

TITLE OF YOUR THESIS

*Report submitted to the SASTRA Deemed to be University
as the requirement for the course*

COURSE CODE AND NAME

Submitted by

Name 1

(Reg. No.:1)

Name 2

(Reg. No.:2)

Semester month Year



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Bonafide Certificate

This is to certify that the report titled “**TITLE OF YOUR THESIS**” submitted as a requirement for the course, **Course Code** for B.Tech. <B.tech specialisation> programme, is a bonafide record of the work done by **Name 1 (Reg. No.1)** and **Name 2 (Reg. No.2)** during the academic year <academic year>, in the School of <department> Engineering, under my supervision.

Signature of Project Supervisor :

Name with Affiliation : Name, Designation, Department Engineering, School

Date :

Mini-project Viva-voce held on _____

Examiner 1

Examiner 2



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Declaration

I/We declare that the report titled “**TITLE OF YOUR THESIS**” submitted by me/us is an original work done by me/us under the guidance of **Name, Designation, Department Engineering, School, SASTRA Deemed to be University** during the <odd/even> semester of the final academic year <academic year>, in the **School of <school>**. The work is original and wherever I/We have used materials from other sources, I/We have given due credit and cited them in the text of the report. This report has not formed the basis for the award of any degree, diploma, associate-ship, fellowship or other similar title to any candidate of any University.

Signature of the candidate(s) :

Name of the candidate(s) : Name 1, Name 2

Date :

Acknowledgements

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Abstract

Name 1:

Specific Contribution:

- One
- Two
- Three

Specific Learning:

- One
- Two
- Three

Name 2:

Specific Contribution:

- One
- Two
- Three

Specific Learning:

- One
- Two
- Three

CHAPTER 1
INTRODUCTION

CHAPTER 2

LITERATURE REVIEW

The last few years have witnessed a steady increase in the research of Functionally Graded Materials subjected to numerous electro-mechanical studies. Of these, vibrational analysis has been a major area of study in mechanical analysis. [Zhang et al. \(2018\)](#) studied the implementation of the Rayleigh-Ritz method to perform vibrational analysis on a Functionally Graded Material(FGM); a rectangular plate with complex boundary conditions. From ? the property of a FGM plate is assumed to grade through the thickness of the material according to the power law distribution and the generic expression as obtained is,

$$P(z) = (P_c - P_m)V_c + P_m \quad (2.1)$$

where P represents the material property and the suffixes z,c and m represents composite layer, ceramic and metal respectively.

CHAPTER 3

METHODOLOGY

The gradation of any FGP depends on the index k (see equation ??). In order to understand the variation of gradation for various k values, the material properties for each layer and for various k values were calculated using equations ??, ?? and ??. Figure 3.1 shows a line plot between the ratio z/h and V_c for various k values which shows the gradation for different indices. Tables 3.1-?? shows the material properties for all the layers for different k values.

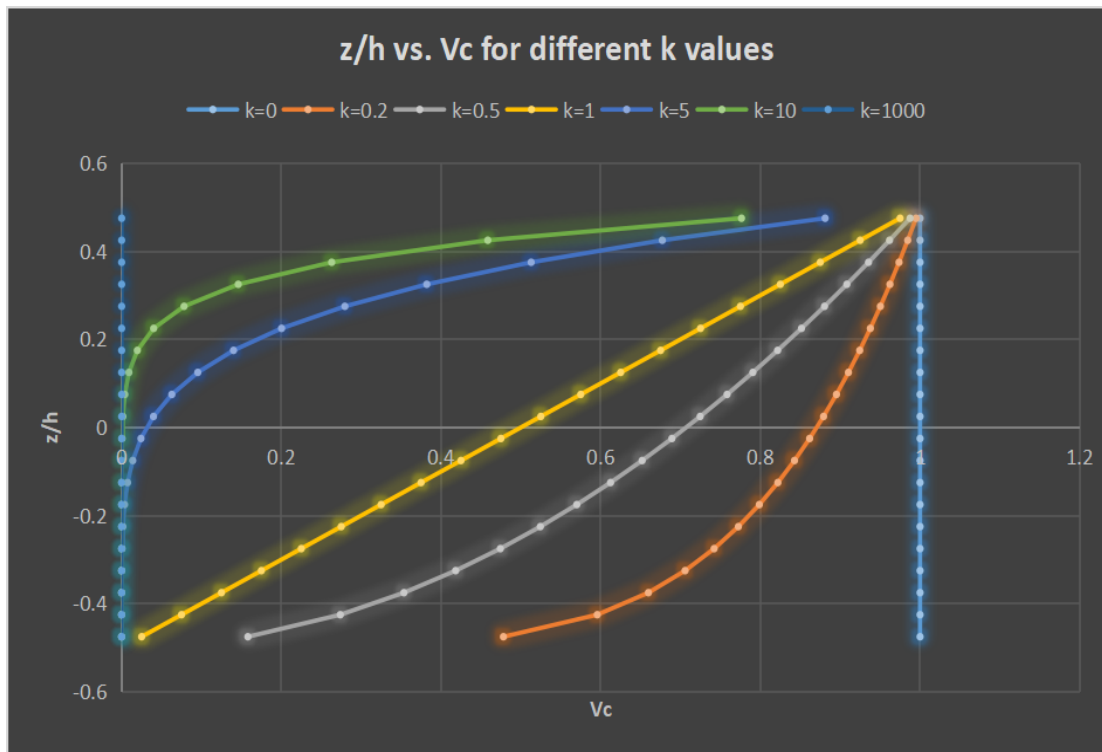


Figure 3.1: Plot depicting gradation for various indices

Table 3.1: Material properties with k=0 gradation

Layer number	z (cm)	z/h	V_c	V_m	$E_z(Nm^{-2})$	$\rho_z(kgm^{-3})$	ν_z
1	9.50	0.48	1.00	0.00	410.00	3210.00	0.17
2	8.50	0.43	1.00	0.00	410.00	3210.00	0.17
3	7.50	0.38	1.00	0.00	410.00	3210.00	0.17
4	6.50	0.33	1.00	0.00	410.00	3210.00	0.17
5	5.50	0.28	1.00	0.00	410.00	3210.00	0.17
6	4.50	0.23	1.00	0.00	410.00	3210.00	0.17
7	3.50	0.18	1.00	0.00	410.00	3210.00	0.17
8	2.50	0.13	1.00	0.00	410.00	3210.00	0.17
9	1.50	0.08	1.00	0.00	410.00	3210.00	0.17
10	0.50	0.03	1.00	0.00	410.00	3210.00	0.17
11	-0.50	-0.02	1.00	0.00	410.00	3210.00	0.17
12	-1.50	-0.07	1.00	0.00	410.00	3210.00	0.17
13	-2.50	-0.12	1.00	0.00	410.00	3210.00	0.17
14	-3.50	-0.17	1.00	0.00	410.00	3210.00	0.17
15	-4.50	-0.22	1.00	0.00	410.00	3210.00	0.17
16	-5.50	-0.28	1.00	0.00	410.00	3210.00	0.17
17	-6.50	-0.32	1.00	0.00	410.00	3210.00	0.17
18	-7.50	-0.37	1.00	0.00	410.00	3210.00	0.17
19	-8.50	-0.42	1.00	0.00	410.00	3210.00	0.17
20	-9.50	-0.47	1.00	0.00	410.00	3210.00	0.17

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Section 1

4.2 Section 2

CHAPTER 5
CONCLUSIONS

REFERENCES

Zhang, J., Li, T., and Zhu, X. (2018). Free vibration analysis of fgm plates based on rayleigh-ritz method. *Vibroengineering PROCEDIA*, 21:53–58.

Peer Evaluation Form for Group Work

Your name: Name 1

Write the name of each of your group members in a separate column. For each person, indicate the extent to which you agree with the statement on the left, using a scale of 1-4 (1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree). Total the numbers in each column.

Evaluation Criteria	Group member: Name 2
Attends group meetings regularly and arrives on time.	<Response>
Contributes meaningfully to group discussions.	<Response>
Completes group assignments on time.	<Response>
Prepares work in a quality manner.	<Response>
Demonstrates a cooperative and supportive attitude.	<Response>
Contributes significantly to the success of the mini-project.	<Response>
TOTALS	<total>

Feedback on team dynamics:

1. How effectively did your group work?

<Response>

2. Were the behaviors of any of your team members particularly valuable or detrimental to the team? Explain.

<Response>

3. What did you learn about working in a group from this mini-project that you will carry into your next group experience?

<Response>

Your name: Name 2

Write the name of each of your group members in a separate column. For each person, indicate the extent to which you agree with the statement on the left, using a scale of 1-4 (1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree). Total the numbers in each column.

Evaluation Criteria	Group member: Name 1
Attends group meetings regularly and arrives on time.	<Response>
Contributes meaningfully to group discussions.	<Response>
Completes group assignments on time.	<Response>
Prepares work in a quality manner.	<Response>
Demonstrates a cooperative and supportive attitude.	<Response>
Contributes significantly to the success of the mini-project.	<Response>
TOTALS	<total>

Feedback on team dynamics:

1. How effectively did your group work?

<Response>

2. Were the behaviors of any of your team members particularly valuable or detrimental to the team? Explain.

<Response>

3. What did you learn about working in a group from this mini-project that you will carry into your next group experience?

<Response>

Self-Evaluation Form for Group Work

Name: Name 1

Content	Seldom	Sometimes	Often
Contributed good ideas			Yes
Listened to and respected the ideas of others	< seldom>	< sometimes>	< often>
Compromised and cooperated	< seldom>	< sometimes>	< often>
Took initiative where needed	< seldom>	< sometimes>	< often>
Came to meetings prepared	< seldom>	< sometimes>	< often>
Communicated effectively with teammates	< seldom>	< sometimes>	< often>
Did my share of the work	< seldom>	< sometimes>	< often>

My greatest strengths as a team member are:<Respond here>

The group work skills I plan to work to improve are: <Respond here>

Name: Name 2

Content	Seldom	Sometimes	Often
Contributed good ideas	< seldom>	< sometimes>	< often>
Listened to and respected the ideas of others	< seldom>	< sometimes>	< often>
Compromised and cooperated	< seldom>	< sometimes>	< often>
Took initiative where needed	< seldom>	< sometimes>	< often>
Came to meetings prepared	< seldom>	< sometimes>	< often>
Communicated effectively with teammates	< seldom>	< sometimes>	< often>
Did my share of the work	< seldom>	< sometimes>	< often>

My greatest strengths as a team member are:<Respond here>

The group work skills I plan to work to improve are:<Respond here>