



NTNU

Norwegian University of Science and Technology

Session 3b: Quality Assurance

Periodic Review of PhD Programmes

Harald Lenschow

Secretary for the Research and Researchers Committee

Faculty of Information Technology, Mathematics and Electrical Engineering



**Innovative Doctoral Training: principles and practice
at European Universities of Science and Technology**

**Joint workshop by CESAER, CLUSTER, EuroTech Universities,
IDEA League and Nordic Five Tech**

29-30 August 2016

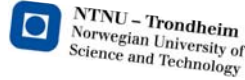
NTNUs system for quality assurance in education

October 02. 2013

Appendix 2: NTNU's system for quality assurance of education

Common Standard of Quality for PhD education at NTNU

A. Recruitment



Role/Responsibility	Task	Activity	Measures
Rector	Information and recruitment	Information about PhD education	<p>Information about PhD education is to be readily available in Norwegian and English on the website.</p> <p>Procedures are to be in place for announcing PhD positions, processing applications, and providing information to applicants.</p> <p>To reach the best candidates, active recruitment efforts are required.</p> <p>For each person who is recruited consideration is to be taken about the academic group they will work with as well as the skills, quality, and capacity of the proposed supervisors. All candidates are normally to have at least two supervisors.</p> <p>The applicant's required formal qualifications as well as his/her motivation and suitability must be determined before the position is offered. The candidate has to be interviewed to determine his/her motivation and suitability.</p> <p>Emphasis must be placed on the required formal qualifications for applicants with university education from outside Norway.</p>
Dean		Announcement of PhD positions	
Head of Department		Recruitment	
Head of Department			
Head of Department and Head of PhD Programme			

- At least every **5** years, the Dean is to ensure that a periodic evaluation of the programmes of study is conducted with input from external parties. The Dean reports to the Rector in the annual quality assurance report.
- The periodic evaluation is to assess the overall quality, strategic consistency and societal relevance of the program of study.
- Specification of requirements in connection with the establishment of new programmes of study specifies prerequisites that must be fulfilled. Based on the annual evaluations of the programmes of study or specific challenges, the focus for the periodic evaluation is chosen. The aim of the periodic evaluation is to provide the basis for assessing whether the programme of study should be continued in its present form, be modified, or discontinued.

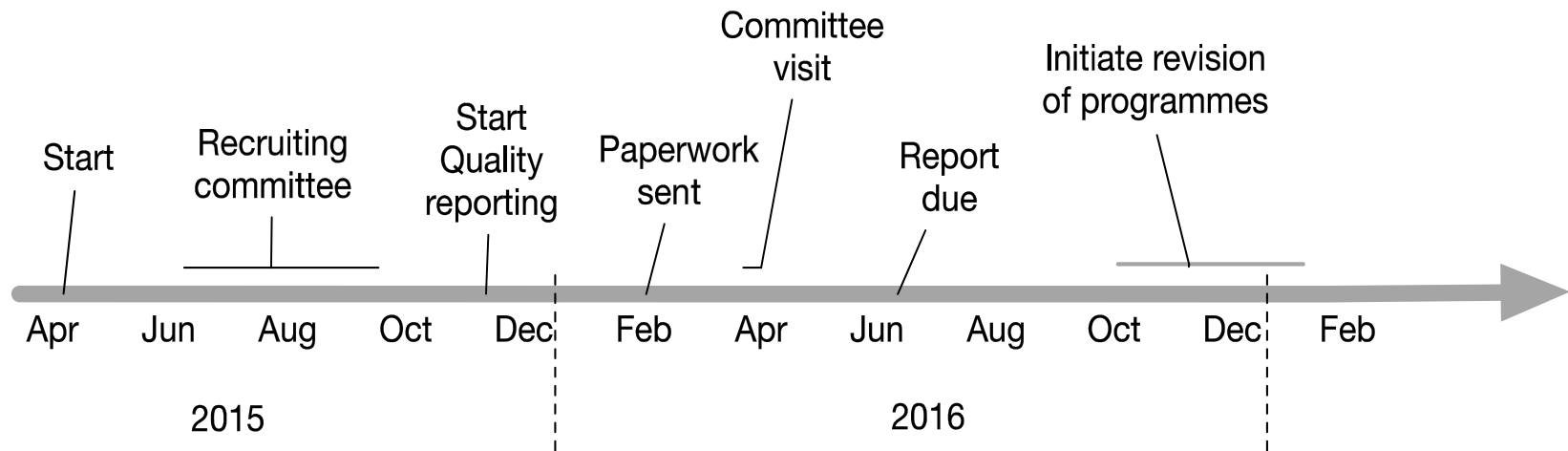
Periodic Evaluation of the PhD study programs at the IME faculty, NTNU

- issued by the faculty

- **Ensure**
 - High International quality in the PhD education
 - Efficient and well organized
 - Relevance
- **Use**
 - Revision of study programmes
 - Need for organizational changes in the PhD education
- **Mandate, Terms of reference**
 - Academic quality should be on a high international level
 - Good environment for the training of the PhD candidates
 - Aware and skilled supervisors
 - Adequate with respect to the needs of society and industry
 - In-line with international standards
 - International cooperation
 - Organisation and administrative
 - The "system" including Quality Assessment

Timeline

HOW DID YOU DO IT?



FU Task force:

- Prodekan Bjarne E. Helvik (chair)
- Professor Thomas Tybell
- Professor Colin Boyd
- Professor Agnar Aamodt
- PhD-candidate Even Låte
- Harald Lenschow (coordinator)

Support:

- Professor Guttorm Sindre
 - "Guide"
 - Reporting
- Harald Lenschow
 - Arrangements
 - Documentation

Evaluation committee



Professor Arne Svensson (Chair)

- Department of Signals and Systems
- Chalmers



Professor Joaquim Bruna Floris

- Department of Mathematics
- Universitat Autònoma de Barcelona



Associate Professor Henk Polinder

- Department of Electrical Sustainable Energy
- TU Delft



Professor Anja Feldmann

- Department of Telecommunication Systems
- TU Berlin



Professor Susan Crow

- School of Computing Science and Digital Media
- Robert Gordon University, Aberdeen



Professor Rolf Johansson

- Department of Automatic Control
- Lund University

Some essential excerpts given by the mandate, dated 2015-08-06:

- "assess the quality and relevance of the research education"
 - (i.e., of IME's 6 Ph.D. study programs: Electric Power Engineering, Electronics and Telecommunication, Engineering Cybernetics, Information Technology, Mathematics, and Telematics)
- "ensure that the learning outcomes [...] are up to date and relevant, and that portfolios of courses in the programmes are sufficiently supportive for the Ph.D. candidates in order to achieve the learning outcome."
- "offer a critical assessment of the strengths and weaknesses of the Faculty's research education and to improve the knowledge base for strategic decision-making by the Faculty in matters that are relevant for the Ph.D. studies."

It must be noted that the committee's mandate was to evaluate the quality of the research *education*, not the quality of the research per se.

Documents sent as a basis for the evaluation

1. Documentation provided by the faculty:
 - a. Presentation: Introduction; Phd Education and Research; PhD Education – training of researchers
 - b. Annual reporting 2015
 - c. Annual Reporting 2015 appendix
 - d. Mandate for Evaluation Committee
 - e. Programme for Evaluation Committee (April 2016)
 - f. List of PhD courses (provided on the visit)

2. Documentation provided by PhD Programme/Department (Individual reports from all 6 PhD programmes):
 - a. Self-evaluation 2015
 - b. Research profile
 - c. Introducing new PhD candidates

3. Documentation provided by NTNU
 - a. PhD Regulation for NTNU
 - b. PhD Handbook for NTNU
 - c. Guidelines for assessment of candidates for Norwegian Doctoral Degrees
 - d. NTNU system for Quality Assurance

Programme self-evaluation

- **Study program description and learning outcomes (educational objectives)**
- **The study program coordinator's assessment of the quality of the study program, incl.:**
 - Overview of all PhD courses
 - Yearly report from the PhD-candidates and main supervisor, incl. assessment of learning environment
 - Recruitment and dropout 2015
 - Publishing activity
 - Internationalization of candidates
 - List of completed mid-way evaluations
 - Assessment from PhD evaluation committees
 - List of completed disputations
- **Action plan**



HOW DID YOU DO IT?

◀ ▶ 04 - 08. april 2016

The following rooms are reserved for all day the 5th - 7th of April: G144, E222, and A390.

	4 mandag	5 tirsdag	6 onsdag	7 torsdag
		PhD Evaluation 2016 VISIT		
08 ⁰⁰		(Meeting room G144) KICK-OFF	EC – Preparation A: PHMA (Meeting room G144 / E222 / A390) EVALUATION COMMITTEE – PhD programme A	EC – Preparation E: PHTK (Meeting room G144 / E222 / A390) EVALUATION COMMITTEE – PhD programme E
	Department / PhD programme:			
	Electric Power Engineering / PHELKT	- Welcome by Vice Dean (5 min) - Presentation of Evaluation Committee and Experience of Evaluation Committee (3 min each)	- Interview PhDs	- Interview PhDs
09 ⁰⁰		- Presentation of Guttorm Sindre	- Interview supervisors	- Interview supervisors
	Electronics and Telecommunication / PHET	- Presentation PhD programmes by Head of Department and member of Faculty Research Committee (10 min each)	EC – Brief account A	EC – Brief account E
	Engineering Cybernetics / PHTK	o Key indicators	EC – Preparation B: PHELKT (Meeting room G144 / E222 / A390) EVALUATION COMMITTEE – PhD programme B	EC – Preparation F: PHET (Meeting room G144 / E222 / A390) EVALUATION COMMITTEE – PhD programme F
10 ⁰⁰		- Quality Assessment procedures at NTNU	- Interview PhDs	- Interview PhDs
	Computer Science and Information Technology / PHIT	o NTNU / Faculty / Department	- Interview supervisors	- Interview supervisors
	Mathematical Sciences / PHMA	o Administration (Fac./Dept.)	EC – Brief account B	EC – Brief account F
11 ⁰⁰		- Supplement material		
12 ⁰⁰	Telematics / PHTELE	LUNCH Evaluation committee (at Kjelhuset)	LUNCH Evaluation committee (at Kjelhuset)	LUNCH Evaluation committee (at Kjelhuset)
13 ⁰⁰	ON ARRIVAL TRONDHEIM AIRPORT - VÆRNES Shuttle bus for the city centre of Trondheim every 10 minutes, price NOK 140. The bus Værnesekspresen stops at the hotel you all will stay in: Hotel Scandic Hotel Baklandet The rooms are reserved and payed for by NTNU. We will meet in the Reception area at 19:00 and walk to a nearby Restaurant.	(Meeting room E222) EVALUATION COMMITTEE (EC) MEETING	EC – Preparation C: PHTELE (Meeting room G144 / E222 / A390) EVALUATION COMMITTEE – PhD programme C	(Meeting room E222) EVALUATION COMMITTEE MEETING
		- Mandate for Evaluation - Arrangement for Committee work in Trondheim, and wrap-up of preliminary findings. - Discussions / specific issues - Interviews (in parallel sessions?)	- Interview PhDs - Interview supervisors EC – Brief account C	- Wrap-up - Discussions / specific issues - Draft report content, planning for completion
14 ⁰⁰			EC – Preparation D: PHIT (Meeting room G144 / E222 / A390) EVALUATION COMMITTEE – PhD programme D	(Meeting room G144) ROUND-UP: Evaluation Committee w/GS & FRC
15 ⁰⁰			- Interview PhDs - Interview supervisors EC – Brief account D	
16 ⁰⁰	ARRIVAL →			DEPARTURE →
17 ⁰⁰				
	19:30 DINNER at Una	19:30 DINNER at To rom og kjøkken	19:00 DINNER at Kalas & Canasta	



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Status

The general observation of status is that the 6 evaluated Ph.D. programs are of good quality both from a national and international perspective, and that the resulting research is generally of high quality, sometimes even of very high quality.

The evaluation committee did not discover any serious quality problems with the Ph.D. programs, nor any serious deficiencies with their quality assurance systems.

- “The impression of the committee is that IME's Ph.D. education is of **very good quality**, with programs that are generally **well-managed**, **offering good learning and working conditions** for the Ph.D. students, and with **supervisors that are competent** in their field of research to the level expected for being a Ph.D. supervisor (or beyond).

Although the quality of the research output has not been studied by the committee, it is also the impression that this is of **good international quality, and sometimes even of excellent, world-leading quality.**

The competence that the students gain during their Ph.D. studies appear **relevant both for academia and industry.**”



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⇒ WHAT ARE THE BENEFITS AND MAIN CHALLENGES?

Recommendations for Improvement

This should not be misinterpreted as an indication that the evaluated Ph.D. programs are poor. Rather it follows from the mandate itself that the feedback that the faculty will be most interested in, is **constructive criticism and suggestions for improvement**, not an appraisal of the current situation.

“Still there are some weaknesses / [R32] **issues** that the faculty should have an ambition to improve upon.”

- recruitment [R7]
- learning goals and courses [R3]
- supervision and co-supervision [R5]
- student engagement and social environment [R2]
- mobility [R3]
- progress, completion, and termination [R8]
- quality assurance [R4]



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...The faculty is now in a better position to act and make improvements and plans for our PhD education...

... the evaluation committee members expressed that they got many good ideas on how to improve their own PhD education...

Thank you for your attention!