



TA PROJECT 2022-23

Exploring Teaching Assistants at ITU
*- Challenges, Opportunities, and
Viable solutions*

IT UNIVERSITY OF COPENHAGEN

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Executive summary

Over the past 15-20 years, ITU has witnessed a significant increase in the number of Teaching Assistants (TAs) without a corresponding development of administrative processes or evaluation of their impact on the teaching, learning, and working environment.

Currently, ITU hires approximately 500 TAs a year. The TA-project investigated the entire TA process from recruitment to employment and exit, aiming to uncover the value TAs add to the learning environment for both students and teaching staff.

A range of methods were employed, including quantitative surveys, course evaluations, qualitative interviews, focus groups, desk research, and external meetings. All relevant stakeholders, such as students, TAs, Heads of Departments (HoDs), Heads of Study Programme (HoSPs), Course Managers (CMs), and Lab Managers, were included in the research process.

The data revealed several challenges within the current TA setup. The foremost challenge is an inefficient and frustrating recruitment and hiring process, characterised by a lack of transparency resulting in a waste of resources and delays in hiring. Additionally, there is a lack of alignment of expectations among stakeholders regarding roles, responsibilities, tasks, and workload.

The absence of clear descriptions for TA responsibilities and best practices leads to individualised and informal practices, resulting in varying experiences of quality for both TAs and students as well as teachers. Another consequence is a sub-optimal use of resources compared to what it should and could be.

The main challenges are identified across organisational levels and departments and supported by several findings. In the report, they are divided into the three overarching themes: 1) Roles and Responsibilities, 2) Organisational Processes and Transparency, and 3) Quality in Education.

The report furthermore presents seven interdependent recommendations that collectively address these challenges, streamline processes, and enhance the quality of education:

1. Establish a stronger organisational foundation for TAs, defining their roles and responsibilities within visible structures and ensuring their integration as valued employees and stakeholders.
2. Strengthen collaboration with TAs to formally establish them as integral members of the teaching team and clarify the purpose of having TAs at the university.
3. Enhance communication strategies to inform potential applicants, clarify the TA role to students, and improve retention rates.
4. Optimise the hiring and recruitment process by enabling longer contracts, enhancing transparency, and improving administrative efficiency.
5. Expand the applicant pool to meet current and future needs, ensuring a pool of well-qualified candidates.
6. Implement more flexible and qualitative criteria for TA assignments, considering course-specific requirements instead of relying solely on student numbers and ECTS.

7. Allocate additional time for TA competency development, providing proper onboarding and enhancing their didactic skills.

Lastly, the report recommends an implementation starting in late May, projected to run for 9-12 months, depending on the scope of the required changes. We estimate that the recommendations can be implemented for the next application round (for Spring 2024).

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Chapter

01 Project Scope

1.1. Introduction

ITU is increasingly employing teaching assistants (henceforth referred to as: TAs) to support teaching and learning. However, the process of recruiting, hiring, collaborating with, and evaluating TAs and their work has not been systematically adjusted to ITU's growth and strategic goals in the last 15 years.

Consequently, the current administrative processes around TAs are heavy, inefficient, and cause unnecessary friction and frustration for TAs, students, teachers, and administrative staff. Furthermore, vital issues regarding quality in education, learning- and work environments are unaddressed and overlooked, resulting in lack of clarity and organisational transparency, and leaving possible benefits unharvested.

This report emphasises the urgent need to establish a solid organisational foundation to streamline and optimise the TA process and collaboration. It also underscores the significant value that TAs bring to the learning and working environment for students and teaching teams.

By conducting a systematic analysis of extensive data involving all relevant stakeholders at various organisational levels, the report identifies specific challenges in the current framework for recruiting, on-boarding, developing, and retaining TAs.

Furthermore, it presents practical recommendations to effectively utilise TA resources at ITU, ensuring the maintenance of a high-quality learning and working environment in the present and future.

The primary objective is to provide viable solutions that enhance ITU's scalability with TAs while fostering continuous improvement in the learning environment. In particular, the recommendations of this report focus on enhancing the roles of TAs and improving recruitment, on-boarding, retention, and development processes. These measures aim to elevate the quality of teaching and learning, thereby contributing to a thriving learning- and working environment and empowering students for enhanced employability.

1.2 How to read this report

Chapter 2 commences with an overview of the comprehensive methods used for collecting and analysing data, ensuring a thorough exploration of all aspects of the TA position at ITU. Next, as an introduction to this area, a profile of the TAs in recent years will be presented based on statistical background data from S2020 to A2022 (chapter 3).

In chapter 4 to 7 we present the key findings and recommendations. These are divided into three main themes: *Roles and responsibilities* (chapter 5), *Organisational processes and Transparency* (chapter 6), and *Quality in education* (chapter 7). We have decided not to include findings and recommendations about Lab TAs in the main document. Instead, a dedicated document about Lab TAs can be found in appendix 3.

After each chapter you will find a short summary with focus on costs and benefits for implementing the recommendations.

To maximise the synergy effect, we strongly recommend considering all the recommendations coherently across all levels. The suggested timeline for implementation accompanies these recommendations at the conclusion of this report.

Chapter

02 Methods

2.1. Introduction to data collection

Taking a point of departure in the project statement, the project group formulated assumptions and research questions within the phases of the TA process (recruitment, onboarding, development, retention).

To get the appropriate data to answer our research questions, various data collection methods were chosen:

Qualitative methods were used to explore perceptions, attitudes, practices of TA-related processes and issues from different internal stakeholder perspectives and to generate ideas for improving the TA organisation and system.

Quantitative methods were used to assess, quantify, and visualise data about teaching assistants to characterise the TAs and the general trends in the use of TAs at ITU. Moreover, a survey was made to explore student perspectives on TAs.

Desk research was used to get an overview of internal TA-related information and communication, while *meetings with externals* were used to get insights in other university practices and in system opportunities in relation to having TAs.

Table 1 provides an overview of methods and data.

Table 1 Data Collection Methods and Sources on TAs at ITU

Activity	Participants (N)	Time	Duration or extent of material
HoSP workshops (N=3)	HoSPs (N=12)	October 2022	~60 min
HoD group interview	HoDs (N=3)	December 2022	~60 min
Focus groups (N=4)	TAs (N=9)	December 2022	~90 min
	DD CMs (N=6)	December 2022	~90 min
	CS CMs (N=5)	December 2022	~90 min
	Heads of labs and Lab managers (N=7)	January 2023	~60 min
Individual interviews (N=4)	HoSP BDS	November 2022	~30 min
	CM BIT	December 2022	~30 min
	CM BIT	December 2022	~60 min
	CM CS	December 2022	~30 min
Survey	Students (N=154)	December 2022	19 survey questions

Activity	Participants (N)	Time	Duration or extent of material
Other field data	Course evaluations - Open answers	Autumn 2022	291 comments included
	Meetings with externals (KU, CBS, DTU, Jobindex, Adecco, Moment)	January 2023	~9 hours
	TA data and statistics	Autumn 2022-Spring 2023	
	Other communication	November-December 2022	E.g., 4 additional mail responses from CMs

2.2. Data collection, methods, and design

Qualitative methods included focus group discussions, group interviews, individual interviews, and initial informal workshops. Participants were members of management (Heads of Department, Heads of Study Programme), Course Managers, Heads of Labs, Lab Managers and TAs.

Methods chosen depended on research questions and participants. Interview guides were developed and adjusted according to purpose and participants. Participants were invited by email-based request. All interviews took place at ITU with assigned first and second interviewers from the project group. Course Managers, who were not able to join the focus groups, were invited to give written feedback on selected questions instead.

Quantitative methods included a survey and analyses of various quantitative TA data. The survey included questions about students' motivation to apply for a TA position and their ideas for how the TA system could be improved (see appendix 1). Participants were recruited in the atrium at ITU during two weekdays in early December and were invited to fill out a short survey by scanning a QR code. TA data analyses were based on data from Spring 2020-Autumn 2022 provided by the Course Staffing Coordinator.

Other methods used included desk research and meetings with externals. Desk research includes a thorough investigation of information about TAs at ITUs internal and external websites and other TA-related communication and of the survey comments in the latest course evaluation survey. Meetings with externals included four meetings with universities and three meetings with companies providing HR systems and platforms. All except two meetings were held online or by phone.

2.3. Data processing and analysis

Most interviews were recorded and transcribed in full. The initial informal workshops with Heads of Study Programmes, the HoD interview, one TA focus group and one individual interview with a HoSP were not recorded, instead extensive notes were taken. All qualitative data were collated, coded, and themed using NVivo software. Initially each data source was

coded within the different phases of the TA project. However, as the analysis progressed, themes were identified across data sources and phases.

Quantitative data were analysed using SurveyXact and Excel software. For the student survey, the standard report was retrieved from SurveyXact. Comments from the open answer survey question were analysed in NVivo with the other qualitative data.

The survey comments in the course evaluation survey from autumn 2022 were retrieved in Qlik Sense. The 1731 survey comments were assessed and 291 comments mentioning TAs (approximate number, manual counting) were identified. The 291 comments were included as a data source and analysed in NVivo. Other desk research and external meetings were documented by minutes and notes. They were used as background information and to qualify interview questions and recommendations.

2.4. Hearings

In May 2023, three internal hearings were conducted to actively engage relevant stakeholders and gather their immediate feedback on the findings and recommendations. The hearings included participation from the following groups:

- Teaching staff and management, including Course Managers (CMs), Heads of Study Programmes (HoSPs), and Heads of Departments (HoDs)
- Administrative staff, including Human Resources personnel, Programme Coordinators, and Department Support staff
- Teaching Assistants (TAs)

During the hearings, participants were initially provided with a concise overview of the key findings and recommendations. Subsequently, they had the opportunity to ask questions, engage in group discussions, and participate in a plenary session for broader deliberations and wrap-up in plenum.

Chapter

03 Teaching Assistant Statistics and Diversity

3.1. Introduction to TA Statistics & Diversity

This chapter provides an analysis of the utilisation of TA resources at ITU, focusing on the period from Spring 2020 to Autumn 2022. It covers various key aspects, such as

- the number of individuals who have been TAs
- the distribution of positions across different programmes
- and the demographics of TAs, including their gender, age, and nationality.

By investigating these factors, this chapter aims to offer insights into the composition and diversity of the TA cohort. Ultimately, the goal is to provide a better understanding of the findings and recommendations presented in the subsequent chapters.

The chapter is divided into three main sections and highlights key points within each section.

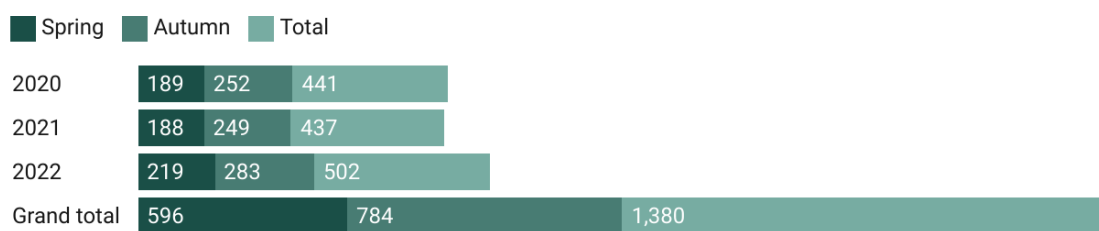
3.2. TA Overview: Individuals, Courses, and Programme Distribution

The following information outlines key data points related to the TA system, including the total number of individuals who have been TAs during the last two years, the number of courses and labs that have been awarded TAs, the distribution of TAs across different programs, and the percentage of TAs who have taken multiple courses.

Between Spring 2020 to Autumn 2022 a total of 743 individuals have gone through the TA system, occupying 1380 TA positions over the same period.

These numbers highlight the significant utilisation of TA resources and their integral role in supporting teaching and learning activities. The widespread participation across various courses and departments underscores the impact of TAs on the educational experience at ITU.

Figure 1 overview of positions covered by TAs (S2020-A2022)



Overall, the substantial number of individuals, along with the multitude of TA positions occupied, demonstrates the vital role TAs play in supporting ITU's educational endeavours.

B-SWU has the highest number of TA positions hired, with a grand total of 312 positions allocated across all semesters.

The second highest program is K-SD with a total of 182 positions allocated, followed by B-DDIT with 148 positions allocated.

Figure 2 Distribution of TA positions among programmes

	S2020	A2020	S2021	A2021	S2022	A2022	Total
B-DDIT	17	38	19	28	18	28	148
B-DMD	4	0	0	0	0	0	4
B-DS	15	29	18	28	24	25	139
B-GBI	19	17	22	24	29	27	138
B-SWU	42	60	49	57	38	66	312
K-CD	0	7	0	5	0	0	12
K-CS	9	12	11	7	10	16	65
K-DDIT	21	22	15	23	23	28	132
K-DIM	17	24	13	25	18	28	125
K-DS	0	0	0	6	2	7	15
K-GAMES	7	9	7	11	9	15	58
K-SD	30	23	29	28	35	37	182
M-ILM	0	1	0	0	0	0	1
Lab TAs	8	10	4	6	11	5	44
TA for Departments	0	0	1	1	2	1	5
Total	189	252	188	249	219	283	1380

In average 18 percents of TAs are affiliated with more than one course.



The data shows that in a given semester, about 18% of TAs are affiliated with more than one course, suggesting that roughly one in five TAs take on more than one course per semester.

Given that many teaching assistants have their TA job as an additional responsibility alongside their studies, it is not surprising that only 5% of TAs choose to take on more than two courses within a term.

Table 2.2 Overview of TAs affiliated with more than 2 courses

Semester	S2020	A2020	S2021	A2021	S2022	A2022	Total
No. of TAs taking >2 course	9	12	4	12	12	15	64
No. positions total	189	252	188	249	219	283	1380
Percentage	5%	5%	2%	5%	5%	5%	5%

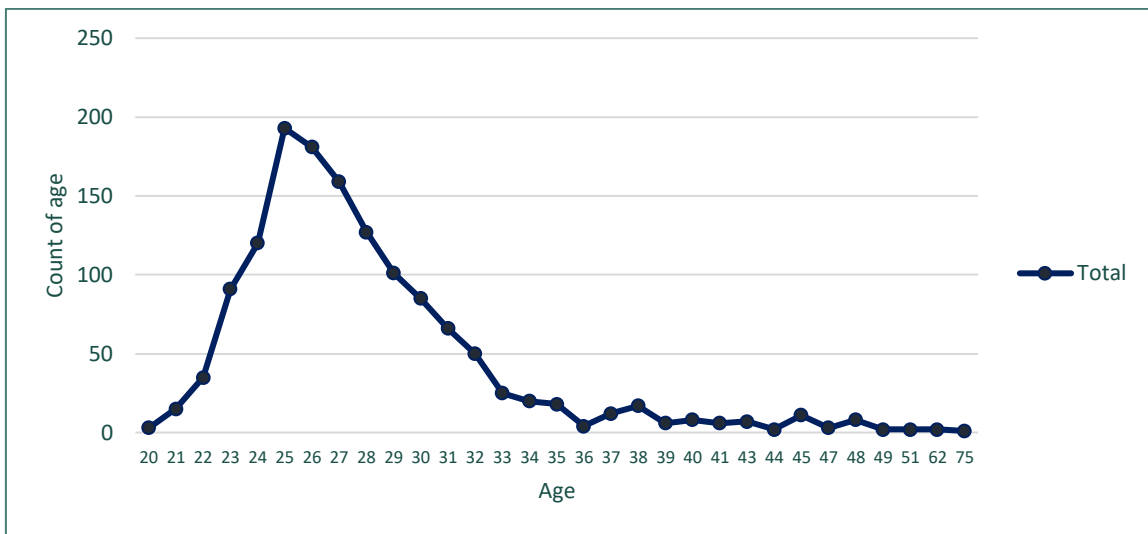
3.3. TA Demographics: Age and Gender

This section focuses on providing a more detailed analysis of the TA demographic including their age and gender distribution. The data will also be broken down by individual programmes to provide a more nuanced understanding of the TA demographics across different fields of study.

A majority of TAs fall between the ages of 23 to 28, with 24 and 25 being the most common ages.

As the age increases, the number of individuals decreases, with very few individuals over the age of 40.

Figure 3 TA age distribution (2020-2022)



In general, there is a consistent average age of 28 for teaching assistants across semesters and genders, with most TAs across semesters being in their late twenties to early thirties.

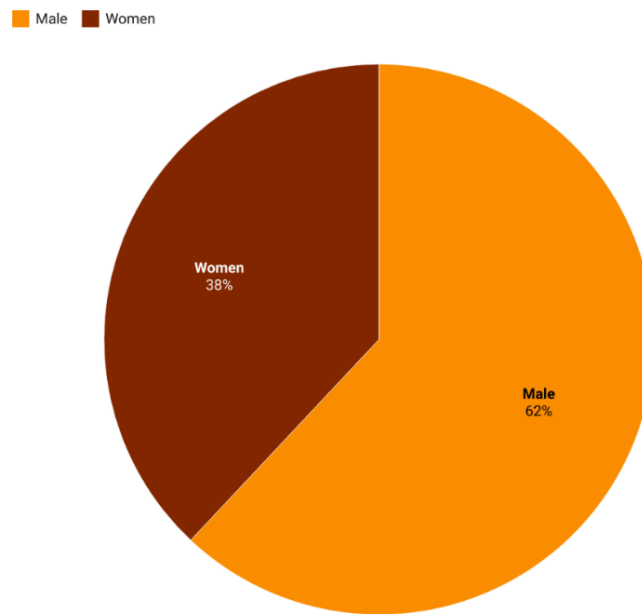
Figure 4 TA Average Age (Women/Men)

	Women	Men	Total (average)
A2020	29	28	29
A2021	28	28	28
A2022	27	27	27
S2020	30	30	30
S2021	30	27	28
S2022	27	27	27
Total (average)	28	28	28

There is a higher proportion of male TAs.

Out of the total number of teaching assistants, 62% were men, while 38% were women (see Figure 5).

Figure 5 TA gender distribution (2020-2022)

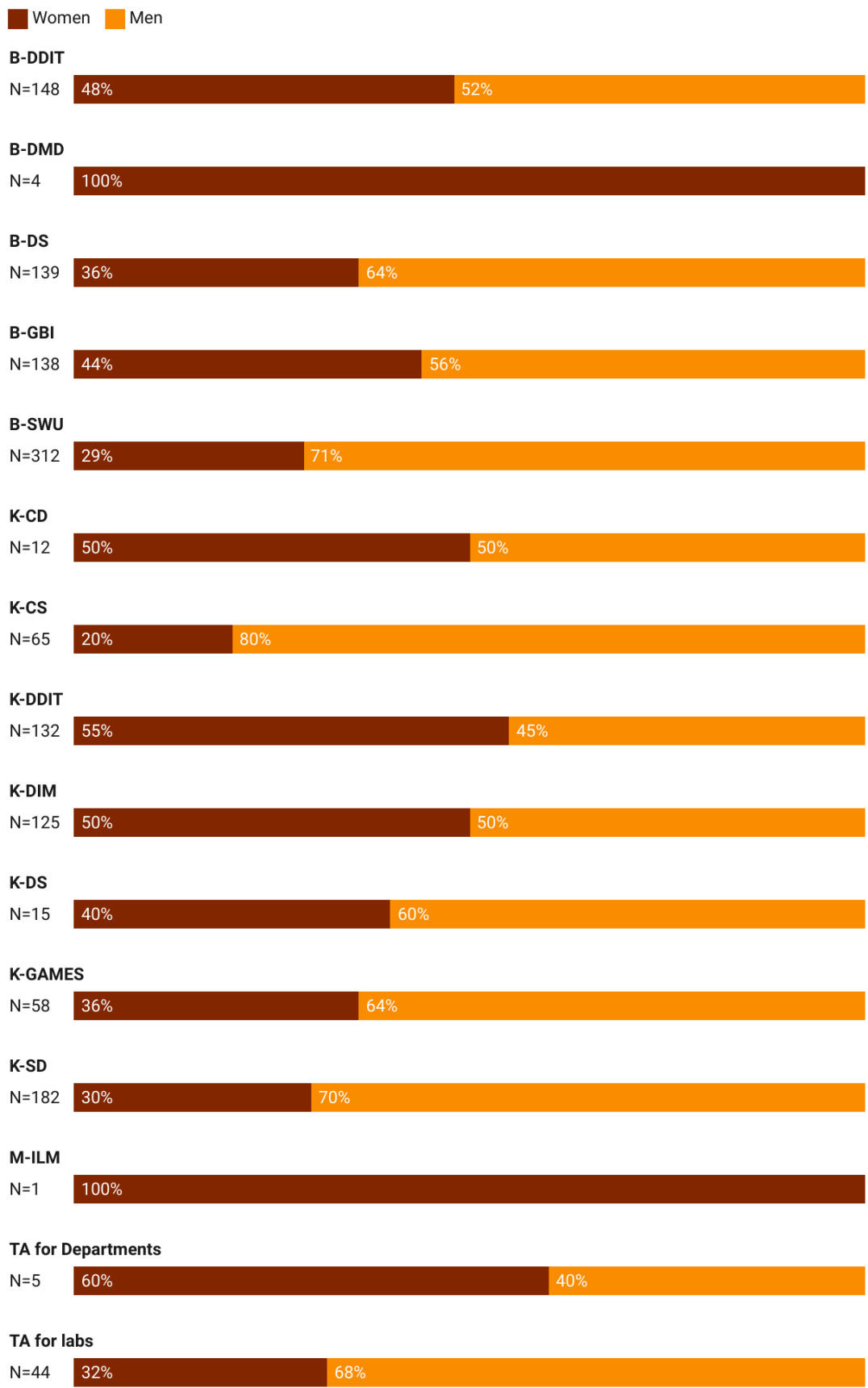


This distribution aligns with the overall gender balance at ITU.¹ It is also worth noting that although male TAs still make up a higher proportion overall, there has been a recent reduction in the gender imbalance among teaching assistants.

Figure 6 provides a detailed breakdown of the gender distribution across various programs, offering insights into the representation of genders within each program.

¹ See: <https://itu.dk/Om-ITU/Organisation-tal-og-fakta/Tal-og-fakta/Noegletal>

Figure 6 Gender distribution across programmes



3.5. Who were the teaching assistants in A2022?

Diving deeper into the numbers for the latest term (i.e., A2022), the data further highlights the following interesting insights.

During Autumn 2022, a total of 283 TA-positions were allocated among 215 individuals, with the majority (187) on a Teaching Assistant's contract.

Figure 7 TA position distribution

Assistant Lecturer	28
Teaching Assistant	187
Grand Total	215

Slightly over half (53%) had previous TA experience, whereas the remaining 47% were new to the task.

The data further reveals that a significant majority (83%) of the 215 TA employees were either current or former ITU students. Only a small portion of the TAs (12%) did not have any affiliation with the institution.

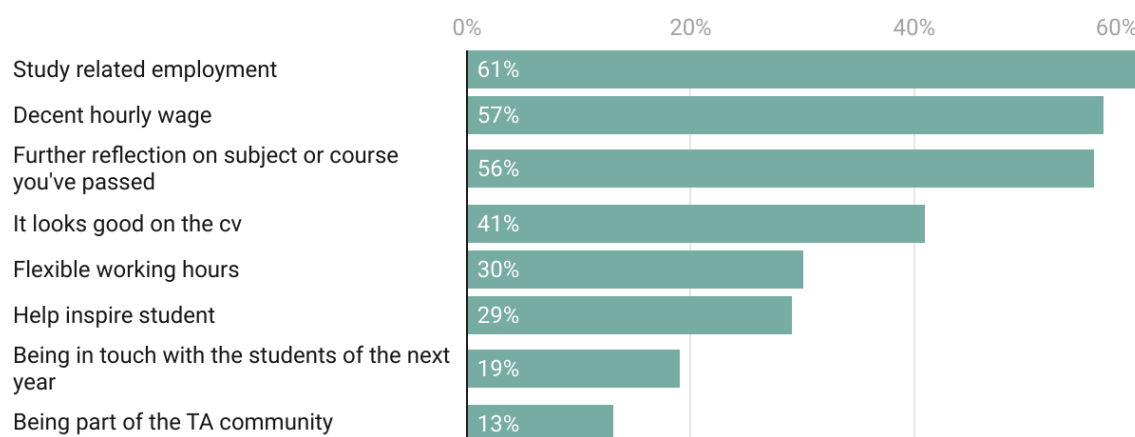
The TAs were primarily from Denmark (165), followed by Portugal (5), Germany (4), Italy (4), and Sweden (4). There are also TA employees from 20 other countries, with only one or two representatives per country.

“Study-related employment” and “decent hourly wage” are the top motivational factors for applying for a TA position

To gain a deeper understanding of TAs' motivation for applying for a teaching job, we conducted a survey of 70 individuals who attended the A2022 introductory workshop on teaching and learning for TAs.

The results revealed that the primary motivation for most TAs was study-related employment, with 61% of respondents selecting this option. A decent hourly wage was the second most popular reason, with 57% of TAs citing this as a motivation, while 56% of TAs indicated that further reflection on the subject or course, they had passed motivated them to apply for the TA position.

Figure 8 Motivation for applying for TA position (N=70)



3.5 Conclusion on TA Statistics and Diversity

The statistics presented in this chapter highlight several key aspects:

- The substantial number of individuals occupying TA-positions showcases the vital role TAs play in supporting ITU's educational endeavours. The findings presented in subsequent chapters have implications not only for a small group but for a significant and growing number of people who are, in fact, ITU employees.
- While one out of five TAs choose to take up more than one course within a term, only a few apply for additional TA-positions. Exploring the possibility of offering TA-positions to post-graduate students to complement their other job activities could yield potential benefits for recruiting more teaching assistants.
- The average age of TAs remains consistent, suggesting the potential for initiatives to recruit a more age-diverse group.
- Most of the recruited TAs are of Danish nationality, suggesting the potential for initiatives to recruit more internationals.
- The gender balance among TAs reflects that of the general student population at ITU. Considering the significant role TAs play in the teaching environment, it could be valuable for certain programmes to recruit more female TAs.
- The three main motivating factors for applying for a TA position are study-related employment, a decent hourly wage, and further reflection on a subject or course the students have passed. This indicates that TAs see the position as an opportunity to gain practical experience, contribute to their academic field, receive fair compensation, and deepen their knowledge while sharing their expertise in a subject they find compelling.

In summary, the statistics presented in this chapter provide insights into the role and significance of TAs at ITU. With these key aspects established, let us now delve into the first key finding theme in the following chapter.

Chapter

04 Key findings and Recommendations: Roles and Responsibilities

4.1. Key findings about Roles and Responsibilities

Across data and phases, the data shows a lack of organisational decision-making about roles and responsibilities in relation to TAs as well as unclear or insufficient communication to and between relevant ITU stakeholders about these issues. We will elaborate systematically on these below, divided into five specific findings (A-E).

Key finding A – Insufficient initial alignment of expectations of being and having a TA

TA onboarding practices of CMs differ. Some CMs invite their TAs for onboarding meetings in due time, others have a short meeting right before or after the course starts, and some CMs only send an email.

The CMs stress the value of onboarding and aligning expectations with their TAs:

“I think the onboarding is really important because there's so many ways of being a TA. Even within the same program, I think we do it rather differently.” (CM, focus group)

“I sit down and I talk through the entire course with them, what I plan to teach every time and, we figure out what to do in the exercises. I talk a bit about the readings and do some alignments and figure out how independently can these students work or not, which is very different from course to course depending on like their maturity, their experience, their personality, etc. And you can sense, OK, they can actually pretty much run with it and you're happy that they do that, or these students need for us to meet up every week to make things run smoothly, for instance, and that's something you also align” (CM, focus group)

Some TAs find that they received insufficient onboarding which challenged their TA debut:

“I think it was hard to understand what I was getting into. [...] I don't get to know what are the expectations of the teacher before I start. Like, what are the distribution of hours expected to be? How often do they expect questions and extra work?” (TA, focus group)

Moreover, our Student Survey data showed that 18 % did not apply for a TA position as they were not sure what is expected (see appendix 1).

For some TAs, the poor introduction has consequences for the length of their TA career:

“I previously worked as a TA for study lab, and I got ZERO introduction, guidance or information about the courses related to the study lab. Was part of me quitting again” (Student, Student survey)

Students and TAs are not the only ones feeling confused and underinformed about the expectations related to the TA role. Some CMs, especially new members of faculty, find the administrative processes as well as their responsibility rather non-transparent. Some CMs explain that they had doubts on how to recruit and use TAs and whom they could go to for questions when they had their first CM position at ITU. After having several TAs, one CM still wonders whether she is considered the TA's personnel manager or not.

Key finding B – Continuous alignment between CMs and TAs is considered crucial for their collaboration and the value of having TAs at courses

In the open answer sections of course evaluations from autumn 2022, many students point to poor alignment and coordination between TAs and teachers, between lectures and exercises, as something that have affected the course negatively:

“Overall, the course lacks structure, and it seems like the teachers and TAs don't talk together.” (Student, course evaluation).

“Better alignment between TAs and course leader [...] Seems there was a misalignment about how much focus there should be on the software itself. This has been a big hindrance for my study group and I later in the course, as we now have data with ‘incorrect’ perspective” (Student, course evaluation)

Statements like these indicate that the communication and collaboration between CM and TAs is not always perceived to work very well from a student perspective.

However, CMs and HoSPs also point to communication and alignment between CMs and TAs as important factors for the contribution and value of TAs: *“Guidance of TAs are central for the quality”* (HoSP, workshop).

When looking at our interview data, the collaboration between CMs and TAs during courses in general seems to run well (see also an elaboration of good CM practices in appendix 5). Many CMs and TAs explain that they have weekly coordination meetings or that they communicate often on Discord, Teams, or other communication channels. A CM explains that she prioritises being available for and aligning with her TAs:

“I really try to pass on as a message that I really care about being aligned in the course because the number one thing that can put a course sometimes off is when the students feel like they get different feedback from the TA's and from me” (CM, focus group)

However, we do also see examples of TAs with other experiences: CMs that are very difficult to get in contact with, who do not answer emails, and who they can only reach in connection to lectures. Hence, some TAs express the need for CMs who are more supportive and available.

Key finding C – TAs experience high workload, unclear area of responsibilities, and great expectations from students and CMs about their availability

Some TAs experience high expectations from both CMs and students. They are not only expected to oversee exercises but are, in many cases, also part of planning exercises, correcting assignments, and giving feedback. Some TAs feel they are expected to be constantly available as many CMs direct students to TAs with their questions. Students approach TAs with questions both in and outside the class:

“When you have more technical courses, people really need a lot of help, and one TA is just not enough. You get overflooded, often in your spare time and the students get annoyed because they expect an answer on a Sunday evening and it's just not feasible to keep up.” (TA, focus group)

The fact that TAs are the preferred 'go-to persons' for students is backed by our student survey data. When students have questions regarding their academic work 46 % of respondents go to their TAs, while only 9 % go to their teachers (see appendix 1).

One reason for this might be related to the non-availability of teachers. In the open answer section for this survey question a student writes *"usually the teacher disappears during exercises or doesn't have time"*. Moreover, some TAs feel that they have been given a huge responsibility without being adequately prepared and skilled:

"This year in the biggest course that I'm in, we have this topic where we were told by the professors that even experts have problems with this. And we have a one-time experience with it. So, we sit there with a huge responsibility to try to explain something that maybe experts have problems explaining." (TA, focus group)

For some TAs, their workload exceeds the assigned hours:

"There is so much work that you don't write down. You know that you're supposed to show up and make all the work. In my case I had to show up at lectures as well. Then the exercises of course, and then planning of them. The mailing, the planning, the invisible work by maybe doing extra supervision and so on." (TA, focus group)

Both CMs and HoSPs seem to be aware of this issue as many of them recommend giving TAs more hours. Moreover, it is argued by both TAs and CMs that ECTS and number of students might not be the best indicator for allocating TA hours. It is suggested that TA tasks and activities such as the number of mandatory assignments to correct might give a better indication of workload.

Key finding D – Perceived variation in CM's time spent on recruitment and collaboration with TAs as well as their perception of TAs contribution

TAs are described with many positive words and are highly valued by most teachers. However, CMs and HoSPs also stress that the process of recruiting, onboarding, and collaborating with TAs require extra work. Work that they do not feel is adequately described and supported by ITU and work that is not always compensated for by the work done by TAs.

A CM explains how he and his co-teachers managed to turn a small course with no TAs into a well-driven large course with nice evaluation and many qualified TA applicants by investing time in improving the collaboration with TAs. This investment includes close contact between CM and TAs, preparing them for exercises and students' questions and limiting the amount of TA tasks perceived as boring:

"The support that we as course managers have given to the TA has been insane. Like we basically told them exactly: 'this is what students will typically say. You can react like this.' We have weekly meetings going through the exercises, we put very, very little grading job on the TAs." (CM, focus group)

However, not all TA-related work is considered worth the effort. Some CMs have experienced TAs unqualified for the job or point to the 2+2 course structure as not conducive for the right use of TAs. Especially in theory-heavy courses, CMs find that not all TAs have the prerequisites to lead and facilitate the exercises and the 70 hours do not leave enough time for TAs to

prepare. Also, some CMs find that they do not have the time to give TAs the proper instructions or to take over the exercises themselves.

This perception of lectures as teacher's domain and exercises as TA's domain seem to be shared by students, often referring to exercises as "TA sessions" in course evaluations. However, the HoDs stress that teaching should be seen as a whole, and that the CM are responsible for everything that goes on in the course:

"Som CM har man ansvaret for at sætte sig med HELE undervisningsteamet og se hvordan kurset skal undervises. At have TAs er et holdansvar, det er en opgave som underviser SKAL påtage sig, der er ikke noget med en vis procentdel af undervisningen, det er en fordeling af opgaver, herunder TAs." (HoD, group interview)

Key finding E – TAs and CMs are uncertain about who to turn to for help with sensitive, practical, and administrative TA-related issues

When TAs have practical or administrative needs or questions, they are often in doubt about who they should address them to.

A TA explains that she needed board markers to use during TA sessions. However, no one could help her with getting new ones. In general TAs would like it to be clearer which practical support they can expect:

"[It would be nice] just to know what's available for us to aid us in the TA or what's not." (TA, focus group)

TAs also have many questions about salary and tax. They do not find any information about it on the Intranet and their CM cannot always guide them in the right direction:

"I sent an email to five different people. I was like, hey, I want to change my tax card, like, who is responsible for this?" (TA, focus group).

Getting help on these matters are crucial for TAs not least because many TAs experience problems with delayed or incorrect salary.

A CM sees her TA's experiences with salary as indications of "a broken system":

The contracting and salary payment, I hope you know, already it is a huge issue. Like one of my TA's just the other day told me so now we're marking the 10th month of incorrect salary. So, he has to carefully go through his salary statements every month because for 10 months in a row it hasn't been correct (CM, focus group).

The fact that such issues are not solved for months indicate to CMs and TAs that TA tasks are not prioritised and that the responsibility for supporting TAs is not sufficiently allocated.

Some TAs also express the need for support when they encounter issues with students or their CM during their TA employment, and for other sensitive issues related to the TA role. The lack of clear communication and guidance leaves them unsure of who to turn to for help. Similarly, CMs and administrative staff receive requests from TAs but do not always know how to help or who to refer to.

4.2. Recommendations about Roles and Responsibilities

Our findings about roles and responsibilities have led us to make three recommendations with suggestions for actions aimed at ensuring better organisational anchoring of TAs at all levels (macro, meso, and micro) as well as strengthened collaboration and communication within the entire TA area. Each recommendation is introduced in a schematic overview and will be followed by an elaboration. All three recommendations for this area are concluded with an estimate of the costs and benefits of implementation.

Recommendation 1 – Establish higher degree of organisational anchoring

	Macro	Meso	Micro
1 Establish higher degree of organisational anchoring	Initiate decision and clarification of areas of responsibilities & organisation support	Assign TA dedicated resources responsible for supporting the TAs and teachers with various administrative, practical, didactical and pedagogical issues and questions. Create one point of entry for TA-issues and questions.	TA allocation meetings: TA applicants are allocated to courses in a collegial process.

Across our data, the lack of a TA organisation or system including support for TAs and other actors involved is apparent. The confusion about organisational support, roles, and responsibilities makes the TA area fragile. Rather than to be dependent on individuals and individualised processes, the TA area should rely on organisational ownership, transparent processes, and a culture that acknowledges how central TAs are for ensuring high quality education.

We therefore recommend ITU to establish a higher degree of organisational anchoring of the TAs. A centrally controlled system with dedicated resources to coordinate local processes will clarify responsibilities and create ownerships at both “central” and “local” levels.

At the *macro level*, ITU should acknowledge the importance of TAs for the learning environment but also the pressure that 200+ hirings twice a year puts on the organisation and in particular the specific departments and individuals involved. We therefore find it important that management makes areas of responsibilities clear. Moreover, resources should be prioritised and dedicated to support TAs and the surrounding organisation.

An important aspect of this anchoring could be implemented at the *meso level*. We suggest that dedicated resources should be assigned to support TAs and course managers and take responsibility for the coordination of TA-related requests and tasks. This could take the form of a resource dedicated to TAs with skills and knowledge on: TA-recruitment and hiring processes, salary, group work, conflict mediation, teaching, communication, and LearnIT. TAs and CMs could come to the TA resource for advice and tools on various practical, administrative, didactical, and pedagogical aspects as well as to share and to get sparring on social and sensitive issues, e.g., how to respond to social conflicts in the learning environment. Moreover, a one point of entry for TA issues and questions could be created to make it easier for TAs and CMs to get help and support about TA-related issues. This entry point should be seen in connection to the dedicated resources.

Moreover, at *the micro level*, we suggest that TA allocation to a larger degree than today takes place in a collegial process to make sure that as many courses as possible get the TA help that they need. One way to do this could be to establish TA allocation meetings at study programme level, where HoSP and course managers discuss, distribute, and re-distribute TA resources while considering course needs, applicant’s skills, optimised use of the applicant pool and fair distribution across courses.

Recommendation 2 – Strengthen collaboration with TAs

	Macro	Meso	Micro
2 Strengthen collaboration with TAs	<p>Formulate value statement stressing TAs as a valuable part of the teaching team.</p> <p>Include TA collaboration in competence profile for faculty.</p>	<p>Formalise an introduction to TAs, (e.g., send a welcome letter to TAs).</p> <p>Appreciation letter when the course ends containing information about next semester’s call for TAs.</p>	<p>Standardise collaboration meetings between CMs & TAs in the following phases: onboarding, midterm, and exit/retention.</p>

The key findings, not least the poor alignment of expectations about the TA role and CM’s responsibilities for their TAs, reflect a need for prioritising, formalising, and standardising parts of the collaboration with TAs. Moreover, a more standardised collaboration approach could potentially increase the retainment of TAs.

At the *macro level*, collaboration with TAs could be strengthened by formulating a value statement stressing TAs as a valuable part of the teaching team. This value statement could be included in relevant communication and strategies about teaching at ITU to make sure that all teachers are aware of the role TAs play in the learning environment at ITU. Although mainly a symbolic gesture, we believe it is important that ITU acknowledges the TA staff group.

We also suggest including TA collaboration in the competence profiles for teaching. The profiles are important tools for aligning expectations about required competencies of scientific staff and applicants for scientific positions at ITU. Moreover, it is a tool used for continuous competence development. The skills needed for collaborating with TAs could be a relevant theme for teachers to discuss with their personnel manager at competence development meetings/SDI to make sure management keeps an eye of this aspect of their teacher’s skills and practices. Our data suggest that Heads of Department only rarely discuss TA issues with their staff members while they at the same time stress the course manager responsibility for taking responsibility for the entire course and the entire teaching team.

At the *meso level*, we suggest a formalised practice for welcoming TAs when a new semester starts and for thanking them and encouraging them to reapply, when the semester ends. The welcoming email should stress that ITU “welcomes you onboard”, answer a few frequently asked questions and provide links to further information and contact persons (see recommendation 3 about upgraded communication strategies). The appreciation email at the end of the semester sent by HR or the TA resource (see page 24) should thank TAs for their

contribution and inform them about the date for next semesters call. At the hearing, CMs supported the idea to appreciate the TAs work more.

Our data also showed that the communication and collaboration practices of CMs and TAs differ. Some TAs are in contact with their CMs often, others do not feel adequately supported by their CMs, e.g., experience CMs that are not very accessible for questions and do not take responsibility for the exercises. At the *micro level*, we therefore suggest that CMs as a minimum meet with their TAs three times. We do not suggest a standardised time or agenda for these meetings, we find it fruitful that different practices exist. However, we do recommend the following issues to be discussed at the start, midterm and by the end of the semester/course:

- At the onboarding meeting, practical information should be given and expectations between CMs and TAs should be aligned. This alignment could include aspects such as distributed of TA hours through the semester, workload and peaks, preparation, student contact and communication between TAs and the remaining teaching team.
- The midterm meeting should focus on how the collaboration with the teaching team and the work on the course is perceived by the TA (including tasks, workload, etc). Moreover, the organisation, quality, and the student learning progression of the course as such could be discussed and TAs could contribute with the feedback and questions they receive from students. This could lead to revisions of the course or the TA-tasks.
- An exit/retention meeting when the course ends, should focus on evaluating the CM-TA collaboration, the TA contribution, and the course as such. Feedback from the TA could be used to improve the course next time it runs and to guide the work of future TAs. The CM could give the TA some useful feedback on their contribution as part of the teaching team. If relevant, CM and TA could discuss the TA's wishes and opportunities for continuing as a TA at the next semester.

To remind CMs of the importance of meetings and continuous alignment with their TAs, this "minimum meeting model" could be introduced in guidelines for CMs applying for TAs. This will also be addressed below in the following recommendation 3, at the meso level: designated TA section for CMs.

Recommendation 3 – Upgrade TA communication strategies

	Macro	Meso	Micro
3 Upgrade TA communication strategies	Clarification and communication of TA/CM rights, roles, and responsibilities.	Designated TA theme section online for TAs/applicants/students Update information on TA process, deadlines, and CM responsibilities on the intranet. Create TA recruitment event for potential applicants and curious students.	CMs writes small summary of TA skills, tasks etc. specific for each course to supplement general call. Initiate peer2peer campaigning on ITU Student and SOME channels.

As a natural consequence of our findings on lack of transparency and insufficient communication about TA processes and responsibilities as well as our recommendations to clarify responsibilities and support, there is a need for upgrading TA communication. This recommendation suggests strengthening TA communication strategies and includes improved written information as well as introduction of new ways to increase students' awareness of TA opportunities.

At the *macro level*, the ITU decisions and clarification of rights, roles, and responsibilities in relation to TAs (recommendation 1), should be backed by upgraded communication about these issues.

We also recommend several communication activities at the *meso level*. Most importantly, we think that the creation of a designated TA theme section for TAs, applicants, and students at ITU Student and ITU.dk could solve some of the identified issues that TAs and TA applicants experience. The theme section should include a FAQ with the most important questions about being a TA, a description of the TA process and the deadlines as well as of the TA role and task example, contact information to TA support, etc. Similarly, we suggest upgrading the intranet information to CMs and teachers about the TA process, deadlines and CM responsibilities and guidelines. To increase the awareness of the TA call and opportunities, we recommend introducing a TA recruitment event twice a year for potential applicants and curious students. At the event, students can meet with TAs, selected CMs and the TA support team to hear more about what being a TA entails, how to apply, etc.

At the *micro level*, we recommend that CM for every course makes a written description of what a TA would be doing on this specific course, what skills are needed, practical aspects, etc. (see appendix 2). This is a way to increase clarity in the application process and to start aligning expectations between students, TAs and CMs. It will be a minimal task resource-wise to update when needed. Moreover, we suggest that peer2peer campaigns are initiated on social media and other relevant platforms. Former and current TAs are probably the best TA ambassadors and much better able to reach the relevant target groups at the relevant platforms.

4.3. Conclusion: Expected Cost and Benefits of Recommendations about Roles and Responsibilities

As a conclusion, the expected costs and benefits of following recommendations 1-3 about roles and responsibilities include:

- Overall, a higher degree of TA anchoring, strengthened collaboration, and upgraded communication would be investments in a valuable but currently fragile TA-area to make a sustainable organisation that prevents or reduces current and future problems. We see these recommendations as important steps needed to increase the quality of collaboration with TAs, quality of TAs, and retention of TAs. The main cost for ITU if implementing these recommendations is manpower for staffing the TA resource: additional staff members or staff hours need to be dedicated and prioritised. The remaining tasks (e.g., strengthened collaboration and upgraded communication) will require some resources from CM, HoSPs and administration when initiated, but are expected to become part of daily operations within a short timeframe.
- TAs and course managers would benefit from the establishment of a dedicated TA-resource and a one point of entry as this would make it clear for them where they can go for help and questions. Dedicated resources would also limit the ad-hoc requests to administration and teachers and prevent collaboration challenges and other time-consuming TA-issues.
- The suggested faculty involvement in the administrative processes will increase ownership and implicate that important decisions on how to allocate TAs—within various TA-budget restraints—are taken as close to the teaching and programmes as possible to optimise the use of resources. It will hopefully lead to a better overview, better opportunities for swapping and better use of the full application pool and thus lead to less work in finding TAs for challenged courses.
- TAs and CMs will benefit from upgraded communication about tasks, roles and responsibilities and a formalised meeting practice. Course-specific descriptions, recruitment event, and other information about the TA-role will hopefully reduce the confusion for applicants and potential applicants and let to more qualified applicants. TAs will feel welcomed and informed from the beginning. Upgraded communication about TAs targeting CMs, will also prepare CMs better for their role, not least new CMs. A standardised meeting practice with expectation alignment and discussions of issues we know are important for TAs, will hopefully make it easier for TAs and CMs to get a good start and to sort out issues at the course along the way. The administrative resources required for making and updating TA theme sections on the intranet and the time spent by course managers when introducing course-specific job descriptions and mandatory meetings with TAs are assessed to be more than outweighed by less hours used by teachers, administration, and TAs to answer questions and fix issues such as overuse of TA hours due to poor alignment of expectations. Other benefits are expected to include satisfied TAs who are less inclined to quit and more inclined to re-apply.

Chapter

05 Key findings and recommendations: Organisational Processes and Transparency

5.1. Key findings about organisational processes & transparency

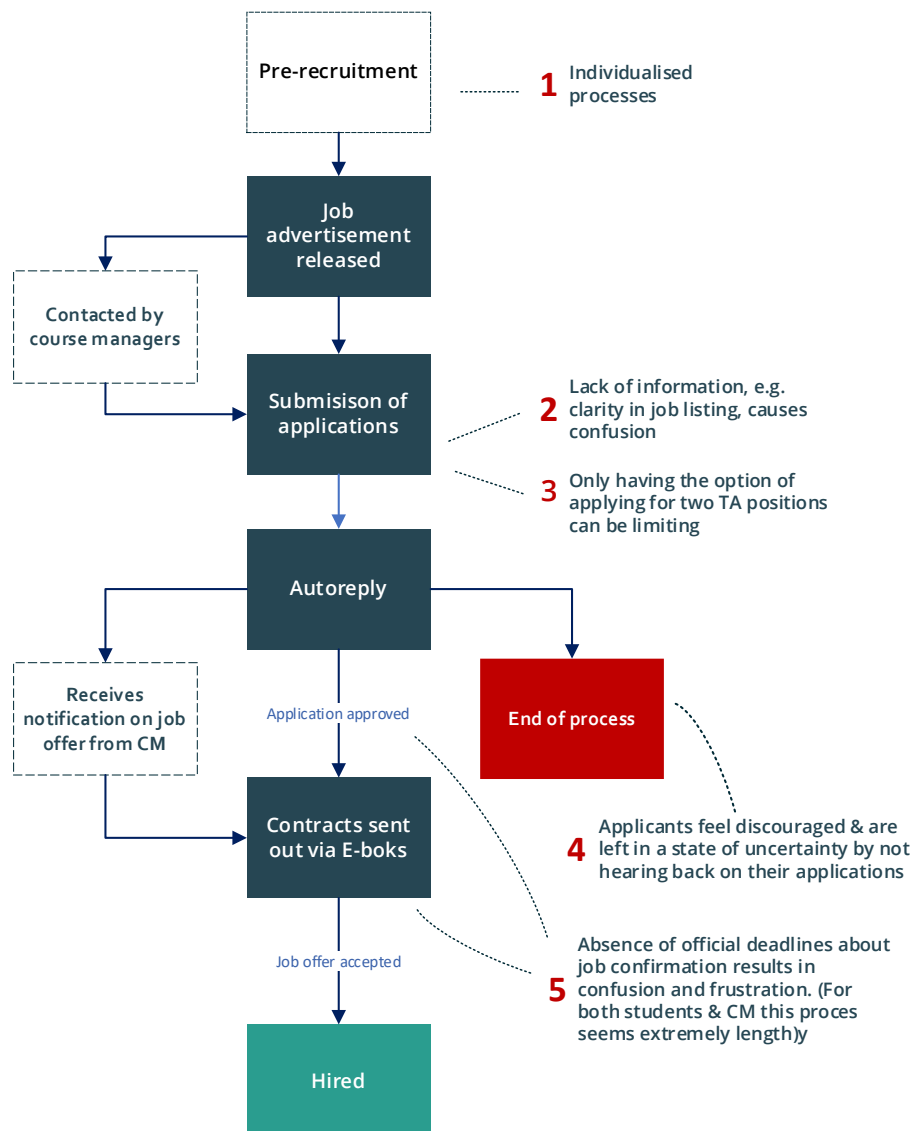
This main theme provides insight into the organisational processes, practices, and systems that supports becoming-, being-, and having a TA. It is centred around how students and faculty experience these processes.

Main points from the data followed by quotes from the interviews are presented below. As a framework for understanding the processes, the applicants' journey will first be outlined.

TA application journey outlined

Figure 9 illustrates the step-by-step journey that students interested in becoming a TA go through when applying for a job. The numbers in the flowchart further highlight the challenges that students and faculty encounter during the process.

Figure 9 The Applicant's Journey: A Flowchart of the TA Application Process



As illustrated in Figure 9 the analysis of the data revealed various challenges related to the current recruitment and application process, including unclear requirements, lack of transparency, inadequate support, and a need for revising the current guidelines for applying for a TA-position.

Furthermore, there are currently two parallel processes when hiring TAs – an official process for the applicants that meet the application deadline and a delayed, ‘unofficial’ where tasks are handled sporadically. The delayed process occurs partly because there is an insufficient number of applicants to meet the demand of TAs and partly because there is an organisational culture of accepting TA-hires after the deadline.

The above-mentioned challenges are further discussed in the following sections.

Key finding F - Individualised recruitment processes can put an extra burden on faculty, especially on new and part-time lecturers.

Course managers use a variety of TA recruitment strategies to recruit applicants before the official TA job listing is announced. In cases where no applicants are received, teachers must devise additional means to recruit the needed help.

However, relying solely on individual processes can put an extra burden on teachers. It can, especially for new- and part-time teachers, be difficult tapping into established practices, underscoring the need to formalise the process for greater efficiency, equity, and organisational learning. (See appendix 5 for a more detailed description of CMs’ approaches.)



An example of one recruitment strategy used by a teacher.

Key finding G – Lack of information, e.g., clarity in job listing, causes confusion

The job listing for TA positions often lacks clarity regarding the specific requirements for applying related to:

- Tailored information for each individual course
- The cover letter
- Contact information

The lack of tailored information for each individual course creates confusion among potential teaching assistants.

While some general information is provided about the tasks teaching assistants are expected to perform, the information provided for each individual TA position is limited to the official course description found in the LearnIT course catalogue, which is designed for students applying for the course and not tailored to the specific needs of the TA role. This leads to confusion among potential applicants about what is expected of them for the job and what kind of candidate the course is seeking.

“It is hard to know what the expectations are” (TA, focus group)

“Would it be possible to at least put from where the course is from, the entirety of it behind it? Because I applied for a course next semester that's like a joint course between the Master and two Bachelor programmes, and it only had the Master standing after the course name. I was super confused. I was like, are they only looking for TAs for the master's part? Can I apply for this?” (TA, focus group)

“Yeah. I'm always a little bit intimidated to sort of apply for study labs because I feel like in every semester, there's one course that I'm a little bit weaker on. Even if the grades don't show that, I just don't feel as confident. And I'm not sure if we're required to know absolutely everything. (TA, focus group)

The statements from the TA in the focus group show their uncertainty about the expectations of their role, confusion regarding course eligibility criteria, and lack of confidence in their knowledge and abilities, which could potentially hinder other candidates from applying due to similar concerns.

Figure 10 illustrates other factors hindering students from applying.

Why haven't you applied for a TA position this semester or before in general? (Select the answers that best describe reasons preventing you from applying. If neither of the answers match your situation, you can also add your own in the "other" field).

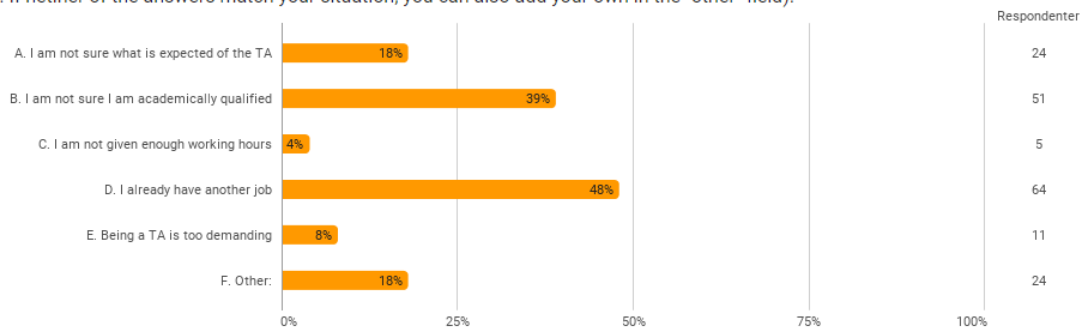


Figure 10 Reasons for Hesitancy Among ITU Students to Apply for TA Positions (N=135) (Student Survey)

Answers provided in the “other” field mainly were accredited to the fact, that students were still in their first semester.

Challenges with the cover letter

Applicants are required to submit a motivational letter, but it is not clear who the letter should be addressed to. If students choose to apply for more than one course, it is unclear whether they should also write more than one application letter.

“I have no idea how many cover letters I should write or who I should write [them to]” (TA, focus group).

“I was asked by the course manager to apply for a course and so I sent everything that was required, but the CM said I didn’t need to write a cover letter – perhaps just three lines, because CM knew what I was capable of” (TA, focus group).

“It would be nice to have clearer guidelines regarding the application. You are always in doubt about what to write. For example, if I have taught the course before.” (TA, focus group).

Unclear contact information for applicants with questions.

Finally, if applicants have questions about the job listing or the position itself, it is not clear to them who they can contact for clarification or assistance.

“First, I called SAP, and then I was told it was HR that I should talk to. And I talked to HR, and they tried to contact the course manager. But he never really got back because he had this break from the course, he said.” (TA, focus group)

In summary, the lack of tailored information in job listings causes confusion among potential TAs.

Key finding H – Only having the option of applying for two TA-positions can be limiting

Applicants are required to limit the number of positions they apply for which may not necessarily be beneficial for the process in general:

“Biggest challenge with the system: Students can only apply for two positions. I complain about this every time. (HoSP, workshop)

“[It could be] a good idea to have more than two course subjects. And maybe ranked differently. Then you could choose how many of them you actually wanted or max ECTS. Because for me, I only want 7.5 ECTS because I’ve got another job on the side. Which also lets me have the flexibility of having a 10th class and SU...” (TA, focus group)

The applicants have different situations, possibilities, and obligations and would like the freedom to choose and prioritise accordingly. From an organisational standpoint, this limitation can affect the applicant pool significantly and negatively.

Key finding I – Applicants feel discouraged and are left in a state of uncertainty by not hearing back on their applications

During the focus group interviews, several TAs stated their experience of frustration and uncertainty due to a lack of communication regarding their application status in the hiring process:

“There's a course where they're looking for three TAs. Maybe they already found three, maybe just send an email saying, 'sorry, you didn't get it', so, you don't wait.” (TA, focus group).

“It says that in the contract, that HR try getting back to you in December/January. I think it's completely fine that we know that this is timeframe and it's okay that it's that long. I think the problem is, we don't get the information if we haven't received a job offer. I've been TAing for almost three years now here at ITU, I get a lot of people asking me about my former experiences [with the hiring process]. And then I say, well, sometimes I get the job offer maybe around the first of the semester because some of the professors are really fast. Maybe I get a job offer in the end of January. You don't know and I don't know.” (TA, focus group).

Currently, applicants only hear back if they are offered a position, which can be particularly concerning when the start of the course approaches and the applicants still are unsure whether they will be assigned a course.

Key finding J – Absence of official deadlines about job confirmation results in confusion and frustration

Both applicants and CMs deemed the process of applying for a TA position as being excessively lengthy, causing frustration, and uncertainty all around. The lack of official deadlines for notifying TA applicants about the status of their applications is particularly problematic, as some applicants may hear back while others do not.

“[...] and then you wait a while for the contract to arrive. But sometimes it just don't arrive.” (TA, focus group)

“I assumed that it just took a while for the contract to arrive, and then I talked to one of my classmates, who was like, 'What do you mean – I already got my contract.' [...] And I was like, well, it's been three weeks, and I still don't have mine.” (TA, focus group)

“It's also hard because then you would have to look for something else. This semester I didn't know if I was going to get the ones for next semester. So, I was like, okay, I really need to either get the job, or I need to go job searching for something else.” (TA, focus group).

CMs also expressed concerns about the possibility that the extensive process for hiring TAs resulted in some qualified applicants being lost to other positions due to the long wait times and lack of communication:

“So, in this long gap, especially over summer...having a very efficient contract process is also another way of actually retaining them because they don't have time to jump, and that makes a difference, right?” (CM, focus group)

“We've experienced kind of HR dragging their feet on contracts and we're kind of left in a (waiting) position [...]” (CM, focus group)

As the statements highlight, the absence of official deadlines for job confirmation in TA applications causes confusion and frustration for both applicants and CMs. The excessively lengthy process, coupled with a lack of communication, leads to uncertainty among applicants, where some receive contracts while others are left waiting indefinitely.

This situation forces applicants to consider alternative job options, potentially resulting in the loss of qualified candidates for TA positions. These challenges not only hinder the recruitment of capable individuals but also contribute to a frustrating application experience for many applicants.

5.2 Recommendations about organisational processes and transparency

The key findings emphasise a slow and inefficient recruitment process that wastes resources and is defined by a lack of transparency and clarity and inadequate support especially for the applicant but also for the CM involved. The following two recommendations (recommendation 4 and 5) will enable a much better process for both the hiring staff at ITU and the potential TAs.

Recommendation 4 – Optimise recruitment and hiring process

	Macro	Meso	Micro
4 Optimise recruitment and hiring process	<p>Prolonged contracts for smoother hiring process. Supplement contracts with information on course, hours, and salary.</p> <p>Prioritise platform that support the underlying values and strategy within the TA process that ensures a smoother administrative process.</p>	<p>Enhance transparency of each step in the recruitment and hiring process for both students and faculty.</p> <p>HR-related TA tasks (contracts, salary etc.) need to be prioritised in HR or outsourced to external partner.</p> <p>Increase transparency with regards to applicant pool by involving faculty stakeholders in the administrative process:</p> <p>System support providing HoSPs and CMs with a better overview.</p>	<p>Improve description of application process and requirements to supplement general call:</p> <p>A) Clarify what and how many documents students should include in the application. (E.g., the cover letter – who is it addressed to)</p> <p>B) Highlight the importance of keeping deadlines for all involved actors</p> <p>C) Send rejection letter to applicants not hired</p>

On a *macro level*, we recommend the implementation of longer contracts. If TAs were hired on a two- or three-year contract it would drastically cut the resources spent on tasks related to contracts for all those who would like to TA more than one semester. On average approximately 25 % of applicants for the Autumn semester and almost 50 % of applicants for the spring

semester have TAed before. Additionally, it will ensure a higher degree of retainment, make the supplement recruitment more targeted and contribute to a TA-process that can accommodate growth. TAs would be hired on 'empty' contracts and then be paid when they decided to TA for a course. Similar practices are quite successful at Copenhagen University.

We also emphasise the need for improving the platform that supports the TA-processes. Currently it is HR-manager in a less than ideal set-up combined with excel sheets. Time could be saved, and transparency increased by either optimising the use of the current system or finding an alternative. We have cautiously explored if there are options within systems or apps ITU already have access to and there appears to be a few. This would have to be further explored and aligned with the process owners.

On a more specific *meso level*, we see it as a prerequisite for any improvement on the recruitment project that the HR-related tasks are prioritised. Currently, there has been a dedicated resource, but not dedicated hours. The tasks were solved in 'buffer time'. If the tasks are not prioritised, significant improvement on the recruitment process will not be possible if tasks are kept in-house and, in the HR,-department. Alternatively, ITU could outsource the process to a recruitment firm. We have been in dialogue with three potential options and received quotes from two – it ranges from 300,000 to 600,000 a year which amounts to ca. 600-1,200 DKK pr. TA hired with the current volume. We do not recommend outsourcing but for the purpose of comparison include it here. To see how recruitment processes could look if outsourced, see appendix 4.

Another very important aspect at the meso level is to increase transparency of the administrative TA recruitment process for faculty and to increase their ownership by involving them more in these processes. We therefore suggest giving HoSPs and CMs a better overview of TA applicants and allocation across courses. Whether this is possible within the current HR manager system or requires additional system support needs to be further investigated.

Besides the course-specific description supplementing the general call, it should also be made clearer what material is needed in the actual application and who to address it to. The project also recommends sending a rejection letter to the applicants that were not hired so that they know when the process is completed and are not waiting in the unknown.

There is a substantial number of the hired TAs that apply after the official deadline, and this creates a big workload in the recruitment process that is handled sporadically. There are two overall reasons for this – one is there are simply not enough applicants (addressed in a separate recommendation) to meet the demand for TAs ad some courses go without and the second is the culture ITU has for meeting these specific deadlines.

The Course Staffing Coordinator estimates that 15-20 % of her full-time position is spent on tasks related to recruitment *after* the deadline. These hours would be freed by keeping deadlines. HR also spends resources on recruitment after the deadline, and they estimate that they spend 40 % of their time on applications after deadline (equivalent of 4 days a year) – in the A22 semester it was approximately 25 % (70 out of 283 applications) of the positions that were filled after the deadline. This number can vary slightly from semester to semester but is overall representative. This does not include the hours HoSP and CMs spend who are involved in every hiring and who have a myriad of ways to handle these urgent hirings. TAP staff, e.g., programme coordinators, are also involved ad hoc to solve acute cases. All these resources would be freed up with a different approach and respecting the deadlines.

Recommendation 5 – Increase the pool of applicants

	Macro	Meso	Micro
5 Increase the pool of applicants	<p>Appeal to more students through transparency of selection criteria, recruitment process, and recognition of TA contribution.</p> <p>Retain TAs after graduation.</p> <p>Attract external or graduate applicants for Master courses.</p>	<p>Open for other profiles, e.g., non-students, seniors, graduates, high school teachers etc.</p>	<p>Offer students the opportunity to apply for more than two courses, while also allowing them the flexibility to indicate their desired workload in terms of the number of courses or ECTS credits they wish to undertake.</p>

In order to improve the recruitment process it has become clear that a substantial part of the challenge is that there are not enough applications for TA-positions. In the following we present recommendations on how to expand the pool of both internal and external applicants.

We recommend on a *macro level* that ITU enables and supports the TA processes and explicitly acknowledges the contribution TAs make. This should be expressed by prioritising the processes around this group of employees and communicating the criteria they are selected based on.

A specific way to expand the application pool is to make a dedicated effort to retain students after graduation (also if they take a break between BSc and MSc). They would be able to work on several courses with no restriction from their schedule. This could also be a way to cultivate potential PhD applicants. This especially applies for MSc courses where external candidates or graduates would be ideal for the challenged group of specialisation courses.

On a *meso level*, a way to attract more external applicants would be to encourage other non-student profiles to apply such as seniors, graduates, high-school teachers. This would positively affect the number of applicants and the diversity in the TA-group. Targeted recruitment of these profiles is not something ITU has previously done, and each department should start by defining which specific profiles would be relevant for their courses. This would also involve HR in making an additional contract template.

A way to facilitate a larger applicant pool internally at ITU is to allow for students to be able to apply for more than two courses. Currently they can only apply for two, but both students and CMs have expressed a strong wish for that limitation to be lifted or expanded. This could help staff courses with TAs more efficiently and proactively find potential TAs for courses that struggle to get enough TAs. This recommendation does not address how many courses TAs work on – just how many they can apply for.

Another way to expand the internal pool of applicants could be to look at the current pool and see where diversity could be increased. We have data that supports that relevant parameters could be age, nationality, gender balance for some programmes, and the TAs motivation for becoming a TA (cf. chapter 3).

5.3. Conclusion: Expected Costs and Benefits of Recommendations on Organisational Processes And Transparency

Expected costs and benefits for recommendations 4 and 5 include:

- TAs would experience a higher degree of job security (i.e. longer contracts) and the option to broadening their profile (applying for more courses).
- Collectively, the recommendations for application material will align expectations and TAs can on an informed basis make a stronger application with correct material.
- Additionally, acknowledgement of their contribution and improving the processes around TAs would strengthen TAs affiliation with ITU and potentially increase retainment.
- Longer contracts will also lessen some administrative tasks for TAP personnel and create a pool for proactive recruitment which will minimise acute staffing problems. Keeping deadlines might create some resistance but will overall benefit both CMs and TAP staff in the long run.
- When TAs can apply for more courses, CMs get a more complete picture of the areas TAs would like to work within. It would increase the size of the puzzle slightly but increase flexibility at the same time. As for retaining graduates CMs of specialisation courses would have a much smoother process for hiring TAs for their courses.
- Implementing these recommendations are believed to have relatively small costs and only manpower. There will be some administrative tasks in designing a template for supplement document and perhaps contract template, as well as defining and handling hirings of new, external profiles. Resources will be freed up and quality of the learning environment heightened.
- Prioritising better system support will cost ITU some hours, but it will still be far less than the cost of outsourcing and will in turn free up time HoSP or CM waste in an inefficient workflow.

Chapter

06 Key findings and Recommendations: Quality in Education

6.1. Key findings about Quality in Education

Quality in education is the final main theme of the findings. First, because the analysis shows a significant and explicit pre-occupation with quality in teaching and learning at the respective organisational levels and across stakeholders, meaning HoDs, HoSPs, CMs, TAs, and students.

Second, because the various reflections and practices regarding teaching quality can be connected to the underpinning pursuit of excellence that defines a university and its activities, and to ITUs strategic goal of *“meeting the highest international standards in academic content and teaching whilst maintaining an attractive and inclusive study environment and workspace”* (ITU strategy 2022-2025).

In reaching this goal, TAs play a significant role, or as one student puts it: *“TAs are almost more important than the professors, hands down”* (Student, TA-student survey)

The statements concerning the value that the TAs overall contribute to the teaching-, learning-, and working environment can roughly be summed up like this:

For the students:

- Availability and helpfulness
- Understandable explanations
- Special skills

For CMs:

- Feedback on learning progression and learning environment
- Feedback on exercises and/or overall changes in course
- Reduction in workload
- Possible recruitment of PhDs

These contributions are valuable for the level of quality, that we strive for at ITU. However, several areas around the TA-position and the contribution to quality in education are unclear and unsupported.

Another consideration regarding quality of education, is the sheer percentage of the education programmes at ITU that are handled by TAs. The default hour-allocation model with two lectures followed by two hours of exercises, where the latter often are held by TAs alone, distributes up to 50% of the teaching time to TAs. In an interview, a HoSP explains that: *“The TA-position ensures the students more hours of education”*, but a relevant question to pose in this context is whether more hours is the same as quality in education.

Key finding K – Quality and quantity are connected

The size of the applicant pool can determine whether it is possible to recruit TAs with the skills and competencies that are necessary to create a high-quality learning environment. The applicants are not evenly distributed, and some CMs can hire from a large pool of applicants while others must settle for whomever they can get, or as one CM puts it: *“anyone with a pulse”* (CM, individual interview)

The problem with few or no applicants for specific courses is linked to several structural factors:

1. *When* in the programme a course is scheduled to run can be a deciding factor:

- Recruiting TAs for the third semester master courses is problematic since most relevant applicants will have graduated at that point in time.

“As soon as somebody with the computer science background finds an industry job, they will not TA.” (CM, focus group)

2. If courses with potential applicants are placed in the same timeslot as the course where TAs are required, it can limit the applicant pool.

“They should not have mandatory courses when I have my exercises. Because once, I had like zero new students because all the three programs had mandatory lectures on my exercise slots, and then from now on I tell them when they accept: Please make sure that it's not exercises when I have my courses.” (CM, focus group)

“Well, last year I just couldn't get any TAs because they all had classes, it was a very popular spot.” (CM, DD Focus group)

3. *Who* the recruiter is can influence the hiring process significantly. Part-time lecturers experience difficulty attracting a large pool of applicants, because they do not have the same networking possibilities as other CMs, and one part time lecturer explains:

“Det er jo dybest set næsten hver gang, at jeg ender med at mangle [TAs]” (Part-time lecturer and CM, individual interview).

4. Regular contact with potential applicants is almost a requirement to attract applicants due to the elaborate informal pre-recruitment practice.

Key finding L – There is no systematic quality assurance and - assessment, and scarce didactic training

The TAs at ITU are no longer part of any formal evaluation. However, students have mentioned their TAs in the course evaluation surveys in every 6th. open answer in Autumn 2022, and these answers reveal a broad variety in satisfaction with the TAs efforts. We assume, that since the TAs are not officially a part of the course evaluations, their work must have made a significant impression (either positively or negatively) to be included in the answers, but it is noteworthy, that in the TA-student survey performed to inform this specific report, students also express that they see differences in the quality of the TAs' work:

“In most classes, TAs are doing a great job, but sometimes TAs become more superficial.” (Student, TA-student survey)

“The quality of TA's can change a lot. Some are amazing and some are not that good - especially on the masters.” (Student, TA-student survey)

In addition, CMs express uncertainty about the quality of the TAs' work:

“There might be bad TAs, and we don't have formal mechanisms verifying them.” (CM, focus group)

“No grading or feedback from students of TAs – we know too little about the quality of TAs” (HoSP, workshop)

Some CMs practise systematic meetings with TAs which serve the purpose of quality assurance as well as development of quality in the teaching practise, and feedback on learning environment. For the TAs the meetings function as safe space to discuss academic and didactic questions, and for the CMs the meetings provide useful information:

“I always tell my TAs is that they are my ear on the ground and also my filter, meaning that they need to tell me if the house is on fire.” (CM, focus group)

Several CMs are against formal assessment of the TAs to shield them against overly critical remarks from students, because: *“It's not pleasant for the TAs to read” (CM, DD focus group)*. Instead, they argue that continuous communication and alignment between TAs and CMs is a form of assessment and at the same time provide intervention potential for the CMS in due time. However, the more TAs at a course, the more difficult it becomes to stay updated for the CM.

A specific point, that all stakeholders agree on, is the need for further didactic training for TAs to enhance the general quality in education:

“Jeg ønsker mere integreret didaktik og didaktiske øvelser. Det ville gavne mit område.” (CM, individual interview)

“TAs receive too little didactical training; we need to help them become better teachers.” (HoSP, workshop)

CMs highlight a need to help TAs handle challenging communication with students:

“Når TAere møder modstand fra studerende: hvordan håndterer de det, og hvor går de hen med det bagefter?” (CM, individual interview)

The TAs themselves tend to focus on the need for knowledge in more practical areas, e.g. LearnIT and logistics, when they are asked what they would like to have as a part of their onboarding:

“Like the fact that you can borrow a particular USB from the tech office.” (TA, focus group)

“If you're grading a quiz, this is how you do the things.” (TA, focus group)

Currently, the only didactic training the TAs are offered, is a 2,5-hour introductory workshop facilitated by Learning Support in the beginning of the semester. The content is general to accommodate the TAs various background, and related to didactic, communication, practical questions, and networking. In Spring 2023, the number of participants were 63. It is mandatory to participate, and the TAs do not receive salary for their participation.²

² In comparison, both KU and CBS provide a more comprehensive introduction to teaching and learning for TAs, offering training that spans approximately 10 hours and is conducted through multiple sessions, as reported in interviews with external sources.

Key finding M – Standardised ways of distributing TAs, teaching hours, - rooms result in much teaching responsibility on the TAs.

There are several standardised ways of structuring the teaching at ITU that plays into the topic of quality in education. The so-called “2+2” default teaching-model at ITU with two hours of lectures followed by two hours of exercises consequently tend to place a substantial amount of responsibility for the exercise classes on the TAs solely. This can have implications:

“Der er nogle udfordringer i strukturen i 2+2. Strukturen sætter TAs i en autoritetssituation – de får meget ansvar. TAs møder ofte urimelige krav fra deres medstuderende.” (CM, individual interview)

The degree of independence and responsibilities put on the TAs are also noted by students:

“This course seems very dependent on the TA's” (Student, course evaluation)

Some CMs are part of the exercise sessions, but most are not. Most courses follow the 2 + 2 model, but some do not. In some instances, CMs experience that the potential for increased quality in teaching and learning is not harnessed because of the limitations on the learning design created by the default 2 + 2 model that determines the distribution of teaching hours and - rooms. The model can create less coherence between lectures and exercises, limit didactic creativity for CMs, and limit the collaboration with the TAs. Thus, the “2+2” standard can in some instances impede quality in teaching.

Another standard that is more orientated towards quantity than quality in education, is the budgeting of TAs; one TA per 30 students. For some courses, this budget is fitting, but for some it is too many or too few depending on the planned teaching activities. One CM elaborated in the hearing, that they had to expand their TA budget based on practical issues, because they were allocated several smaller rooms instead of one big room, and therefore more TAs were needed to be present.

Key finding N – Retainment of TAs is seen by most stakeholders as a way of ensuring better quality

In the various data, we find that most stakeholders, meaning CMs, HoSPs, and TAs, address a need for retaining TAs in their positions for longer than one semester:

“Having that continuity of always having people that know how it was last time around, I discuss with them changes to make based on the feedback of the previous semester, and they give me feedback on how it went exactly.” (CM, focus group)

That need is often linked to quality in education via the assumption that TAs with more experience are better at their job. A fair assumption, that is also based on CMs experience with TAs that reapply for positions, and become more efficient, independent in organising and solving tasks, and, in some cases become more specialised:

“We also need some TAs that are very much process managers, and we have some older students that get really good at that” (CM, focus group)

However, it is also noteworthy that some students comment in the open answers in the course evaluations that their ‘seasoned’ TAs lacked enthusiasm about their job:

“TAs, der har været TAs i mange semestre på det samme fag, er oftest de dårligste og mindst engagerede.” (Student, course evaluation)

Overall, this suggests that continuity can contribute to a high-quality teaching and learning environment, but also that retainment alone does not provide higher quality teaching.

Key finding O – Hiring criteria such as interpersonal skills and diverse backgrounds are seen by CMs as contributing factors to quality in teaching. Those criteria are unknown to the applicants

When the TAs are hired, evidence of academic performance such as grades and education diplomas are explicit requirements in the application process. However, many CMs express other, less measurable criteria as equally important.

“I've had the experience in previous years that sometimes good students will be too busy doing other stuff to write an elaborate letter of application, so it's for me to simply be able to say to them: I don't care about that application letter, just submit something. I select you based on your impression in class.” (CM, focus group)

“Things that you can't really cover in a in an application letter, like interpersonal skills, communication skills [...] and then the actual technical skills that they have shown in class by doing the things that we do in class. So again, it doesn't have to be the overall course grade” (CM, focus group)

“We or I try to compose actually a TA team which covers different abilities or disciplines [...] we have to consider that students have a diverse background and we should pick them up at their skill level” (CM, focus group)

Summing up, the data show that the deciding criteria not mentioned in the job listing, are:

- Interpersonal skills
- Diversity with regards to gender and technical skills

Both seem to be a way of accommodating a diverse cohort of students.

6.2. Recommendations about Quality in Education

Our findings show that quality is not well defined when it comes to the TAs work and their contributions to teaching and learning. The collected data shows few official procedures but many individual practices that support or revolve around quality in education. Lack of qualified applicants, lack of systematic guidance of TAs and rigid resource allocation standards based on quantitative measures of education seems to be the biggest challenges when working towards quality in education.

The recommendations for quality in education address the need for changes at a structural by introducing planning and distribution of teaching resources according to quality criteria as well as investing in the development of teaching competencies among the TAs.

Recommendation 6: Distribute TAs after more flexible criteria

	Macro	Meso	Micro
6 Distribute TAs after more flexible criteria	Supplement current quantitative distribution criteria (i.e. headcount and ECTS) with qualitative criteria (i.e. teaching activities) to better accommodate the course specific needs.	Encourage and support more flexible use of teaching hours than the 2 + 2 format.	CMs assess and report TA budget use according to teaching activities. Communicate about the options of having one TA with more hours rather than having more TAs.

Recommendation 6 is to distribute TAs after more flexible criteria with the purpose of distributing resources more evenly and fairly and according to specific teaching related needs, that are guided by qualitative criteria thus honouring a focus on high quality education.

At a *macro level*, we propose to supplement the current quantitative distribution criteria, i.e. number of students on a course and ECTS, with qualitative criteria (i.e. teaching activities and learning design) to better accommodate the course specific needs.

Currently, courses are awarded TAs solely based on the size and ECTS of the respective course. However, the need for TAs depends also on didactic and pedagogical choices regarding the overall learning design, the practical organisation of the specific teaching situations, and the level of complexity of the teaching activities. See appendix 6 for an example of how new GAI technologies create new pedagogical opportunities and challenges and stress the need for fundamental discussions of quality in education.

By including additional qualitative criteria, the teaching resources would better reflect the complex teaching context that all teachers at ITU face, the various ways the teaching is carried out, and better accommodate the actual needs of the students.

To actualise more nuanced TA-distribution criteria at a *meso level*, a more flexible use of teaching hours than the default 2 + 2 teaching-format should be encouraged and supported at department- and programme level. Some CMs express a preference to structure their course in a different way to create coherence between the lectures and the exercise classes and thereby better suit the course specific learning goals and the related teaching activities. This will affect the TA tasks and the need for teaching assistant resources. Furthermore, having more choices can promote a critical look at the approaches to teaching and the reasoning behind the specific didactic choices thus contributing valuable reflections and discussions with the focal point being quality in education.

At *micro level*, CMs should assess and report the TA budget according to the teaching activities. This recommendation relies on the notion that the CM, who is responsible for planning the course, will be best equipped to assess the need for assistance to carry it out. Introducing qualitative criteria requires further reflection on the TA-budget in close connection with the planning of the course. In addition, reflections on whether several TAs or one TA with more hours is the best suited solution would also be a part of the CMs assessment. Having one TA

with more hours is currently possible, but few CMs are aware of it. This option should therefore be communicated systematically to all CMs.

Recommendation 7: Make room for development of TAs by providing more TA hours

	Macro	Meso	Micro
7 Make room for development of TAs by providing more TA hours	<p>Prioritise TA training.</p> <p>Provide additional hours for TA training, onboarding, and evaluation.</p>	<p>Allocate resources for developing and carrying out onboarding, training, advanced themed workshop events.</p>	<p>Have at least one introductory workshop for TAs (one for newcomers and one for experienced TA) on teaching.</p>

The final recommendation is to make room for the development of the TAs' competencies and skills by providing more TA hours. We recommend, that these hours are designated to activities that support the strategic goals of creating quality in teaching and a thriving learning- and working environment. The purpose of systematically investing in- and encouraging professionalism for the TA-position is threefold. First, it will contribute to an attractive work environment for the TAs, thus creating more possible retainment, and thereby expanding the qualified applicant pool. Second, it will contribute to the work environment for teachers at large, meaning the entire teaching team that the TAs become a part of. And third, it will support the general quality of teaching through qualification, knowledge sharing, and systematic communication.

From a *macro level*, it is important to signal that the pursuit of quality and excellence in teaching at ITU concerns the entire teaching team around a course and involves all the hours that the students are engaged in learning activities. To invest in the development of all teaching would contribute to that.

Currently, the standard amount of 70 hours that are allocated to any given TA-position (for a 7.5 ECTS course) barely covers the actual workload and does not include time for development of teaching and teaching competencies. At a structural level, teaching development activities such as professional workshops and regular knowledge sharing meetings in the teaching team should be prioritised to support high quality in education.

An increase of 5 hours per position would cost: 422.669, 20 kr. / 5,32%

Five hours could cover the time spend in two workshops (an introductory workshop and an advanced workshop of 2,5 hours each)

An increase of 10 hours would cost: 845.338,40 kr. / 10,63%

Ten hours would cover the time spend in two workshops (of 2,5 hours) and three meetings (onboarding, mid-term, and de-boarding with a duration of 1,67 hours each).

The cost is calculated on the grounds of the total budget (including holiday pay) for TAs in the Autumn 2022 semester.

At a *meso level*, resources for developing and carrying out development-oriented meetings and workshop events should be allocated. To make use of the recommended extra hours in a way

that benefits the quality of the teaching and learning environment, the resources should be available for such activities. The CMs should be able to prioritise development meetings in the teaching team, and Learning Support should have allocated resources for at least one additional workshop.

At *micro level*, we recommend that the specific needs for competencies and skills amongst the TAs as identified and explained in key finding A in this chapter should be addressed by having at least one introductory workshop for TAs and one for experienced TAs on teaching. The focus areas in the two workshops should be on the identified areas from the data:

- didactic training (designing learning activities),
- communication training to better handle challenging communication with students, and
- practical training with focus on LearnIT, especially setting up course rooms, assignments, groups, and groupings.

Furthermore, these workshops provide networking- and knowledge sharing opportunities for the TAs that further support qualitative reflections about teaching, professionalism in assisting in learning activities, and build a thriving work environment.

6.3. Conclusion – Expected Costs and Benefits of Recommendations for Quality in Education

When we estimate the costs and benefits of implementing the above-mentioned recommendations, we foresee that the benefits outweigh the costs.

Introducing more flexible criteria, could result in extra work hours initially due to changes in administrative procedures and workload, because allocating resources after more complex criteria require more assessing and communication for the involved parties, in this case CMs, HoSPs, study programme coordinators. However, a better, fairer, and more elaborate recourse distribution process would benefit the entire organisation in the following way:

- Reducing workload in other areas, especially for CMs doing individual, extensive pre-recruitment of TAs, as they instead could be awarded TAs through a common distribution model.
- CMs who wish to align their teaching format better to the respective learning goals, could do so easier and with more support.

Allocation of more hours for the development of TAs has an obvious extra cost in salary for the TAs with a budget increase which is approximately 5% for 5 hours and 10% for 10 additional hours (see recommendation 7 above).

The benefits are a possibly bigger applicant pool. Partly due to retainment of TAs due to better work environment with a salary that reflects the actual workload and the experienced appreciation through investment in relevant training. Partly, due to increased possibilities for international students to apply since they need approximately 10 hours of work per week to be eligible for the state educational grant (SU).

Chapter

07 Conclusion and Implementation Perspectives

7.1 Concluding remarks

The findings presented in this report emphasise the crucial role TAs in the learning environment, as recognised by management, CMs, and students. However, our data reveals significant shortcomings in terms of sustainable processes, clarity, transparency, and alignment of expectations, collaboration frameworks, and the definition of quality in education. Additionally, the lack of formal organisation for TAs once they are hired contributes to frustration and inefficient resource utilisation.

To address these challenges, we have provided seven recommendations aimed at creating sustainable and resource-efficient solutions. It is important to note that these recommendations are intricately related and co-dependent on each other.

Implementation of these recommendations would not only alleviate frustration but also ensure organisational support for TAs and CMs, improve collaboration and communication, and future-proof processes. These actions collectively contribute to attracting, developing, and retaining qualified TAs who effectively support the learning environment.

It is worth highlighting that the findings and recommendations have been presented to representatives from all stakeholder groups. Their feedback was positive and there was a strong consensus that the recommendations would be a help and support, even where they implicated new tasks or changed work processes.

We estimate that the majority of these recommendations can be implemented for the upcoming application round in Spring 2024. However, to enable a successful implementation, it is crucial to establish an organisational anchoring for TAs. A collective decision by the management group to acknowledge the proposed organisational anchoring before the project concludes in May will allow dedicated resources to be allocated for initiating several of the other recommendations.

An overview of all recommendations can be found on the next page.

7.2 Overview of Recommendations

Table 3 presents an overview of all the recommendations proposed in this report.

	Macro	Meso	Micro
1 Establish higher degree of organisational anchoring	Initiate decision and clarification of areas of responsibilities & organisation support	Assign TA dedicated resources responsible for supporting the TAs and teachers with various administrative, practical, didactical and pedagogical issues and questions. Create one point of entry for TA-issues and questions.	TA allocation meetings: TA applicants are allocated to courses in a collegial process.
2 Strengthen collaboration with TAs	Formulate value statement stressing TAs as a valuable part of the teaching team. Include TA collaboration in competence profile for faculty.	Formalise an introduction to TAs, (e.g., send a welcome letter to TAs) & a appreciation letter when the course ends containing information about next semester's call for TAs.	Standardise collaboration meetings between CMs & TAs in the following phases: Onboarding, midterm, and exit/retention.
3 Upgrade TA communication strategies	Clarification and communication of TA/CM rights, roles, and responsibilities.	Designated TA theme section online for TAs/applicants/students. Update information on TA process, deadlines, and CM responsibilities on the intranet. Create TA recruitment event for potential applicants and curious students.	CMs writes small summary of TA skills, tasks etc. specific for each course to supplement general call. Initiate peer2peer campaigning on ITU Student and SOME channels.
4 Optimise recruitment and hiring process	Prolonged contracts for smoother hiring process. Supplement contracts with information on course, hours, and salary. Prioritise platform that support the underlying values and strategy within the TA process that ensures a smoother administrative process.	Enhance transparency of each step in the recruitment and hiring process for both students and faculty. HR-related TA tasks (contracts, salary etc.) need to be prioritised in HR or outsourced to external partner. Increase transparency with regards to applicant pool by involving faculty stakeholders in the administrative process. Enhance system support to provide HoSPs and CMs with a better overview.	Improve description of application process and requirements to supplement general call: A. Clarify what and how many documents students should include in the application. (E.g., the cover letter – who is it addressed to) B. Highlight the importance of keeping deadlines for all involved actors. C. Send rejection letter to applicants not hired.

	Macro	Meso	Micro
5 Increase the pool of applicants	<p>Appeal to more students through transparency of selection criteria, recruitment process, and recognition of TA contribution.</p> <p>Retain TAs after graduation.</p> <p>Attract external or graduate applicants for Master courses.</p>	<p>Open for other profiles, e.g., non-students, seniors, graduates, high school teachers etc.</p>	<p>Offer students the opportunity to apply for more than two courses, while also allowing them the flexibility to indicate their desired workload in terms of the number of courses or ECTS credits they wish to undertake.</p>
6 Distribute TAs after more flexible criteria	<p>Supplement current quantitative distribution criteria (i.e., headcount and ECTS) with qualitative criteria (i.e., teaching activities) to better accommodate course specific needs.</p>	<p>Encourage and support more flexible use of teaching hours than the 2 + 2 format.</p>	<p>CMs assess and report TA budget use according to teaching activities. Communicate about the options of having one TA with more hours rather than having more TAs.</p>
7 Make room for development of TAs by providing more TA hours	<p>Prioritise TA training.</p> <p>Provide additional hours for TA training, onboarding, and evaluation.</p>	<p>Allocate resources for developing and carrying out onboarding, training, advanced themed workshop events.</p>	<p>Have at least one introductory workshop for TAs (one for newcomers and one for experienced TA) on teaching.</p>

Table 3 Overview of recommendations

08 Appendices

Overview

Appendix 1 Student Survey about TAs

Appendix 2 Course-specific TA task and role description template

Appendix 3 Lab TAs – findings and recommendations

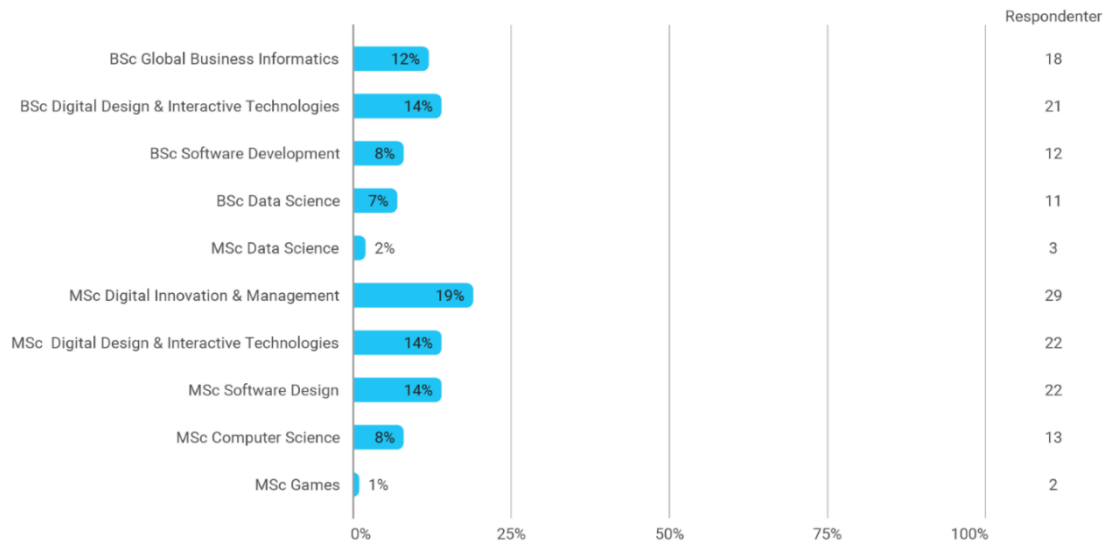
Appendix 4 Outsourcing

Appendix 5 Good CM practice

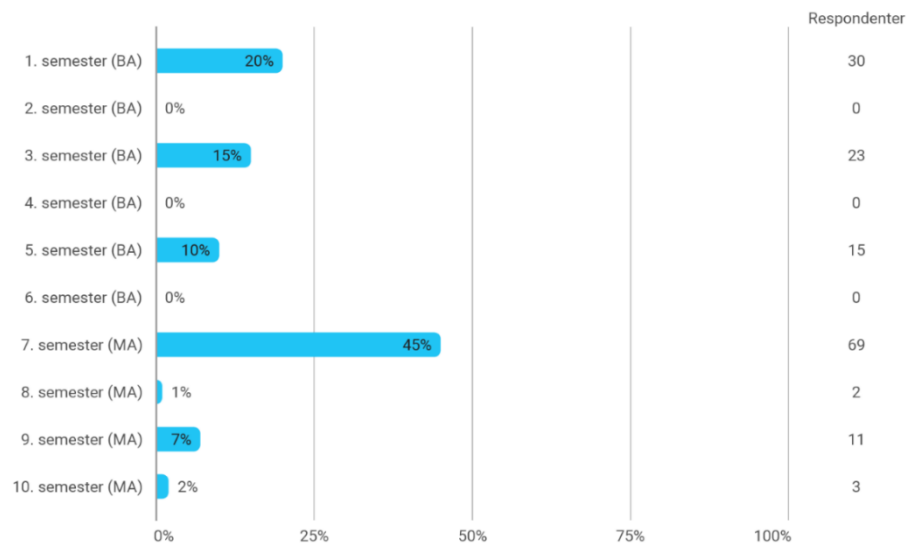
Appendix 6 Chat-GPT as a teaching assistant

Appendix 1 Student Survey about TAs

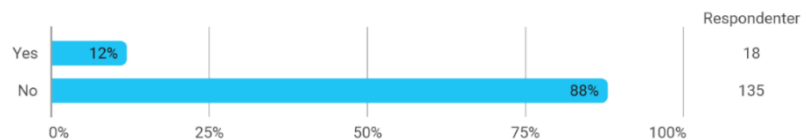
What study programme are you enrolled in?



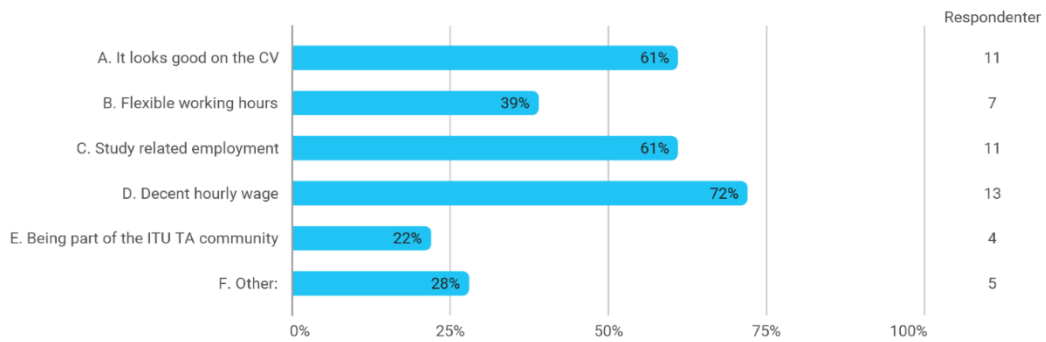
What semester are you currently in?



Are you working as a teaching assistant this semester?



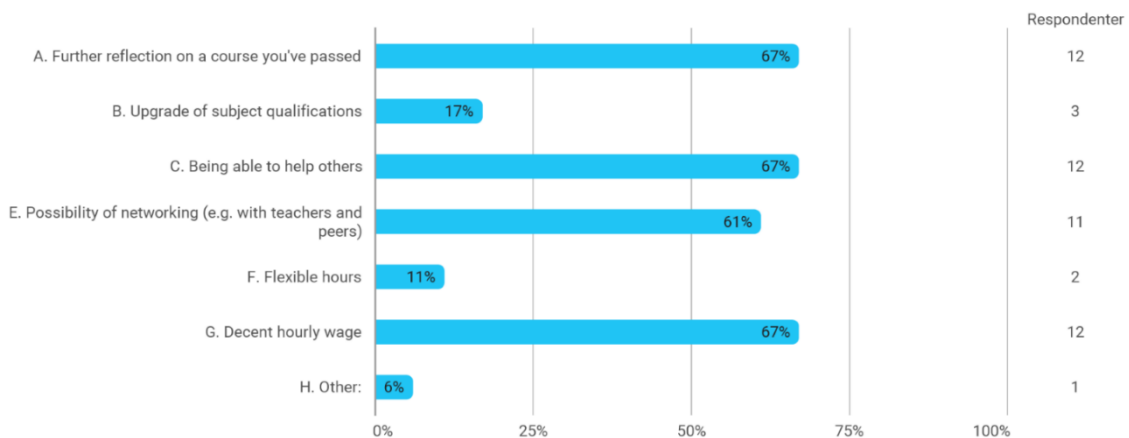
What motivated you to apply for the TA position? (Select up to 3 answers. You can also add your own answer in the "other" field)



What motivated you to apply for the TA position? (Select up to 3 answers. You can also add your own answer in the "other" field) - F. Other:

- Help inspire students in NMac, which normally can be viewed as a easy pass course and not relevant.
- Being in touch with the students of the next year
- It is located where i already spend my time, so i save a lot of transportation
- All of the above
- Trying to be a teacher and improve my teaching skills

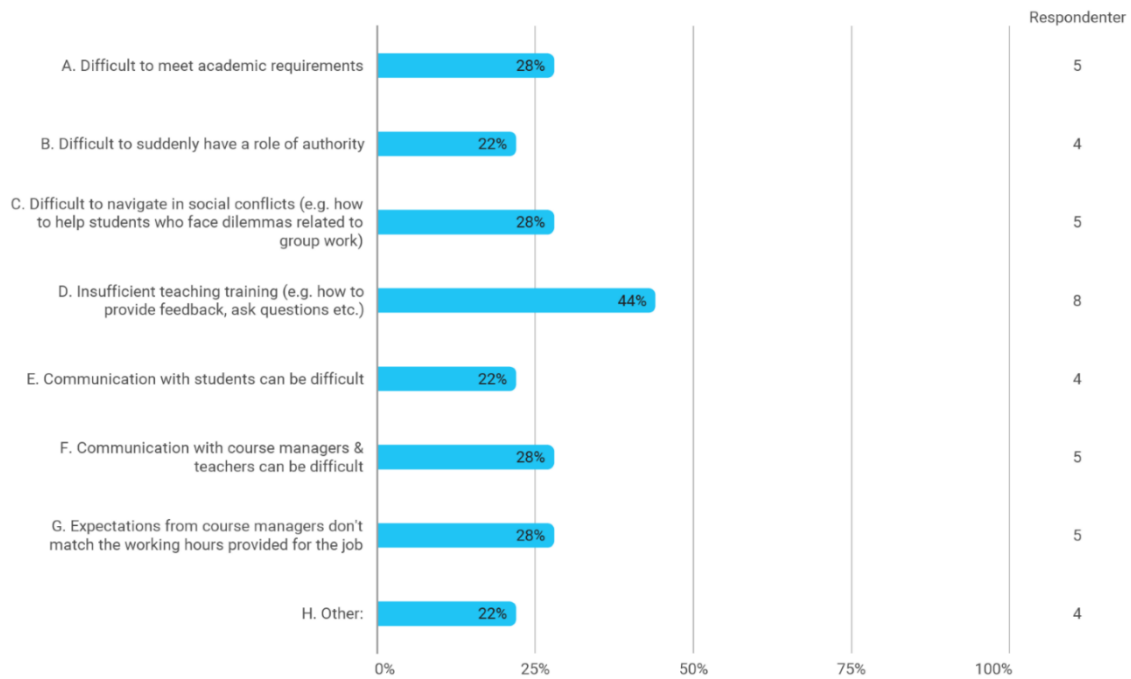
What are the advantages of being a TA ?(Select up to 3 answers. You can also add your own answer in the "other" field)



What are the advantages of being a TA ?(Select up to 3 answers. You can also add your own answer in the "other" field) - H. Other:

- Practicing skill (social, presenting, study related)

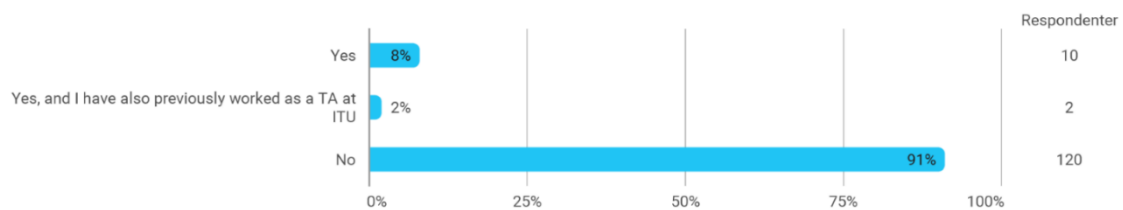
What are the challenges of being a TA? (Select up to 3 answers. You can also add your own answer in the "other" field)



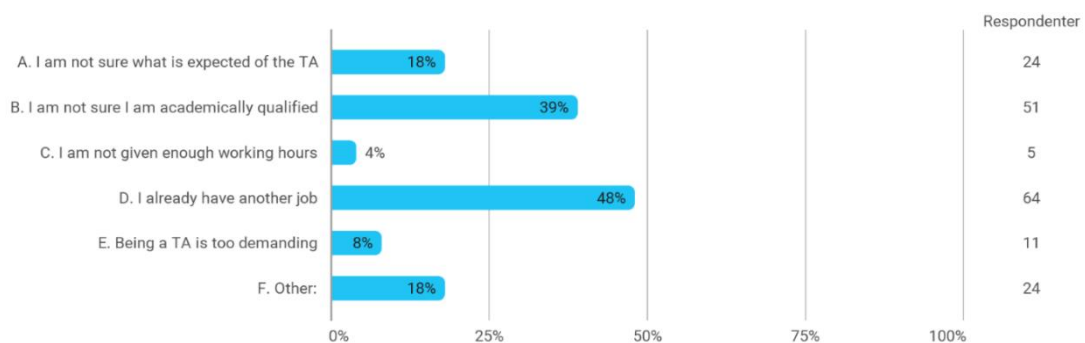
What are the challenges of being a TA? (Select up to 3 answers. You can also add your own answer in the "other" field) - H. Other:

- Not having sufficient time to prepare properly for exercise session.
- Lacking didactic skills
- Not payed on time, paying to mush paying to little. Overall problems with salary!!!
- Hard to know what the expectations are

Have you ever applied for a TA-position?



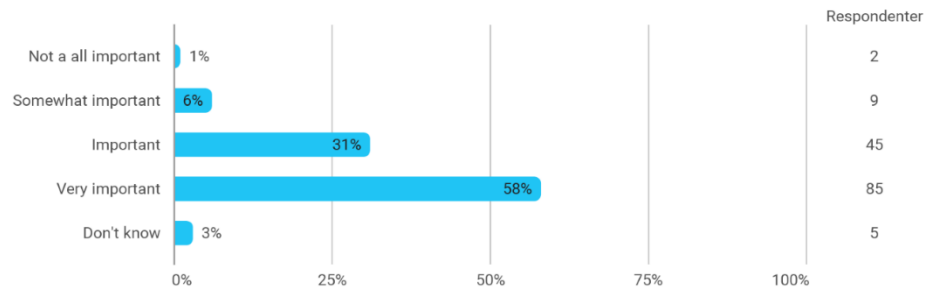
Why haven't you applied for a TA position this semester or before in general? (Select the answers that best describe reasons preventing you from applying. If netiher of the answers match your situation, you can also add your own in the "other" field).



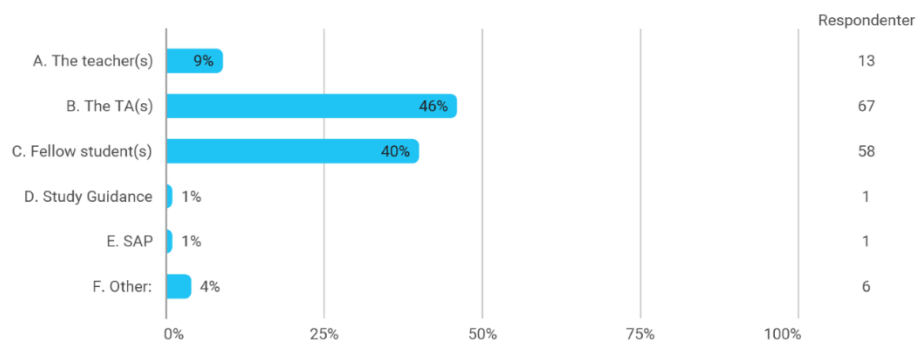
Why haven't you applied for a TA position this semester or before in general? (Select the answers that best describe reasons preventing you from applying. If neither of the answers match your situation, you can also add your own in the "other" field). - F. Other:

- It's my first semester on ITU but I plan on TA'ing on my 3rd semester in courses I have now
- I would like to apply
- Not enough time
- I'm at 1. Semester myself
- I am first year student
- I just started this semester
- I started at ITU this semester
- I'm on first semester
- I just started this semester
- This is my first semester
- I am too shy and it is already stressful to just study
- Previous TA at KU and it was too demanding
- Currently receiving disability SU, so I cannot have a study job
- Time limited position
- Just started
- I am 1. Semester, but I will definitely apply someday
- I am a TA at CBS
- I am a first semester student
- I'm only 1st semester.
- I would like to be a TA
- I'm new here
- This is my first semester at ITU, so I figured I need to have some more experience before being TA

Please indicate how important TAs are for the learning environment here at ITU



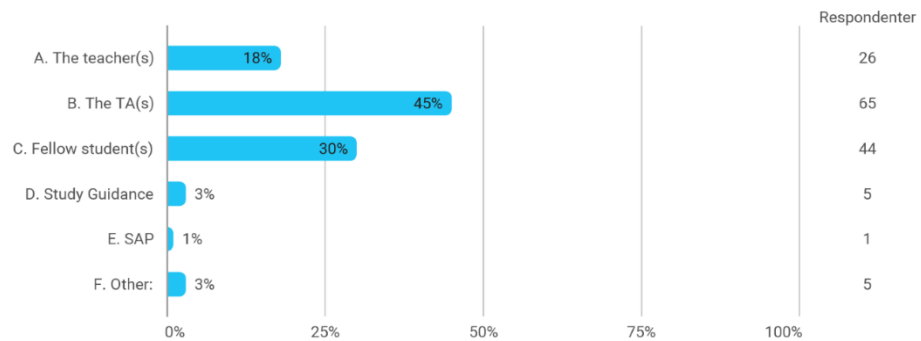
If you have questions to the academic work related to your studies (e.g. homework, exercises, assignments etc.) who do you then ask for help first?



If you have questions to the academic work related to your studies (e.g. homework, exercises, assignments etc.) who do you then ask for help first? - F. Other:

- It depends, sometimes we ask the teachers first, sometimes we ask the TAs
- Usually the teachers disappears during exercises or doesn't have time
- If related to for example hand in date: teacher. Most other things: TA
- Fellow students, the teacher, and study guidance
- Friends
- 50/50 TA's/Teacher but easier to get in contact with TA.

If you experience a conflict (e.g., group work related challenges) who do you then ask for help first?



If you experience a conflict (e.g., group work related challenges) who do you then ask for help first? - F. Other:

- Friends
- No one
- We kind Of ignorere it and hope it goes away. Else I discuss with My SSP guide from SRG
- Friends
- Students

Other comments/topics/subjects that you want to point out in terms of how we can improve the TA area?

- In most classes, TAs are doing a great job. But sometimes TAs become more superficial. I can imagine it being in smaller courses or when the teacher doesn't utilise them sufficiently.
- Sometimes the exercises aren't were thorough
- I think that the TA sessions Can in general be more helping
- My TAs are perfect
- I'm really happy with the TAs, there could be more in some courses
- I really love the TA concept. I have gotten a lot of qualified help from them :)
- TA's are very good!
- I Will always choose fellow students as my first option, but second to that would be TA's and they are always a huge help. The teachers would only be contacted in case a TA is not able to help at all.
- I know that at KU TAs are hired for multiple years at a time in stead of per semester. This might help bring some continuity. I have heard that there is proportionally more work in some courses than others (e.g. 7,5 is often harder than 15 ects). Always good with multiple TAs instead of just one
- I previously worked as a TA for study lab and I got ZERO introduction, guidance or information about the courses related to the study lab.
Was part of me quitting again

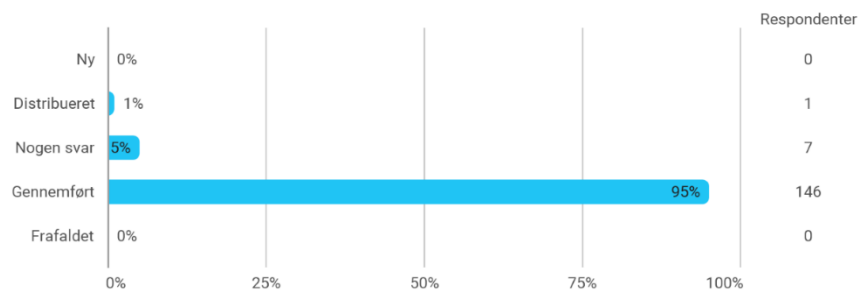
- We are often asked to contact TA's first then they will bring it onwards if they cannot answer the questions
- In technical classes, like programming and math, TA's are good to have and they help you a lot. In that case, TA's are really nice to have

But in the soft classes, that are more abstract, they don't really help you.

Sometimes it feels like they are just there to get paid. But it might also be because it is hard for them to help, when it is in a fluffy area. Often they also say they can't give an answer and you have to talk to the teacher. Then what is the point

- I think it's very helpful to remind students that TAs generally aren't much further along in their studies and don't have perfect knowledge!
- Have clear boundaries of responsibilities and earlier setup (talk to the teacher).
- Some ta's are very bad and i'm unsure how to complain about them
- TAs are almost more important than the professors, hands down.
- The TA's are basically more important than the professors
- TAs are second agter fellow students
- No
- TAs der har været TAs i mange semestre på det samme fag er oftest de dårligste og mindst engagerede. Kan trække meget ned i faget og afskrække fra selv at blive TA med dem
- I really like TA
- The quality of TA's can change a lot some are amazing and some are not that good especially on the masters
- Most TAs don't prepare before exercises, which can be felt when you ask questions sometimes. Many TAs are not proactive and actually quite passive in the exercise hours (subjective impression)

Samlet status



Appendix 2 Course-specific TA task and role description template

Suggestion for template

Course Name: [Insert Course Name]

Course Manager: [Insert Name]

In order to assist us in finding the right candidate for the TA position, we kindly ask you to specify the roles and responsibilities you wish for the TA to partake in. Please provide as much detail as possible, as this will give applicants a better understanding of what is required of the TA job.

Teaching-related Responsibilities

- What specific teaching-related activities would you like the TA to assist with? (e.g., preparing and conducting tutorials, grading assignments, assisting with lectures, etc.)
- Are there any particular teaching methods or styles you would like the TA to use or adhere to?
- Will the TA be responsible for leading any small group discussions or activities, and if so, what will be the focus of these activities?
- Will the TA be responsible for holding office hours or responding to student questions outside of class time?

Other Responsibilities

- Are there any other roles or responsibilities that you would like the TA to fulfill?
- Will the TA be expected to attend any additional meetings or events outside of regular class time?
- Are there any additional qualifications or skills that you are looking for in a TA candidate that are not listed in the job advertisement?

Thank you for your time in completing this template.

Please direct any questions or concerns to xxx

Appendix 3 Lab TAs – findings and recommendations

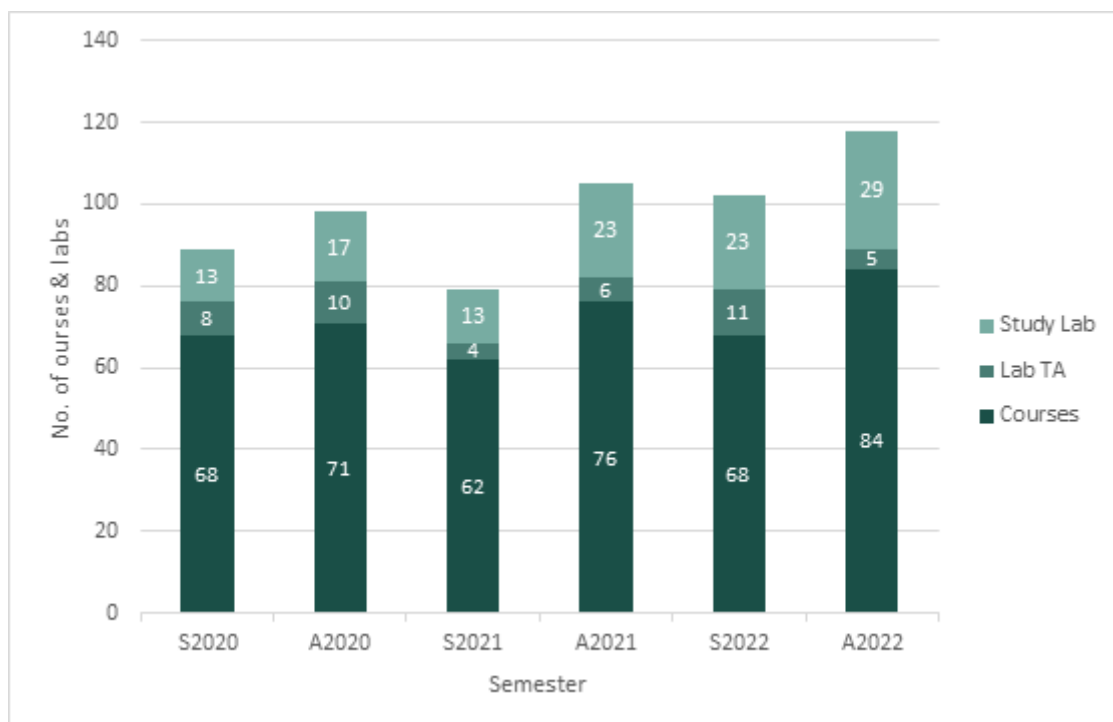
Introduction

In this report, our findings and recommendations have mainly concentrated on TAs assisting with courses. However, the following functions are at present filled by the TA role:

- Assisting with courses (Course TAs)
- Assisting with labs (Lab TAs)
- Assisting with Study Labs (Study lab TAs)

The figure below shows the number of TA positions awarded for courses and labs each semester since Spring 2020. With only 4-11 Lab TA hirings per semester the Lab TA group is small compared to other TA functions. However, Lab TAs play an important role for the learning environment by integrating teaching and research and for introducing and supporting student's practice- and research-based learning.

Our data collection for this project therefore included a focus group for Heads of Labs and Lab Managers. Some questions in the interview guide were generic, other questions were more Lab TA-specific.



Key findings

Many of our findings for Course and Study lab TAs adhere to Lab TAs as well, including the need for more transparent processes and organisational support. However, in the following, we will stress findings more specific for Lab TAs.

Key finding A: Continuity through more hours and longer contracts is key

Lab practices and experiences with Lab TAs differ which is both an implication of different and varying lab needs and lack of formal decision-making and written information about the requirements for and allocation of Lab TAs. The current process for hiring Lab TAs does not follow the official process. Instead requests for and allocation of Lab TAs take place more ad-hoc, e.g., labs send requests to Course Staffing Coordinator and Dean of Education.

In general, the standard TA contract with 5 hours a week during the active semester is often insufficient for the lab's use of TAs according to Heads of labs and lab managers. The reason for this is both the time lab managers spend on onboarding new Lab TAs and the special tasks and commitments of a Lab TA:

"I use half a year just to kind of to run them into the whole lab flow and learn them project support. Learn them yeah, the different infrastructures we work on in the lab, learn the equipment, everything, so there's a lot of details [...] So, I use a lot of hours the first half year on a TA, a new TA, so that means that after the first half a year it starts to really pay off." (Lab manager, focus group)

"a TA that only works four or five hours a week only within the active part of a semester... it's...It's a hard, uh, it's a big.... Like, I have to use a lot of resources to make that happen somehow. So so in order to make that investment kind of pay off - it would pay way more of, if that was 10-15 hours instead [...] That is also something about being able to be part of the lab - it's hard to really be part of something that moves that much with that many stakeholders, if you're only there for 3-5 hours and you have very specific tasks and then you're like, then you're out again, right?" (Lab manager, focus group)

Thus, ensuring continuity through longer and more flexible contracts and by allocating more weekly hours to Lab TAs is a high priority wish for lab managers and Lab TAs.

Key finding B: The struggle to find the relevant candidate

Another aspect of Lab TAs stressed by Heads of Labs and Lab managers was recruitment challenges. According to labs, a number of skills and competencies are needed to become a good Lab TA which makes the field of relevant candidates rather small:

"It's difficult to find people, and because of the mix of competencies that people have just described: strong people skills, extremely strong tech professional skills, which in the case of our lab - you have to be pretty deep into some things to be able to support them and maybe the one thing that hasn't been mentioned is it's also good if you have an organizational understanding of the university meaning: How do I make things happen?" (Head of Lab, focus group)

Moreover, labs involved in MSc courses and very specialized courses struggle to find TAs for the same reasons applying to "normal" Course TAs. Typically, such courses are placed at the last semesters and the qualified students will be busy with writing thesis and finishing their studies.

Furthermore, the qualified students have several other job offers and opportunities, often well-paid and with more flexible hours, which makes it hard to attract Lab TAs:

"And then as a last thing, the very, very good ones that we would want to have tend to have already jobs in town when we meet them and that's difficult to compete with" (Head of Lab, focus group)

Key finding C: Lab TAs fall between chairs

Another key finding is that Lab TAs do not fit into the existing staff categories at ITU:

“It seems as though TAs in labs, in particular, fall between two chairs, so they're the more responsibility they have, the less they are... They kind of fall between the TAP and the VIP chair. So, they're they're not really faculty, but nor are they really administrative in their role. So, in terms of classification, they just don't fit.” (Lab Manager, focus group)

This ‘fallen between chairs’ sometimes gives practical challenges such as not having access to certain administrative systems.

Moreover, Heads of Labs and Lab Managers point to other aspects characteristic for some Lab TAs: that they sometimes see the Lab TA role as a pipeline towards a PhD and that they combine multiple roles and hirings to be able to network and have a full-time job at ITU:

“In the history of TAs that we've had, they tend to cobble together a portfolio of roles in a semester that almost equates to a full time load just within ITU. So, at the moment, one of our TAs is our academic technologist, I suppose – so, our most senior TA, I would say - but then they're also a TA on a course or two, and then research assistant supporting a center and I worry for them that that they spend a lot of time just context switching.” (Lab Manager, focus group)

It can be both challenging and rewarding for the individual and for the lab to have people hired that are both Lab TAs, course TAs, research assistants and aspiring PhD students. In regard to contracts and salary this often pose challenges. It can also be challenging to navigate in and switch between different roles and contexts. To labs this again points to the need for creating positions with more hours and longer contracts than a normal TA position enabling Lab TAs/assistants to concentrate more on the lab task, become more specialized and contribute more to the lab work. Whether this should happen within or outside the official TA processes and whether this should still be a TA position or something else is an open question:

I think it's not a matter of labeling because we are very flexible on that. I think it could make a lot of sense to somehow cut it loose from the normal way that TAing works. [...] That would solve a lot of problems, right? So that would make sense, but I'm also guessing that the reason why we use this TA is because that's what we have access to. Somehow, since we opened up TA for the labs because it's, I can at least speak for my situation, that it's a lot harder to get if not impossible to get anything out of the department in terms of additional people in the LABs (Lab manager, focus group)

The quote is a good illustration of the dilemma associated with Lab TAs: the TA function is not well suited for the work and needs of labs, but the labs are dependent on the Lab TA positions as there are currently no other ways to get extra lab assistance.

Recommendations

The recommendations to prolong contracts, provide additional hours, distribute TAs more flexibly, upgrade communication about recruitment and collaboration and strengthen support on TA-issues are all relevant for and would benefit Lab TAs and labs as well.

However, we also recommend other actions targeting Lab TAs.

In the *short-run* we do not see any opportunities for dramatically changing the Lab TA functions to better accommodate the needs expressed by labs. Instead, we suggest testing whether the Lab TA process could be more aligned with the timing of the official TA process which would enable labs to plan more ahead and hopefully lead to more applicants for Lab TA positions as more potential course TA applicants might consider applying for Lab TA positions as well. We do not at present find it possible to fully integrate Lab TAs in the official TA recruitment process as lab activities and need for TAs vary from semester to semester while course needs are more stable. A pilot monitored by the Lab Council could introduce and test a more transparent yearly process involving labs and the Lab Council (including the Course Staffing Coordinator who is part of the Lab Council support), e.g.:

In September, labs send their request for TA help for the upcoming year with a short description of the expected TA tasks and the hours needed to the labcouncilsupport@itu.dk.

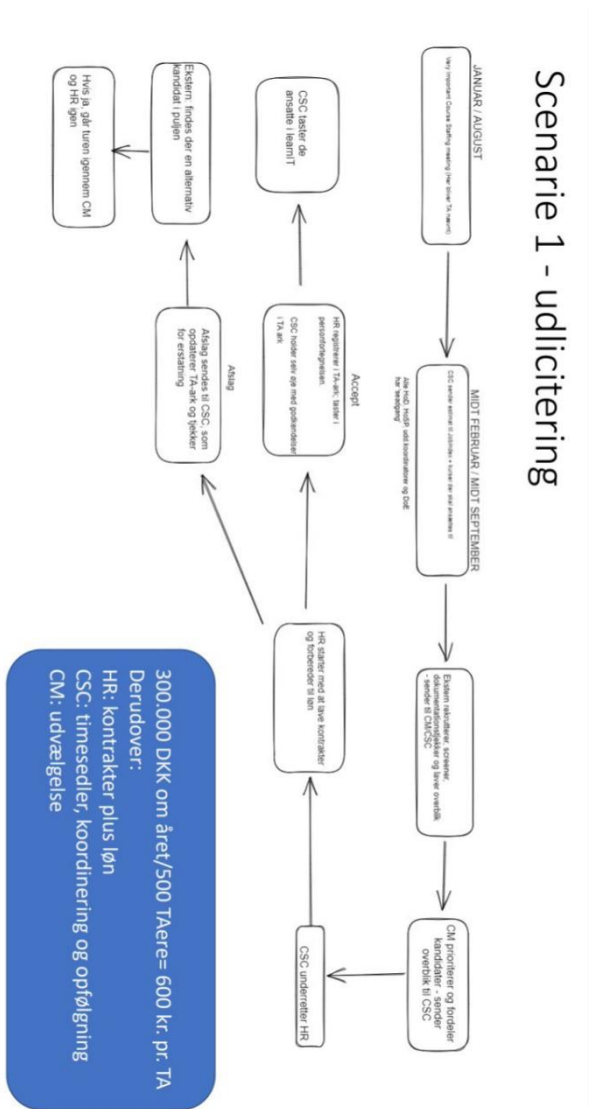
Before 1st of October, all labs receive an email from the Lab Council Support with the total TA hours allocated for their lab for the upcoming year.

Moreover, Lab TA job descriptions and postings could be placed next to the course-specific TA task and role descriptions and links could be included in the general call. In general, communication about Lab TA opportunities could be upgraded.

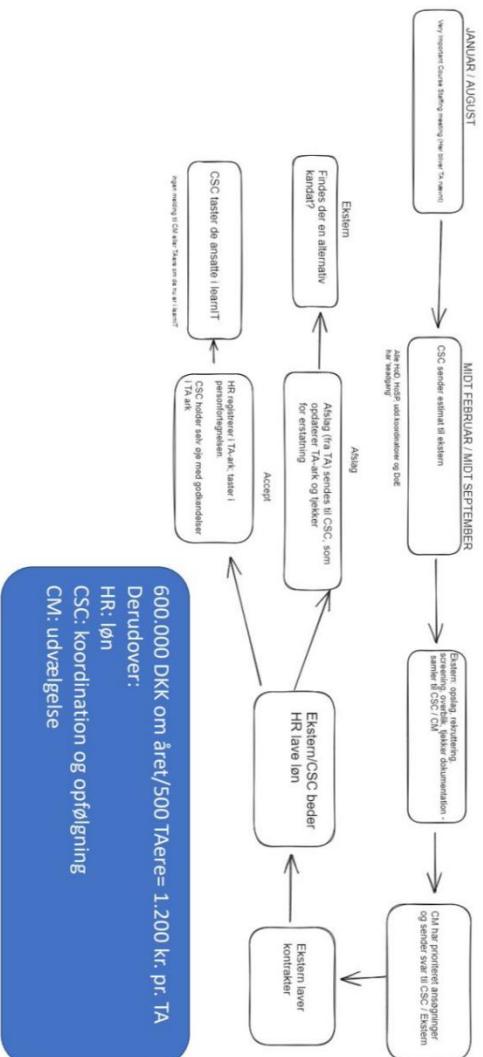
In the *longer run*, there are different possible scenarios for how to develop and future-proof the Lab TA area even further. As pointed to by Heads of Labs and Lab managers ensuring continuity and competence of Lab TAs is essential. Moreover, with the finding about Lab TAs 'fallen between chairs' in mind, it should be discussed and decided whether Lab TAs should be fully integrated in the official TA process and organisation or whether it would make more sense detach the Lab TA and define a new function better suited for labs (e.g., a more specialized lab assistant role). We suggest that these discussions continue in the Lab Council while involving labs and Executive Management.

Appendix 4 Outsourcing

Two offers from CSC to handle administrative TA-related processes:



Scenarie 2 - udlisicering



Appendix 5 Good CM practice

Some CMs' practices support the collaboration with TAs in various ways that contribute to a thriving teaching-, learning- and work environment. For inspiration, a collection of those practices is presented below and divided into phases of employment.

Recruitment

Diversity as a recruitment criterion: Some CMs recruit TAs with the explicit aim of composing a diverse TA-team - or on smaller course recruit a TA that has a different background than the CM and, in some respect, add to a diverse teaching team. The diversity is typically with regards to:

Gender: The intention/motivation is that a gender-diverse teaching team gives the students possibility to recognise themselves in at least one member of the teaching-team which that can create a comfortability with asking 'stupid questions'.

Skills: (e.g., programming, academic writing, facilitation) The intention is to create a teaching team that can cover all the students' needs and work together to create an optimal learning experience.

Academic background: some CMs like to recruit TAs with diverse academic backgrounds, sometimes purposefully including TAs that are students at other universities than ITU and represent other knowledge fields, to compliment the teaching-team.

Letter of recommendation: Some CMs give letters of recommendation to the TAs after the course, which can be an incentive for more students to apply for a TA-position, and since quantity of applicants is a challenge for many courses, incentives as these create value for the organisation.

Onboarding

Having onboarding meetings with the TAs is a good practice that some CMs do with the TAs: either in groups or individually, and either before or after recruitment.

The onboarding meeting is valuable for mutual alignment of expectations, e.g., TAs' different roles and tasks, periods where the course has increased workload, and establish lines of communication.

Collaboration

Weekly TA-meetings are good CM practice because it ensures some level of quality assurance. Most CMs, that have weekly meetings, use them: to go through exercises, and discuss current topics, conflicts, or issues.

Development

Evaluation meeting with the teaching team after the course is over, ia a CM practice that can give valuable input about the course design for future improvements. TAs can have more

insights to the learning environment, due to their proximity to the students, and can be a good supplement to the official course evaluations.

Revising course changes with TAs is also a good CM practice that creates valuable input for CMs, especially if the TAs have experience with different versions of the course either as a student or as a TA or both.

Retention

Tokens of appreciation after the course is well done is a good CM practice that some CMs apply in various ways, often involving gathering around coffee or food.

Words of appreciation are also seen by TAs as well as CMs as good CM practice. Furthermore, specific feedback and appreciation can encourage the TAs to either reapply as TAs or apply for other positions in academia, e.g., research assistants or ph.d. positions.

Appendix 6 ChatGPT as a teaching assistant

During the making of this report, large language models (LLMs) like Chat-GPT, New Bing, and Bard have become widely available which has prompted considerable discussion with regards to their promise in helping teachers improve classroom outcomes and reduce workload. Even though it has not formally been a part of the TA-projects scope or data-collection, we find it relevant to comment briefly on the perspectives of GAI in relation to TAs, TA-tasks, and TA-collaborations.

The project group foresees a need to discuss, predict, and assess to which extent the rise of available GAI-services will augment the teaching experience, including the foundations of the pedagogical practice as we know them at ITU, and raise fundamental questions with regards to how we define teachers, peers, TAs, learning, assessment, and plagiarism. As Gašević et al. (2023) points out, there is a need to identify effective learning and teaching practices that will harness the weaknesses of generative AI technologies as opportunities for promoting higher-order learning (e.g., analyse and scrutinise outputs produced by ChatGPT). This speaks to a significant change in TA tasks and teaching team-collaborations in the foreseeable future with focus on more distinctly human aspects of interaction and learning such as stimulating creativity, critical thinking, ethics, and morality.

A consideration that could arise in the context of this report, is whether new GAI-services to some extent can replace or supplement aspects of the assistance that the TAs provide today. The answer is seemingly a 'yes' if we apply the recent technological development to current practices. However, the consequences of these types of assisting technologies create new pedagogical possibilities and questions, as mentioned above. Thus, we recommend a more foundational discussion about quality in education where collaboration with TAs and the allocation of TA resources is included and become connected to criteria for educational quality rather than quantitative criteria like the number of students and ECTS for a course (for an elaboration see recommendation 6: distribute TAs after more flexible criteria).

Reference:

Gašević et al. (2023): Empowering learners for the age of artificial intelligence, in: Computers and Education: Artificial Intelligence, <https://doi.org/10.1016/j.caeai.2023.100130>