

Faculty of

Engineering and Physical Sciences (Schools of Chemical and Process Engineering; Civil Engineering; Computing; Electronic & Electrical Engineering; Mechanical Engineering)

Protocol for the format and presentation of an alternative style of doctoral thesis including published material

Note to Readers: This document sets out the University's guidelines for the format and presentation of a thesis including publications. Where arrangements for the presentation of a thesis, specific to the Faculty, are described in more detail these are shown in shaded boxes. The aim is to maintain the appropriate University standards and expectations whilst allowing for some degree of flexibility between Faculties to account for variations in discipline/fields of research.

The Graduate Board encourages all students to publish their work and disseminate their results, either before or after submission of a thesis.

This protocol allows for an alternative style of doctoral thesis to be submitted which includes published material alongside a written commentary. Under this protocol, published material can be included in the thesis without the need for the work to be rewritten and integrated into individual chapters of the thesis. Candidates are accepted for study under the normal arrangements and the existing supervisory, training, monitoring and transfer processes will all apply. This alternative style of doctoral thesis is subject to the same examination process as a traditional, chapter style thesis and assessed against the same criteria/learning outcomes including the volume and quality of original research.

It is recognised that this alternative style of doctoral thesis is not appropriate in all disciplines and that, in some subject areas, the traditional, chapter style of thesis will remain the expected format for the thesis. For this reason not all Faculties offer this alternative format of submission. In Faculties where an alternative style of doctoral thesis is not offered, any published material may be used to form a chapter of a thesis but must be rewritten and integrated within the thesis as a whole – please see the separate guidelines for the use of solely or jointly authored publications for advice: http://students.leeds.ac.uk/info/103553/research_student_policies_and_procedures

This protocol should be read alongside the following documents

- [The Guide to the thesis examination process](#)
- Advice on [eThesis preparation copyright and publication](#)

Application for a doctoral thesis including published material

- 1) An alternative style of thesis can only be submitted where (i) the Faculty in which the candidate is registered offers this format of submission and has an approved protocol in place; and (ii) the supervisory team supports this format of submission and is satisfied it is appropriate and meets the protocol in place for that Faculty.
- 2) Any candidate wishing to submit an alternative style of doctoral thesis which includes published material must discuss this with their Supervisory team at an early point in the candidature so that appropriate support and advice can be given. The final decision on the format of submission and whether an alternative style of thesis will be presented is required at the examination entry stage.
- 3) In the relevant section of the GRAD examination entry workflow the Supervisor(s) must provide support for the submission of a doctoral thesis including published material and indicate that this is appropriate and that the publication status of the papers already meets the minimum requirements set out by the Faculty. The Supervisory team must also ensure that the nominated examiners are happy to examine this style of thesis submission.

Publication-based thesis format can be an alternative to those students who at an early stage in the candidature seek to report their research as journal articles. It is not intended to be a default format for all PGRs: for many PGRs the standard chapter format thesis will remain the most appropriate choice.

Discussion between the supervisory team and the PG researcher should take place at an early stage to determine the thesis format and to align this with the agreed submission plan. The intention to submit using this format should be declared at the time of transfer. The transfer report should include a corresponding paper publication plan. If the requirements for submission including published materials have not been met by month 42, then the PGR will be required to submit their thesis using the traditional monograph format.

- 4) Where work which has formed part of any jointly authored publications is included in this alternative style thesis, the Examiners will need to be able to identify the work directly attributable to the candidate to determine whether there is a substantially original contribution to the subject concerned and whether the candidate's own contribution is at the appropriate level to merit the award of the degree.
- 5) To assist the Examiners with this, an outline of the nature and extent of the candidate's own contribution and the contribution of co-authors and other collaborators to the publications must be provided on the examination entry workflow. Another co-author to the papers must attest to the information provided (normally the Supervisor).
- 6) The above information regarding the publications used and the contributions of the other authors should also be included on page 2 of the thesis (intellectual property and publications page) along with a rationale for submitting the thesis in an alternative format and a brief summary of how the thesis has been constructed.

Published material to be included in the alternative style of doctoral thesis

- 7) Publications may only be included where the student is the sole, lead¹, first or primary author on a publication and their contribution is significant. The work must be derived from original research undertaken whilst registered for doctoral study at this University.
- 8) Work must have been published in peer-reviewed outputs appropriate for the field of research. The publication status (published/accepted) and acceptable externally refereed outputs are not prescribed at a University level and may vary according to discipline. The use of joint-first authored papers is not prescribed at a University level and may vary according to discipline.

The thesis can include article manuscripts that have been written for submission for publication in peer-reviewed academic journals, recognized to be relevant to the field of the student's research and academically reputable. The appropriateness of the peer-reviewed output will be determined by the supervisory team with consideration of the context of the field of research. Papers should present original work and this includes a review paper which generate original research (for example through meta-analysis, qualitative synthesis or theoretical and conceptual development).

A minimum of three manuscripts should be incorporated into the alternative style of thesis.

- *One of the included manuscripts should have been accepted for publication but it does not need to have been published at the time of the submission of the thesis;*
- *Another included manuscript should have been submitted and should have received either an invitation to revise and resubmit or a potential acceptance subject to major revisions.*
- *Other included manuscripts should have been submitted for publication..*

The manuscripts to be included in the thesis should report findings based on original theoretical or empirical work, modelling etc. that forms a part of the research conducted during the candidate's post-graduate research studies. This means that for example short published contributions such as opinions, comments or commentaries are not eligible, nor are publications predating the commencement of PGR studies in Leeds or based on work conducted prior to commencement of PGR studies in Leeds.

Manuscripts to be included in the thesis are normally co-authored with supervisors with the PGR being the first/lead author. The lead authorship expectation means that where two or more postgraduate researchers have co-authored an output it can only be used by one PGR identified as the lead author as part of their thesis. Any paper where a single PGR cannot be designated as the lead author is not suitable for inclusion in the alternative thesis format. The selection of papers for inclusion in the alternative thesis format must be agreed with the supervisor(s).

The academic credentials of manuscripts in the thesis will be deemed in examination and not on the basis of their publication status or outlet.

- 9) The number of published outputs/papers required for the alternative style of doctoral thesis may vary according to discipline and is not prescribed at a University level, but should reflect

¹ The term "lead" refers to the contribution of the student to the work, rather than the order in which the names of the authors appear on the publication

the quantity, quality and originality of research and analysis expected of a candidate submitting a traditional, chapter style of thesis.

The number of manuscripts included into an alternative format thesis should be at least 3, the actual number depending on the nature of these outputs, the discipline, the nature of research problem addressed and the structure of the thesis. A thesis by publication should NOT mix article manuscript and chapter style content beyond what is specified below in Paragraphs 11 and 12.

Critical discussion to link the published material into a coherent whole

10) The incorporation of published outputs/papers into the thesis will inevitably lead to some duplication and it is acknowledged that each publication will have self-contained components that may overlap with that in other sections of the thesis. Nevertheless **the work must constitute a continuous body of work** which is a coherent and continuous thesis, rather than a series of disconnected publications. As such, **there must be:**

- a. **an appropriate introduction:** which describes the context of the research, the rationale of the investigation, the strategy employed during the research and demonstrated in the thesis, locates the research to its context and establishes its novelty and contribution; **and**
- b. **an extensive critical discussion and conclusion:** to support the published material and link these together into a coherent body of work and indicating directions for future work.

A thesis based on published material should contain an introductory section placing the work in context with reference to the peer reviewed literature. The integrating material should contain information on the overall research design, the underpinning science, methods, analysis, and discussion/conclusion as well as a critical appraisal across each of the papers and the peer reviewed literature. Particular attention should be given to the methodology and experimental design. This additional text plus the manuscripts should be bound into single whole.

The integrating material preceding the included manuscripts should not exceed 15,000 words in length and it should contain its own list of references.

The integrating text needs to be formatted in the form of thesis (e.g. text, size, line spacing). The candidate's papers need to be incorporated in the same format including their own list of references.

If the manuscripts included into an alternative format thesis have already been accepted for publication and have progressed through production in the publication outlet, a pre-proof stage manuscript should be incorporated into the thesis. Permission should be sought from all rights holders including publishers to include the manuscript in the thesis.

When publications are or are to be complemented with supplementary material in print online publication outlets, the material should be presented as appendices of the thesis.

Results, methodology and other sections of the thesis

11) Candidates must bear in mind that journal articles/publications can be very restrictive in terms of length. The alternative style of thesis will be assessed according to the same criteria as a

traditional, chapter style thesis including the volume and quality of original research. As such, in addition to the published material the thesis will require the same in-depth discussion, critical analysis, and quantity and quality of work that is required for the award of a doctoral degree under the conventional submission route. It is expected that, where appropriate (and with advice from the team of supervisors), the thesis will include a more in depth discussion of the methodology, results etc than appeared in the original publication. This may vary according to discipline.

An alternative format thesis should contain a discussion and conclusions section after the included manuscripts to bind them into a single whole.

The discussion and conclusions section following the included manuscripts should not exceed 10000 words in length and it should contain its own list of references.

Where the manuscripts are or are to be complemented with supplementary material in print or online publication outlets, the material should be presented as appendices of the thesis.

Appendices can also contain other material providing supplementary information related to any preceding part of the thesis.

Summary guidance:

It is expected that the complete thesis would include up to 25,000 words of general introduction and discussion alongside the published or prepared manuscripts and the components outlined in section 12, as follows:

(i) Introductory materials – limited to 15,000 words and incorporating a Literature Review either as a discrete chapter or as part of a larger introduction.

(ii) Manuscripts: The three or more published/accepted/submitted manuscripts should be inserted following the introductory material. Each manuscript will contain sections on introduction, methods, results and discussion as per peer-reviewed work in the field. However, these manuscripts must be supplemented by the inclusion of additional results and methods, including full experimental details, so that the work could be repeated. This will often mean providing more detail than in a standard publication. Examples may include highly detailed methods that were omitted from the published work, or background experiments or experiments where system optimization is carried out.

(iii) Discussion and conclusions- limited to 10,000 words and including a general discussion that brings together and synthesizes the body of work as a whole.

(iv) Appendices - appendices should be provided as appropriate and many contain supplementary information to the published work where necessary.

12) Any thesis submitted for examination, including those which use published material must include the following (as outlined in the format and presentation guidelines²): a title page, intellectual property and publications page³, acknowledgements page, abstract, contents, list of abbreviations, references/bibliography and any appendices.

2 Included in the [Guide to the thesis examination process](#)

3 Which must include information covering the publications used and the contributions of the other authors along with a rationale for submitting the thesis in this format and a brief summary of how the thesis has been constructed.

Page limits and page numbering

- 13) A thesis submitted under the alternative style of doctoral thesis route is not expected to exceed the normal page/word limits for the degree concerned.
- 14) It is accepted that the thesis may include copies of published outputs/papers (e.g. off prints of journal articles, book chapters etc), which already have page numbers. Wherever possible there should be sequential numbering of the thesis as a whole. The publications will therefore bear two numbers; the original from the publication and that which indicates their place in the thesis (but ideally in a different location to the page number from the publication). If this approach is not possible, candidates must ensure that the thesis is clear and easy to navigate by the examiners and any sections of the thesis which are published have been clearly identified.

Assessment of the work

- 15) As with the conventional doctoral thesis, examiners should satisfy themselves that the learning outcomes have been met and the thesis as submitted meets the requirements of the doctoral degree as prescribed in the [Ordinance and Regulations for Research Degrees](#)
- 16) The thesis should make an original contribution to the field of research regardless of the format of submission. The alternative style of thesis will be assessed according to the same criteria as a conventional doctoral thesis including the volume and quality of original research and, as such, in addition to the published papers the thesis will require the same in-depth discussion of methodology and results, the same detailed critical analysis, and the same quantity and quality of work required for the award of a doctoral degree under the conventional chapter-style submission route.
- 17) It is recognised that journal articles/publications can be restrictive in terms of length and the examiners may feel that a more in-depth justification or discussion of e.g. methodology, results, detailed critical analysis is required in the thesis. As such, it is open to the examiners to require revision or expansion to the publication parts of the thesis as part of any editorial and presentational corrections or minor deficiencies. For example, an addendum to a published paper could be added into the thesis itself, if this was deemed necessary by the examiners as part of any corrections. The School/Supervisor would then need to judge whether any issues identified by the examiners warranted contact with the publishers and/or an addendum to a paper in press.
- 18) **Candidates should be clear that, the fact that a thesis contains material that has been published or accepted for publication does not guarantee that the examiners will recommend the award of the degree for which the candidate is being examined.**

Submission of the final thesis (after the viva)

- 19) Candidates are reminded that the final thesis (after successful examination) must be provided to the University in both hard bound and eThesis format.

20) Particular attention should be given to the advice on eThesis preparation, copyright and publication regarding the re-use of published material within an eThesis. Candidates will need to ensure that any publication agreements with the journals concerned include permission to reuse the articles in the thesis (see also note (c) below)⁴.

21) After successful examination candidates must submit to the University for the award of the degree:

- a) 1 complete version of the thesis in pdf eThesis format (full text including all publications)
- b) 1 edited version of the eThesis with any publications redacted where it has not been possible to obtain permission for re-publication of the work in the eThesis from the journal/publisher. In these cases the eThesis must include some form of place holder to indicate the publication has been removed with a link/reference (preferably DOIs for journal articles and ISBNs for books) to the original publication source.

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⁴ See the advice on eThesis preparation, copyright and publication:
<http://library.leeds.ac.uk/copyright-for-phds> and
http://students.leeds.ac.uk/info/10125/assessment/913/submitting_your_final_ethesis