System Engineering Theses: A Manuscript Option

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Purpose
This document describes an approved method for using one’s own publications as the core content of a thesis. This document applies to students pursuing a Master of Science (MS) in Systems Engineering (SE) at the Naval Postgraduate School (NPS).

Description
The SE department at NPS recognizes an approach for students developing their MS thesis that is based on a student’s published or submitted research articles. To summarize the approach, the thesis document will contain significant verbatim text from conference/journal articles, authored by the student, as chapters within the thesis document.

Throughout the student’s studies, research articles will be produced and submitted to conferences/journals. In general, the student must be the first author on the research article for it to be included in the final thesis document; however, see the requirements section for joint student publications. The article is not required to be accepted for publication at the venue, since this would put the student’s graduation into the hands of individuals who are not on the thesis committee. Instead, the thesis committee members should review the article prior to conference/journal submission, and will also have the chance to comment again once it is included in the final thesis document.

1 This includes conferences, journals, symposiums, tech reports as well as other publication options that the thesis advisor deems suitable for the student’s research.
The articles are expected to be placed into the thesis as chapters verbatim to the submission. If the article was accepted for publication, the conference/journal publication should be clearly referenced in the thesis (see Appendix A for an example)². Beyond the article(s) being included as a chapter(s), students are responsible for developing a thesis-specific abstract, introductory chapter, and overarching conclusion. These three sections in particular will effectively pull the chapters together to form a single body of work, completing the intent of a thesis.

Finally, students are responsible for meeting all requirements of the thesis as required by NPS. This includes placing the previously published material into the thesis template and following the NPS template’s formatting and citation guidance.

**Advantages for students and Thesis Advisors**

There are numerous advantages to this approach for both students and Thesis Advisors.

**Advantages for the student**

First, it will help train students to produce academic publications, not just theses. By focusing on a thesis document, NPS is not fully preparing students for future publishing. Students should be educated in a way that allows them to continue their scholarly work after they graduate. Second, many organizations and individuals find value in published research, which will reach them before the thesis is published and perhaps be more readily accessible than the thesis.

Third, a research article-based thesis allows a student to focus on one research question at a time. By breaking down the broader thesis research into smaller parts, students can be more efficient in completing their work.

**Advantages for the Thesis Advisor**

It can be difficult for faculty (i.e., Thesis Advisors) to publish without drawing from the related work of their students (i.e., pulling content from a thesis while citing the thesis and crediting the student for creation of figures). Students often hold the files, the models, etc. Using a research-article model for the thesis encourages faculty to spend more time directly with students to develop the work and less time later converting a traditional thesis to a publication.

² Note that during the mandatory Turnitin plagiarism check of your thesis, conducted by Thesis Processing, your thesis is likely, and incorrectly, to be a match for a portion of your publication. Using the processes outlined in this document will help you avoid plagiarism in your final draft thesis. If you do not clearly indicate in your thesis where and what you previously published or presented, you will be plagiarizing.
Requirements for using the Manuscript Option
While the conference or journal publication can be used nearly verbatim, a “qualifying statement” must be added to the beginning of the chapter where the work appears. e.g., *This chapter previously appeared in the ASME Journal of Mechanical Design*. The full reference must also be provided here along with any statements required by the previous publisher.

The student using the publication in his or her thesis must be the first author on that publication and should have done the bulk of the research and writing.

The formatting of the thesis, including any previously published or presented papers, must adhere to the Thesis Processing Outline (TPO) template.

The guideline for how many previous publications can be included in a thesis is either two conference articles or one journal article. However, these numbers depend on the thesis advisor, since not all conference proceedings and journals are equal in research quality, impact, or relevance.

The student will obtain approval from the publishing source for each article that states the content can be re-published in a thesis. Since it is likely that all of the authors will be government employees, the information is not subject to U.S. copyright. However, it is likely that copyright laws apply internationally. Obtaining approval from the previous publisher is good practice to avoid unforeseen issues and to ensure publisher-provided language is included when the chapter is introduced.

Example guidelines are presented in Appendix B. These are specific to IEEE, however, they are a good outline to use for other publishers as well.
Appendix A. Example initial text of a chapter

II. CHAPTER TITLE


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Appendix B. Guidelines from IEEE

SUGGESTED INTRODUCTION FOR ENTIRE SECTION/CHAPTER BORROWED FROM IEEE PUBLICATION (do not use the quotation marks):
“This [section/chapter] was previously published by IEEE [citation].”
Or: “This [section/chapter] has been accepted for publication by IEEE and is forthcoming.”

SUGGESTED INTRODUCTION FOR PARTIAL BORROWING:
“Parts of this section were previously published by IEEE [citation].”
Or: “Parts of this section have been accepted for publication by IEEE and is forthcoming.”

REQUIRED LANGUAGE TO FOLLOW INTRODUCTION; CAN BE INCLUDED IN A FOOTNOTE:
“Reprinted, with permission, from [author names, paper title, IEEE publication title, and month/year of publication]. This publication is a work of the U.S. Government as defined in Title 17, United States Code, Section 101. Copyright protection is not available for this work in the United States. IEEE will claim and protect its copyright in international jurisdictions where permission from IEEE must be obtained for all other uses, in any current or future media, including reprinting/republishing this material for advertising or promotional purposes, creating new collective works, for resale or redistribution to servers or lists, or reuse of any copyrighted component of this work in other works.”

SUBSEQUENT BORROWED MATERIAL:
For subsequent borrowed material, including tables and figures, include only the citation.

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