

SYNOPSIS

THE ARRANGEMENT OF PARTS OF THE SYNOPSIS OF A Ph.D. Synopsis

1. **Cover Page:** A Sample sheet is enclosed (Annexure – A)
2. **Title:** Should be as short as possible and accurate
3. **Introduction:** Outline briefly the technological / engineering / scientific / Socio – Economic relevance or significance of the research work is being reported.
4. **Motivation:** Trace to the point, the developments in the area, to emphasize the current status and importance of the research problem identified.
5. **Objectives and Scope:** State clearly the questions for which answers are sought through this research. Define the conceptual, analytical, experimental and methodological boundaries within which the exercise has been carried out.
6. **Description of the research work:** Give brief, but sufficient, details regarding
 - a. The research problems
 - b. Solution methodologies, and
 - c. Interpretation of the results / output
7. **Conclusions:** Highlight only major Conclusions
8. **References:** List them according to the given format. All these must have been referred to in the text of the synopsis.
9. **Tables and figures:** All these must be captioned, serially numbered and referred to in the text.
10. **Content of the Thesis:** Include only chapter and section titles.
11. List of publications based on the research work.
12. The style of presentation (fonts, chapter No., margins, section and sub section no.,, equation number, figures, tables, etc.) must be same as in both synopsis and thesis.
13. The synopsis must be presented within a maximum of 25 pages (back to back printing), excluding the cover page.

GUIDELINES FOR THE PREPARATION OF SYNOPSIS

1. TITLE PAGE

The title of the synopsis should be as concise as possible. It must occur consistently in every respect, including punctuation, capitalization, and hyphenation, on the abstract and approval forms. On the title page, the identical title must appear in all capital letters with each line centered on the page. The month in which the synopsis is submitted, e.g., May, August, or January is to be printed at the bottom of the page. The title page is not numbered, but it is counted.

2. PAGE DIMENSIONS AND MARGIN

The synopsis should be prepared on good quality white paper preferably with 80 gsm. Standard A4 size (210 mm X 297 mm) paper should be used for preparing the copies. The final synopsis should have the following page margins:

- Top edge : 1 inch (25 mm)
- Left side : 1 ½ inch (38 mm)
- Bottom edge : 1 inch (25 mm)
- Right side : 1 inch (25 mm)

3. TYPE-SETTING, TEXT PROCESSING AND PRINTING

The text shall be printed employing Laser jet printer, the text having been processed using a standard text processor. The standard font shall be Times New Roman of 12 pts with 1.5 line spacing. **The text must be 1.5 lines spaced and printed on back to back of each page.**

Text:

The text must be divided into a logical scheme that is followed consistently throughout the document. The larger divisions and more important minor divisions are indicated by suitable, consistent headings. Chapter organization as practiced by the discipline should be followed. Specific requirements for text presentation follow.

1. Headings and Subheadings

The scholar may use headings and subheadings to subdivide chapters or sections, but a consistent sequence of headings as identified in the style guide selected must be followed. Once the sequence is chosen, it must be followed consistently throughout the synopsis.

Sections and sub-sections can be numbered using decimal points, e.g., 1.2, 1.2.1. Use only Arabic Numerals with decimals. Section numbering should be left justified using large bold print. Sub section numbering should be left justified using large bold print.

2. **Introduction** shall justify and highlight the problem poser and define the topic and the aim and scope of the work presented in the synopsis. It may also highlight the significant contributions from the investigation.
3. **Literature Review** shall present a critical appraisal of the previous work published in the literature pertaining to the topic of the investigation. The extent and emphasis of the **Literature** shall depend on the nature of the investigation.

For Example,

Several researchers attempted to develop mathematical models to simulate the activated sludge process. Some of these models simulate the organic removal mechanisms in wastewater treatment field, which were included in Jorgensen and Gromiec (1985), Henze et al. (1989), Tang et al. (1987), and Van Niekerk et al. (1988). The oxygen transfer mechanism has an important place in the activated sludge process. An estimation technique for the oxygen transfer capacity is investigated by Stenstrom et al. (1989).

4. Tables, Figures and equations:

The term "table" refers to a columnar arrangement of information, often data sets, organized to save space and convey relationships at a glance. The term "figure" refers to graphs, drawings, diagrams, charts, maps, or photographs. All such details should be inserted in the text near where they are first mentioned. A table or figure may appear on the same page as the text that refers to it or on a separate page. Each figure or table must be numbered and have a caption. Captions are placed below figures and pictures and above tables. Captions may be single-or double-spaced. As far as possible tables and figures should be presented in portrait style. Small size table and figures (less than half of writing area of a page) should be incorporated within the text, while larger ones may be presented in separate pages. Table and figures shall be numbered. For example, **Figure 1** *Table* number and title will be placed above the table while the figure number and caption will be located below the figure. Reference for Table and Figures reproduced from elsewhere shall be cited in the last and separate line in the table and figure caption.

All the equations should be typed in equation editor and should be properly numbered

For Example,

$$\Delta X \propto X \Delta t \quad (1)$$

5. Results and Discussions: This shall form the penultimate the synopsis and shall include a thorough evaluation of the investigation carried out and bring out the contributions from the study. The discussion shall logically lead to inferences and conclusions as well as scope for possible further future work.

6. Conclusions: A brief report of the work carried out shall form the first part of the **Conclusions**. Conclusions derived from the logical analysis presented in the Results and Discussions shall be presented and clearly enumerated, each point stated separately. Scope for future work should be stated lucidly in the last part of the **Conclusions**.

7. Pagination

Lower-case Roman numerals are used to number all pages preceding the text. Beginning with the first page of the text, all pages are to be numbered with Arabic numerals consecutively throughout the synopsis document, including the list of references. The Arabic numerals must be positioned at the bottom of the page, centered between the margins. Page headers or running heads may not be used in the synopsis.

8. Binding

The synopsis shall be soft cover bound in white paper board with black edge soft binding

9. Front Covers

The front cover shall contain the following details:

- Full title of synopsis in 20 point size font properly centered and positioned at the top.
- Full name of the candidate in 14 point size font properly centered at the middle of the page.
- A 1.25 inch X 1.25 inch size of the Institute emblem followed by the name of the Department, name of the Institute and the month and year of submission, each in a separate line and properly centered and located at the bottom of the page.

10. References: (to be arranged in alphabetical order)

For Journal papers:

Tamizharasan. T, Kumaran. S and Feng. X (1998) Analysis and Optimization of power generation in nuclear power plant, *International Journal of Energy*, **25(2)**, pp17–24.

For books:

Tamizharasan .T and Rajan .K Standard methods for the extraction of water and minerals, 17th Edition, *Water resources and management - American Public Health Association*,1999.

PROPOSED CONTENTS OF THE THESIS

CHAPTER 1: INTRODUCTION

- 1.1 General
- 1.2 Objectives

CHAPTER 2: LITERATURE REVIEW

- 2.1 Membrane
- 2.2 Membrane Separation Technology
- 2.3 Types of Membranes
- 2.4 Membrane Separation Process
- 2.5 Liquid Emulsion Membrane
- 2.6 Types of Extraction Mechanism

CHAPTER 3: METHODOLOGY

- 3.1 Materials
 - 3.1.1 Span 80
 - 3.1.2 n- Hexane
 - 3.1.3 Sodium hydroxide
- 3.2 Experimental Procedure
 - 3.2.1 Emulsion preparation
 - 3.2.2 Extraction process
- 3.3 Operating Conditions

CHAPTER 4: RESULTS AND DISCUSSION

- 4.1 General
- 4.2 Effect of Span 80
- 4.3 Effect of NaOH Concentration
- 4.4 Effect of n-Hexane
- 4.5 Effect of Stirring Speed during Extraction
- 4.6 Effect of Feed Concentration

CHAPTER 5: CONCLUSION

- 5.1 Summary
- 5.2 Conclusions
- 5.3 Scope for Future Work

REFERENCES:

LIST OF PAPERS SUBMITTED ON THE BASIS OF THE THESIS

The papers based on the research work reported in the synopsis could be listed under the broad headings “Journals” and “Conferences” indicating their current status (published / accepted) within parenthesis at the end of each section.

I REFEREED JOURNALS

1. **Chen, J. and M.B. Beck** (1993) Modeling control and offline estimation of Activated sludge bulking. *Water Sci. Technology*, **28(3)**, pp249-256.
2. **Anderson, J. S., H. Kim, T. J. Mc Avoy and O. J. Hao** Control of an Alternating Aerobic-anoxic Activated Sludge System-I; Development of a Linearization-based Modeling Approach. *Control Engineering Practice (Accepted)*.

II PRESENTATIONS IN CONFERENCES

1. **Rosen, C. and J.A. Lennox** (2001) Multivariate and multiscale monitoring of wastewater treatment operation. International Conference on Software Engineering, Cape Town, South Africa, May, 2008.

Note: publications in any unrefereed journals, magazines, volumes etc. should not be listed)

No. of copies to be submitted: 05

QUICK REFERENCE

PAGE DIMENSIONS AND MARGIN

Paper size : 80 gsm. Standard A4 size (210 mm X 297 mm)

Margins

Top edge : 1 inch (25 mm)

Left side : 1 ½ inch (38 mm)

Bottom edge : 1 inch (25 mm)

Right side : 1 inch (25 mm)

Print out : LaserJet printer, **printed on both sides**

Font size (regular Text) : Times New Roman of 12 pts

Spacing : 1.5 line spacing

Sections : 12 pts bold left aligned (Capital Letters)

Subsections : 12 pts bold left aligned (Title case)

Page numbers : Bottom – centered – 12 pts (1, 2, 3...)

Binding : Soft binding (White paper board wrapper with black color strip)

Number of copies : 05

Annexure – A

<TITLE>

*Synopsis of the Ph.D thesis submitted to Periyar Maniammai Institute of Science and Technology
in partial Fulfillment of the requirements for the award of degree of*

DOCTOR OF PHILOSOPHY

In

<DEPARTMENT>

by

<NAME>

(Register No: *****)

RESEARCH SUPERVISOR

<NAME>

<Designation>

<Department>

<Institution>



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