelmås og Lorena Alina Alexandru
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NOKUT er sertifisert som miljøfyrtårn

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.

An expert committee appointed by NOKUT has evaluated the application from NOROFF University College for the accreditation of Bachelor programme in Digital assurance and Security Management and its assessments are found in this report.

The Bachelor programme in Digital assurance and Security Management at NOROFF University College does not fulfil the conditions for accreditation in NOKUT's regulations concerning Supervision of the Educational Quality in Higher Education (Academic Supervision Regulations).

Øystein Lund

Director of the Department for Quality Assurance and Legal Affairs

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1 Information regarding the applicant institution

Noroff University College (NUC) was established in 1987 and provides programmes on upper secondary (EQF/NQF level 4), tertiary vocational education (EQF/NQF level 5), and higher education (EQF/NQF level 6). The college was established 2012 in Kristiansand. NUC is a non-accredited education institution and must apply to NOKUT for accreditation of all education programmes. NUC provides both campus- and on-line education and training. So far, NUC has had the following programmes accredited by NOKUT:

- Bachelor degree programme in Digital Forensics (180 studiepoeng), 2012,
- Bachelor degree programme in Interactive Media, specialisation in Animation and Games (180 studiepoeng), 2012,
- Bachelor degree programme in Applied Data Science (180 studiepoeng), 2017, and
- Bachelor degree programme in Cyber Security (180 studiepoeng), 2018.

The internal quality assurance system of NUC was approved by NOKUT in 2016. In addition to the application for accreditation of a bachelor's programme in Digital assurance and security management, NUC applied autumn 2021 for accreditation of a bachelor's programme in Games Design.

2 Decision

NOKUT made the following decision on 7 March February 2022:

> NOKUT considers that the criteria in the regulations are not fulfilled.
>
> The application for accreditation of a Bachelor programme in Digital assurance and Security Management (180 ECTS) at NOROFF University College is therefore rejected.

The original decision in Norwegian:

> Vilkårene i forskrift om tilsyn med utdanningskvaliteten i høyere utdanning av 9. februar 2017 (studietilsynsforskriften) er ikke oppfylt.
>
> Søknaden om akkreditering av bachelor i digital assurance og sikkerhetsledelse (180 studiepoeng) ved NOROFF University College avslås.

3 Expert assessment

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

3.1 Summary

The expert committee does not recommend accreditation of the study program. Nevertheless, the committee is of the opinion that the shortcomings in the application are mainly a question of documentation, and to some extent shortcoming in the study program or academic environment. This especially applies to documentation regarding admission requirements and process, covering the area of cloud computing by a professor/associate professor in a permanent position at NUC, and of agreements for providing the pedagogical course for the academic staff.

Regarding the study program and the academic environment, it is required to adapt the program's content, structure, and infrastructure to the learning outcome; the composition, size, and collective competence of the academic environment to the program, and the teaching, learning, and assessment methods to the program's learning outcomes.

Assessment after response from the institution to the initial report

Based on supplementary information and the applicant institution's comments, the requirements are now considered fulfilled for:

- Basic prerequisites for accreditation
- The program's content, structure, and infrastructure
- The academic environment's composition, size, and competence
- The academic environment's educational competence
- Staff with primary employment

However, the expert committee finds the supplementary information and the applicant institution's comments unsatisfactory for the remaining requests from the committee to adapt, and the following actions are required:

- provide the name of the study program in Norwegian
- revise the list of master programs BDASM qualifies for
- differentiate teaching, learning, and assessment methods in the course descriptions (constructive alignment)

Based on the shortcomings to the requirements mentioned above, the committee does not recommend accreditation of the Bachelor of Digital Assurance and Security Management at Noroff University College.

3.2 Basic prerequisites for accreditation

3.2.1 Provisions in the University and University Colleges Act

From the Quality Assurance Regulations:
§ 3-1 (4) It is a condition for accreditation being granted that the requirements of the Universities and University Colleges Act are met. Regulations adopted under the

authority of Section 3-2 of the Universities and University Colleges Act shall form the basis for the accreditation.
From the Academic Supervision Regulations:
§ 2-1 (1) The requirements of the Act relating to Universities and University Colleges and its corresponding regulations must be met.

Assessment

Bachelor in Digital Assurance and Security Management (BDASM) is a study programme in the first cycle (level six) of the national qualification framework and is regulated by the *Forskrift om opptak til høgare utdanning*. The admission requirements are described adequately, but not properly accounted for. Since the parallel study programs at NUC have special admission requirements (§ 4.3 (1) of *Forskrift om opptak til høgare utdanning*), there should be an explanation of why BDASM does not have these requirements (BDASM shares some courses with these parallel study programmes). The admission process is partly described in attachment "Mal for utdanningsplan" by linking to § 7.1 and § 7.2 of *Forskrift om opptak til høgare utdanning*. From the NUC webpage a process of first-come-first-serve admission for qualified applicants is described but this should be clarified in the application. Annual estimated dates for start of admission process and start of the study programme is presented in attachment "Mal for utdanningsplan".

The diploma and the diploma supplement are satisfactory.

The institution is required to:

- Provide a reasoning for choice of admission requirements
- Describe and provide a reasoning for the admission process
- Provide annual dates for admission (if applicable given the admission process)

Assessment after response from the institution to the initial report

In the response to the initial report, the applicant has argued sufficiently for choice of admission requirements, as well as providing a reasoning for the admission process with a first-come-first-served principle. The committee also finds that the applicant is arguing satisfactorily with regards to dates of admission.

Conclusion

Yes, the requirements are fulfilled.

3.2.2 Information about the programme

Academic Supervision Regulations § 2-1 (2) Information provided about the programme must be correct and show the programme's content, structure and progression, as well as opportunities for student exchanges.

Assessment

The study appears to be academically up-to-date and relevant. The attached Study Plan is updated. The structure of the study, teaching methods and assessment methods are well described. All courses are described.

Since the study is in English, NUC does not require documented Norwegian skills, however, English knowledge corresponding to general study competence is required (140 hours) in Norwegian high school.

As for candidates with foreign education, they must be able to document proficiency in the English language (140 English hours from Norwegian upper secondary school: written and oral exam) and the country they are coming from must be recognized by NOKUT specified in the GSU-list.

NUC has set a maximum number of 48 students that can be admitted to each program year.

NUC presents a good documentation for student exchange where students can find relevant courses internationally and apply for an exchange to be placed in the study program. The exchange year can be possible at Deakin University and Teesside University.

The study plan has information about the study's relevance for further studies.

Conclusion

Yes, the requirements are fulfilled.

The institution is advised to:

- provide a description of opportunities for further studies in the study plan

3.3 Requirements to the educational provision

3.3.1 Learning outcome and title of programme

Academic Supervision Regulations § 2-2 (1) The learning outcomes for the programme must be in accordance with the National Qualifications Framework for Lifelong Learning, and the programme must have an appropriate title.

Assessment

NUC has chosen "Digital Assurance and Security Management" as the name of the study program in English and "Digital assurance og sikkerhetsledelse" in Norwegian. The name of the study program is considered to cover its profile and level. Digital Assurance is the term that is also sometimes used in Norwegian. However, the study program must have the name in Norwegian too (according to regulations).

The learning outcome description provides a good description of the study program and reflects the knowledge, skills, and general competence one would expect a candidate to acquire through the study programme Digital Assurance and Security Management where a relatively large part of the study is ICT / management education. The learning outcome descriptions are also in line with the general learning outcome descriptions given in the National Qualifications Framework for Lifelong Learning, Level 6.2 Bachelor (1st cycle).

The institution is required to:

- provide the name of the study program in Norwegian

Assessment after response from the institution to the initial report

In its response to the initial report, the applicant refers to contacts with international business partners in its endeavours to meet the requirement. The expert committee requests NUC to provide the name of the study programme in Norwegian, as NOKUT's Guidelines demands. The applicant has thereby changed the name of the study programme in Norwegian from "Digital assurance og sikkerhetsledelse" to "Digital assurance and Security Management". The applicant argues that this is a name that describes the study programme most suitably, both towards an English and Norwegian-speaking audience.

The expert committee repeats that "Digital assurance" is not in Norwegian language, and as such NUC has not proposed a Norwegian translation. NUC has not provided the name of the study program in Norwegian and therefore not met the requirements of the assessment. Whether the applicant prefers to use only the English name of the study programme in marketing and admission processes, is not relevant, but a Norwegian name surely is. The expert committee is well aware of Norwegian terms which would be suitable.

Conclusion

No, the requirements are not fulfilled.

The institution is required to:

- provide the name of the study program in Norwegian

3.3.2 The programme's academic update and professional relevance

Academic Supervision Regulations § 2-2 (2) The programme must be academically up-to-date and have clear academic relevance for further studies and/or employment.

Assessment

The area of information assurance and security is widely documented to have a high demand for candidates, and this also includes the subarea where BDASM belongs. The application documents adequately the link to industry and the needs for the study programme in society.

The list of seven possible job roles after graduation is satisfactory, but since these are not typical job titles in the Norwegian job market the application could have use job roles from the NICE work force framework for cyber security instead. Maybe the best approach is to use NAVs "Ledige stillinger", search for "informasjonssikkerhet" and consider the positions with "Rådgiver" in the title.

The application mentions that BDASM qualifies the students for at least four different kinds of master programmes, one of which is information security. Admission to e.g. NTNU's master programme in information security requires a bachelor's degree with at least 80 ECTS of computing courses and this is a requirement BDASM does not fulfil.

The programme has been designed in close collaboration with industry partners. The application should list some of the concrete industry partners that have been part of this process.

All course descriptions have the same text for Compulsory Reading List: "This course does not require specific reading material to be purchased, links to available electronic resources

will be provided in the LMS". Since no courses list any reading material it is not possible to evaluate whether the courses (and thereby the programme) is academically up-to-date.

The application is missing a discussion of recruitment of candidates to the study programme. The discussion needs to address, among other areas, what the most similar existing bachelor programmes are, and whether these have a high number of applications for admission?

The programme is not up-to-date and do not have a clear relevance for further studies and/or employment.

The institution is required to:

- revise the list of master programmes BDASM qualifies for
- list relevant reading material in each course description
- describe foundation for recruitment of candidates

The institution is advised to:

- use e.g. NAVs database of available positions to find actual typical Norwegian job titles relevant for the graduates, search for "informasjonssikkerhet" and consider the positions with "Rådgiver" in the title
- list concrete industry partners that have been involved in designing the study programme

Assessment after response from the institution to the initial report

The expert committee finds that the applicant has provided sufficient documentation for the requirements and relevant reading material in each course description, as also referred to under sub-chapter 3.3.4. The applicant further provided sufficient description of the foundation for recruitment of candidates to the study programme.

However, the expert committee would like to draw attention to the specific phrasing in the final requirement; *the institution is required to revise the list of master programmes BDASM qualifies for*. In its response to the initial report, the applicant provided only one concrete example of a study programme and did not revise the list from the original and insufficient list of 3-4 examples of themes of master programmes. Thus, the institution has not delivered what was required.

Conclusion

No, the requirements are not fulfilled.

The institution is required to:

- revise the list of master programmes BDASM qualifies for

3.3.3 The programme's workload

Academic Supervision Regulations § 2-2 (3) The total workload of the programme must be between 1,500 and 1,800 hours per year for full-time students.

Assessment

The degree consists in 6 semesters, delivered over 3 academic years, each year having 60 ECTS total of 180 ECTS for the full program of study, which equates to 1500 hours of work per year. Of this, 432 hours (28.8 %) in the first year, 432 hours (28.8 %) in the second year and 328 (22 %) hours in the third year are organized learning activities ("guided education"). The rest is self-study and time spent preparing for and carrying out assessment activities.

The expert committee believes that the proportion of TLA (teacher-led activities) and TSW (teacher-supported work) should be increased because it appears that only 25-30 % of the total number of study hours are lectures while the rest of around 70 % are self-study and assessment activities hours.

Conclusion

Yes, the requirements are fulfilled.

The institution is advised to:

- consider increasing the proportion of TLA and TSW activities

3.3.4 The programme's content, structure and infrastructure

Academic Supervision Regulations § 2-2 (4) The programme's content, structure and infrastructure must be adapted to the programme's learning outcomes.

Assessment

The program consists of 20 compulsory courses and 3 electives (students must choose one of these three). Of these, computer science courses are already existing courses that are included in NUC's other bachelor's programs. However, these bachelor's programs have other entrance requirements (more specifically, R1 level for math) which is not a requirement for the evaluated program. This should be justified in the application. In addition, since the program description underlines the focus on cloud computing, the course "Introduction to operating systems and computer networks" would be recommended.

The course descriptions provided in the attachment do not contain any specific information regarding compulsory reading lists. It only states: "This course does not require specific reading material to be purchased, links to available electronic resources will be provided in the LMS."

However, the committee considers such information (textbooks with relevant chapters, scientific papers, reports etc.) as essential to be able to assess the workload, novelty, learning outcome, etc of these courses. The compulsory reading lists must be specified.

NUC will offer a Bachelor in Digital Assurance and Security Management to students both at the main campus in Kristiansand, a satellite / decentralized campus in Oslo, and as an online study. NUC's premises in Kristiansand have group rooms, auditoriums, a canteen, computer laboratories, a cybersecurity laboratory, and specially adapted workrooms. The premises in Oslo have a canteen, auditorium and four classrooms, two of which are equipped with desktops, three computer laboratories, and four group rooms. There is a

physical library in Kristiansand with a satellite in Oslo. Both campus students and online students have access to an electronic library system for resources from ACM digital library, Ebsco, Brown University e-books, Science Direct. Online students and students at the Oslo campus follow the teaching through a Virtual Learning Environment (VLE). VLE consists of an LMS, a system for streaming lectures, a virtual laboratory, and a chat service. Students can follow the lectures online and participate in practical exercises via the virtual laboratory.

Overall, we consider it so that the infrastructure is sufficient for the students to take part in the teaching and achieve the specified learning outcomes both at the main campus in Kristiansand, the decentralized campus in Oslo, and online. We also consider it positive that NUC intends to have parts of the academic staff located on the Oslo campus.

The programme's content, structure and infrastructure are not adapted to the learning outcome.

The institution is required to:

- provide the compulsory reading lists in the course descriptions
- clarify that the entrance requirements are sufficient for taking required courses "borrowed" from programs with more demanding requirements (such as R1 math)

The institution is advised to:

- offer an introductory course on operating systems and computer networks

Assessment after response from the institution to the initial report

The response from the applicant under sub-chapter 3.3.4 on the programme's content, structure and infrastructure clearly meets the requirements from the expert committee in its assessment of the original application, as each course description is updated with a compulsory reading list, as also referred to under sub-chapter 3.3.2 above. Additionally, in comments under sub-chapter 3.2.1, the entry requirements are sufficiently argued.

Conclusion

Yes, the requirements are fulfilled.

3.3.5 Teaching, learning and assessment methods

Academic Supervision Regulations § 2-2 (5) The teaching, learning and assessment methods must be adapted to the programme's learning outcomes. The programme must facilitate students taking an active role in the learning process.

Assessment

The teaching, learning and assessment methods are not documented adapted to the learning outcomes.

The application includes a document "Teaching, Learning and Assessment Methods" which thoroughly describes the overall thinking and justification of all methods used by NUC in the programme. The document does not link the methods to specific learning outcomes or specific courses. All courses contain the same text:

"1. Teaching will be based on a hybrid-flexible approach. Instructor-led face-to-face learning is combined with online learning in a flexible course structure that gives students the option of attending sessions in the classroom, participating online, or doing both. 2. All activities require active student participation in their own learning. 3. Education delivery methods include but are not limited to: Live Lectures with Video Streaming, Pre-Produced Online Material, Tutorials, Self-Study, Campus and Virtual Labs, Automated Review Tests, VLE."

The application is missing a justification of why the same methods for teaching, learning and assessment are appropriate for campus and online students. Having students on-campus provides several opportunities for different assessment methods in more controlled environments than what is possible with online students. It is very good that NUC uses formative assessment, but graduating students with a high integrity diploma also requires summative assessment in controlled environments.

The teaching, learning and assessment methods are not adapted to the programme's learning outcomes.

The institution is required to:

- justify teaching, learning (including the student's active role) and assessment methods with respect to the programmes learning outcomes
- differentiate teaching, learning and assessment methods in the course descriptions (constructive alignment)
- justify why it is not necessary to differentiate in teaching, learning and assessment methods between campus and online students

Assessment after response from the institution to the initial report

In its response to the initial report, the institution has provided an updated attachment 3.3.5-A which includes further details to the teaching, learning and assessment methods in the study programme, and with vague reference to the programme's learning outcome. The applicant has provided a sufficient description as to why it is not necessary to differentiate teaching, learning and assessment methods between campus and online students.

However, NUC has not differentiated the teaching, learning and assessment methods with respect to constructive alignment in the course descriptions. Under the vast majority of course descriptions the assessment methods are similar, and only very small and insufficient adjustments have been made to a few of the course descriptions, also with regards to the teaching and learning methods. It is quite clear that the requirement under this sub-chapter demands a revision of the listed teaching, learning and assessment methods, as well that under the clause itself it is expected that the teaching, learning and assessment methods are adapted to the learning outcomes of the programme. What is further enigmatic is that the attachment 3.3.5-A does not seem to have been taken into use when the course descriptions were revised as part of the applicants' response to the initial report. The applicant has not met the requirement of differentiating teaching, learning and assessment methods in the course descriptions.

Conclusion

No, the requirements are not fulfilled.

The institution is required to:

- differentiate teaching, learning and assessment methods in the course descriptions (constructive alignment)

3.3.6 Links to research and/or artistic development work and academic development work

Academic Supervision Regulations § 2-2 (6) The programme must have relevant links to research and academic development work and/or artistic research.

Assessment

NUC describes teaching as research-based in each of the courses where students will be provided with current and emerging concepts and ideas via a variety of sources including relevant conferences and journals, ongoing research at NUC, and the related network of national and international academics. In addition, some members of teaching staff are active researchers with relevant publications in the recent years.

Conclusion

Yes, the programme has satisfactory links to research and academic and/or artistic development work.

3.3.7 The programme's internationalisation arrangements

Academic Supervision Regulations § 2-2 (7) The programme must have internationalisation arrangements adapted to the programme's level, scope and other characteristics.

Assessment

All students can apply to undertake a period of study at an international university.

NUC proposes the use of international literature in the study and arranges lectures from international guest professors. NUC has a well-developed infrastructure for streaming lectures. This can be used to arrange guest lectures without the lecturer having to travel to Norway.

The Committee considers that the requirements are met.

Conclusion

Yes, the programme has internationalisation arrangements adapted to its level, scope and other characteristics.

3.3.8 The programme's arrangements for international student exchange

Academic Supervision Regulations § 2-2 (8) Programmes that lead to a degree must have arrangements for international student exchanges. The content of the exchange programme must be academically relevant.

Assessment

NUC presents a good documentation for student exchange where students can find relevant courses internationally and apply for an exchange to be placed in the study program. NUC has established exchange agreements with Deakin University and Teeside University, which ensures that the exchange scheme is real. Students can also apply for exchange to other institutions if they make an agreement with the host institution.

The student can study abroad without losing the degree when coming back to Norway; In Deakins Term and Conditions it is specified that there will be "credit towards the student`s course for studies undertaken at Deakin is to be awarded by the home institute".

Student exchange is limited to 2 students per year and NUC has no documentation about the admission requirements for the exchange period.

Quality assurance in the application process ensures that the exchange is professionally relevant.

Conclusion

Yes, the programme has arrangements for international student exchange.

3.4 Requirements of the academic environment

3.4.1 The academic environment's composition, size and competence

Academic Supervision Regulations § 2-3 (1) The academic environment for each programme must be of a size proportionate to the number of students and the programme's characteristics, be stable over time in terms of competence and have a composition that covers the programme's topics and subjects.

Assessment

The application states the teacher/student ratio 1:22 which is sufficient. It also states (and documents in the attached table)

"The academic team currently consist of four first competence researchers (whereby two are professors) and two industry experts (whereby one has first competency), assigned course leadership across all subjects and five allocated teaching resources. Any increase in the student population will be mirrored by an increase in staffing (indicated by N.N. in "Table 2") and infrastructure as required. In addition, the Study Administration handles non-academic administration and supports the academic Environment."

This text does not correspond with table 2 where only four professors/associate professors and one assistant professor are listed in addition to three N.N. (unless there is overlap between the categories "researchers" and "industry experts").

The five permanent and adjunct faculty members covers the programme's topics and subjects, but the academic environment is not sufficient in size. A typical estimate for teaching/supervision time of well-organized and running courses (meaning start-up costs of courses not included) is 0.2 FTE for a 10-credit course and 0.15 for a 5-credit course. In addition, a typical estimate of supervising a bachelor project is 0.02 FTE per project. If we assume that BDASM reuses four courses in the first year (Academic Skills; IT Fundamentals; Introduction to Programming; Programming and Databases), we are left with ten 10-credit courses, four 5-credit courses and the bachelor theses. If we assume ten bachelor projects with groups of four students, this adds up to (note: without start-up-cost per course):

- Ten 10-credit courses times 0.2 FTE = 2.0 FTEs
- Four 5-credit courses times 0.15 FTE = 0.6 FTE
- Ten bachelor groups times 0.02 FTE = 0.2 FTE

This sums up to 2.8 FTEs while table 2 only lists 1.7 FTEs allocated to teaching and supervision which are currently hired. 2.3 FTEs allocated for teaching and supervision is listed as N.N.

The five permanent and adjunct faculty members currently hired have a total of 3.6 FTEs in the programme divided into 1.7 for teaching/supervision, 0.7 for R&D and 1.2 for "other". It is unclear what is meant by "other" since it is not specified in the "comments"-part below table 2.

The application describes NUCs current work and future plans for maintaining academic quality and the efforts NUCs offers staff. Given the current size of the faculty is below minimum, the application should further elaborate on efforts to ensure a stable academic environment over time.

Due to long-term permanent staffing, start-up-costs and missing coverage of the core area of cloud computing by permanent faculty (as also pointed out in 3.4.4), the expert committee considers the academic environment not to meet the requirement of size proportionate to the number of students and the programme's characteristics.

The composition, size and collective competence of the academic environment is not adapted to the programme.

The institution is required to:

- describe how to ensure a stable academic environment over time
- hire at least one more permanent faculty member at professor or associate professor level in the area of cloud computing
- describe planned allocation of teaching staff to each course and clarify which courses are reused or overlap with courses in other study programmes

<u>Assessment after response from the institution to the initial report</u>

The committee has reviewed the applicant's response to the original report and finds sufficient description of allocation of teaching staff to each course as well as clarification of

which courses are overlapping or reused with courses from other study programmes. Additionally, the applicant has argued well for how to ensure a stable academic environment over time. Furthermore, the committee acknowledges the initial procedures for employment of a full time Associate Professor with competence in cloud computing and pedagogical expertise as sufficient to meet the critique hence the requirement in the original report.

Conclusion

Yes, the requirements are fulfilled.

3.4.2 The academic environment's educational competence

Academic Supervision Regulations § 2-3 (2) The academic environment must have relevant educational competence.

Assessment

NUC has professional employees with experienced-based educational competence. However, the criterion requires formal educational competence. Guidelines for basic pedagogical competences should be used as a minimal norm.

NUC has initiated a major increase in competence that will provide basic pedagogical ability for the academic staff. The college is in dialogue with two potential partners in this, OsloMet and the University of Agder (UiA).

There is a verbal agreement (with UiA) in the process of formalization. The pedagogy course at UiA will contribute to developing, supplementing and adjusting the pedagogical competence. The participants will acquire knowledge and new skills about planning, implementation and evaluation of teaching and supervision of students. The employees have or can acquire basic pedagogical competences based on this agreement.

The institution is required to:

- show the written agreement (with UiA or OsloMet) on the pedagogical course for the academic staff

Assessment after response from the institution to the initial report

NOROFF University College has informed the expert committee in its response to the initial report that the original plan for upgrading of the academic environments educational competence has been met with some obstacles and is thus revised. The applicant aims to have two of its staff under this programme enrol in 2022 and two more in 2023 in courses provided by Kristiania University College in pedagogics for the university and college sector. The expert committee approves of this plan and finds that it meets the requirement in its original report.

Conclusion

Yes, the requirements are fulfilled.

3.4.3 Academic leadership

Academic Supervision Regulations § 2-3 (3) The programme must have a clear academic leadership with defined responsibilities for quality assurance and the development of the study programme.

Assessment

The information available in the application describes roles and their responsibilities concerning academic management and quality assurance and development of the study program. Table 3 describes members of the academic team that will contribute to the program. However, it does not provide any indications about what roles the members of the team are assumed concerning the academic leadership (program leader, course leader, etc.)

Conclusion

Yes, the programme does have an academic leadership with a defined responsibility for quality assurance and the development of the programme.

3.4.4 Staff with primary employment

Academic Supervision Regulations § 2-3 (4) At least 50 per cent of the academic full-time equivalents affiliated to the programme must be staff with their primary employment at the institution. Of these, academic staff with at least associate professor qualifications must be represented among those who teach the core elements of the programme. In addition, the following requirements apply to the academic environment's level of competence:

a) For first-cycle programmes, at least 20 per cent of the members of the academic environment must have at least associate professor qualifications.
b) For second-cycle programmes, at least 50 per cent of the members of the academic environment must have at least associate professor qualifications. Within this 50 per cent, at least 10 per cent must have professor or docent qualifications.
c) For third-cycle programmes, the academic environment must consist of academic staff with at least associate professor qualifications. At least 50 per cent must have professor qualifications.

Assessment

The academic staff affiliated with the programme consists of 3.1 FTEs with primary employment at NUC out of a total of 3.6 FTEs. This meets the criteria of at least 50 %.

The application states that the core areas of the study programme are

- Foundational IT Knowledge
- IT Audit and Assurance
- Information Security Management
- Cloud Computing
- Information Assurance

Four of these areas are covered by 2.1 FTEs professor/associate professor in permanents positions and 1 FTE assistant professor. The core area Cloud Computing is covered by a faculty member who is not in a permanent position at NUC.

The academic staff in BDASM is in total composed of 2.6 FTEs professor/associate professor out of a total of 3.6 FTEs which meets the requirement of 20 % at least associate professors.

The criteria and the demands specific to the cycle of the programme are not fulfilled.

The institution is required to:

- document that the area of cloud computing is covered by a professor/associate professor in permanent position at NUC

Assessment after response from the institution to the initial report

With reference to its comments under the revised sub-chapter 3.4.1, the expert committee acknowledges the initial procedures for employment of a full time Associate Professor with competence in cloud computing and pedagogical expertise as sufficient to meet the critique hence the requirement in the original report.

Conclusion

Yes, the requirements are fulfilled.

3.4.5 The academic environment's research and/or artistic research and academic development work

Academic Supervision Regulations § 2-3 (5) The academic environment must be actively engaged in research and academic development work and/or artistic research, and be able to demonstrate documented results with a satisfactory quality and scope in relation to the programme's content and level.

Assessment

Some members of the teaching staff at NUC are active researchers with scientific production in recent years. Most appear to be at NVI levels 0 and 1, but the committee considers the production to be sufficient for the bachelor's degree level (first cycle), and the topics published within are relevant to the study. The committee considers this to be an adequate level of research and professional development work for a bachelor's degree program.

Conclusion

Yes, the criteria and the demands specific to the content and level of the programme are fulfilled.

3.4.6 The academic environment's external participation

Academic Supervision Regulations § 2-3 (6) The academic environment for programmes that lead to a degree must actively participate in national and international partnerships and networks that are relevant for the programme.

Assessment

The application lists and briefly describes the national networks Global Center of Expertise (GCE) NODE, EYDE Cluster and Digin ICT Cluster. NUC have active collaboration and/or student exchange with University of South Wales, U.K., Teesside University, U.K., Deakin University, Australia and University of Lisbon, Portugal. The academic staff is involved in several information security education for a which are directly relevant for establishing BDASM, there include IFIP WG 11.8, IFIP TC3 and the CSEC2017 efforts. The application lists these external participations as directly relevant for the study programme in terms of:

- Guest speakers/lecturers
- Breakfast meeting invitations
- Company visits
- Conference attendances
- Collaborative interdisciplinary workshops
- Practical industry related projects for students' studio practices and bachelor projects.

The national networks are more regional than national and very industry focused. It is recommended that the faculty gets involved in national academic networks as well.

Conclusion

Yes, the academic environment actively participates in national and international collaborations and networks relevant for the programme.

The institution is advised to:

- consider involvement in the national academic networks such as the NIKT-conferences, specifically UDIT, NISK and NOKOBIT

4 Conclusion

Based on the written application and the attached documentation, the expert committee concludes the following:

The committee does not recommend accreditation of the bachelor programme in Digital Assurance and Security Management at NOROFF University College.

The following demands are not met:

Academic Supervision Regulations

- § 2-2 (1) The learning outcomes for the programme must be in accordance with the National Qualifications Framework for Lifelong Learning, and the programme must have an appropriate title.
- § 2-2 (2) The programme must be academically up-to-date and have clear academic relevance for further studies and/or employment.
- § 2-2 (5) The teaching, learning and assessment methods must be adapted to the programme's learning outcomes. The programme must facilitate students taking an active role in the learning process.

5 Documentation

21/08503-1 NOROFF UNIVERSITY COLLEGE AS – Akkreditering av bachelor i Digital assurance og sikkerhetsledelse

21/08503-15 Oversendelse av utkast til rapport – akkreditering av bachelor i digital assurance og sikkerhetsledelse

21/08503-16 Tilsvar til forslag til utkast til rapport – akkreditering av bachelor i Digital assurance og sikkerhetsledelse

Appendix

Learning outcome of the programme

Knowledge: **The candidate**	**Skills:** **The candidate**	**General competence:** **The candidate**
K1 has broad knowledge of important theories, processes and methods within Information Technology Assurance and related fields K2 has broad knowledge of complex digital environments and the problems these environments pose to risk-, assurance-, and compliance management K3 has broad knowledge of important concepts, principles and methods that apply to risk analysis and mitigation in complex digital environments. K4 is familiar with current and emerging research and development work within Information Security and Assurance K5 can update their knowledge of national and international regulatory frameworks and compliance to relevant frameworks K6 has knowledge of organisational values and ethics required by corporate governance principles to achieve organisational goals	S1 can apply knowledge, relevant research and current developments for IT audits and assurance processes and consulting to solve problems in a diverse business environment S2 can apply knowledge and emerging developments to calculate and quantify risks and recommend appropriate risk mitigation to solve business problems S3 can reflect upon their own practice using a risk-based approach to planning, executing and reporting on assurance engagements S4 masters relevant tools and techniques to conduct and manage IT assurance activities S5 asters relevant tools, techniques and communication methods to conduct interviews and take structured notes in assurance processes	G1 has insight into relevant academic and professional issues relating to computing, ethics and socio-culture in Assurance and Compliance within Information Security G2 can plan, carry out and manage IT assurance activities and projects over time, alone or as part of a group, in accordance with relevant legal and ethical requirements and principles G3 can communicate important concepts, processes, problems and solutions professionally, both in writing and orally, to selected stakeholders using appropriate theories and methods G4 can communicate in a clear and concise to present arguments both rationally and logically using acceptable academic referencing G5 can exchange opinions, experiences and ideas with peers and professionals within Information Security and Assurance, thereby contributing to good development practices G6 is familiar with current and evolving processes and emerging technologies within Information and Communication Technology and Information Security

Presentation of the expert committee

Professor Vladimir A. Oleshchuk, Universitetet i Agder

Oleshchuk har en ph.d. i Computer Science (1988) fra Taras Shevchenko National University i Kiev, Ukraina. I årene 1981-1987 har han besatt ulike stillinger ved forskningsinstitusjoner i Ukraina. I 1987–1992 var han ansatt som førsteamanuensis ved Universitetet i Kiev. Siden 1992 har han vært ansatt ved Universitetet i Agder (tidligere Høgskolen i Agder). I 2004 ble han tilsatt som professor i Computer Science – information security ved Institutt for informasjons- og kommunikasjonsteknologi, UiA. Oleshchuk underviser i sikkerhetsrelaterte emner, matematikk og programmering på bachelor/master/ph.d. Han har også vært veileder for flere enn 40 studenter på master og ph.d-nivå. De viktigste temaene i Oleshchuks forskning kan relateres til aktiviteter som sikkerhet, personvern og sikkerhet for trådløse systemer og deres applikasjoner til e-helse, trådløse sensornettverk, P2P-systemer og mobile systemer. Hvordan man anvender formelle metoder for å håndheve sikkerhet som tekstanalyse og dataanalyse for å bevare personvern er også et sentralt tema. Oleshchuk kan vise til over 100 vitenskapelige artikler innenfor disse fagområdene. Utover sin undervisnings og forskerkarriere har Oleshchuk bl.a. jobbet som ekstern konsulent, vært deltager i flere evalueringer, vært reviewer for en rekke internasjonale tidsskrift og vært opponent i flere ph.d. disputaser både i Norge og i utlandet. Over en rekke år har Oleshchuk vært sakkyndig for SKVC (tilsvarende NOKUT i Litauen) og for NOKUT.

Førsteamanuensis Erik Hjelmås, NTNU

Erik Hjelmås er utdannet Cand.mag (1994) med informatikk og matematikk, M.Sc. (1996) innen informasjonsvitenskap med fordypning i kunstig intelligens (University of Pittsburgh) og Dr. scient. (2005) innen informatikk med en avhandling innen ansiktsgjenkjenning (UiO). Han har vært ansatt ved NTNU (tidligere HiG) siden 1996, og underviser emnene "Operativsystemer" og "Infrastruktur: sikre grunntjenester" og har tidligere undervist emnene Infrastructure as Code, systemadministrasjon, datakommunikasjon og nettverkssikkerhet, datasystemsikkerhet, kunstig intelligens, IT for lærere og datateknikk. Han har publisert fagfellevurderte artikler innen ansiktsgjenkjenning, systemadministrasjon, informasjonssikkerhet og studieprogramutvikling. Han har også vært sentral i oppbyggingen av fagmiljøet innen IT-drift og cybersikkerhet ved NTNU campus Gjøvik og er lokal leder for studieprogrammet Bachelor i digital infrastruktur og cybersikkerhet.

Student Lorena Alina Alexandru, Høgskulen på Vestlandet

Alexandru er andreårsstudent ved bachelorstudiet i cyberfysisk nettverksteknologi (cyberingeniør), Bergen. Alexandru har jobbet ved HVL som Mentor i Matematikk og Realfag for ungdomskoleelever på ENT3R HVL. Hun har jobbet som Studentassistent i matematikk forkurs (REAL02) med retting av obligatoriske innleveringer og hun ledet øvingstimer. Alexandru har også vært leder for Communica – linjeforeningen for cyber klassen. Inneværende semester jobber hun som studentassistent i Elektrofag Basis 1 (ELE141). Alexandru er studentrepresentant i Innstillingsutvalget (IN) ved Fakultet for Ingeniører og Naturvitenskap og er fast medlem i Læringsmiljøutvalget (LMU). LMU har ansvar for at HVL har et inkluderende læringsmiljø og har et særlig ansvar for universell utforming og for å sikre et best mulig læringsmiljø for studenter med særskilte behov og funksjonsnedsettinger. Alexandru har vært klasserepresentant i alle tre semestre på studiet

DRAMMENSVEIEN 288 | POSTBOKS 578,1327 LYSAKER | T: 21 02 18 00 | NOKUT.NO