

Quality report for third-cycle level in production technology

Degrees: doctoral degree and licentiate degree

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Purpose and description of the process

The purpose of this quality report is to ensure and develop the quality of third-cycle programmes at University West, by identifying and preserving strengths and identifying and managing areas in need of improvement. The work of writing the report and follow-up during quality days through discussion is also in itself a quality driver. The goal is to create a good climate for third-cycle programmes and the development of Complete Academic Environments (KAMs) through systematic quality work.

Quality assurance

Quality report: The content is based on what has emerged in course evaluations, feedback and the course coordinators' contacts with the doctoral students and collaboration partners as well as supervisors' statements.

Describe strengths and areas in need of improvement in relation to Swedish Higher Education Authority (UKÄ)'s assessment criteria in the following areas:

- Set-Up
 - Third-cycle subject areas
 - Employees
 - Educational environment
 - Resources
- Design, implementation and results
- Working life and collaboration
- Third-cycle students' perspectives

In addition, the following areas are included:

- Sustainable development
- Any areas in need of improvement in the quality report

Under each area heading there are a number of statements. Analyse whether the third-cycle programme fulfils what is stated., If so, write *yes* in the appropriate box. If you believe that the third-cycle programme should be improved based on the statement, in the tables below the statements write *no* or *to some extent* in the space provided and formulate areas in need of improvement, measures to be taken, proposed contact (who should carry out the action) and proposed time frame (when it should be carried out). If you see that the third-cycle programme fulfils what is stated well, please describe or exemplify this under strengths.

Description of the process

- The Research and Education Board (FUN) revise the template and process for quality assurance of third-cycle programmes based on previous years' comments
- FUN sends a quality report template for third-cycle programmes to the Subject Boards' (ÄR) chairs and to the directors of the KAMs.
- The content of the quality report is most appropriately prepared by the subject board for the third-cycle programme.
- Alternatively, the content is produced through an oral dialogue between FUN, the subject board and the KAM environment's director and is briefly summarized in the template
- The quality report is sent to FUN and the respective KAM director
- FUN and the director of each KAM analyse the quality reports together and write a short summary to create a more coherent picture of the third-cycle programmes
- Strengths and areas in need of improvement are then summarized from the quality reports and any meetings for discussion by FUN and the KAM directors, and then sent to the University's Management Team (HLG) before the strategic day for education
- After HLG's strategic day for education, feedback is given to FUN, the KAM' directors and the respective subject boards' chairs for continued development of the third-cycle programmes and as a basis for external review

Quality days in dialogue form

- Based on the most recent report submitted
- Copy the pages that apply to the meeting for discussion into this report to the latest report
- Describe, according to the template, strengths and any remaining areas in need of improvement from the latest report
- Present each part of the report in dialogue with the respective KAM director + FUN

Below is a description of how this process turns out over the years.

Annual plan	Process description for quality assurance of third-cycle programmes at HV
2021	Quality report, sent to FUN 15 January 2022
2023-autumn	Quality day in dialogue form: Follow-up quality report meeting for discussion, sent to FUN 15 January 2024
2024-autumn	Quality day on the 9 th of October 2024: ÄR members, KAM-PT director, FUN representative, and students' representative attended.
2025-spring	Quality report, sent to FUN 15 January 2025
2025-autumn	Quality day in dialogue form: Follow-up quality report meeting for discussion
2026 spring	Quality report, sent to FUN 15 January 2026
External review 2026-autumn	In the external review, examples of documentation: General Syllabus, Rules and Guidelines for Third-Cycle Programmes, Individual Study Plans, course syllabi, Quality Reports for Third-Cycle Programmes, third-cycle student barometer, material from work-in-progress seminars, licentiate seminars, public defences (and their protocols), articles, dissertations and course/programme and alumni evaluations from each third-cycle subject.

Scope/Validity:

The quality report covers the entire third-cycle programme, including courses, thesis work, supervision and work-in-progress seminars. For example, the report that was written most recently deals with the feedback we have received, the courses that have

been taught, and the improvements that have been carried out. In this way, it will be the last instance that is addressed.

Summary analysis

Compile and analyse here the most important strengths and areas in need of improvement that have emerged since the last quality report submitted for the third-cycle programme.

Summary analysis
<p>This report has been prepared by ÄR-PT and the data used to produce the report comes from the Doctoral Barometer (results shared by the Studierektor to ÄR-PT), the Annual Survey that ÄR-PT sent to all PhDs and supervisors within PT during autumn 2024 (56 invited participants with 23 responses received, giving a participation rate of 41%), and it is also based on the discussions and work that ÄR conducted during 2024.</p> <p>This report underlines the strengths and progresses noted during the year of 2024, but it also underlines some areas of improvement and proposes some measures that requires support from other functions in the university organization. Some challenges are also pointed out, especially due to the expected change in the work location for PhDs and supervisors from PTC to Campus in 2025, whilst research engineers will keep their work location at PTC.</p> <p>In summary, we bring forth 6 areas for development and 5 strengths:</p> <p><u>Areas for development</u></p> <ol style="list-style-type: none"> 1. Having the labs and the research engineers at PTC and moving the working place for doctoral students and supervisors to Campus in 2025 is perceived as a potential issue for both, the quality of our research education and the engagement of the PhD students' community. Actions are needed to ensure that the decision to move personnel has as little influence as possible. 2. The introduction to the studies and to HV for new PhD students is still perceived as a problem. It was already perceived as a problem in last year's quality report. Actions are proposed. 3. To differentiate between the "externally financed research project" in co-production with companies and the "PhD student individual project" is an issue. The project leader and the main supervisor must clarify the difference to the PhD students and ensure avoidance of conflicts of interest when both responsibilities lay on the same person, i.e., that the supervisor and the project leader are the same person. The lack of clarity has proved to have a negative impact on the quality

of the research education (i.e. students not able to complete their studies on time, and lack of funding in case of extension of studies).

4. With the change in the management for the engineering science department in March 2024, the internal doctoral students' meetings have been discontinued. It is necessary to promote them again.

5. Student rated with 2.74 over 5 the contribution of our mandatory courses to the quality of the research education, and with 2.43 to the current offer of optional courses. Discussions are needed to understand this and to take actions.

6. The admissions process is perceived as very long for both, PhD students and supervisors. Actions are needed to try to reduce the time. This is also an issue in the sense that externally funded project start before the PhD students are onboard, which gives the students a more difficult start and has financial implication for the completion of the studies.

Strengths

The overall rating of the research education given in PT was 3.48 out of 5 in the annual survey. No one has rated the quality with the highest score (5) nor the lowest score (1), and the majority voting for 4.

1. Strong environment that has succeeded well (former doctoral students are today holding in important research and development positions in industry and academia).

2. Laboratory equipment with the latest technology, which maintains a high industrially relevant standard with competent research engineers supporting the doctoral students in practical matters. This aspect needs to be specially cared for when the move from PTC to Campus takes place in 2025.

3. Reliable and knowledgeable support functions both within the subject of production technology with ÄR, administrators and supervisors as well as the university's other infrastructure support (library, IT, HR, etc.).

4. Well-established scientific collaboration both nationally and internationally with industry and other universities exists within the research environment. Thus, there are valuable possibilities for PhD students to engage in co-production with industrial partners or participate in exchange with other academic partners.

5. Broad handling of the subject of Production Technology, with expertise in different manufacturing processes, automation, materials science, simulation and control, which means strong collaboration between different disciplines within our university.

It is long since ÄR-PT expressed the wish that the postgraduate education is not only presented as research, but as a research education in the same way as other education offered in the department. In alignment with that, for the first time, the postgraduate education in production technology arranged a Quality Day (November 2024), in the same way as basic and advanced level education in the department have had since several years.

Measures taken in previous years

Follow-up of suggestions for improvements from last year's quality report for third-cycle programmes. Comment, explain, and analyse in the free-text space below.

Areas in need of improvement	Measure	Proposed contact	Has the measure been taken?
Kvalitetsrapporten skrivs på engelska framgent, så att alla våra forskarstuderande och handledare förstår att och hur kvalitetsuppföljning sker vid HV.	Föreslagen ansvarig var identifierad som en ledningsfråga. ÄR-PT har inte fått någon återkoppling. ÄR-PT har haft en diskussion med FUN (23/11/27) som informerat om att dokumentet måste vara på svenska men att det är möjligt att erbjuda en översättning till engelska till nytta för de som inte läser svenska (vem översätter?)	Prefekt	Yes. FUN sent the template in both Swedish and English in September 2024.

Arbeta med att snabba upp antagningsprocessen. Anledningen är att vi genom åren i flera fall tappat de högst rankade kandidaterna på grund av att processen dragit ut på tiden och de har blivit erbjudna andra anställningar. Arbete har påbörjats i ÅR kring annonsering och urvalsprocess, men det finns andra hinder på vägen, som vi inte får över.	ÅR-PT har genomfört de åtgärder som ÅR har beslutanderätt över. Detta gäller annonsering och urvalsprocess. ÅR-PT har haft en dialog med HR via Lars Svensson i rollen som rektor för forskarutbildningen samt direkt. Flera förbättringar diskuterades. Hittills har bara en implementerats: HR hjälper till med den första genomgången av de sökande med avseende på deras grundläggande behörighet. Det sparar lite tid även om en dubbelkontroll bör göras systematiskt (eftersom fel har upptäckts vid vissa tillfällen).	Oklart. ÅR-PT behöver stöd från ledningen	Delvis
Handledarkollektivet behöver vitaliseras med konkreta frågor som känns relevanta, till exempel återkommande information om vad som diskuteras och beslutas i Stygruppen, gemensamma frågor med AIL's handledare, tips och råd i allmänhet kring handledning, fånga upp potentiella problemområden.	ÅR-PT har ordnat regelbundna möten med alla handledare för att diskutera dessa frågor. Närvaron vid dessa möten avtog med tiden. Våren 2023 beslutades att analysera möjliga orsaker. Ett tillfälle lades vid ett institutionsmöte för att samla alla.	ÅR-PT i samarbete med alla handledare	Ja - och förbättringar pågår
Doktorandträffar med liknande frågeställningar som vid handledarmötena.	ÅR-PT har ordnat regelbundna möten med doktoranderna med liknande frågeställningar som vid handledarmötena. Man förstod snabbt att behoven är olika. En brevlåda öppnades så att doktoranderna kunde skicka in frågor för diskussion men användes sällan. Höst 2023 beslutades att analysera möjliga orsaker. Situationen undersöktes i	ÅR-PT i samarbete med alla doktoranderna. Stöd ifrån Studierektor önskat.	Ja - och förbättringar pågår

	dialog med doktorander. Det föreslogs att minska frekvensen (1 möte per kvartal i stället för två), ge mer utrymme till dialog och mindre till "administrativ" information. Detaljerad information om praxis sker nu via Teams .		
Fortsatta rekryteringssatser inom de områden där personalbrist förutses inom 5 års sikt i kombination med kompetensutveckling/meritering av befintlig personal	Tag upp i handledarkollegiet och i avdelningsmöten	Avdelningschefer	Ja, vid behov.
Jävsregler för tidsspann till tidigare samarbete hos inblandade personer (d.v.s. handledare, opponent, examinatorer), är oklar och i vissa fall problematisk.	Diskussion om prioriteringar vid "små" forskningsområden.	ÄR-PT	Jag, och förbättringar pågår.
Arbetsmiljö för doktorander angående kommunikation mellan doktorand och handledare.	Överväg införandet av en doktorandombudsman för att hantera känsliga ärenden mellan doktorand och handledare. Besluta om en strategi för att vara redo vid behov och informera doktorander och handledare om denna möjlighet.	Studierektor i samarbete med ÄR-PT	Jag, och förbättringar pågår

Introduktionsinformation som ges till doktorand när de påbörjar på PTW.	På grund av den nya rollorganisationen (bl.a. studierektor) är det önskvärt att göra en inventering av den information som lämnas när en doktorand påbörjar sina studier i PT: utvärdera nödvändiga uppdateringar, hur information distribueras (helst med skriftlig dokumentation), informera också nya handledare.	ÄR-PT i samarbete med de olika aktörer som deltar i introduktionen, bl. a. studierektor	Work done during 2024, but still to improve. Actions planned after the Quality Day 2024.
Differentiera doktorandstudien från det företag/projekt som studenten deltar i	informera nya handledare, dialog med handledarkollektivet	ÄR-PT ÄR-PT	Vid behov Ärligen
Främja utbyte av information mellan doktoranderna: 1. arbetsgrupper samt 2. kopplat till likabehandling och mångfald generellt säkerställs i forskarutbildningen	Organisera regelbundna möten	ÄR-PT (initiering finns inte ännu) i samarbete med 1) KAM-PT och avdelningsledare (genomförande, övervakning, och återkoppling till ÄR vid behov) 2) Studierektor	1) ÄR has tried to initiate such meetings. Ongoing work as it seems that the students do not see the benefit and management organization was changed in March 2024. ÄR will continue working and supporting. 2) Done
Breda doktorandernas syn på produktionsteknik och de forskningsaktiviteter som försiggår. Utveckla en multidisciplinär (inom produktionsteknik) kultur av forskningsseminarier	Anordna en årlig halvdags PT- konferens med KAM-PT, där ”alla” doktoranderna presenterar sina resultat kortfattat. Bjud in lämpliga externa parter. Viktigt att seniora forskare/handledare är med.	ÄR-PT och KAM-PT	Ärligen. This has been addressed by the new series of academic seminars starting in 2025.

Föreslå ett bredare urval av doktorandkurser. T.ex. existerande MSc kurser bör användas som grund för att utveckla doktorandkurser Existerande exempel: MSc YTI600 → PhD YTBF010	ÄR i samarbete med handledarkollegiet och utbildningsprogram ansvariga	ÄR-PT	Ärligen. Ongoing work.
Den allmänna studieplanen bör justeras, bl.a. så att det för lic-examen krävs 4 av 5 obligatoriska kurser. Den engelska ASP'n behöver också granskas, t.ex. överensstämmer inte lärandemålen helt med UKÄ's text och beskrivningen av ämnet haltar.	Uppdatera ASP så att det stämmer med praxis. Arbete påbörjat	Ordf. ÄR till FUN	Våren 2024
Mer engelska i dokumenten (bl.a. styrdokumentet, kvalitetsrapporten) för att alla skall kunna bidra. Såväl handledare som doktorander.	Kontakta vicerektor för forskarutbildningen och/eller FUN	Prefekt	Pågående
Om möjligt förkorta de administrativa tiderna mellan anhållan om att hålla lic-seminarium respektive disputation och själva seminariet, förutsatt att detta inte skadar kvalitetsprocessen.	ÄR-PT behöver diskutera en praxis som inte kommer att påverka kvalitetsprocessen negativt.	ÄR in dialogue with FUN	Started 2024

Rättvis hantering av förseningar. Det har förekommit olika hantering av doktorander som blivit försenade. Vissa erhåller fortsatt handledning medan andra blir utan, och det är olika hantering av själva anställningen.	Centrala regler och tydlighet om ansvar för likabehandling	Studierektor, Prefekt	2025
En aktiv Alumni verksamhet skulle kunna ge stöd för vidare utveckling av nationell och internationell samverkan inom akademien och industrin	Tag reda på status på verksamheten på kommunikationsavdelningen	ÄR-PT, prefekt	2025
Doktoranders och handledares möjlighet att påverka de obligatoriska kursernas innehåll och examination behöver förbättras. Obs. gjordes 2023 för VF010	ÄR föreslås genomföra en riktad analys av en kurs per år.	ÄR-PT	Kontinuerligt*
Fler valfria forskarutbildningskurser måste/bör tillhandahållas vid vårt universitet (till exempel SEM, 'fatigue' kurser) och erbjudas till doktorander vid andra lärosäten. Obs. gjordes 2023 för FAS010	Handledarkollegiet ges i uppdrag att inventera behovet bland sina doktorander. (Det berör såväl ekonomi som lärarresurser, men behovet bör lyftas.)	ÄR-PT	Kontinuerligt*

<p>Doktoranderna bör fås att förstå att deras medverkan är viktig i all verksamhet vid högskolan, så att de deltar i relevanta möten, framför allt progressionsseminarierna</p> <p>Problem: för många doktorander kan det inte fungera om mötena är på svenska</p>	<p>Tas upp vid handledar- och doktorandträffar samt av avdelningschef. Se till att avdelningsmöten mm är så intressanta att de deltar mer aktivt. Måste också använda engelska.</p>	Handledare och avdelningschef	Kontinuerligt
<p>Behöver fler möjligheter att sprida medvetenhet för doktoranderna om regler och riktlinjer.</p> <p>t.ex . hur man hanterar uppkomna förseningar (???)</p>	<p>Skicka mail regelbundet med uppmaning att läsa information tillgänglig via TEAMS.</p>	Handläggare för forskarutbildningen i PT	Vid introduktionen, och årligen påminnelse med start snarast.
<p>Behöver fler möjligheter att sprida medvetenhet för doktoranderna om planering och tidsramar.</p> <p>t.ex . hur man planerar Lic</p>	<p>skicka e-post med info vid lämplig tidpunkt, med uppmaning att läsa information tillgänglig via Teams.</p> <p>t.ex. efter 1 år när individuell studieplan (ISP) uppdateras.</p>	ÄR-PT	Vid behov
<p>Examination för vissa kurser behöver ses över för att ge lika möjligheter för studenter på den inledande och senare delen av sin forskarutbildning</p>	<p>ÄR behöver få reda på var de största problemen upplevs för att kunna åtgärda. Det kan upptäckas genom kursutvärderingar.</p>	ÄR-PT	Vid rapportering av kursutvärderingar

IT-stödet behöver förbättras för forskarstuderande som är tredjepartsfinansierade	Handledarna behöver fånga upp sådana eventuella problem. Tas upp med IT.	Huvudhandledare	Vid behov
Doktoranderna måste bli uppmärksammade i god tid om vad som sker om man blir kraftigt försenad.	Se ovan, avsnitt 2.1 (i tabellen Förbättringsområden)	Avdelningschef Obs. huvudhandledaren måste först slå larm (i.e. informera avdelningschefen)	Vid behov
Många av våra handledare är inte införstådda med det svenska utbildningssystemet utan handleder som de alltid gjort. Även om de har handledarutbildning från annorstädes, är det inte samma system hos oss.	<ul style="list-style-type: none"> - Utbilda handledarna regelbundet, speciellt vid förändrade ”regler och riktlinjer”. - Undvik att ha enbart handledare med utländsk bakgrund utan erfarenhet av svenska systemet. - Påminna om reglerna och tidsramar när det är relevant t.ex. registrera kursbetyg, planera Lic, ... - uppmuntra utbyte av erfarenheter mellan handledare (kopplat till handledarkollegiet aktiviteter, se avsnitt 1.4, 2.2) 	<p>Avdelningschef</p> <p>ÄR-PT</p> <p>ÄR-PT</p>	<p>Vid behov</p> <p>Vid behov</p> <p>Kontinuerligt</p>

Olikhet i ”syn på svensk kultur”	Informera nyanställda forskare och doktorander om hur vi kommunicerar i Sverige	Avdelningschef	Kontinuerligt
Administration kring doktorandernas verksamhet får inte fördröjas i onödan.	Tillse att alla beslut och fastställande hanteras snarast möjligt	ÄR-PT, FUN	Kontinuerligt
Hållbar utveckling ingår ej i de obligatoriska kurserna	Ge uppdrag till kursansvarig att inkludera alla dimensioner av hållbarhet i kurserna produktionsteknik/framtida produktion	ÄR-PT	Färdigställt
ÄR-PT vill förstå och veta vad som händer med förbättringsförslagen som inte faller under ÄR- PT eller IV ansvar.	Återkoppling angående förbättringsområden som inte faller under ÄR-PT eller IV ansvar.	Ledningen	2024

Any comments, explanation, analysis?

The recruitment process is still perceived as very long process by the PhD students and by the supervisors, and the best candidates are lost due to that. Work will continue with HR and Prefekt to explore solutions.

Activation of Supervisors meeting has been a priority during 2024, with 2 members of ÄR-PT actively involved in preparing topics for discussion.

Meetings organized by Studierektor and ÄR-PT with the PhD students have been also a priority, with 2 members of ÄR-PT actively involved in the dynamization of the meetings between the PhD students and ÄR and Studierektor.

ÄR-PT is not involved in recruitments, but in the last part of the year, there have been collegial discussions on the meriting needed to become docent and professor, to review the current criteria.

Student rated with 2.74 over 5 the contribution of our mandatory courses to the quality of the research education, and with 2.43 to the current offer of optional courses. Discussions are needed to understand this and to take actions.

1 Set-up

1.1 Subject area(s) of the third-cycle programme¹

Subject area	Exam
Production technology	Doctorate/licentiate in Production technology

Identify strengths and areas in need of improvement for the subject area(s) of the third-cycle programme. Comment, explain, and analyse in the free-text space below.

- The overall content of the dissertation work is well adapted in both depth and breadth related to the third-cycle programme subject area.
- The overall content of the third-cycle programme courses is well adapted in both depth and breadth to the third-cycle programme subject area.

Fulfilled?
yes
yes

Strengths
At Production Technology we have good research collaborations with companies within our fields, and related equipment to facilitate state of art research.
One strength is the interdisciplinary approach that we have, where expertise in both production processes and production systems is needed to solve common

¹ The subject of Production Technology in the field of Mechanical Engineering covers areas of expertise necessary for high performance production that is environmentally friendly, rational, economical, and safe. Research in Production Technology is divided into two specialisations: production processes and production systems, and the collaboration between these two at our university is key. The subject area is limited to Production Technology in Mechanical Engineering, as it applies to industry. The subject Production Technology comprises elements of established, traditional subjects like material and manufacturing technology within the specialisation of production processes and subjects such as measurement technology, control systems, regulating systems, and computer engineering within the production systems specialisation.

Work-integrated learning (WIL) is an interdisciplinary, third-cycle subject primarily related to the social sciences and humanities. The subject is defined by the fact that the presentation of a problem focuses on the relationship between working life and learning. Working life is broadly defined and includes forms of work other than work performed by salaried employees. The concept of learning is understood in its broadest sense and includes change and socialisation processes linked to knowledge and competence. There is a focus on working life and learning conditions, organisation, processes, content, forms and consequences. Research in this subject area includes, but is not limited to, studies of work in transition, the relationship between education and work, as well as social conditions for learning through working. The focus of one's studies can be on individuals, groups, organisations, mechanisms, or structures.

research questions. At other universities, the work is done in a more downpipe format with a limited focus, but this is not the industrial reality. Since the research intends to be close to industry, it is relevant that the research infrastructure is structured in a similar way.

Areas in need of improvement	Measure	Proposed contact	Proposed timeframe
The administrative part of the admissions process that lies with HR takes too long.	Re-consider the current procedure to make it more time efficient.	HR & Prefekt	2025-2030

Any comments, explanation, analysis?

57% of the responses received in the questionnaire pointed on the fact that the admission process takes a long time. Sometimes the process takes so long that suitable candidates find other jobs before our recruitment process is finished. This is not something that is easy to fix. However, with effort and joint collaboration with HR this should be addressed.

1.2 Staff

Identify strengths and areas in need of improvement regarding the accessibility of supervisors and educators. Comment, explain, and analyse in the free-text space below.

	Fulfilled?
○ There are staff with the right skills available to carry out all courses in the third-cycle programme with good quality	yes
○ There is sufficient availability of principal supervisors/supervisors based on the number of admitted and planned third-cycle students	yes
○ There is the possibility of:	
a) influencing, following up and developing third-cycle programmes	yes
b) discussing third-cycle programmes with colleagues in, for example, a supervisors' committee	yes
c) reading course evaluation results (e.g. course reports)	yes

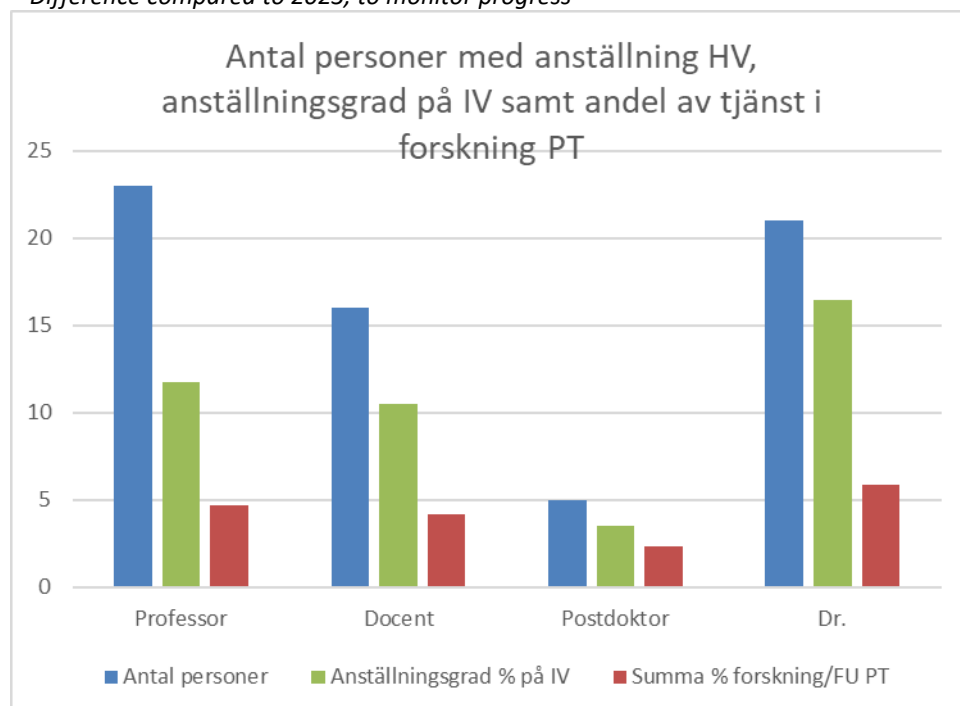
Strengths
A team of supervisors with broad competence within the production technology areas. That gives the opportunity to work in synergy with other supervisors (i.e. process-material-simulation areas) and it gives also doctoral students in different fields of production technology to collaborate among them, for example in joint publications.
There is staff with the right knowledge to take care of our own PhD courses (compulsory and optional) with good quality.

Areas in need of improvement	Measure	Proposed contact	Proposed timeframe
An active seminar culture to convey new advances in various research within production technology	Arrange scientific seminars on a regular basis	KAM-PT, IN, Prefekt, FUN	Arrangements during 2024. Starting 2025
Perception of lack of availability of competent supervisors in some research areas in PT	Follow up during supervisors' meetings and during the meetings with PhD students	ÄR-PT, supervisors, PhD meetings, Studierektor	2025

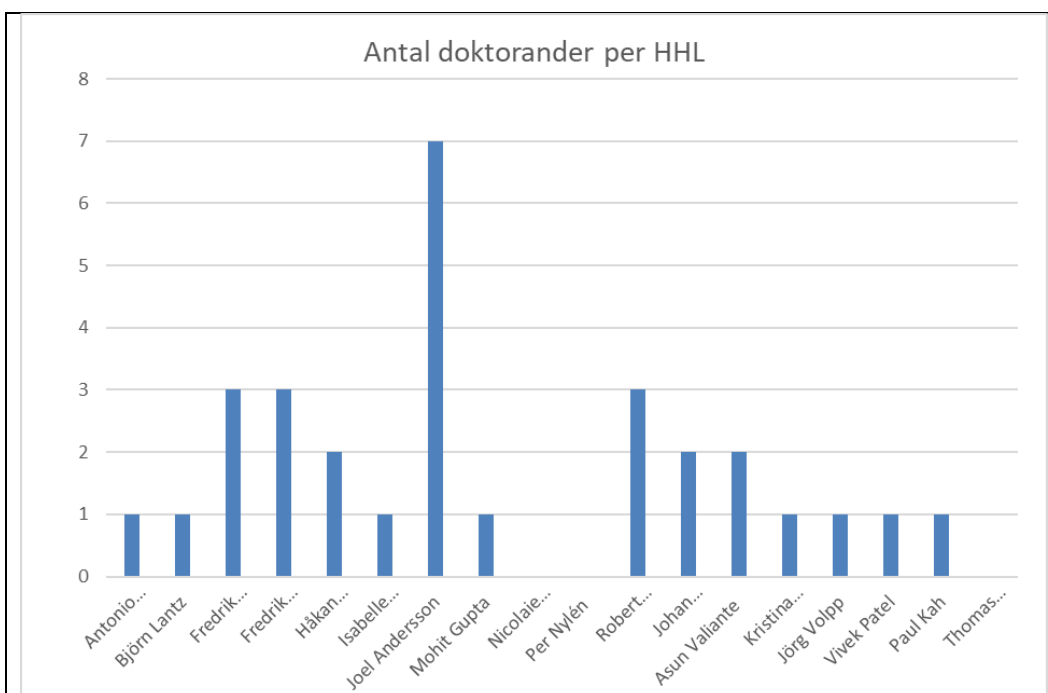
Any comments, explanation, analysis?
<p>Activation of Supervisors meeting has been a priority during 2024, with 2 members of ÄR-PT actively involved in preparing topics for discussion.</p> <p>A more active seminar culture is something that has been discussed and promoted from ÄR during 2024. ÄR has called FUN, KAM-PT, IN and managers to organize and arrange regular seminars starting in January 2025.</p> <p>The data listed below show that we have sufficient personnel to act as supervisors, but at the same time, 52% of the answers received stated that to some extent, there is limited access to competent main supervisors in some of the research areas within production technology. This will be followed, and areas where that is perceived as a problem will be identified. During 2024, it has been necessary to hire main supervisors from other universities.</p> <p>Currently we have 66 (+11*) people with a doctoral degree in the environment, with an average turnover in research of 27% (32%*). Of these, 36 (-2*) are currently co- or main supervisors, while the rest are not currently involved in supervision, i.e. we have the potential for additional supervision. The number of enrolled doctoral students in 2024 is 34 (+5*), of which 26 are active, four have a study break and four have been admitted with a start date of 2025. During 2024, four doctoral students defended their PhDs, five have completed their licentiate seminar and seven new doctoral students have been admitted to the doctoral programme. The figure below shows the number of doctoral staff of different categories in 2024.</p>

Note that we have several part-time professors/associate professors to maintain the academic requirement for a main supervisor as at least an associate professor and, no less importantly, to tie these people to us in the longer term. Not all employees at IV participate full-time in research within PT, which explains the size of the different bars.

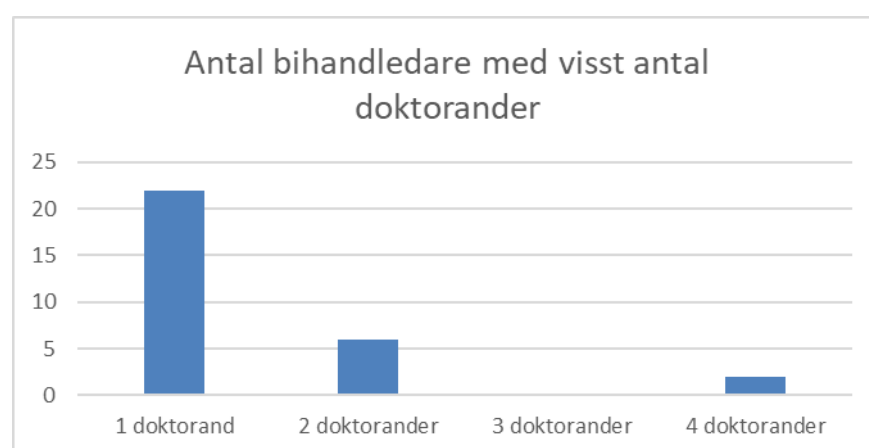
** Difference compared to 2023, to monitor progress*



The main supervisor is the most important person in ensuring the quality of doctoral education. Today we have 18 (+6*) appointed main supervisors, who are responsible for between one and six doctoral students each, see the figure below.



The **co-supervisors** are also important, and above all, as the doctoral student progresses, they should take on more responsibility for formalities. Merit efforts are underway to qualify those who do not yet meet the requirement to be a main supervisor for associate professorship. The figure below shows that co-supervisors currently supervise 1 to 4 doctoral students. Of our 26 active doctoral students, 12 (-2*) have two co-supervisors, while the rest have one co-supervisor.



1.3 Learning environment

Identify strengths and areas in need of improvement. Comment, explain, and analyse in the free-text space below.

	Fulfilled?
○ All doctoral students have access to a relevant scientific environment within the university	yes
○ All doctoral students are part of an inclusive learning environment and are treated equally	yes
○ Equal treatment and diversity in general are ensured in third-cycle programmes	yes
○ The third-cycle programme has a simple and efficient admission process	partially
Strengths	
All PhD students have access to an established environment with both scientific competence and advanced equipment within PTW. Academically employed doctoral students have their workplace at PTW in close proximity to their supervisors, research engineers and fellow doctoral students. Third-party PhD students normally have their workplace with their employer but have access to the environment at PTW when needed.	
A strength is also the close collaboration with our industrial partners, which means that the doctoral students also get the business world's view of their research projects, and thus an understanding of different work environments and the relevance of the research.	
The 65% of the responses in the survey confirmed that the PhD students feel that the learning environment is inclusive and that they feel equally treated.	

Areas in need of improvement	Measure	Proposed contact	Proposed timeframe
The introductory information given to PhD students when they start at PTW.	A better introduction to HV and to the working environment is needed. ÄR-PT has raised this issue to different agents and actions should be expected soon.	Supervisors, Prefekt, HR, Studierektor	2025
Differentiate doctoral studies from the company/project in which the student participates	Clarification needed from Supervisors	ÄR & Supervisors	2025
Moving to Campus in 2025, risk of breaking the learning environment. The supervisors-students-engineers not being closely located, nor the lab equipment.	Special care to protect the learning environment is needed.	Managers and supervisors	2025

Any comments, explanation, analysis?
<p>Keeping a good learning environment requires continuous efforts regarding infrastructure, updates of rules and guidelines, an active board of supervisors, transparency in communication, etc.</p> <p>It is important that relevant information is provided during introduction activities, that the information does not overlap and that all the agents are involved in the introduction of the student: HR, Studierektor, Supervisors and managers, as the information to be provided needs the contribution from all of them.</p> <p>The usual location for supervisors and PhD students is going to be at Campus. PTC will be kept as workplace for the research engineers' team only. The relocation to Campus, where PhD students and supervisors will not have a specific</p>

rooms/seating and will not be together with the engineers, can create decohesion and it can be a high risk to damage the learning environment for the PhD students as well as for the supervisors and research engineers as there is a risk of less communication between those roles

1.4 Resources

Identify strengths and areas in need of improvement. Comment, explain and analyse in the free-text box.

- There is access to a stable and appropriate infrastructure, such as libraries, Grant Innovation Offices, student support, IT support, data security, etc.
- There is access to the resources required to maintain a scientific environment for third-cycle programmes in work-integrated learning and production technology

Fulfilled?

yes

yes

Strengths

Access to the library and its resources is good and valuable, as are contacts through GIO, although this does not primarily apply to the PhD students, but rather to the researchers/project leaders. Study support is available for those who need it (outside ÅR's control). GIO can be helpful in applications for funding international stays (via Stars EU and Erasmus+), and also in finding post-doc positions, but the latter is relevant only after graduation. The IT support works well, and the support we get from our economists is extraordinary. The infrastructure at PTW is OK.

In all our doctoral projects there is good access to appropriate infrastructure through both laboratory resources in the environment at PTW with supporting research engineers as well as access to resources at collaborating universities when required. We also have good access to computing resources in the form of a computing cluster and software licenses. That is supported by the results obtained in the survey.

In terms of internationalization, we have developed networks with relevant universities and institutes, both in terms of research and education, for example. Manitoba, Stony Brook, Nagaoka, Ohio State University, Osaka University, etc.

Areas in need of improvement	Measure	Proposed contact	Proposed timeframe
Financial preparedness from HV if there is a gap between project funding and/or a study break in the event of, for example, parental leave or a mismatch between the project duration and the PhD duration.	Supervisor contact manager	Prefect	Yearly
Continuous maintenance and upgrading of experimental equipment and computational resources.	Order maintenance and purchase new machines.	KAM-PT	Yearly

Any comments, explanation, analysis?

It has been commented on in chapter 1.3, but here it is also mentioned in relation to getting the funding for the students to finalize their studies. Some students can be late in their studies and additional funding is needed to complete their studies. That usually happens when at the start, the students are not properly clarified about the project's goals and their own research questions. It is important to distinguish the responsibilities here. The project manager is responsible for the project's goal and that the supervisor supports the doctoral student in focusing on their research questions. Often the project manager and supervisor are the same person, and then the supervisor must avoid conflict of interest and distinguish between the focus of their two different roles.

2 Design, implementation and results

2.1 Governing documents (general syllabus, individual syllabus and course syllabi)

Identify strengths and areas in need of improvement, comment, explain and analyse in the free-text box.

- The general syllabus and course syllabi are up to date and ensure the nationally established intended learning outcomes and the right to confer degrees in the subject areas
- The individual study plan with its target matrix is well adapted to follow the doctoral student's progression and prerequisites for achieving the nationally established intended learning outcomes
- The progression within the third-cycle programme is documented (for example, the breadth and depth of the doctoral subject, the content of the courses, the order and entry requirements, or themes such as sustainable development or ethics)

Fulfilled?
yes
yes
yes

Strengths
<p>There is the general syllabus and syllabus for all the mandatory courses, in accordance with the degree rights in Production Technology.</p> <p>Every PhD student has their ISP that is annually reviewed by the student, supervisor, manager and ÄR, and where all the details in relation to the progression of the studies are documented.</p>

Areas in need of improvement	Measure	Proposed contact	Proposed timeframe
If possible, shorten the administrative times between the request to hold a lic. seminar or dissertation and the seminar itself, if this does not harm the quality process.	ÄR-PT needs to discuss a practice that will not negatively impact the quality process.	ÄR	Ongoing since autumn 2024
Full digitalization of the ISP	The goal matrix is still on Excel, whilst the rest of the ISP is digital. Full digitalization would be advisable.	Examens office	2025

Any comments, explanation, analysis?

2.2 Ensuring the intended learning outcomes for the degree

Identify strengths and areas in need of improvement. Comment, explain, and analyse in the free-text space below.

The nationally established intended learning outcomes can be found in the appendices, under Chapter 8.

- The overall intended learning outcomes in the compulsory courses of third-cycle programme, together with individual courses and dissertation work, meet the national intended learning outcomes for the programme's degrees
- The target matrices in the individual study plans ensure that the national learning outcomes are fulfilled?
- The quality of the thesis is ensured during the third-cycle programme

Fulfilled?
yes
yes
yes

Strengths
<p>There is the matrix of learning objectives, which exists in a version in both English and Swedish, so everyone should be able to complete it well, see Chapter 8.</p> <p>We have procedures to ensure that the thesis is of good quality and that progression is documented in individual study plans, which are updated at least once a year, where the learning objectives are also followed up.</p> <p>During 2024 we implemented a routine for the transfer of the optional credits that the students took in other universities in Ladok. That was successfully implemented and now ÄR has more knowledge on the scope of the optional courses.</p>

Areas in need of improvement	Measure	Proposed contact	Proposed timeframe
Offers of optional PhD courses given at HV are limited	Identify needs for courses and budget to give the courses internally.	Prefekt, ÄR, supervisors, PhD students	Annual
Occasional overlapping among learning outcomes in mandatory and optional courses	Information to supervisors and students	ÄR	Started 2024.

Any comments, explanation, analysis?
<p>The students have the opportunity to take optional courses at other universities and afterwards getting the credits transferred to Ladok. However, students would like to have more chances of attending optional courses at HV. This needs to be</p>

annually reviewed considering the needs and budget available. Our current offer of optional courses is rated with 2.43 over 5.

Student rated with 2.74 over 5 the contribution of our mandatory courses to the quality of the research education. Discussions are needed to understand this and to take actions.

3 Perspectives on working life

Identify strengths and areas in need of improvement. Comment, explain, and analyse in the free-text space below.

- The third-cycle programme is characterised by work-integrated learning²
- The third-cycle programme is characterised by one or more of the following:
 - a) national collaboration in academic circles
 - b) international collaboration in academic circles
 - c) collaboration with working life, such as in the private or public sector
 - d) collaboration with the surrounding community

Fulfilled?
yes
yes
yes
yes
yes

Strengths

The entire educational environment at PTW is characterized by collaboration with mainly Swedish industry and national and international academia. The doctoral student has an employment and is involved in one or more research projects with planning, follow-up and set timeframes, so they should be well acquainted with the perspective of working life.

² Work-integrated learning is a pedagogical practice in which doctoral students' learning takes place through the integration of theoretical and practical knowledge and experiences, taken from educational contexts within the framework of higher education/universities as well as working life and civil society.

The individual study plan also documents discussions about 1) mobility – international and national and 2) career are carried out. Different focuses are then placed depending on whether the doctoral student intends to continue in academia or go to industry, and it is the main supervisor's responsibility to ensure that the discussion is carried out. It could also be up to the head of the department to raise it during employee interviews. For doctoral students employed by third parties, the question is uninteresting, since they are expected to use their research education in their workplace.

Areas in need of improvement	Measure	Proposed contact	Proposed timeframe
An active Alumni activity could provide support for further development of national and international collaboration within academia and industry.	Find out the status of the communications department's activities (Stefan Kudryk)	ÄR-PT contact Prefekt and communications' department	2025

Any comments, explanation, analysis?

To take advantage of the working world's perspective, we suggest that an alumni activity be activated, but that is NOT ÄR's task.

4 Third-cycle students' perspectives (HL 4§)

4.1 Opportunities for third-cycle students (HL 4§)

Identify strengths and areas in need of improvement. Comment, explain, and analyse in the free-text space below.

- Third-cycle students have the opportunity to:
 - a) influence, follow up and develop the third-cycle programme
 - b) discuss the third-cycle programme with entrusted supervisors
 - c) read the course evaluation results (e.g. course reports).

Fulfilled?
yes
yes
to some extent

Strengths
Student representation in the subject council
Frequent meetings with director of PhD Studies to discuss students' concerns
PhD guidelines are available on Teams for everyone

Areas in need of improvement	Measure	Proposed contact	Proposed timeframe
The quality loop should be closed more clearly. Students appreciate the system for course evaluation but cannot see the teachers' comments and plans for changes or improvements of the course.	Ensure teachers publish the course evaluation response in the Canvas site of the course.	Reminders ÄR-PT to course responsible. Coordination with Ragnar Håkansson already	2025

		started in 2024.	

Any comments, explanation, analysis?
Not all the courses publish the course evaluation response. The course evaluation started to be automatically implemented in 2023, but course responsible must prepare the course evaluation response and post it in Canvas.

4.2 Support for third-cycle students (HL 4§)

Identify strengths and areas in need of improvement. Comment, explain, and analyse in the free-text space below.

- There is an action plan for third-cycle students who have trouble completing their studies within the planned study period
- There is developed infrastructure and support for the third-cycle students that is third-party funded
- There is information about whom third-cycle students can turn to if they are subjected to or become aware of discrimination or victimisation
- There is information about what good research practice and good research ethics are, including whom third-cycle students can turn to if they have questions about this
- There are prerequisites for completing a third-cycle programme that take equal treatment into account
- There are prerequisites for completing the teaching qualifications required for employment at a higher education institution after the public defence of a doctoral thesis (e.g. courses in teaching and learning in higher education or participation in teaching)

Fulfilled?
To some extent
yes
yes
yes
yes
yes

Strengths
Access to infrastructure also through third parties (as discussed in chapter 1.4 Resources)
Research ethics is part of core courses. The survey results show that majority of students are well aware of good research practice and good research ethics and who to address if there are questions about that.

Areas in need of improvement	Measure	Proposed contact	Proposed timeframe
Absence of common plan for students with troubles to finalize their studies.	Discussion. How to proceed? General plan? Case by case analysis?	ÄR-Supervisors-Managers	2025

Any comments, explanation, analysis?

The introduction session to the studies and to HV referred earlier in the report should also include and guide who to contact in case of sensitive issues such as discrimination.

At the moment, there is no common plan to act when students cannot finish their studies. It should be discussed if a general plan should be prepared, or if it is better to act case by case depending on the reasons for the troubles in completing the studies.

5 Sustainable development in education

Identify strengths and areas in need of improvement in the integration of sustainable development in education (see the definition of the three different aspects of sustainable development below). Comment, explain, and analyse in the free-text space below.

- The third-cycle programme includes elements related to sustainable development
- The third-cycle programme includes elements related to gender equality, equality and equal treatment (according to the definition in the Higher Education Act)

Fulfilled?
yes
yes

Strengths
The results from the survey support these statements. Students and supervisors confirmed the inclusion of elements related to sustainable development and equality in the research program. In addition, the survey also confirmed that students feel that the learning environment is inclusive and promotes equality. However, a systematic check of all the mandatory courses and the optional courses developed at HV would be important to do, specifically to ensure that the courses offered to our students cover the topics of gender equality and equal treatment.

Areas in need of improvement	Measure	Proposed contact	Proposed timeframe
Clear presence of gender equality and equal treatment in the contents of the PhD courses developed at HV	Check course syllabuses for mandatory and optional courses developed at HV	FUN	2025

Any comments, explanation, analysis?

Ecological sustainability	Ecological sustainability means that the earth's ecosystem has the long-term ability to provide people with the goods they need to satisfy their needs. These can be natural resources, ecosystem services (e.g. pollination) and the value that spending time in nature has for a person's well-being. In addition, "nature's capacity to be able to take care of (assimilate) different types of emissions and environmental impacts is included" (Hedenus, Persson and Sprei, 2015:15).
Economic sustainability	How we economize on resources (finite natural resources and economic capital) that have been created by humans and that are important for maintaining human welfare now and in the future. (Hedenus, Persson and Sprei 2015:15).
Social sustainability	That people organise their societies in a way that is sustainable in the long run in terms of contributing to people's well-being, where people's basic needs and human rights are ensured. Social sustainability is also about contributing to the inclusion of people, regardless of gender, education and income level, social status, ethnicity, religion or other belief system, sexual orientation, transgender identity or expression, age and disability.

6 Possible areas in need of improvement – quality report for third-cycle programmes

Here you can write down any areas in need of improvement regarding the content of the quality report and process description that are presented in the chapter “Purpose and Process Description” at the beginning of the report template. Identify strengths and areas in need of improvement. Comment, explain, and analyse in the free-text space below.

Strengths
Good to have a process description. It is essential to identify strengths, weaknesses and to propose actions.

Areas in need of improvement	Measure	Proposed contact	Proposed timeframe
Last stage of the process is not followed. FUN and KAM-PT do not report back after the HLG strategic day	Either ÄR-PT receives a report back, or the current description of the last stage is removed.	FUN, Quality Management at HV level	As soon as possible
Recently a template to assess the quality of the research education by an external committee was sent to ÄR. The content of that preliminary template was different to this annual report template.	Alignment between quality reports in research education	FUN, Quality manager at HV level	2025

Any comments, explanation, analysis?

From ÄR-PT we feel the quality loop is not closed, as there is no feedback back to this report from FUN/KAM-PT/HLG. Therefore, without feedback, it could be interpreted as if the report is just a document to be filled in, but that is not considered by anyone.

ÄR in Production Technology (ÄR-PT) would like to note that the **process described for the quality report** was not followed at least in relation to the last step. ÄR-PT did not receive feedback/follow up to the last quality report after the HLG strategic day for education. This abnormality in the process was notified to FUN representative, and FUN confirmed that they would not give such feedback, and instead, they recommended ÄR-PT to establish a series of meetings with the Prefekt to follow up the status of the measures suggested in the report. ÄR-PT has established now a series of meetings for 2025 with the Prefekt, but it would be expected that FUN and the Quality responsible at university modify the last step described in the process, because as it is now, it does not reflect the reality.

At ÄR-PT we strongly believe that any document to assess externally the quality in research education should not be in misalignment with the current annual report. Based on the remiss received, we think that there is a misalignment. We propose that the same document can be used for both purposes. It is fine if the current annual report must be changed and adapted, but there should be consistency.

7 Summary analysis – meetings for discussion

Below you can find the summary of actions decided during the quality day on the 9th of October 2024. Responsible persons for those actions have been identified and there is ongoing work on them.

Summary analysis
<ol style="list-style-type: none"> 1. Doctoral barometer/ Environment: <ol style="list-style-type: none"> a. Arrange a meeting inviting: HR, Avdelningschef, ÄR presidium, Studiedirektor to clarify and specify the responsibilities in introducing PhD students to HV and to research studies. b. Check with KAM-PT leaders and managers how is it going with the “PhD meetings” c. PhD mentorship? Is it a possibility? Discuss with managers. d. Specify that afterwork is also for PhD students in the invitation. 2. Feedback from Quality Report 2023 <ul style="list-style-type: none"> - ÄR presidium meetings with Per (2 times/semester) (FUN clarified that they only focus on the Quality Report tasks that are pointed out on them, otherwise, for the rest of items, ÄR needs to discuss with Per). - KAM-PT management presented new topics/suggestions for the template. Joel is encouraged to send this to FUN. 3. Collegial meetings with supervisors: <ul style="list-style-type: none"> - ÄR (Magnus) to share in Teams the document with topics for the supervisors meeting. - ÄR to prepare a list of journals/conferences of quality. 4. Quality report 2025 and WIL certification <ul style="list-style-type: none"> - ÄR presidium to split the different chapters among the ÄR members to jointly prepare the works. - ÄR presidium to work on the Excel file to request the supervisors the list of activities and companies involved in the PhD studies. 5. Brainstorming on how to improve quality in research education. These aspects will be included in future meetings with supervisors: <ul style="list-style-type: none"> - Examiners being tougher in the seminars: planning, before lic. - Recruitment as long process: MSc diploma at the time of admission (now good MSc candidates are not considered because they have not received their diplomas)

- When re-advertising the same position, shorten the advertising procedure by skipping signatures from prefekt & ÄR.
 - ÄR will analyze the course evaluation reports from all the courses, including the mandatory courses offered to PT students and given by AIL.
6. Quality loop for research education. Proposals by Eva and Fredrik discussed.
- ÄR (Magnus) will share the proposal in the supervisors meeting.

8. DEGREE TARGET MATRIX

Explanation and analysis
<p>The degree target matrix has been updated, and it is currently used in the digital ISP that all third-cycle students in Production Technology at University West.</p> <p>It can be accessed by clicking on the link bellow:</p> <p>Logga in - ISP</p>

Higher Education Ordinance:

https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/hogskoleforordning-1993100_sfs-1993-100