

## **REGULATIONS FOR THE PHILOSOPHIAE DOCTOR DEGREE (PHD) AT THE NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY (NTNU)**

Passed by the Board of NTNU on 23 January 2012 under the provisions of the Act of 1 April 2005 no. 15 relating to Universities and University Colleges, Section 3-3 and Section 3-9 no. 7.

The following sections in the Philosophiae Doctor Degree Regulations no. 1684 at NTNU, approved by the Board on 7 December 2005, apply to the doctoral education: Section 2, Sections 10 - 12, Section 23 no. 3, Sections 24 - 30, Sections 32 - 40, Section 42 and Section 44.

**The Faculty of Medicine's supplementary guidelines for this regulation are included directly in the paragraphs under the header "DMF's supplementary guidelines" Supplementary guidelines were adopted by the Dean on 10/9/2012.**

### **PART I INTRODUCTORY PROVISIONS**

#### **Section 1 Scope and extent of the regulations**

These regulations apply to all education that leads to the degree of Philosophiae Doctor (PhD). The regulations stipulate the rules for admission, PhD training and completion of the PhD education, including joint degrees and cotutelle (joint supervision agreements).

Integrated PhD education is a specially designed form of study leading to a PhD degree at NTNU. The specific provisions for this course of study are set out in separate regulations on integrated PhD education (2005).

#### **Section 2 Scope, content and objectives of the PhD education**

The objective of the PhD education is to qualify candidates to conduct research of a high international standard and perform other types of work with exacting requirements in terms of scientific insight and analytical thinking in accordance with sound scientific practice and established standards for research ethics. The PhD education is intended to provide the candidate with knowledge, skills and expertise in keeping with the national qualifications framework. The objective is to contribute to the internationalization of research, the academic community and the candidate.

The PhD education has a nominal duration of three (3) years of full-time study, and includes required coursework or similar academic training comprising a minimum of 30 credits. The most important component of the PhD education is an independent piece of research carried out under active academic supervision.

The PhD degree is awarded on the basis of:

- An approved academic thesis
- Approved completion of the required coursework or other academic training
- An approved trial lecture on an assigned topic
- An approved public defence of the PhD thesis (disputation)

#### **Section 3 Responsibility for the PhD education**

The Board of NTNU has the overall responsibility for the PhD education offered at the institution. The education is organized as programmes of study managed by the faculties.

The Rector establishes PhD programmes based on proposals from the faculties and at the same time stipulates which faculty is to administrate the programme (the host faculty). PhD programmes can be established in cooperation between several faculties and with Norwegian or international research institutions.

When a PhD programme is created in cooperation between several faculties, a programme council is to be appointed with representatives from the participating faculties. The programme council submits a recommendation to the host faculty regarding admission of candidates, recognition of education, the programme description and course descriptions.

The Faculty that administers the PhD programme is to approve the programme description and the course descriptions.

## **Section 4 Quality assurance**

The PhD education is covered by NTNU's quality assurance system. NTNU's common standard for PhD education is to constitute the basis of a Faculty's quality assurance system.

# **Part II ADMISSION**

## **Section 5 Admission**

### **Section 5.1 Conditions of admission**

In order to be admitted to a PhD education, applicants must normally have completed at least five years of higher education that includes a master's degree, cf. the descriptions in the second cycle of the national qualifications framework. Based on a special assessment, the Faculty may approve other, comparable qualifications as the basis for admission. A Norwegian experience-based master's degree (90 credits) by itself does not provide the basis for admission. The Faculty may set further qualification requirements based on criteria that are publicly available and in keeping with NTNU's recruitment policy and academic profile.

Applicants must have a strong academic record from their previous studies, and must have a weighted average grade for the last two years of their master's or equivalent education (equivalent to 120 credits) of B or higher in terms of NTNU's grading scale. Applicants with no letter grades from previous studies must have an equally good academic foundation. Applicants who are unable to meet these criteria may be admitted only if they can document that they are particularly suitable candidates for education leading to a PhD degree.

### **Supplementary guidelines at The Faculty of Medicine (DMF)**

**Documented research experience with excellent results in the form of publications may contribute to the suitability of the applicant despite grades lower than a B. Other conditions documenting suitability may be assessed.**

### **Section 5.2 Application**

NTNU determines the content of the application form. Applications are to be submitted to the Faculty through the Department, and are to contain:

- documentary evidence of the educational qualifications on which admission is to be based

- a preliminary description of the project, including an academic outline of the project and the planned schedule
- documentation of funding
- documentation of specific needs for academic and material resources
- any plans for residence at another institution
- a plan for academic dissemination
- details of any restrictions related to intellectual property rights, to protect the rights of others
- a plan for the required coursework or other academic training
- proposed main supervisor and co-supervisors and their association with an active research environment
- description of any legal or ethical issues raised by the project and how these can be resolved. The application must state whether the project is dependent on permission granted by committees on research ethics or other authorities or by individuals (research subjects, patients, parents, etc.). If possible, such permission should be obtained in writing and be attached to the application.

The Faculty may specify requirements for further documentation.

As soon as possible, the candidate and the main academic supervisor must review the project description and assess the need for adjustments. The complete project description is to be available no later than six (6) months after admission and is to provide details of the subject, the research questions addressed, theory and method as well as an assessment of the risk associated with the project.

### **Supplementary guidelines at DMF**

#### **The application must be accompanied with a complete project description**

The faculty does not accept preliminary project descriptions. The project description must include:

1. Title
2. Background to the project. References to international works must be present.
3. Purpose of the project.
4. Material and methodology. Describe specifically what will be measured in terms of both qualitative and quantitative data. Describe and justify the reasons for the research method.
5. Specification of components. Describe the individual components included in the doctoral project.
6. Timetable. Create a timetable for the PhD project, specify when the various phases will be carried out, specify milestones and plan ahead until the thesis is submitted. Ideally a publication plan should be included.
7. Funding plan
8. Ethical assessments

#### **The application must be accompanied by a supervisor statement**

In the supervisor statement, the supervisors must describe the project's place in the research group, any project cooperation with others and other factors in addition to what is described in Section 5.2, as well as DMF's

It must also contain a brief supervisor CV with an overview of previous and current supervision assignments.

As a rule, an application for admission to a PhD programme must be submitted within three (3) months of the start-up of the research project that will lead to award of the PhD degree. If less than one (1) year of full-time work on the research project remains at the time of submission of the application, the application is to be rejected; cf. Section 5.5. Special rules apply to applicants from the medical student research programme at the Faculty of Medicine and corresponding programmes of study.

### **Supplementary guidelines at DMF**

#### **Special information for applicants with a background in the Forskerlinjen research programme**

Applicants with a background in the medicine Forskerlinjen research programme at one of the four research programmes in Norway are allowed to have less than one year's full-time work still to complete with the research project at the time of application when they are continuing with the same project as in the Forskerlinjen research programme.

Candidates from the Forskerlinjen research programme that are continuing their research project after having left a cand.med. degree must apply for admission within three (3) months of starting the continuation of the project.

#### **Admission procedures**

Applications must be sent to the department associated academically with the candidate and main supervisor. The department quality assures the formal aspects of the application. The application is forwarded to the programme council for the PhD programme for which admission is sought. The programme council will carry out a professional assessment of the application and recommend or refuse admission. The Dean shall make the final decision on admissions. DMF processes admissions applications continuously.

### **Section 5.3 Residency requirement**

Candidates with external funding or an external workplace must reside at NTNU for at least one year of their PhD education. The main supervisor has the task of ensuring that this residency requirement is met. A reduction in the residency requirement is possible in special cases, but the proposed solution must fulfil the academic requirements for supervision and NTNU's desire for the candidate to contribute to the institution's academic development and environment. A statement from the main supervisor and the Department must accompany an application for a reduction in the residency requirement.

### **Supplementary guidelines at DMF**

The residence requirement may be enforced at all healthcare providers in the Central Norway Regional Health Authority where there is an active research

## Section 5.4 Infrastructure

The necessary infrastructure to carry out the research project is to be available for the candidate. The decision about what is necessary infrastructure for carrying out the work is to be made by the Faculty. For candidates with external funding or an external workplace, an agreement must be entered into between the Faculty and the external party in connection with the research project concerned. As a rule, the agreement must be signed before the formal admission of the candidate or shortly thereafter.

## Section 5.5 Admission decision

The decision concerning admission is made by the Faculty and is based on an overall evaluation of the application. The Faculty may specify criteria for the ranking of qualified applicants and restriction of admission when the number of applicants exceeds the capacity.

The decision is to include appointment of the main supervisor and co-supervisor(s), assignment of responsibility for dealing with other needs outlined in the application, and specification of the starting and completion dates in the agreement period. The starting date will be the same as the date when the candidate's funding begins. Any extension of the agreement period must be related to the rights of employees, and must be specifically clarified in relation to the candidate's basis for funding.

Admission is to be refused if:

- agreements with external third parties impede public availability and the public defence of the PhD thesis
- the intellectual property rights agreements that have been entered into are so unreasonable that the institution should not be involved in the project
- the applicant will not be able to fulfil the requirement that a minimum of one year of the project is to be completed after the candidate has been admitted to the PhD education; cf. Section 5.2.

## Section 5.6 Agreement period

The PhD education has a nominal duration of 3 (three) years of full-time study. The maximum period of study is six (6) years from the starting date to the date on which the thesis is submitted. Any leaves of absence, lengthy periods of absence due to illness, required duties and approved part-time study are not to be included in this 6-year period.

If the candidate's period of study is interrupted due to authorized reasons, the agreement period is to be extended correspondingly.

If the maximum period of study is exceeded, the candidate loses the right to defend his or her thesis. The Faculty is to decide whether or not the maximum period of study has been exceeded. If an application explaining the reasons for the delay is received, the Faculty may extend the agreement period. If an extension of the agreement period is approved, the Faculty may specify additional terms and conditions.

When the agreement period ends, so do the parties' rights and obligations in accordance with the PhD agreement. This means that the PhD candidate may lose his or her right to academic supervision, participation in courses, and access to the institution's infrastructure. However,

the candidate may apply for permission to submit his or her thesis for assessment for the PhD degree. Each application is to be decided by the Faculty.

### DMF's supplementary guidelines

The agreement period for the PhD agreement is always the same as the agreement period for funding doctoral training, normally funded by NTNU or another institution.

When extending the agreement period for funding, the agreement period for the PhD training is also extended.

If the candidate is not ready by the time the agreement period expires, the right to supervision, work place and other infrastructure lapses, unless otherwise agreed. The candidate still retains their right to study for up to a maximum of six years.

## Section 5.7 Termination prior to expiry of the agreement period

### *Voluntary termination:*

The candidate and the Faculty may agree on termination of the PhD education prior to expiry of the agreement period. In the event of voluntary termination of the PhD education, all issues regarding the terms and conditions of employment, funding, and the intellectual property rights to the results and similar issues must be specified in writing.

In the case of voluntary termination resulting from the candidate's wish to change the project or transfer to another programme, the candidate must submit a new application based on the new project. The change of project must be approved by all external sources of funding.

### *Enforced termination:*

The Faculty may decide on enforced termination of a candidate's participation in the PhD education prior to expiry of the agreement period. Enforced termination can be decided if one or more of the following conditions are met:

- Considerable delay in carrying out the required coursework or other academic training, due to factors over which the candidate has control.
- Repeated or grave violations of the candidate's obligations to provide information, meet commitments, or report on the project, including failure to submit a progress report; cf. Section 9.
- Delay in the progress of the research project to such an extent that it creates reasonable doubt as to whether the candidate will be able to complete the project in the agreed time. Such delays are considered grounds for enforced termination if they are due to factors over which the candidate has control.
- Breach of the ethical research guidelines that apply to the subject area, including academic misconduct.
- Behaviour by a candidate that breaches the trust that must exist between the university and the candidate during the PhD education. This includes punishable conditions that are connected to the completion of the PhD education.

It is the responsibility of the Faculty to take the decision to impose enforced termination.

PhD candidates may be dismissed from their position when there are justifiable grounds for doing so in relation to the organization or the employee concerned, cf. Sections 8, 9 and 10 of the Civil Service Act, or may be summarily discharged under the provisions of Section 15 of the same Act.

## Section 6 The PhD agreement

Admission to NTNU's PhD education must be formalized in a written agreement signed by the PhD candidate, the academic supervisors and the Faculty to which the candidate has been admitted. The agreement governs the rights and obligations of the parties during the period of admission and is intended to ensure that the candidate participates on a regular basis in an active research group and that he or she is able to complete the PhD education within the agreement period. NTNU is responsible for creating a standardized contract for this purpose.

For PhD candidates with funding from an external party, employment at an external party or receiving other contributions from an external party, a separate agreement must be entered into between the candidate, the institution and the external party. This is to be formalized in accordance with the established guidelines at NTNU.

If the PhD candidate is to be affiliated with an institution outside Norway, NTNU's guidelines for such cooperation must be followed and separate agreement(s) must be entered into. As a general rule, such agreement(s) must be attached to the PhD agreement.

## PART III PHD TRAINING

### Section 7 Academic supervision

Work on a PhD thesis is to receive individual supervision from an academic supervisor. The Faculty, the Department and supervisors must together ensure that the PhD candidate participates in an active research environment.

#### Section 7.1 Appointment of academic supervisors

The Faculty appoints academic supervisors. As a general rule, the PhD candidate is to have at least two academic supervisors, of which one will be designated as the main supervisor. The main supervisor must be appointed at the time the candidate is admitted.

*The main supervisor* has the primary academic responsibility for the candidate. If the Faculty appoints an external main supervisor, a co-supervisor who is an academic staff member at NTNU is to be appointed.

*Co-supervisors* are experts in the field who provide academic supervision and who share the academic responsibility for the candidate with the main supervisor.

The provisions on impartiality in the Public Administration Act Chapter II concerning disqualification (Sections 6 to 10) apply to the academic supervisors and appointed mentors.

All academic supervisors must hold a doctoral degree or equivalent qualification in the relevant research field and must be working actively as researchers. At least one of the appointed supervisors must have previous experience or training in academic supervision of PhD candidates.

In addition, the Faculty may appoint one or more mentors who do not meet the qualification requirements for supervisors, but who still provide supervisory assistance.

The PhD candidate and academic supervisor may ask the Faculty to appoint another supervisor for the candidate. The supervisor may not withdraw before a new supervisor has

been appointed. Any disputes regarding the academic rights and obligations of the supervisor and of the candidate are to be referred by these parties to the Faculty for review and a final decision.

## Supplementary guidelines at DMF

At least two supervisors are always required – one main supervisor and at least one co-supervisor. All supervisors must be nominated in the admission decision.

### Section 7.2 Content of the academic supervision

The supervisors are to give advice on formulating and delimiting the thematic area and research questions, discuss and assess hypotheses and methods, discuss the results and the interpretation of these, discuss the structure and work on the thesis, including the outline, choice of language, documentation, etc., and provide guidance on the academic literature and data available in libraries, archives, etc. The supervisors must also advise the candidate on issues related to research ethics in connection with the thesis.

The candidate must have regular contact with his or her supervisors. The frequency of contact between the parties is to be stated in the annual reporting of progress; cf. Section 9.

The candidate and supervisors have a mutual obligation to keep each other informed about the progress of the work and to assess it in relation to the project description.

The supervisors are required to follow up academic issues that may cause a delay in the progression of the candidate's PhD education, so that it can be completed within the nominal period of study.

## Supplementary guidelines at DMF

In addition to the above, supervision at DMF must include:

- The division of responsibility between supervisors must be clear
- Joint meetings between the candidate and all supervisors must be held at the start and subsequently as necessary.
- The supervisors must introduce the candidate to the academic environment in question, internally, externally and internationally.
- The supervisors must ensure that the candidate actively participates in the research group/research environment.
- The supervisors must ensure that the Norwegian Health Research Act (*Helseforskningsloven*) is complied with and that NTNU's rules on research principal, project leader and project team are followed.

### Section 8 Required coursework or other academic training

#### Section 8.1 Purpose, content and scope

The PhD education is to be designed in such a way that candidates are able to complete their studies within the nominal period of study.

The Faculty is responsible for ensuring that the required coursework or other academic

training and the work involved in the PhD thesis constitute an education at a high academic level and are in accordance with international standards. The required coursework or other academic training must include the completion of an independent piece of academic work, training in scientific and academic dissemination and an introduction to research ethics, the philosophy of science and scientific methods. The required coursework or other academic training, together with the research project, must be designed to achieve the anticipated learning outcome in accordance with the national qualifications framework.

The required coursework or other academic training must be equivalent to at least 30 credits, of which, as a general principle, at least 20 credits must be completed following admission to the PhD education. At least 20 credits are to be taken in established PhD level courses. If a master's course is to be included in the required coursework or other academic training, the passing grade is equivalent to B or higher in terms of NTNU's grading scale. A candidate who has passed the examination in a course with a grade lower than B is only entitled to retake the examination in this course once in order to improve his or her grade.

Elements that are to be included as part of the required coursework or other academic training may not have been completed more than two (2) years prior to the date of admission.

Exemption may be granted if there are special academic grounds for this. For PhD candidates with backgrounds from the medical student research programme at the Faculty of Medicine, special rules apply.

The Faculty stipulates which elements may be included in the required coursework or other academic training, the requirements for documentation, and the criteria for passing examinations. If NTNU does not offer all the required coursework or other academic training, the Faculty is to arrange for the candidate to receive equivalent courses or training at other institutions.

Courses at doctoral level at another institution must be approved when they are to meet the academic requirements of the required coursework or other academic training under the provisions of Section 3-5 of the Act relating to Universities and University Colleges.

As part of the PhD education, PhD candidates are to receive advice on future professional and occupational prospects within and outside academia. This is also to increase their awareness of the expertise that they have acquired during their research work.

## Supplementary guidelines at DMF

The training component must be relevant to the research project, thematically or methodically.

The plan for the training component must be specified in the admission application.

If the candidate wishes to make changes during the doctoral training, they must apply for the right to do so. It must be specified which elements are to remain and which elements they want to remove from the plan. Applications for changes must be sent to the home department.

### Compulsory courses

A basic course with a minimum of 8 credits (and maximum of 10 credits) basic course in scientific theory, ethics and communication of research findings is compulsory for all candidates. The compulsory courses are:

Introduction to research (SMED8004)	5 credits
Communication of science (SMED8005)	3 credits

The faculty reserves the right to make minor changes to the scope and content of the compulsory courses from one study year to the next.

Other courses may be made compulsory for the specific candidate.

In its admission decision, the faculty may require the candidate to include specific courses in their training component, even if the courses were not proposed by the applicant or supervisor. This applies where the faculty assesses that the candidate should take the course in light of the candidate's background and the themes and/or methodology of the project.

### More detailed information on 20 credits which need to be completed after admission according to the main regulation

Courses that are completed at the same time as the admission application is being processed

will be considered to be taken after admission, even if the exam is held before the faculty's final decision on admission is made. In this instance a complete admission application must be submitted before the exam is held.

**More information on the time limit of two years for courses already completed** Courses taken more than two years ago on the date of admission may be approved if the course is still offered by the university and the

academic content of the course has remained unchanged. Regardless of whether the content of the course is still relevant, dispensation may only be given for a maximum time limit of five years.

**Exceptions for applicants with a background in the medicine Forskerlinjen research programme**

Applicants with a background in the medicine Forskerlinjen research programme have completed the training component before applying for admission to the PhD study and are exempt from the rule that 20 credits must be taken after admission. They are also exempt from the two-year limit rule on courses at the date of admission. Applicants with a background in the Forskerlinjen research programme can also be made to take new courses if there is an academic basis in relation to the learning objectives for the PhD and the themes and/or methodology of the project. An assessment of this will be made in connection with admission.

### **More detailed information on 20 credits in courses at PhD level**

#### **NTNU courses:**

PhD courses at NTNU can be specified with the course code (8000-subject)

#### **External courses:**

Courses at doctoral level at other institutions, both nationally and internationally, may be incorporated into the training component. The faculty takes a positive line on PhD courses being taken at other national and foreign educational institutions.

An application to incorporate external courses must provide a description of the course detailing programme, academic content, course literature and information on how the course is examined. Credits are calculated according to ECTS, which corresponds to 25–30 hours of work for each credit. For full-time candidates, the workload is considered to include time to acquire material, homework, assignments, tuition, group work, practicals and exams.

Supervisors must approve the application for incorporation.

The programme council assesses applications for incorporating external courses. If the external course is approved, the candidate must submit a course certificate once the course has been completed.

### **More detailed information on 10 credits in courses other than PhD courses**

Up to 10 credits may be taken from courses other than PhD courses. These may include Master's level courses, individual reading lists, communication papers or research visits abroad. More detailed information on the individual courses:

#### **Master's level courses**

Up to 10 credits may be approved if these are assessed with a minimum grade of B or a pass grade.

#### **Individual reading lists**

Up to 5 credits may be approved.

For subjects without a specific course offering, individual reading lists may be approved as part of the training component. Credits are calculated according to ECTS, which corresponds to approx. 25–30 hours of work for each credit, including all the time the candidate is expected to spend on acquiring material, homework, assignments, tuition, group work, practicals and exams. Course assessments on the reading list must be arranged in accordance with prevailing applicable rules for exams/course assessments at NTNU.

### **Communication of research findings**

Up to two papers and 4 credits may be approved through communication performed during the doctoral training or which has been carried out during the medicine Forskerlinjen research programme. Communicating the same results several times only provides credits once.

The following communication activities may be approved:

- Poster or oral presentation of results from own PhD project at an international conference: 2 credits per presentation
  - Poster or oral presentation of results from own PhD project at a national conference: 1 credit per presentation.
- Popular science communication of results from own PhD project: 1 credit per presentation

Documentation of the communication and confirmation that it was performed at the conference must be included. The documentation must be signed by the supervisor and the candidate.

### **Research visits abroad**

Up to 6 credits may be approved for research visits abroad of a continuous duration of at least two weeks. 1.5 credits are awarded for each week. The research visit must be carried out in the doctoral period.

An invitation letter from the department and an academic report signed by the supervisor and the candidate following the visit must be submitted.

### **Section 8.2 The candidate's rights in the event of leave of absence**

PhD candidates with parental leave from the PhD education may still attend classes and sit for examinations in courses that will be included as part of the candidate's required coursework or other academic training during the leave period, under the provisions of Chapter 14, Section 14-10, fourth subsection, of the National Insurance Act and the circular from the Norwegian Labour and Welfare Administration regarding Section 14-10, fourth subsection, of 18 December 2006, last amended on 30 June 2009.

## **Section 9 Reporting**

During the agreement period, the PhD candidate is to submit reports in writing to the Faculty every year describing his or her progress in the PhD education. Every year, the supervisors submit a separate report to the Faculty and the Department. The reports must be written using the prescribed forms and must be kept confidential when the information warrants this.

The candidate and the supervisor have equal responsibility for submitting the required reports. A lack of, or inadequate, progress reports from the candidate may result in enforced termination of the candidate's participation in the PhD education prior to expiry of the agreement period; cf. Section 5.7. Supervisors who fail to comply with the reporting requirements may be relieved of their supervisory duties.

The Faculty may establish special reporting requirements, if needed.

### **Supplementary guidelines at DMF**

The faculty carries out its reporting through midway assessments. All candidates must complete a midway assessment, preferably in the third term. The midway assessment gives the candidate the opportunity to receive feedback on their work so far and to specify the work further. The midway assessment also gives the department the opportunity for structured follow-up of the candidate and to bring up potential situations that require follow-up. A detailed description of the content of the midway assessment has been prepared.

In addition to the midway assessment, the candidate and supervisor may be asked to report on the status and progress of the doctoral project by the faculty or department.

## **Section 10 The PhD thesis**

### **Section 10.1 Thesis requirements**

The thesis is to be an independent piece of academic work that meets international standards with regard to ethical requirements, academic standards and method in the subject area.

The thesis must contribute to the development of new scientific knowledge and must achieve a level meriting publication as part of the literature in its field.

A thesis cannot be submitted as joint work by more than one candidate.

The thesis may consist of a monograph or a compendium of several shorter scientific or academic papers. If the thesis consists of several shorter papers, clarification about how they are interrelated must be included.

If a paper has been produced in cooperation with other authors, the PhD candidate must follow the norms for co-authorship that are generally accepted in that field and are in accordance with international standards. If the thesis consists primarily of papers, the candidate must normally be the main author or first author of at least half the papers.

A thesis containing papers written by more than one author must include a signed declaration that describes the contribution of the candidate and the co-authors of each of the papers. It must be possible to identify the candidate's independent contribution in the work.

The Faculty decides which languages a thesis is to be written in.

## Supplementary rules at DMF

The PhD thesis must normally be written in English.

The scope of the thesis must be such that the degree can be awarded with a research contribution equivalent to 2.5 years of full-time work (0.5 years of full-time work = training component). The doctoral thesis should normally consist of three (3) scientific articles/manuscripts publishable in international journals with peer reviews. The doctoral candidate should as a rule be the primary author of at least two (2) articles/manuscripts. If the candidate is not the primary author, they should have made a considerable contribution.

When submitting the thesis, at least one (1) of the articles included must have been finally accepted for publication. Other manuscripts must be publishable in international journals with peer reviews.

The number of articles will depend on the quantity and quality of the individual article and how much the candidate has contributed. If the candidate has made an unusually high contribution to an article and/or the article is of a very high quality, the number of articles may be reduced.

In addition to individual articles, the thesis must include an overall presentation of the scientific results with an in-depth comparative discussion. This entire presentation must be an independent scientific and updated document, where the candidate has the opportunity to elaborate on and potentially correct aspects in the articles. It must demonstrate a scientific overview and maturity and the ability to go into specialised scientific problems.

Unpublished monographs may also be approved as a thesis for a PhD degree. Unpublished monographs must be assessed according to the same criteria as a collection of published articles with compilation. This means that the requirements for scientific quality are identical.

## Section 10.2 Work that may not be submitted

Work or parts of a work that has been approved as the basis for previous examinations or degrees may not be submitted for assessment. However, data, analyses or methods from previous degrees may be used as the basis for work in the PhD project.

Published papers cannot be approved as part of the PhD thesis if there is more than five (5) years from the date of publication to the date of the candidate's admission. The Faculty may grant exemptions from this requirement if this is warranted by special circumstances.

The thesis may be submitted for assessment to only one educational institution; cf. Section 13.1.

## Supplementary guidelines at DMF

The rules in Section 10.2 do not prevent articles or manuscripts that have been

prepared by several candidates jointly from being included as a component in several doctoral theses once the individual candidate's contribution has been identified.

## Section 11 Obligation to report on research results with commercial potential

The intellectual property rights of cooperating institutions must be regulated in a separate agreement.

When a PhD candidate is employed at NTNU, NTNU's regulations that are in force form the basis for the candidate's obligation to report on research results with commercial potential that are produced during the employment relationship.

For PhD candidates with an external employer, a corresponding obligation to report such results must be stipulated in an agreement between the institution, the PhD candidate, and the external employer.

For PhD candidates without an employer, a corresponding obligation to report results must be stipulated in the admission agreement between the institution and the PhD candidate.

## PART IV COMPLETION

### Section 12 Assessment

#### Section 12.1 Basis for the assessment

The PhD degree is to be awarded on the basis of:

- an approved and published academic thesis
- approved completion of the required coursework or other academic training
- an approved trial lecture on an assigned topic
- an approved public defence of the PhD thesis (disputation)

#### Section 12.2 Time from submission to public defence of the thesis

The Faculty must try to ensure that the time between submission of the thesis for assessment and its defence is as short as possible. Normally, this period must not exceed five (5) months.

It is the responsibility of the main academic supervisor to notify the Department and the Faculty that the thesis will be submitted soon, so that the necessary preparations can begin.

#### Supplementary guidelines at DMF

Notification of forthcoming submission is provided as early as possible to the department and the faculty's study section. Appointing the assessment committee and work with tentative dates for the doctoral viva will then begin.

Applications to have a thesis assessed are processed continuously. Theses submitted between 20 June and 1 August will not normally be sent for assessment before the beginning of August.

## Section 13 Submission

### Section 13.1 Submission of the PhD thesis

The application for assessment of the thesis may be submitted only after the required coursework or other academic training has been approved.

The following documents must be enclosed with the application:

- The thesis prepared in the approved format and in accordance with NTNU's rules, in the form and with the number of copies stipulated by the Faculty.
- Documentation of required permission; cf. Section 5.1.
- Declarations from co-authors where required in terms of Section 10.1.
- Statement specifying whether the doctoral work is being submitted for assessment for the first or second time;
- Statement that the doctoral work has not been submitted for assessment at another institution.
- Statement from the main supervisor

The Faculty may make an independent decision to reject an application for assessment of the PhD thesis if it is evident that the thesis does not meet sufficiently high standards of scientific quality and that it would be rejected by a committee. The PhD candidate may lodge an appeal against a rejection decision with the University Appeals Committee at NTNU.

The PhD thesis must be made available to the public no later than three weeks before the public defence; cf. Section 18.2.

### Supplementary guidelines at DMF

The study section provides documentation of approved training components

on request. Applications for assessment must be sent to the home

department. The thesis must be submitted electronically and as four paper copies. Declarations must be submitted on standardised forms. The main supervisor's statement must give an account of the candidate's doctoral work the candidate's experience of communicating research findings.

### Section 13.2 Assessment of the application

The Faculty evaluates the application for assessment of the PhD thesis. Applications that do not fulfil the requirements stated in Section 13.1 will be rejected.

## Section 14 Appointment of an assessment committee

When the Faculty has approved an application for assessment of a PhD thesis, the Faculty is to appoint an expert committee of at least three members who are to assess the thesis, the trial lecture, and the public defence. At the same time, the Faculty sets a deadline for the report from this committee. Normally, the deadline must not exceed three (3) months.

The provisions applicable to partiality in Section 6 of the Norwegian Public Administration

The composition of the committee should be decided at the time of submission of the thesis.

The composition of the assessment committee is normally to be such that:

- both genders are represented
- at least two of the members are from outside NTNU
- the main position of at least one member is at an institution outside Norway
- all the members hold doctoral degrees or equivalent qualifications

If these criteria are not met, an explanation stating the grounds for this must be provided.

The Department proposes the assessment committee. The proposal is to include the reasoning behind the composition of the committee with regard to how the committee as a whole covers the field(s) addressed in the thesis. The Faculty designates a chairperson from among the committee members or in addition to the committee members.

The appointed supervisors may not be members of the assessment committee or administrate its activities.

If a member withdraws from the committee, the Faculty may appoint an alternative member to the assessment committee.

The candidate will be notified of the proposal for the composition of the committee, and he or she may submit written comments no later than one week after the proposal has been made known to the candidate.

### **Supplementary guidelines at DMF**

- The motion to the assessment committee will be prepared by the candidate's main supervisor in consultation with the department. The standardised form, signed by the head of department, must be submitted to the faculty no later than at the same time as the application for assessment.
- One of the members must be employed at NTNU.
- A chairperson/administrator must be proposed by the committee, usually the local representative.
- Both genders must be represented in the committee either as the first or second opponent.

If this is not possible, this must be explained and the names of at least three persons asked from the under-represented gender must be given.

- There must be no doubt of the members' impartiality in relation to the candidate for a doctorate or the candidate's supervisors.
- In evaluating the impartiality of the committee members, joint publishing with a candidate for a doctorate must always be evaluated as bias as must joint publishing with the candidate's supervisors in the period the doctorate project is carried out. Reference is otherwise made to Chapter II, Sections 6–10 of the Norwegian Public Administration Act, on disqualification.
- An opponent can only be nominated for a maximum of two candidates with the same main supervisor within a period of five years.

- The proposed members must be asked and have agreed before the motion is submitted to the faculty.

## **Section 15 Activities of the assessment committee**

### **Section 15.1 Gathering of supplementary information**

The Faculty must ensure that the committee members receive NTNU's "Guidelines for the Evaluation of Candidates for Norwegian Doctoral Degrees".

The assessment committee may require presentation of the PhD candidate's source material and additional information for the purpose of supplementation or clarification.

The assessment committee may ask academic supervisors to provide information about the supervision carried out and the work involved in the thesis.

### **Section 15.2 Revision of a submitted thesis**

On the basis of the submitted thesis and any additional material, cf. Section 15.1, the assessment committee may recommend that the Faculty permits the candidate to make minor revisions to the thesis before the committee submits its final report. The committee is to provide a written list of the specific items that the candidate must revise.

If the Faculty allows minor revisions to the thesis, a deadline normally not exceeding three (3) months is to be set for completing such revisions. A new deadline for submission of the committee's final report must also be set. The Faculty's decision pursuant to this paragraph may not be appealed by the PhD candidate.

If the assessment committee finds that extensive changes related to the theory, hypothesis, material or methods used in the thesis are needed in order to deem the thesis worthy of a public defence, the committee must reject the thesis.

### **Section 15.3 Report of the assessment committee**

The assessment committee determines whether or not the thesis is worthy of being defended for the PhD degree. The decision presented in the report and any dissenting views must be explained.

The assessment committee's report should be submitted no later than three (3) months after the date on which the committee received the thesis. If the committee recommends revision of the thesis and the Faculty allows this, a new time limit runs from the date on which the thesis was resubmitted.

The assessment committee's report is submitted to the Faculty, which forwards the report to the PhD candidate. The candidate is given ten (10) working days in which to submit written comments to the report. If the candidate does not wish to submit comments, he/she must notify the Faculty of this in writing as soon as possible.

Any comments from the PhD candidate must be sent to the Faculty. The Faculty is responsible for taking the final decision on the matter in accordance with Section 16.

### **Section 15.4 Correction of formal errors in the thesis**

Once submitted, a thesis cannot be withdrawn until a final decision has been reached as to

The PhD candidate has the opportunity to correct formal errors in the thesis after submission. The candidate must then prepare a complete list of the errors (errata) that he/she wishes to correct and submit this at the latest four (4) weeks before the committee's deadline for submission of its report. Correction of formal errors may take place only once.

### **Supplementary guidelines at DMF**

**The errata list must specify page numbers as well as reproducing the original text and new text desired to replace it. If the corrections are approved, the errata list with the faculty's approval will be given to the committee. The errata list must not be printed in the thesis.**

## **Section 16 The Faculty's procedures related to the assessment committee's report**

On the basis of the report by the assessment committee, the Faculty decides whether or not the PhD thesis is worthy of a public defence.

### *Unanimous committee decision*

If the committee's report is unanimous and the Faculty finds that the report should be used as the basis for its final decision, the Faculty will take the final decision in accordance with the committee's report.

If the Faculty finds that there are grounds to doubt whether the committee's unanimous report should be used as the basis for its final decision, the Faculty must request further clarification from the assessment committee and/or appoint two new experts to make individual statements about the thesis. Such additional clarification or individual statements must be presented to the PhD candidate, who will be given the opportunity to make comments.

The Faculty is to take the final decision on the matter on the basis of the committee's report and the statements obtained.

### *Non-unanimous committee decision*

If the committee's recommendation is non-unanimous and the Faculty decides to use the majority's recommendation as the basis for its final decision, the Faculty is to take the final decision in accordance with the majority's recommendation. If the committee's recommendation is non-unanimous and the Faculty considers using the statements of the minority as the basis for its final decision, the Faculty may seek further clarification from the assessment committee and/or appoint two new experts to give individual statements about the thesis. Such additional clarification or individual statements must be presented to the PhD candidate, who will be given the opportunity to make comments. If both the new experts agree with the recommendation of the majority in the original committee's recommendation, this recommendation is to be followed.

The candidate will be informed of the outcome after procedures related to the statements by the new experts have been completed.

## **Section 17 Resubmission**

A PhD thesis that has not been found worthy of public defence may be resubmitted for

assessment in revised form no earlier than six (6) months after the Faculty has made its decision. The Faculty then appoints a new assessment committee, in which at least one of the members of the original committee should be reappointed. A PhD thesis may only be reassessed once.

In the event of resubmission, the PhD candidate must clearly state that the thesis was assessed previously and was not found worthy of a public defence.

## **Section 18 Public availability of the thesis**

### **Section 18.1 Requirements related to the printed thesis**

When the thesis has been found worthy of a public defence, the PhD candidate must submit the printed thesis to the Faculty in the approved format and in accordance with NTNU's rules, with the number of copies determined by the Faculty.

The PhD candidate must submit a short summary of the thesis to the Faculty in English and in Norwegian. If the thesis is not written in English or Norwegian, the candidate must also submit a summary in the language in which the thesis is written. Both the thesis and the summary must be made available to the public. The Faculty is responsible for ensuring that this takes place.

#### **Supplementary guidelines at DMF**

The printing costs must primarily be covered by the candidate's resources or by the candidate himself/herself.

The faculty does not approve printed theses that deviate from NTNU's standard template unless the candidate has a cotutelle agreement or is enrolled in a joint PhD programme with another university which renders this necessary. In which case, the layout of the thesis must be agreed with the faculty and the affiliated university beforehand.

#### **Summary**

The front of a printed edition of the thesis (or title page) must include a summary in Norwegian of up to one A4 page. The summary must be of a popular scientific

nature and must primarily present the results of the research work. This is to be followed by a brief discussion of the background and structure of the research project as well as briefly describing the methodology. Specify the Norwegian title of the thesis as a heading and specify at the end the time and location of the presentation of the thesis, name of the degree, department affiliation, supervisors and any sources of funding.

#### **NTNU's digital archive**

All doctoral candidates must submit an electronic copy of their doctoral thesis to the library for archiving and electronic publication. This is in addition to submitting printed copies. It will be possible to reserve the right to refuse electronic publication but the thesis must nevertheless be submitted in electronic format for archiving in NTNU's digital archive DIVA.

## Section 18.2 Public availability

The thesis must be made available to the public no later than three (3) weeks prior to the date of the public defence. The thesis should be made available in the form in which it was submitted for assessment, or following revisions made on the basis of the committee's preliminary comments; cf. Section 15.2.

No restrictions may be placed on a PhD thesis being made publicly available, with the exception of a previously arranged delay in the date of public access. Such a delay may be permitted to allow the institution and any external party that has provided full or partial funding for the PhD education to consider potential patents. An external party may not require that all or part of a PhD thesis be withheld from the public domain; cf. Section 5.5.

When publishing the thesis, the candidate must follow the applicable guidelines on the crediting of institutions. As a general rule, an institution must be listed as the address in a publication if the institution has made a necessary and substantial contribution or laid a foundation for an author's contribution to the published work. The same author must also list other institutions as the address if, in each case, these fulfil the requirement related to the institution's contribution.

## Section 19 Doctoral examination

### Section 19.1 The trial lecture

Before the public defence can take place, cf. Section 15, the PhD candidate is to deliver a trial lecture. The trial lecture is an independent part of the examination for the PhD degree and is held on an assigned topic. The purpose is to test the candidate's ability to acquire knowledge beyond the topic of the thesis and to impart this knowledge in a lecture setting.

The assessment committee specifies the topic for the trial lecture, and undertakes the assessment itself. The PhD candidate is to be notified of the title of the trial lecture ten (10) days prior to the lecture. The topic of the lecture must not have a direct connection to the topic of the thesis.

The trial lecture must be held in the language in which the thesis is written, unless the Faculty approves the use of another language.

The assessment committee is responsible for determining whether the trial lecture is approved or not. If the trial lecture is not approved, an explanation must be provided.

The trial lecture must be approved before the public defence can be held.

#### Supplementary guidelines at DMF

A trial lecture will normally be held on the same day as the presentation of the thesis. The test lecture will last for 45 minutes, of which five minutes will be used for questions and any discussion.

### Section 19.2 Public defence of the thesis (disputation)

The public defence of the thesis must take place after the trial lecture has been held and approved, and no later than two (2) months after the institution has found the thesis to be worthy of a public defence.

The time and location of the public defence must be announced at least ten (10) working days in advance.

The committee that originally assessed the PhD thesis must also assess the public defence. The public defence must be held in the language used in the thesis, unless the Faculty, on the recommendation of the assessment committee, approves the use of a different language.

There are normally to be two opponents. The two opponents must be members of the assessment committee and are appointed by the Faculty.

The public defence will be chaired by the Dean, or by the person authorized by the Faculty. The chair of the defence provides a brief account of the submission and the assessment of the thesis. The PhD candidate then explains the purpose and results of the scientific investigation.

The first opponent opens the discussion and the second opponent concludes the opposition. Other people present who wish to participate in the discussion (*ex auditorio*) must give notice of this to the chair of the defence within the time limit that the chair specifies and announces at the start of the defence.

The assessment committee submits its report to the Faculty in which it explains how it has assessed the public defence of the thesis. In the report, the thesis is to be considered in relation to international standards in the subject, with a conclusion stating that the defence should be approved or not approved.

### **Supplementary guidelines at DMF**

The presentation of the thesis will be led by the Dean or a representative of the Dean. The candidate commences proceedings and describes the purpose and results of the scientific investigation. The introduction will last 20–30 minutes. The first opponent begins the discussion and the second opponent concludes the discussion.

## **Section 20 Approval of the doctoral examination**

The Faculty takes the decision about the approval of the doctoral examination on the basis of the assessment committee's report.

If the assessment committee does not approve the trial lecture, a new trial lecture must be held. The new trial lecture must be held on a new topic and not later than six (6) months after the first attempt. A new trial lecture may only be held once. As far as possible, the lecture must be assessed by the same committee that assessed the original lecture, unless the Faculty decides otherwise.

If the Faculty does not approve the public defence, the PhD candidate may defend the thesis once more. The Faculty sets the time for the new public defence. If possible, the defence is to be assessed by the original committee.

## **Section 21 Conferal of the degree and certificate**

On the basis of the approved required coursework or other academic training, the academic thesis and the doctoral examination, the degree of Philosophiae Doctor is conferred by the Faculty on the candidate. The Faculty issues the certificate. Certificates for candidates who have completed an inter-faculty PhD programme are issued by the host faculty.

In the certificate, information must be provided about the required coursework or other academic training in which the candidate has participated, the title of the thesis, the topic of the trial lecture, and the supervisors. The certificate is to be signed by the Dean.

In addition to the certificate from the Faculty, a PhD degree diploma is issued. This is to be signed by the Rector of NTNU and the Dean of the Faculty.

## **Section 22 Diploma supplement**

NTNU is to issue a PhD diploma supplement in accordance with the guidelines in force.

# **PART V APPEALS, ENTRY INTO FORCE AND TRANSITIONAL PROVISIONS**

## **Section 23 Appeals**

### **Section 23.1 Appeal against rejection of an application for admission, appeal**

**against a decision to terminate a candidate's admission rights, and appeal against rejection of an application for approval of part of the required coursework or other academic training**

Rejection of an application for admission, a decision to terminate a candidate's admission rights, or an application for approval of part of the required coursework or other academic training may be appealed in under the provisions of Sections 28 and following of the Public Administration Act. Details of the grounds for such an appeal must be sent to the Faculty. If the rejection is upheld, the appeal is to be forwarded to the University Appeals Committee at NTNU for a final ruling.

**Section 23.2. Appeals against grade awarded or procedural error in connection with examination in the required coursework or other academic training**

Examinations that have been taken as part of the required coursework or other academic training may be appealed under the provisions of the Act of 1 April 2005 relating to Universities and University Colleges pursuant to Section 5-3 concerning appeals over grades and Section 5-2 concerning appeals relating to procedural errors in examinations.

Suspicion of academic misconduct or attempted misconduct must be handled in accordance with NTNU's established routines for this.

**Section 23.3 Appeals against rejection of an application for assessment, and rejection of a PhD thesis, trial lecture or public defence**

Rejection of an application for assessment of a PhD thesis and a decision not to approve a PhD thesis, trial lecture, or public defence may be appealed under the provisions of Sections 28 and following of the Public Administration Act.

Details of the grounds for such an appeal must be sent to the Faculty. The Faculty may annul or amend the decision if it finds that the appeal is justified. If the Faculty dismisses the appeal, the appeal is to be forwarded to the University Appeals Committee at NTNU for a ruling. The body handling the appeal is to investigate all aspects of the appealed decision.

Should the Faculty or the body dealing with the appeal find grounds to do so, it may appoint individuals or a committee to undertake an evaluation of the assessment made and the criteria underlying it, or to undertake a new or supplementary expert assessment.

**Section 24 Joint degrees and cotutelle agreements****Section 24.1 Joint degrees and cotutelle agreements**

NTNU may enter into agreements with one or more institutions in Norway or abroad regarding cooperation in the form of joint degrees or cotutelle agreements.

The guidelines adopted by the Board on 4 December 2008 (S-sak 83/08) apply to joint degrees and cotutelle cooperation.

**Section 24.2 Joint degrees**

The term joint degree is defined as a cooperative programme between two or more institutions that are jointly responsible for the doctoral programme, admission, academic supervision, conferral of the degree, and other elements described in these regulations. The cooperation is normally organized in the form of a consortium and is regulated by an agreement between the

consortium members. For a completed joint degree, a joint diploma is issued in the form of: a) a diploma issued by the consortium members as a group, b) a diploma issued by each of the consortium members, or a combination of a) and b).

An agreement to issue a joint degree is normally entered into only if established, stable academic cooperation already exists between the institution and at least one of the other consortium members.

### **Section 24.3. Cotutelle agreements**

The term cotutelle agreement is defined as the joint academic supervision of PhD candidates and cooperation on doctoral training for PhD candidates. A cotutelle agreement is entered into by the institutions in the agreement for each candidate and must be based on stable, academic cooperation between the institutions.

### **Section 24.4 Requirements for joint degrees and cotutelle**

With regard to cooperation on joint degrees and cotutelle agreements, the Rector may grant an exemption from these regulations if this is necessary due to the regulations at the cooperating institutions. Such exceptions, both individually and as a whole, must be clearly justifiable on the basis of the requirements for academic quality that apply to an equivalent PhD degree at NTNU. The qualifications required for admission, the requirement that the PhD thesis must be made available to the public, and the requirement for a public defence assessed by an impartial assessment committee cannot be waived.

As a minimum, cooperation on joint degrees and cotutelle agreements must cover admission, funding, required coursework or other academic training, supervision, residency requirements at the institutions, reporting requirements, the language and structure of the thesis, its assessment, the award of the degree, the issue of the certificate and the intellectual property rights to the results. Such an agreement is to be signed by the Rector.

The PhD education at the cooperating institution must also have a nominal duration of three years. The candidate must be admitted to both institutions.

### **Section 25 Entry into force**

These regulations enter into force on 1 August 2012. Section 15 applies to candidates who submit theses from and including 1 April 2012. At the same time, the regulations of 7 December 2005 No. 1685 concerning the philosophiae doctor degree (PhD) at the Norwegian University of Science and Technology (NTNU) are revoked.