



UNIVERSITY OF PETROLEUM & ENERGY STUDIES
DEHRADUN

GUIDELINES FOR PREPARATION AND SUBMISSION OF Ph.D. THESIS

a) Number of copies to be submitted to academic section:

For Evaluation: Four spiral bound copies (Single Side Printing) of the thesis along with a soft copy on CD/Pendrive is to be submitted to SRE.

For ODC: One Maroon cover Hardbound thesis (with side printing- Name, Year & Topic) if any major correction, suggested by the thesis examiners soft-copy of it has to be submitted with thesis.

b) Structure of the thesis

Cover page: The title of the thesis, author, department, month and year of submission along with the emblem of the University will be included on the first cover. This may be made in special quality paper like plastic coated paper (**Attached as Appendix A**).

Title Page: Attached as Appendix B.

Preliminary Part

1. Declaration
2. Thesis Completion Certificate (Internal)
3. Thesis Completion Certificate (External IF any)
4. Abstract
5. Acknowledgement
6. Table of Contents
7. List of Figures
8. List of Tables
9. List of Appendices

Body of the Thesis

Chapter I

Introduction

- Motivation/need and overview
- Objectives
- Research methodology
- Chapter scheme

Chapter 2

- Literature survey

Chapter 3

- (Same as above, fill details)

Chapter N

- Conclusions and suggestions for further work

Concluding Part

- References Bibliography (if any) Appendix or Appendices Index

Title Page

This may be like: Title/Author/A thesis submitted for the degree of Doctor of Philosophy in the SOE.SOCS/SOB/SOL full along with the year and month of submission.

Acknowledgements

The author of the thesis can acknowledge the help and guidance received from different persons in this section. Any financial support received from funding /Co-operating agencies for the research should definitely state here.

Declaration (by the scholar submitting the thesis)

The wording required is of a standard form.

I declare that the thesis entitled [Name of the Thesis] has been prepared by me under the guidance of [Name of the Supervisor], Professor of [Department Name], [University Name]. No part of this thesis has formed the basis for the award of any degree or fellowship previously.

Certificate (standard form by the thesis supervisor(s))

I certify that (Your Name) has prepared his thesis entitled “(Thesis Title)”, for the award of PhD degree of the University of Petroleum & Energy Studies, under my guidance. He/she has carried out the work at the Department of (Name of Deptt), University of Petroleum & Energy Studies.

Contents

The contents should list the chapter headings, sections and subsections of the different chapters along with page numbers of each. It should be possible to get a complete picture of the thesis by looking at the contents. While the contents cannot be as brief as listing only the chapter headings, it need not be as elaborate as to list all paragraph titles within subsections. It is preferable to include the chapter, section and subsection headings only in the contents with appropriate page numbers.

List of Symbols

List the Greek symbols first English letters next, lower case letters and upper case letters in this order. Each group should be arranged in alphabetic order.

List of Figures

List the number and captions of the figures with page numbers.

List of Tables

List the number and titles of the tables with page numbers

Page Numbering

The preliminary parts are numbered in roman numerals (i, ii, etc). The first page of the first chapter (Introduction) onwards will be numbered in Arabic numerals 1 2 3 etc.

Numbering Sections, Subsections, Equations, Figures, etc.

A word on numbering scheme used in the thesis is in order. It is common practice to use decimal numbering in the thesis. If the chapter number is 2, the section numbers will be 2.1, 2.2, 2.3 etc. The subsections in section 2.2 will be numbered as 2.2.1, 2.2.2 etc. Unless essential, it is not necessary to use numbers to lower levels than three stages. Headings of paragraphs below the subsections may be bold faced and in sentence case.

Similarly, it is useful and convenient to number the figures also chapter-wise. The figures in chapter 4 will be numbered Fig. 4.1, Fig 4.2 etc. This helps you in assembling the figures and putting it in proper order. Similarly, the tables also numbered as Table 4.1 Table 4.2 etc. Usually the figure captions are written below the figure and table captions on top of the table. All figures should have proper description by legends, title of the axes and any other information to make the figures selfexplanatory. Figures in color are not essential, but if it is essential, can be given. If used, all copies submitted should have figures in color.

The same numbering scheme can be used for equations also. Only thing to be remembered is that references to the figures are made like Fig 4.2 and equations as Eqn. (5.8) and tables as Table 3.8. If there are some appendices, these can be numbered as A1, A2, and A3 etc. The equations in these appendices can be numbered as (A1.1), (A2.3) etc.

References can be numbered as 1, 2, 3 etc in the order in which they are referred to in the body of the thesis. A typical reference in the body of the thesis will appear as “as stated in [3] or in [3] – [5] “etc. An alternate way as mentioned in some journals is to arrange the references in the alphabetical order of the names of authors in which case the reference in the body of the thesis looks like “as mentioned in (Adam and Eve 1946)”. However, for uniformity and brevity, the first method (like the one followed in IEEE journals) is to be used.

Bibliography contains materials that were useful for the preparation of the thesis in a general way and is not directly referred to in the thesis. IT is not essential, but will be of immense help for a student who tries to read and understand the contents of the thesis.

References to journal papers should contain the name of the author(s), title of the paper, name of the journal, volume number, issue number, particular pages (pp) and year of publication.

Example:

American Psychological Association (APA) Citation Style Should follow as it is the standard across the Researcher Community across world.

e.g. Yurog, X., Yen, D.C., Lin, B. and Chou, D.C. (2002), Adopting Customer Relationship Management Technology. *Industrial Management & Data Systems*, Vol. 102. No. 8, pp. 442-52.

Similarly conference papers should mention the name of author(s), title of the paper, name of the conference, place in which the conference was held and date, month and year of the conference along with the page numbers of the paper in the proceedings of the conference.

Appendices

If there is material that if included in the body of the thesis would break up the flow of reading or bore the reader unbearably, it is better to include it as an appendix. Some items which are typically included in appendices are: major derivations or theoretical developments, important and original computer programs, data files that are too large to be represented simply in the results chapters, pictures or diagrams of results which are not important enough to keep in the main text etc.

Curriculum Vitae with List of Publications

Briefly indicate your relevant background. You can list your publications. Only publications published or accepted for publication need be listed. If communicated and under review, the date of submission should be indicated.

Suggested font sizes Details	Font type	Font size	Spacing
Facing page (cover and first page) – see sample page for details	Times New Roman	14 pt. bold capitals	Centered (Adjustable spacing)
Chapter headings with chapter number on top	Times New Roman	14 pt. bold capitals	Centered
Section headings	Times New Roman	12 pt bold capitals	Left adjusted
Subsection headings	Times New Roman	12 pt bold capitals	Left adjusted
Paragraph headings	Times New Roman	12 pt. bold sentence case	Left adjusted
Body of thesis	Times New Roman	12 pt.	Adjusted on both left and right and with 1.5 spacing for text and double spacing for equations
Margins	Left Margin	1.5 inch	To accommodate binding area
	Right Margin	1.5 inch	
	Top	2.0 inch	On pages on which chapter begins
		1.0 inch	Other pages
	Bottom	1.25 inch	

COVER PAGE

**DEVELOPMENT OF GREEN CORROSION INHIBITORS
FOR PROTECTION FROM INTERNAL CORROSION
OF BURIED CROSS COUNTRY PIPELINES**

A thesis submitted to the
University of Petroleum and Energy Studies

For the Award of
Doctor of Philosophy
in
Chemical Engineering

BY
Anand Kumar Tewari

May 2019

SUPERVISOR (s)

Dr. R. P. Badoni
Dr. Kannan Chandrasekaran



Department of Chemical Engineering
School of Engineering
University of Petroleum & Energy Studies
Dehradun - 248007: Uttarakhand

TITLE PAGE

**DEVELOPMENT OF GREEN CORROSION INHIBITORS
FOR PROTECTION FROM INTERNAL CORROSION
OF BURIED CROSS COUNTRY PIPELINES**

A thesis submitted to the
University of Petroleum and Energy Studies

For the Award of
Doctor of Philosophy
in
Chemical Engineering

BY
Anand Kumar Tewari
(SAP ID 5000069808)

May 2019

Internal Supervisor
Dr. R. P. Badoni
Distinguished Professor
Department of Chemical Engineering,
University of Petroleum & Energy Studies

External Supervisor
Dr. Kannan Chandrasekaran
Chief General Manager
Pipeline & Corrosion Research, Indian Oil,
R&D Centre Faridabad



Department of Chemical Engineering
School of Engineering
University of Petroleum & Energy Studies
Dehradun - 248007: Uttarakhand

Year with Month

DECLARATION

I declare that the thesis entitled [Name of the Thesis] has been prepared by me under the guidance of [Name of the Supervisor], Professor of [Department Name], [University Name]. No part of this thesis has formed the basis for the award of any degree or fellowship previously.

[Your Name]

[Department Name], [University Name] [University Address].

DATE :

CERTIFICATE

I certify that (Your Name) has prepared his thesis entitled “(**Thesis Title**)”, for the award of PhD degree of the University of Petroleum & Energy Studies, under my guidance. He/she has carried out the work at the Department of (Name of Deptt), University of Petroleum & Energy Studies.

Internal Supervisor

[Supervisor Name]

[Department Name], [University Name] [University Address]

Date:

CERTIFICATE

I certify that (Your Name) has prepared his thesis entitled “**(Thesis Title)**”, for the award of PhD degree of the University of Petroleum & Energy Studies, under my guidance. He has carried out the work at the Department of (Name of Deptt), University of Petroleum & Energy Studies.

External Supervisor

[Supervisor Name]

[Department Name],[University Name] [University Address]

Date:

ABSTRACT

ACKNOWLEDGEMENT

TABLE OF CONTENTS

- List of Diagrams
- List of Tables
- List of Exhibits

Chapter 1 <Name of the chapter>

1.1 <Name of sub-chapter>
 <Fill details>

(Appendix B)

EXAMPLE BODY OF THE THESIS

Chapter I

Introduction

- Overview
- Definitions
- Research motivation

- Research question

- Overview of research model
- Overview of research approach
- Contribution of research
- Outline of thesis chapters

Chapter 2

- Chapter overview
- Literature survey
- Chronological order of research done and researcher(s) and contribution (tabular form) Chapter summary

Chapter 3 (Based on research problem, for instance)

- Chapter overview
- Introduction to research problem (e.g. Information system management)

- Information system elements (for instance)
- Evolution of management information system (for instance)

- Implications of research problem
- Influence of research problem on system's performance
- Chapter summary

Chapter 4: Research outline

- Chapter overview
- Instrument development

- Statistical test to test the research problem's competency (on the basis of attributes/factors selected (for instance)
 - Data collection
 - Sample generalizability
 - Assessment of scale reliability and validity
 - Analysis of research model's fitness

- Exploratory analysis of contingency effects Chapter summary

Chapter 5: Scale development

- Chapter overview
- Operationalization of research model's competence
 - On Attribute 1
 - On Attribute 2
 - On Attribute 3
 - On Attribute 4
 - On Attribute N

- Scale refinement using judge-based manual sorting
 - Construct domain specification
 - Measure purification
 - Pretest results of item purification sorting process

- Empirical validation of constructs
 - Survey methods
 - Content validity analysis (for instance)
 - Unidimensionality analysis (for instance)
 - Reliability analysis (for instance)
 - Convergent validity analysis (for instance)
 - Discriminant validity analysis (for instance)

- Interrelationship between attributes selected Chapter summary

Chapter 6: Models for research problem's competence

- Chapter overview
- Competing model for research problem
 - (For instance) formative path model

- Coalignment model (for instance)
- Mediating coalignment model (for instance)
- Methodology
 - Construct measurement scales
- Analysis and empirical results
 - Results of formative path model
 - Results of coalignment model
 - Results for mediating coalignment model
- Discussions and conclusions
 - Components of research problem's competence
 - Conclusions
- Summary

Chapter 7: Conclusion and future research

- Introduction
- Summary of research findings
- Contributions of this research
 - Theoretical contributions (if any)
 - Implications for practice
- Limitations and future research
 - Limitations of the sample
 - Analysis using structural equations modeling (if any)
 - Evolution of research area

Chapter 8: Reference

- Reference

Appendix (including questionnaires/interviews/other survey and feedback forms and instruments)

- Appendix A

- Appendix B
- Appendix N

CHECK LIST FOR SUBMITTING THE THESIS:

The contents of the thesis shall have the following format:

1. Cover page
2. Title Page
3. Declaration
4. Thesis Completion Certificate (Internal)
5. Thesis Completion Certificate (External IF any)
6. Abstract
7. Acknowledgement
8. Table of Contents
9. List of Figures
10. List of Tables
11. List of Appendices
12. Chapter-1: Introduction
13. Chapter-2: Literature Review
14. Chapter-3: Research Methodology
15. Chapter-4:
16. Chapter-5:
17. References/Bibliography
18. First page of Plagiarism report

****You are required to submit the thesis to SRE as per the as per the address given below, for any query regarding thesis submission kindly contact the undersigned.**

Deputy Registrar,
Students Record & Evaluation Department,
University of Petroleum & Energy Studies,
Energy Acres, VPO-Bidholi
Dehradun - 248007 (Uttarakhand)
Ph-0135-2776089;
Email: farmer@ddn.upes.ac.in: