

Minutes meeting in Employers' Panel for Computer Science

Tuesday 13 September 2022 at. 16.00, Room 3A20 IT University of Copenhagen, Rued Langgaards Vej 7, 2300 København S.

Comments to those minutes may be given within 20 working days after receiving the minutes. If no comments, minutes approved without further notice.

No comments received and thus, minutes approved.

Participants:

Members of panel:

Christian Bjerre Nielsen (chair), Bodil Biering, Søren Ilsøe, Mille Østerlund, Galina Ianchina, Massimo Giulio Caterino, Anne Hauberg Aakjer, Daniel Schiermer, Jacob Benjamin Cholewa, Torben Wind Meyhoff

Retiring members:

Casper Hovard, Morten Zhonesen.

Guests:

Mikkel Agerlin, Niels Abildgaard.

From ITU:

Per Bruun Brockhoff, Pernille Rydén, Dan Witzner Hansen, Louise Meier Carlsen, Therese Graversen, Marco Carbone, Luca Aiello, Peter Sestoft, Thore Husfeldt, Mette Holm Smith, Marc Kellaway, Allette Bjørn Bundgaard (minutes)

Minutes:

1. Welcome to new member and goodbye/thank you to retiring members: /Peter.

Also welcome to:

- Vice-chancellor, Per Bruun Brockhoff
- Head of program for KDS, Luca Aiello
- Co-head of study program for BSWU, Louise Meier Carlsen

All participants presented themselves.

2. Status on study programs. /Peter and heads of programs:

Admission numbers for 2022: /Peter

BSWU and BDS reached the highest number of applicants compared to similar programs in Denmark. In general, ITU is in a good position regarding numbers of 1. priority applicants.

However, in BDS many applicants were non-Danish, and a substantial amount of those ended up refusing the study place. Thus, this year, the cohort of BDS students are smaller than expected.

In general, the number of applicants to Danish studies decreased this year, probably due to the post-corona situation.

MSc: Number of application and admitted in KCS is almost the same as last year. KDS had many good applicants, but more applicants than normal refused a study place.

Comments from panel:

- Why do you think the number of admitted women decline?

Answer from ITU: This is strange and so far, we have not found an explanation.

BSWU: /Dan

Status on the program:

What is going on:

- Louise assigned co-head of program.
- Security implemented in BSWU as mandatory course.
- BSWU is undergoing a review process this autumn with an external, highly qualified review panel.
- Focal points for the coming year:
 - Major restructuring of the 1st semester course, Grundlæggende programming in progress. The goal is to be able to embrace the more diverse set of students, which attend ITU nowadays.
 - Actions to explore and diminish the higher delay and dropout rates on BSWU. However, it is important that actions do not lower the level and quality of the program.
 - How to increase the number of students in a clever way.
 - Focus on technical competences.
 - What can we do better:
 - Construct in-depth electives for SWU students e.g., within topics as: understanding data, algorithmic problem solving and business sense.

Comments from panel:

- Why do BSWU-students get delayed or drop out?

Answer from ITU: With the larger student cohort of today the number of dropout and delays were somehow expected to raise. Recently, ITU got better data to explore this.

- How are the expectations alignment between ITU and new students?

Answer from ITU: ITU are keenly aware not to oversell the programs when addressing potential students.

- When do they drop out

Answer from ITU: Earlier the 3rd semester was particularly hard for the students. However, teachers and head of programs intensified coordinating workload and deadlines on courses on the different semesters.

- Are students getting lazier or...?

Answer from ITU: There are more aspects to this discussion: The cohort of students have changed. With more students entering university educations, an increasing number of students are foreign to university studies, as they come from backgrounds with no former experience of studying at university level. Also, students tend to work more, and foreign students must work to keep their residence permit.

- Can students program when they finish BSWU?

Answer from ITU: ITU puts high emphasis on learning students to program. However, it is necessary to balance the technical skills and the softer skills.

KDS: /Luca:

The number of applicants to KDS raised from 2021 to 2022.

Many women declined their offer of a study place this year, and we do not know why.

The program offers courses within three areas:

- Specialized courses.
- Applied courses offered.
- Researched based courses.

There is a growing interest for research courses.

KCS: /Marco.

KCS are the follow up on BSWU. Admission requirement is a BSc in Computer Science or related.

KCS have seven specializations consisting of two courses; 7,5 ECTS on 2nd semester and 15 ECTS on 3rd semester. The courses build on top of each other.

The Research Project on 3rd semester builds up to the Master thesis.

What is new in the program:

- Study Lab: BSWU and BDS have had Study Lab for several years. Last year, KCS introduced Study Lab for 1st semester students. Teaching Assistants, which are older students, offer study assistance.
- Specialization meeting: Introducing the specializations for 1st semester students just before they sign up for their first specialization course.
- Research and Thesis market: For 3rd semester students, just before they start working on the Research Project.

In pipeline:

- Reform of the specializations. The number of students on some specialization courses are low which may be good for the students but resource heavy.

Applicants to KCS:

- The gender diversity on KCS is low as only few women apply. This is worrying.
- Most students come from BSWU and have “right of admission” (Retskrav). Those get a place without any assessment.
- With the present pattern of applicants, less women on BSWU result in less women on KCS later.

KSD: /Marco

This program is for applicants with no IT-background.

The 1st semester is very similar to 1st semester on BSWU, but more compact.

Students relate to their non-IT background and study very hard. This gives particularly good graduates.

New initiatives:

Pre-study workshops introduced this year:

- BootIT (introducing basic programming to ease the way into the 1st semester).
- BootMath (brush up of relevant mathematics) - jointly with BSWU and BDS.

Comments from panel:

- Are women discouraged from applying because they do not think they meet the requirements, whilst men do not take this quite so serious?

Reply from ITU: Communication department are doing a careful job when communicating to and with potential applicants.

- KSD might have the most interesting applicants due to the mix.

- What is the level of KSD graduates compared to KCS, do they get jobs after graduation?

Reply from ITU: Unemployment is very low, also at KSD. Obvious, they have less IT-skills than KCS, but they have other very useful cross-functional skills.

- To take this program you must be a very good learner.

- Please, give us more KSD graduates.

3. Changes in structure on BDS. /Therese

2nd semester never worked well. The courses in applied statistic and algorithms are difficult, but students tend to put their energy in the First Year Project.

Proposal: The course in applied statistic need more time in the schedule to work properly. Thus, the idea is to boost Applied Statistic to 15 ECTS and reduce First Year Project to 7,5 ECTS.

Further, First Year Project should have a more set syllabus focusing on project work and Phyton.

Comments from panel:

- BDS only know Python?

Reply from ITU: They also see Java, but the main programming language is Python.

- It is important to learn the methodology about working in larger project. Is it a problem that students do not meet a 15 ECTS project until the bachelor project?

Reply from ITU: Cutting down the practical project work in first Year Project will free time to teach them the methodology

The panel likes the proposal and the idea of further embedding technical competences on 2nd semester.

4. Graduate perspective on their ITU education and their career - Discussion

ITU and the panel prepared questions for the graduates, Niels and Mikkel.

What did you enjoy most when at ITU:

- On BSWU many things were happening off the courses. On KSDT there was lots of electives and good possibilities to do individual projects.

- ITU provide good opportunities for students to write interdisciplinary projects. At KCS there is rich opportunity for students to find and follow their interests.

What skills do you value the most:

- The ability to deconstruct “everything” into code and having developed the mindset to do so.

- The ability to understand things all the way up, both in theory and applied.

- Good to try out diving deep into very specific topics.

Was there anything you did not feel you needed to learn?

- Since my graduation, ITU dealt with things that seemed useless at the time.

- No course were useless; even things that I do not use anymore are useful to know.

What are the most important subject you would like to add to the program in near future?

- The ability to see a specific problem from a broader view. See architecture and patterns before solving the actual problem.

- How to be a productive team. Breaking things down - agile problem solving taught in a more structured way. This seems to have improved with the introduction of the Scrum Master Training course.

Main strengths of the programs:

- Ability to understand many different parts of software development. This proves especially useful in jobs.

- Having acquired a language to work with other.

Comment from panel:

The social atmosphere at ITU is particularly good. Do not forget to still facilitate all those social events as those makes everybody feel good - better students wellbeing.

Graduates agree.

Weaknesses of the programs:

- Weaker students can go under the radar in the first semesters, when it comes to programming skills, e.g., by letting more programming experienced group members do the coding. They might not realize until it is too late that they never managed to catch up with the programming.

- The amount of group work. Having to deal with several different groups in a semester adds to stress. Some students might take the easy way out in group work and go for tasks they already know, just to keep the workload down.

- If the workload is too high – or assignments are too hard to solve, students do not learn properly, as they spend their time just keeping up with assignments, deadlines etc.

- If the general underlying atmosphere on a course or study program idolize those with strong programming skills, other students can feel left out. Staff may unknowingly support this atmosphere.
- The workload is too high, and it adds a barrier to whom can complete the program.

Is it the workload that is too high or the transition from pupil to student, making it hard for students to comprehend:

- Especially new students cannot distinguish between what is “must do” and what is “nice to do.”
- Having a job on the side, teach applied skills better than ITU can do it - What courses should go, if ITU was to teach this, is hard to say.

5. Life-long learning; How may we think ITU and the study programs into this context – Discussion.

Can you see yourself going back to ITU for more skills?

- Process of learning something I do not know I need, is rewarding and ITU can be a place to do so.

Practical format, what would work for companies in practice?

- Once a week works well for companies.
- Weekend courses make it more flexible.
- Learning little by little is more useful than learning all in a row
- Not big master program, just smaller courses.
- Preferably at ITU or online.
- Proposal: Develop a “Buy a researcher” concept for companies.

6. AOB.

None.