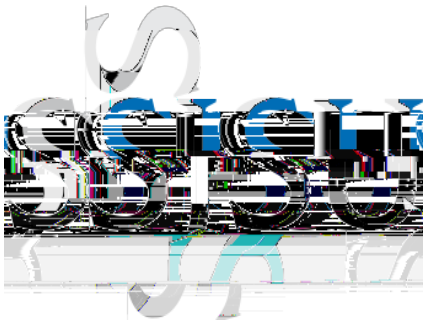

This guidebook is intended to assist graduate students pursuing a MS ME degree with valuable information on how to start a thesis/project and the requirements to complete it towards earning a degree.

Table of Contents

Section 2 - What are the Main Requirements for a Graduate Thesis or Project?

- The graduate thesis is research-oriented work and requires completion of an original research on a mechanical engineering topic. The other requirements include application of advanced engineering concepts and comprehensive written report. The final report must satisfy the guidelines stipulated by the university.

- Graduate projects are application oriented and require application of advanced engineering principles to solve a relevant engineering problem. Similar to thesis, projects also require a comprehensive final report, following guidelines presented in this guidebook.

Section 3 - Graduate Thesis/Project Initiation Process

ME students have the option to complete a total of six (6) units of graduate Thesis, Plan A (ME 299, 3 units each semester) or graduate Project, Plan B (ME 295B) towards their MS/ME degree.

Students are expected to approach a full-time faculty or part-time faculty (preferably related to their area of specialization) to solicit thesis/project ideas or discuss their own ideas (personal interest or work related).

When the 'idea' is approved as a possible Thesis/Project topic, student is expected to prepare a comprehensive proposal following the eight (8) sections outlined on the Graduate Thesis/Project Initiation form, appendix, Document A.

Committee Chair must be a full-time faculty of the department. So if the 'idea' was discussed and initiated by a part-time faculty or a member of industry, then a full-time faculty must be consulted to serve as the Committee Chair. The committee must consist of three members minimum. The other members of the committee could be either full-time faculty or part-time faculty of the department. Committee members may also be from other SJSU college or university departments. The committee may have one industry professional as its third member.

The recommendation of Committee Members to serve on the committee is made by the Committee Chair. The student is expected to contact the recommended committee members, to receive their verbal agreement to serve on the committee. Be sure to let these committee members know that you need their guidance throughout two-semester long study and not just their names and signatures.

Committee Members are expected to add value to your Thesis/Project through their knowledge and expertise. Following verbal approvals from the committee members, offer reviewing the proposal students are expected to complete the Graduate Thesis/ Project Proposal form (word processed or written legibly) including all committee members names and attach to the proposal document. Graduate students are expected to hand-deliver the coversheet (Document B) MSME Project/Thesis Proposal Evaluation Form (Document C) and the proposal to the Committee Chair for approval. Ask the committee chair to route this document to the Graduate Program Advisor and the Department Chair for their evaluation and approvals, respectively.

Once the Thesis/Project proposal is approved by the Committee Chair, Graduate Advisor, and the Department Chair, the student is allowed to enroll in ME 299 or ME 295A course.

Section 4 - Suggestions and Requirements

Section 5 - Thesis/Project Report Writing Guidelines

Thesis or the project report is expected to provide the reader with the important aspects of your work from the start (introduction) to the finish (conclusion).

The content of a Thesis or a Project should include the following components in the outline of the report.

1.0 INTRODUCTION
    1.1 Literature Review
    1.2 Objectives
2.0 METHODOLOGY
    2.1 Analytical Work
    2.2 Computer Simulation
    2.3 Experimental Work
3.0 RESULTS AND DISCUSSION
4.0 CONCLUSIONS/ RECOMMENDED FUTURE WORK
REFERENCES
APPENDICES

This outline can be used as a guide to writing. Students are expected to start the report following this outline format and to fill the appropriate sections as they make progress. The initial planning of a report should begin before the work is carried out. The initial planning would help in writing the draft of the report and eventually the final report.

Preparing the outline of the report may consist of several of headings, subheadings, and sub-subheadings which encompass the various sections of the report. A complete outline can be detailed to the point at which each line consists of a single thought or point to be made and will represent one paragraph in the report. Remember that the main headings and subheadings of the outline are usually placed in the report to guide the reader.

The actual writing of the report should be in the form of a rough draft incorporating technical and grammatical skills available to the writer. Do not worry about perfection at this level. This would come during the editing process of reading the rough draft. This consists of improving the rough draft by analyzing and checking the logical thoughts, paragraphs, and punctuations. The final written report would be the result of editing and editing of the rough draft

Students may ask their classmates or the staff of the Campus Writing Center to read their reports for improvement.

Section 6 – Thesis Guidelines

The general organizational format of a thesis is documented in the SJSU General Catalog section 'Master's Degree Thesis' under 'Manuscript Preparations.'

Visit the Graduate Studies and Research website for more information regarding specific guidelines at: http://www.sjsu.edu/gradstudies/thesis/index.html

The following link may provide the writer with helpful tips in preparing the thesis: http://www.sjsu.edu/gradstudies/thesis/index.html

Section 7 - Organization of a Project Report

The organization of a Project Report should include:

Cover Title Page
Copyright Page
Signature Page (Does Not Require University Approval)
ABSTRACT
ACKNOWLEDGEMENTS
TABLE OF CONTENTS
NOMENCLATURE (if applicable)
LIST OF TABLES (if applicable)
LIST OF FIGURES (if applicable)
1.0 INTRODUCTION (including subsections)
2.0 METHODOLOGY (including subsections)
3.0 RESULTS AND DISCUSSION (including subsections)
4.0 CONLCUISIONS
REFERENCES
APPENDICES

Following may provide the writer with helpful tips in preparing the report.

ABSTRACT

An Abstract is a concise and complete summary of the full report. Although it is first in the report, it is always written last. It provides a brief (one sentence) introduction to the subject, a statement of the problem, highlights of the results (quantitative, if possible), and the major conclusion (quantitative). It must stand alone without citing figures or tables or references. Most abstracts are short and rarely exceed 200 words.

INTRODUCTION

An introduction generally identifies the subject of the report, provides the necessary background information, including appropriate literature review, and provides the reader with a clear rationale for the work described. It states the hypothesis or concept tested. The introduction does not contain results and generally does not contain equations. The use of figures and tables should be limited in the Introduction. The introduction section should end by stating the specific goals and objectives of the study. In short, the introduction section should provide the reader with the current state of the topic, the previous research conducted and the need or motivation to carry out to explore this study and the anticipated objectives.

THE METHODOLOGY

Clearly describe the method and means used to carry out the work. The work may require an analytical approach including advanced mathematics and formulation. Or it may require computer simulation using commercially available software such as Finite Element Analysis (FEA) or Computational Fluid Dynamics (CFD) as examples. The work may further require

presentation of results are figures and tables. All of the figures and tables should be numbered and have descriptive titles. Column heads in tables should accurately describe the data that appear in the text of the Results section. Since you have spent significant time in preparing the plots and tables, you are intimately familiar with their trends and implications, the reader needs your insight to understand the results as well as you.

CONCLUSIONS

The Conclusions section is where you should concisely restate your answer to the question, "What do I know now?" It must support or refute your hypothesis. It is not a place to offer new facts, nor should it contain another rendition of experimental results or rationale. In a short summary restate why the work was done and how it was done, and provide a conclusion to the work. An appropriate conclusion might be "The temperature measuring system calibrated in this study was found to indicate the correct temperature over the range 30-250°F with no more than a $\pm 1°F$

TEXT AND FIGURE FORMAT

Be sure to allow one and one half inch margins from the left, one inch margin from the right, and one inch margin from the top and bottom. For pages with “landscape” format of a figure or diagram, it is customary to turn the page clockwise to view the content.

Section 8 - Suggestions and Requirements for Presentations

Your presentation should be like telling a story that you know well since you have worked on your project for a long time. Furthermore, your presentation must include application of engineering principle and the associate mathematics.

precisely. And finally, draw conclusions based on your objective(s) you set out. You should limit your presentation to a 55 minute period including a 20-minute question and answer period.
Slide No. 1:

Section 10 - Forms to Bring to the End of the Semester Presentation Session

All ME 295A/ME 295B/ME 299 students are expected to fill out Documents D, E

Document A

Mechanical Engineering Department
Graduate Thesis/Project Initiation

ME Graduate students are expected to complete a 6-unit thesis or project towards completing their MSME degree from the ME Department.

Students are expected to enroll in the first course of the project/thesis course upon:

1. Satisfactory completion of all conditions for admission, if any,
2. Completion of a minimum of three (3) courses towards the MS degree,
3. Successful completion of the 'Competency in English' req-2 (tiw 14.9pc)-2 (o)-3st cope3 Tw -16.575 -1.

Document C

MSME Project/Thesis Proposal Evaluation

Proposed Title: _____

Submitted By: _____ Date Submitted: _____

Evaluated By Committee Chair: _____ Date Evaluated: _____

Evaluated By Committee Member 1: _____ Date Evaluated: _____

Evaluated By Committee Member 2: _____ Date Evaluated: _____

Evaluated By Graduate Advisor: _____ Date Evaluated: _____

Criterion	Acceptable				Acceptable w/ Improvement				Unacceptable			
	Committee Chair	Member 1	Member 2	Grad. Advisor	Committee Member	Member 1	Member 2	Grad. Advisor	Committee Member	Member 1	Member 2	Grad. Advisor
The **title** used effective wording to communicate the purpose and scope of the study accurately.												

Document D – First Semester

ME 295A / ME299 (I)
Oral Presentation and Grade Form

To be completed and submitted by the Committee Chair to the ME Department office for processing the Culminating Experience form.

Select: ME 295A ME 299 (I)

Student Name (Last, First): _____ Student ID: _____

Title: _____

Committee Members: 1) (Chair) _____

2) _____

3) _____

Committee Actions

	Decision	Reason(s) for disapproval
Draft Report:		_____
Presentation		_____

Document D – Second Semester

ME 295B / ME299 (II)
Oral Presentation and Grade Form

To be completed an

Document F

ME295A/ME299-I ASSESSMENT FORM

SAN JOSÉ STATE UNIVERSITY

Student Name: SJSU ID:

Project/Thesis Title:

ME 295A ME 299-I Semester:

Evaluated by: Date:

Scores are on the scale of 0-4, with 4 indicating strong agreement, and 0 strong disagreement.

	Criterion	Score
1		

ME295B/ME299-II ASSESSMENT FORM

SAN JOSÉ STATE UNIVERSITY

Document G
Sample of References

REFERENCES

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Document H

Sample Thesis Signature Page

The Designated Thesis Committee Approves the Thesis Titled

FAILURE PREDICTION IN GEOTHERMAL PIPPING DUE TO SLUG FLOW

by

Elvis Anderson

APPROVED FOR THE DEPARTMENT OF MECHANICAL ENGINEERING

SAN JOSÉ STATE UNIVERSITY

May 2012
Fy

Document J
Sample of a Project Report (partial)

LAUNCH ENVIRONMENT SIMULATION THROUGH

BRATION ANALYSIS

A Project Presented to

aculty of the Department of

Master of Science

in

Mechanical Engineering

© 2012

Jane Smith

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SAN JOSE STATE UNIVERSITY

The Undersigned Committee Approves

Launch Environment Simulation Through Vibration Analysis

of

Jane Smith

APPROVED FOR THE DEPARTMENT OF MECHANICAL ENGINEERING

Dr. Aaron Goldsmith , Committee Chair	Date
Dr. Andrew Watkins, Committee Member	Date
Mr. Edward Williams, Committee Member Lockheed Martin Company	Date

ABSTRACT

ACKNOWLEDGEMENTS

I would like to thank my committee Chair Dr. Aaron Goldsmith for suggesting this study and providing continued support throughout this project. I would also like to thank my committee members

TABLE OF CONTENTS

NOMENCLATURE

ASD	-	Auto spectral Density
PSD	-	Power Spectral Density
HGA	-	High Gain Antenna
RMS	-	Root Mean Squared
f_n	-	natural frequency
E[ ]	-	Expected value
H(w)	-	Transfer Function
( )	-	Complex Conjugate
S_{ff}	-	Input PSD
RSS	-	Root Sum Squared
	-	Zeta, damping factor

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

Twin Mars Rovers Opportunity and Spirit, illustrated in Figure 1, landed on Mars to look for evidence of liquid water in 2004 [1]. The twin rovers have been exploring the Mars surface with their scientific instruments and cameras and have continued relaying data back to NASA through the date this paper was written [1]. The transfer of data was made possible by the high gain and low gain antennas attached to each rover. The high gain antenna (HGA) is a steerable antenna that can send data as a beam of information to a specific receiving antenna on Earth [2]. This was an extremely useful feature since the rover did not need to adjust its position in order to send data out.

Figure 1 - Artists depiction of a Mars Rover.

High gain antennas have been implemented on many space vehicles such as Voyager, Hubble Telescope, Lunar Reconnaissance Orba was m M9є[r (ove)4.4 2 (e,)-2.4o.enagainng thn tar Reconn (ssan)-3.8 (c7)-5.9 (