

**SEISMIC ANALYSIS OF A MULTI-STORIED
BUILDING HORIZONTALLY DAMPED ABOVE
BASEMENT LEVEL**

*Project report submitted in partial fulfillment of the
Requirement for the degree of*

**Bachelor of Technology
In
Civil Engineering**

Submitted by

**ISHAN
ROLL NO-1501050010**

Under the supervision of

**Mr. RISHABH ARORA
(ASSISTANT PROFESSOR)**



**K.R. MANGALAM UNIVERSITY
SOHNA ROAD, GURGAON
JULY -2021**



**Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)**

CERTIFICATE

It is certified that the work presented in this report entitled "SEISMIC ANALYSIS OF A MULTI-STORIED BUILDING HORIZONTALLY DAMPED ABOVE BASEMENT LEVEL" by Ishan (1501050010) of B. TECH (CIVIL), K.R. MANGALAM UNIVERSITY, Sohna road, Gurgaon. The work is being carried out by him under my guidance and supervision in the academic year 2020-21. This is to our knowledge has reached requisite standards.

Rishabh

Project Guide

Mr Rishabh Arora
Assistant Professor
Department of civil Engineering
K.R. MANGALAM UNIVERSITY,

DEAN
School of Engineering & Technology (SOET)
K.R. Mangalam University
Sohna road, Gurugram
Haryana 122103

Jmf
Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

ACKNOWLEDGEMENT

It is a matter of great pleasure for me to present my project report on **“SEISMIC ANALYSIS OF A MULTI-STORIED BUILDING HORIZONTALLY DAMPED ABOVE BASEMENT LEVEL”**

First and foremost, I am profoundly grateful to my project guide **Mr Rishabh Arora**, patient reviews and continuous encouragement during all stages of this project. Her help in the form of valuable information and research thoughts at proper time has brought life in this project. I am thankful to the kindness and generosity shown by her towards me, as it helped me morally to complete the project.

I express my sincere gratitude to the faculty and non-teaching staff of department of civil engineering for providing the relevant information and help whenever required during the course of this project work.

Ishan

ROLL NO.-1501050010

B. TECH (CIVIL)

K.R. MANGALAM UNIVERSITY

SOHNA ROAD, GURGAON.



Registrar

K.R. Mangalam University
Sohna Road, Gurgaon, (Haryana)

DECLARATION

I, hereby declare that the work being presented in the Project Report entitled "SEISMIC ANALYSIS OF A MUTLI-STORIED BUILDING HORIZONTALLY DAMPED ABOVE BASEMENT LEVEL" is an original piece of work and an authentic report of our own work carried out during the period of 8th Semester as a part of my major project.

The data presented in this report was generated & collected from various sources during the above said period and is being utilized by the undersigned for the submission of our Major Project Report.


ISHAN

ROLL NO. -1501050010

B. TECH (CIVIL)

K.R. MANGALAM UNIVERSITY

SOHNA ROAD, GURGAON.



Registrar

K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

STEEL LATTICE TOWER

*Project report submitted
In partial fulfillment of the requirement for the degree of*

Bachelor of Technology

in

Civil Engineering

By

PREJWAL KAUSHIK(1601050006)

Under the guidance of

Mr. Manish Kumar

(Asst. Prof)



Department of Civil Engineering

School of Engineering and Technology

K. R. Mangalam University, Gurugram-122003

November-2019

Registrar
K.R. Mangalam University
Behna Road, Gurugram, (Haryana)

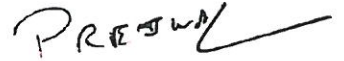
DECLARATION

I declare that this written submission represents my ideas in my own words and where other's ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all the principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed. I further declare that if any violation of the intellectual property right or copyright, my supervisor and university should not be held responsible for the same.

(Prejwal Kaushik)

(1601050006)

(Signature)



Place:- KR MU

Date:- 30/11/19



Registrar
K. R. Mangalam University
Sector Road, Gurugram, (Haryana)

CERTIFICATE

It is certified that the work contained in the project report titled "STEEL LATTICE TOWER" by the following student:

Prejwal Kaushik

1601050006

has been carried out under our supervision and that this work has not been submitted elsewhere for a degree.

Mr. Manish Kumar

.....
Manish

**Department of Civil Engineering
K.R. Mangalam University**

**DEAN
School of Engineering & Technology (SOET)
K.R. Mangalam University
Sohna road, Gurugram
Haryana 122103**

Date: - 30/11/19

Place: - K R M U

J.M.

**Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)**

ACKNOWLEDGEMENT

**“Enthusiasm is the feet of all progress, with it there is accomplishment and
Without it there are only slits alibis.”**

Acknowledgment is not a ritual but is certainly an important thing for the successful completion of the project. At the time when we were made to know about the project, it was really tough to proceed further as I were to develop the same on a platform, which was new to us. More so, the Designing part seemed tricky that it seemed to be impossible for me to complete the work within the given duration.

I really feel indebted in acknowledging the organizational support and encouragement received from the university.

The task of designing this tower would not have been possible without the constant help of our faculty members and friends. I take this opportunity to express our profound sense of gratitude and respect to those who helped us throughout the duration of this project.

I express our gratitude to our supervisor Mr. Rishabh Arora for giving their valuable time and guidance to us.

Place: -

Date:- 30/11/19

B. Tech(CE)

Prejwal Kaushik


Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

Experimentation of Compressive Strength of Concrete: Partially Replacing Coarse Aggregate with Coconut Shells

*Project report submitted in partial fulfillment of the
Requirement for the degree of
Bachelor of Technology
in
Civil Engineering*

Submitted by:

Neelesh Nagle

Roll No1701050002

Under the supervision of
Rishabh Arora, Associate Professor
Department of Civil Engineering



School of Engineering and Technology
K R Mangalam University,
Gurugram, India
July 2021

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

Construction details of Forest Road: A Case Study of National Highway 44

Project report submitted

In partial fulfillment of the requirement for the degree of

Bachelor of Technology

In

Civil Engineering

By

SHIVAM SINGH (1801050003)

Under the Supervision of

Ms. GAURI AGLAVE

(Asst. Professor)



Department of Civil Engineering

School of Engineering and Technology

K. R. Mangalam University, Gurugram, Haryana, India

June 2022


Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

CERTIFICATE

It is certified that the work contained in the major project report titled "Construction details of Forest Road: A Case Study of National Highway 44" by the following students:

Name of the Students

Roll Number

Ritik Yadav

1801050005

Shivam Singh

1801050003

Has been carried out under my supervision and that their work has not been submitted elsewhere for a degree



Ms. Gauri Aglave

Asst. Professor,

Department of Civil Engineering

K.R. Mangalam University, Gurugram, Haryana, India,



Registrar

K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

DECLARATION

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Shivam

Ritik Yadav

1801050005

Shivam Singh

1801050003

Date: 13th June 2022

JMP

Registrar

K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

APPROVAL SHEET

This major project report entitled “Construction details of Forest Road: A case study of National Highway 44” by Ritik Yadav and Shivam Singh is approved for the degree of B. Tech Department of Civil Engineering, School of Engineering and Technology.



Dean (SOET)


Dr. Vineet Dahiya

DEAN

School of Engineering & Technology (SOET)
K.R. Mangalam University
Sohna road, Gurugram
Haryana 122103

Date: 13th June 2022

Place: Gurgaon



Supervisor

Ms. Gauri Aglave

Asst. Professor



Registrar

K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

**Forest Road Construction and Maintenance: A Case
Study of Kozhikode - Kollegal National Highway
(NH-766)**

Project report submitted

In partial fulfillment of the requirement for the degree of

Bachelor of Technology

In

Civil Engineering

By

KEWAL GUPTA (1801050001)

Under the Supervision of

Ms. SARAH KHAN

(Asst. Professor)



Department of Civil Engineering

School of Engineering and Technology

K. R. Mangalam University, Gurugram, Haryana, India

June 2022



Registrar

K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

CERTIFICATE

It is certified that the work contained in the major project report titled "**Forest Road Construction and Maintenance: A Case Study of Kozhikode – Kollegal National Highway (NH-766)**" by the following students:

Name of the Students

Kewal Gupta *KEWAL GUPTA*

Prashant Kumar *Prjha*

Roll Number

1801050001

1801050002

Has been carried out under my supervision and that their work has not been submitted elsewhere for a degree

Sarah Khan
13/1/22
Ms. Sarah Khan

Asst. Professor,

Department of Civil Engineering

K.R. Mangalam University, Gurugram, Haryana, India,

J.P.

Registrar

K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

DECLARATION

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Kewal Gupta *KEWAL GUPTA* 1801050001

Prashant Kumar *pkjha* 1801050002


Date: 13th June 2022



Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

APPROVAL SHEET

This major project report entitled "Forest Road Construction and Maintenance: A Case Study of Kozhikode – Kollegal National Highway (NH-766)" by Kewal Gupta and Prashant Kumar is approved for the degree of B. Tech Department of Civil Engineering, School of Engineering and Technology.


Dean (SOET)

Dr. Vineet Dahiya
DEAN
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Sohna road, Gurugram
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Date: 13th June 2022

Place: Gurgaon


13/6/22
Supervisor

Ms. Sarah Khan
Asst. Professor


Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

**IMPROVEMENT OF CONCRETE USING WASTE GLASS POWDER,
COCONUT SHELL AND FLY ASH**

Project Report submitted,

In partial fulfilment of the requirements of the degree of

Bachelor of Technology

In

CIVIL ENGINEERING

School Of Engineering & Technology


By

Aditya Godyal

Under the Supervision of

Mr. Rishabh Arora (Asst. Prof)




Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

SOET

K R MANGALAM UNIVERSITY, GURUGRAM, HARYANA, INDIA

December, 2023

CERTIFICATE

It is certified that the work contained in the project report titled "**IMPREOVEMENT OF CONCRETE USING OF WASTE GLASS POWDER, COCONUT SHELL AND FLY ASH,**" by the following students:

Name of the Student

Roll Number

Aditya Godyal

1901050002

has been carried out under my/our supervision and this work has not been submitted elsewhere for a degree.



Mr. Rishabh Arora

Professor,

SOET,

K R Mangalam University, Gurugram, Haryana, India

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Sohna road, Gurugram
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Registrar
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DECLARATION

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will cause disciplinary action by the Institute and can also invoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.



Aditya Godyal

1901050002

Date: 09/06/23



Registrar

K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

ACKNOWLEDGEMENT

It gives me immense pleasure to express my deepest sense of gratitude and sincere thanks to my highly respected and esteemed guide **Mr. Rishabh...Arora**, for his/their valuable guidance, encouragement and help for completing this work. His/Their useful suggestions for this whole work and co-operative behavior are sincerely acknowledged.

I would like to express my sincere thanks to **Mr. Rishabh Arora, Mr. harish Soni** KRMU for giving me this opportunity to undertake this project. I would also like to thank you for your wholehearted support.

I also wish to express my gratitude to ...**My Parents...** for his kindhearted support. I am also grateful to my teachers **Mr. Shivam and Mr. Rupesh** for their constant support and guidance.

I also wish to express my indebtedness to my parents as well as my family member whose blessings and support always helped me to face the challenges ahead.

At the end I would like to express my sincere thanks to all my friends and others who helped me directly or indirectly during this project work.

Place: Gurgaon, Haryana

Student Name: Aditya Godyal

Date: 09/06/23

Roll No.- 1901050002


Registrar
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