



SPECIFICATIONS FOR THESIS

1. The thesis shall be typed or printed on A4 size executive bond paper. No hand written thesis will be accepted.
2. The thesis shall be typed on both side with 1½ spacing with a margin of 3.5 cms on the left 2.5cms on the top and 1.25 cms on the right and bottom. (as per annexure I)
3. The thesis must contain the following copyright certificate in the beginning of the thesis, on a separate page on the left side:

© GRAPHIC ERA UNIVERSITY DEHRADUN, INDIA, 20__ ALL RIGHTS RESERVED.

4. In a thesis, the title page should be given first, then the certificate by the candidate and the supervisors followed by an abstract of the thesis not exceeding 1500 words. This should be followed by acknowledgement and a table of contents. (as per annexure II)
5. The references should be given at the end of the thesis preferably in alphabetic order of the authors' names.
6. In the body of the text, a reference should be indicated by a number in parenthesis such as [5]. These references should be listed giving (i) the author's name and his initials (ii) the title of the paper and the name of the journal (iii) the name of the book and the publisher (iv) the number of volume, page numbers and the year of publication. Standard abbreviations may be used in the names of the journals.
7. The diagrams should be all in ink or should be printed on a light background. Tabular matter should be clearly arranged. Decimal points may be indicated by a full-stop.
8. The thesis shall be spiral bound at the time of initial submission.
9. After the viva-voce examination the thesis shall be submitted in hard bound. The thesis shall be bound in card sheet paper of light green colour. The name of the candidate, the degree and the year shall be printed in bold on the cover and in gold on the bound edge. (as per annexure III)

Note: Soft copy of the thesis on R-CD/E-mail should also be submitted after final viva-voce examination.

Top (2.5 cms)

Left (3.5 cms)

Annexure I (Margins dimension only)

Right (1.25 cms)

Bottom (1.25 cms)

Annexure II

SAMPLE COPY

TITLE

**16 + Bold &
Single Space**

**NOTE: Font may be Arial or
New Time Roman all
through out**

Ph.D. THESIS

12 + Bold

by

12 Italic

NAME OF CANDIDATE

**12 + Bold ,
Uppercase**

**Seal size
1.75" by 1.75"
New Seal**



**14 + Bold
and
Single
Space**

**DEPARTMENT OF CIVIL ENGINEERING
GRAPHIC ERA DEEMED TO BE UNIVERSITY,
CLEMENTOWN, DEHRADUN-248002,
UTTARAKHAND, INDIA**

July, 2018

TITLE

**16 + Bold &
Single Space**

A THESIS

12 + Bold

*Submitted in partial fulfilment of the
requirements for the award of the degree*

**12 Italic + Bold &
Both line Single Space**

of

12 Italic

DOCTOR OF PHILOSOPHY

12 + Bold, Uppercase

in

12 Italic

CIVIL ENGINEERING

12 + Bold, Uppercase

by

12 Italic

NAME OF CANDIDATE

12 + Bold, Uppercase

Under the supervision of

12 Italic

Dr. XYZ

12 + Bold

**Seal size
1.75" by 1.75"
New Seal**



**14 + Bold
and
Single Space**

**DEPARTMENT OF CIVIL ENGINEERING
GRAPHIC ERA UNIVERSITY, CLEMENTOWN,
DEHRADUN-248002, UTTARAKHAND, INDIA**

July, 2016

(C) GRAPHIC ERA DEEMED TO BE UNIVERSITY DEHRADUN, 2018 ALL RIGHTS RESERVED.

**12 + Bold &
Both line
Single space**



CANDIDATE'S DECLARATION

14 + Bold underline

I hereby certify that the work which is being presented in the thesis entitled
in partial fulfillment of the requirements for the award of the Degree of Doctor of Philosophy
and submitted in the Department of of the Graphic Era University, Dehradun
is an authentic record of my own work carried out during a period from to
under the supervision of, Department of,
Graphic Era University, Dehradun.

12 +
line
space
1.5 and
Topic
in
inverted
commas
& Bold

The matter presented in this thesis has not been submitted by me for the award of any
other degree of this or any other institution.

Signature of the Candidate

**12
+Bold**

This is to certify that the above statement made by the candidate is correct to the best of
my/our knowledge.

12+line space
1.5

Date: _____

12 +Bold

Signature of Supervisor (s)

12 +
both
line
Single
space



CANDIDATE’S DECLARATION

(To be used in Final Submission)

14 + Bold underline

I hereby certify that the work which is being presented in the thesis entitledin partial fulfillment of the requirements for the award of the Degree of Doctor of Philosophy and submitted in the Department ofof the Graphic Era Deemed to be University, Dehradun is an authentic record of my own work carried out during a period fromtounder the supervision of

12 + line space 1.5 and Topic in inverted commas & Bold

The matter presented in this thesis has not been submitted by me for the award of any other degree of this or any other institution

Signature of the Candidate

12 +Bold

This is to certify that the above statement made by the candidate is correct to the best of my (our) knowledge.

.....

12+line space 1.5

12 + bold & both line Single space

Signature of Supervisor (s)

The Ph. D. Viva-Voce Examination of , Research Scholar, was held on

12+line space 1.5

Chairman, SRC

Signature of External Examiner

12 + Bold, line space 1.5

This is to certify that the student has made all the corrections in the thesis.

12+line space 1.5

Signature of Supervisor (s)

Head of Department/DRC Chairman space

both line 12 + bold & Single

Abstract

The abstract begins here. Abstract can have maximum 1500 words. In the present study, initially of data. It involves tasks such as classification, clustering and association rule mining. Simple whereas the one with heterogeneous attribute types may be termed as complex. Further, such datasets can be very challenging the, noisy and incomplete. Most of the real world datasets are incomplete, noisy and complex in nature. Mining data may be high-dimensional. Typical examples include – climatic data, transactional data, financial data, etc.

.....
.....

Acknowledgements

I would like to express my deep and sincere gratitude to my
supervisors.....

.....
.....

Signature of candidate

Contents

Abstract	i
Acknowledgements	ii
Contents	iii
List of Abbreviations	v
List of Figures	vi
List of Tables	vii
Chapter 1 Introduction and Problem Statement	1
1.1 Introduction	1
1.2 Motivation	2
1.3 Problem Statement	2
1.4 Proposed Framework for	3
1.5 Organization of Thesis	4
Chapter 2 Literature Review	5
2.1 Introduction	5
2.2 Data Pre-	5
2.2.1 Value	5
2.3 Reduction	7
2.3.1 Extraction	7
2.3.2 Selection	8
2.4 Design	10
2.5 Hybrid Techniques	19
2.6 Research Gaps	19
Chapter 3 Proposed Methods for	23
3.1 Introduction	23
3.2 k-means	24
3.3 Theorem	26
3.4 Dataset Description	27
3.5 Experiments	28
3.5.1 Clustering	29
3.5.2 theorem	30
3.6 Result and Discussion	32

3.6.1 using the k-means clustering.....	32
3.6.2 using Bayes' theorem.....	34
3.7 Conclusion.....	34
Chapter 4 Genetic Based	37
4.1	
4.2 Conclusion.....	39
Chapter 5 Framework for	43
5.1 Proposed Framework	44
5.2 Experiments and Discussion	49
5.7.1 KMCDTI	49
5.7.2 KMCSVM	51
5.7.3 KMCNB	52
5.7.4 KMCBP	52
5.3 Conclusion	53
Chapter 6 Analysis for.....	55
Chapter 7 Conclusion and Future Work	67
7.1 Conclusion	67
7.2 Suggestions for the Future Work	69
Appendix A Proof of the Temporal	72
References	75
Publications out of the work	87

List of Abbreviations

A%	Accuracy
AGNES	Agglomerative Nesting Clustering
AIRS	Artificial Immune Recognition System
AIRS-LSSVM	Artificial Immune Recognition System Least square support Vector Machine

List of Figures

1.1	Probability mass in Bayesian.....	3
2.1	Filter method.....	9
2.2	Wrapper method.....	9
3.1	Performance evaluation of.....	33
3.2	Performance evaluation of.....	33

List of Tables

2.1	Pseudo code of the MY algorithm	14
2.2	A list of some recent research works on my work	19
3.1	Details of datasets including description of attributes and distribution of records ...	28

Annexure III

RELIABILITY MEASURES ANALYSIS FOR INDUSTRIAL BASED COMPLEX SYSTEMS

Ph.D. THESIS

by

AMIT KUMAR



**DEPARTMENT OF MATHEMATICS
GRAPHIC ERA UNIVERSITY, CLEMENT TOWN
DEHRADUN-248002, UTTARAKHAND, INDIA**

APRIL, 2016

Ph.D. THESIS

2016

AMIT KUMAR