Minutes

Subject:	Study board meeting – No. 2022.8
Date:	12 October 2022
Minute taker:	Heidi Sørensen/Tatiana K. Madsen
Participants:	Tatiana K. Madsen, Peter Koch, Henrik Schiøler, Troels Bundgaard Sørensen, Thomas B. Moeslund, Henning Olesen, Christian Winther Rønnest, Steffen Tidou Pedersen
Observer:	
Cancellations:	Carsten Lunde Nielsen, Rikke Skov Udengaard, Anton Bjørndahl Mortensen, Daniel Vitagliano

Agenda

1. Approval of agenda
2. Approval of minutes from meeting in Serptember 2022
3. Elective course "Quantum computing"
4. Questionnaire from pro-rector
5. Semester evaluation Spring 2022
6. Curriculum for MSc in Cyber Security
7. Dimittendundersøgelse
8. Status on "handlingsplaner"
9. Dispensation
10. Messages
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Minutes

Ad. 1. Approval of agenda

The agenda was approved.

Ad. 2. Approval of minutes from meeting in September 2022

The minutes were approved.

Ad. 3 Elective course "Quantum computing"

The Dean and the head of departments at the TECH faculty has initiated the development of an elective course on master's level on quantum computing.

At the meeting Rafal Wisniewski, one of the persons responsible for developing the course, has presented motivation to include this topic in the curriculum, learning objectives and the possible structure of the course. The Study Board is positive about this initiative: the topic is timely and relevant. Even though there is no actual industrial applications of quantum computing, it is important to be on the edge of the current developments and trends and give our students the knowledge about these trends. The course will be conducted by teachers from ES and CS departments, who has the necessary expertise to cover the topic.

It has been discussed what is the best way to incorporate this course in the current study regulations of ESN programs. The ESN master programs are structured in a way such that the 9th semester allows for the flexibility and gives students many elective choices. The course will into 9th semester of ES and CE master. The relevance of the course for other programs is not so high and therefore, it wont be included in other programs. For ROB, currently the education group is considering whether adjustments of the program are necessary based on the feedback from students and teachers, and possible inclusion of Quantum computing course will be considered by the education group. ESN expects to have their recommendation by October 2023.

Conclusion: ESN approves including Quantum computing course as an elective course on 9th semester of ES and CE master programs.

AP: Apply for the curriculum update. Responsible: HS

Ad. 4. Questionnaire from pro-rector

There has been a questionnaire sent by the pro-rec- tor about experience with digitalization in our educations (see email on Oct 4). ESN wes directly asked to allocate some time during the Study Board meeting for filling it in. All members of ESN has filled in the questionnaire prior to the meeting.

Ad. 5. Semester Evaluation Spring 2022

ESN carefully went through the evaluation reports for Spring 2022 semester. Generally, all semesters went as planned and at the satisfying level. Minor suggestions for improvements led to a number of action points that are documented in the appendix.

One suggestion was coming from the students (and it is applicable for all semesters, besides the 1st year, where group formation is done administratively) : students express a wish to know how many and what size group rooms are allocated for their semester. This is an important factor for the students during the process of group formation. From next semester ESN will ask the study administration to send this information to the corrdinators and students, when possible.

Ad. 6. Curriculum for MSc in Cyber Security

The CYBER education group (CYBER-EG) has presented a number of adjustments for CYBER study regulation. To designing the adjustments, the education group has taken into account recommendations from the study board, experience with the education so far, and input from ENISA including how programmes are presented in

Cyberhead, and the newly released work on the Cyber Security Skills Framework. The following changes are suggested:

- Currently the topics of Secure Software are covered by mandatory courses on 1st and 2nd semester, with an elective on the 3rd semester. To avoid overlaps with existing B.Sc. courses on software, the content has been adjusted (and some content removed). CYBER-EG suggests to move the new first course to the 2nd semester, and to move some of the content from the current 2nd semester course to the elective 3rd semester course.
- This change makes it possible to offer a course on "Dilemmas in Cyber Security" on the first semester. This creates a more balanced education in terms of the ENISA descriptions, since we will then formally have elements of "Law, Ethics, Policy, Cybercrime" included (see e.g. https://www.enisa.europa.eu/topics/cybersecurity-education/cyberhead#/). Also, CYBER-EG believes that the ethical aspects of cyber security are important for our students.
- CYBER-EG also suggests a new project option on the 3rd semester, "Cyber Security Training". There are two main reasons for this. First, training of e.g. employees is an important task for many cyber security professionals. Second, we have tried to map our education towards the European Cybersecurity Skills Framework by ENISA, https://www.enisa.europa.eu/topics/cybersecurity-education/european-cybersecurity-skills-framework, and this is the only role not currently well covered in our curriculum. We believe that being able to show the mapping to the framework gives us a good competitive advantage when selling the programme in the future.
- CYBER-EG has followed the recommendation from the study board to see if more courses could be evaluated pass/fail, and we have suggested that "Advanced Topics in Cyber Security" will be evaluated in this way in the future.
- Another major change is that we remove one elective course on the second semester (Machine Learning) in order to make "Identity and Access Management" mandatory. The reason for this is that with the current development in the cyber security field, all students need to have some knowledge in this topic. It is becoming a core competence, and the companies expect our graduates to have knowledge on IAM.

The proposed changes have been discussed by ESN and approved.
Conclusion: ESN approves the proposed adjustments.
Action point: Apply for the curriculum update.. Responsible: HS

Ad. 7. Dimittendundersøgelse

ESN carefully went through the answers from graduates from VGIS, SPA, CT and CA studies. The following observations are valid for all these educations:
- The survey has some indications that persons with a relevant study job finds quickly job afterwards ; however it does not mean that students are employed in the same compnaies afterwards neccessaraly
- Majority of students start looking for a job just before submission of the final project or after finishing the studies
- Majority gets the first job in Nordjutland, however some are moving afterwards to Aarhus, Copenhagen
- Majority works in an IT companies (incl electrinic development)
- Education has prepared students to a high degree for job market
- Students recognize PBL competences; system understanding; ability to learn new
- There is an indication that students are not in a hurry to take a job, but they are looking for a dream job

The answers in the questionnaire can explain the typical unemployment numbers for VGIS/CT/CA/SPA graduates: graduates are sure that they will find a job and they are accepting if it takes some months to find a dream job. It is not unnecessary unwanted behavior, because soon after graduates are in job, applying their expert knowledge that they have received during their studies.

For EIT bachelor there was a single answer, which is explainable, since almost all bachelor graduates continue with master studies.

From questionnaire for diplom graduates, the following observations have been made:
- Many diplom students have a student job without relevance to their studies
- 5 out of 7 students have answered that they have got their first job in the same company, where they had been doing internship

This statistics shows importance of internship for diplom students. There have been already made plans on how to assist the diplom students getting into internship and ESN continues having focus on that.

Ad. 8. Status on "handlingsplaner"

ESN went through and have discussed the status for AP concerning the study board. Here is the summary of the status, which is also updated in the document:

AP1: the education coordinator for CCT needs to update the list of activities

AP2: done. The course Intro ti programmering is offered to 1st year students of ROB, ESD, COMTEK bachelors

AP5: done. It has been an item on April ESN meeting

AP6: Intro til programmering course is now running from Fall 2022. TKM finds out about the status for course Basal Elekronik .

AP12: The study start and new initiatives are implemented during Fall 2022 semester

AP16: it has been reflected in the newest update of CYBER study regulation

AP17: procedures to increase the reply rate has been updated

AP27: TKM contacts PDP education coordinator

AP33: done. Role of coordinators, course holders and supervisors is described. Documents are available on ESN web page

AP35: workshops are planned at the end of November

Ad. 9. Messages
- TKM and HS work on updating the study regulations with the language of instructions to reflect the current situation with staffing
- There is a wish from ESN members to have a meeting with OA and PR responsible to discuss status on education promotion

Ad. 8. A.O.B.

None

Appendix

Semester evaluations – Spring 2022

Semester	Items for ESN	Action point	Responsible
EIT2			
COMTEK2	Nothing for ESN		
PDP2	Some students decided to switch education after 2nd sem. It has led to bad mood in groups.	Contact education group for follow up	TKM
CCT2			
ROB2			
EIT4			
COMTEK4			
PDP4	Challenging with schedule planning due to elective courses	Coordination between study secretariat at ES and Create	Study secretariat
ROB4	A number of suggestions for improving course modules	Course holders follow up on the suggestions	Course holders
EIT6/COMTEK6	Avoid scheduling Probability and Matrix courses on the same day	Next semester schedule planning	Study secretariat
ROB6	Nothing for ESN		
PDP6	Nothing for ESN		

Semester	Items for ESN	Action point	Responsible
CA8	Onboarding of new international students	The semester start for master students will be an item on our next ESN meeting	TKM
CT8	Info about PBL competences course	Information about the workshop should be available at the beginning of semester	Study administration
VGIS8			
SPA8			
ROB8			
PDP8			
ICTE2	No response on the survey	Coordinators are informed when the email is sent to the students	Study administration
CYBER2			
DCLEAD8	More time for group formation and project selection is needed	TKM discusses with the coordinator to find a suitable solution	TKM

General for all semesters	Information about group room availability – to the students before the semester start	TKM sends a request to study administration and informs coordinators	TKM