VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON

"LANDSLIDE PREDICTION MODEL FOR COORG REGION USING ANN APPROACH"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING

IN

CIVIL ENGINEERING

Submitted By

Aditya Kulkarni	**4AL19CV002**
Praveenakumar	**4AL19CV029**
Sandeep S Pavar	**4AL19CV034**
Sindhoorkumar N Naik	**4AL19CV037**

Under the Guidance of

Ms. ANUSHA B RAO

Assistant Professor

Department of Civil Engineering

ALVA'S
Education Foundation

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY
MOODBIDRI – 574 225

2022-2023

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR, MOODBIDRI D.K. 574225 -KARNATAKA

ALVA'S
Education Foundation®

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

Certified that the project work entitled **"LANDSLIDE PREDICTION MODEL FOR COORG REGION USING ANN APPROACH"** has been successfully completed by

Aditya Kulkarni	**4AL19CV002**
Praveenakumar	**4AL19CV029**
Sandeep S Pavar	**4AL19CV034**
Sindoorkumar N Naik	**4AL19CV037**

The bonafide students of Department of Civil Engineering, Alva's Institute of Engineering and Technology in partial fulfillment for the award of BACHELOR OF ENGINEERING in **CIVIL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY BELAGAVI** during the year 2022-23. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of seminar work prescribed for the Bachelor of Engineering Degree.

Ms. Anusha B Rao	**Dr. H Ajith hebbar**	**Dr. Peter fernandes**
Project Guide	**Head of the Department**	**Principal**
	H.O.D Dept. of Civil Engineering Alva's Institute of Engg. & Technology Mijar, Moodbidri - 574 225	PRINCIPAL Alva's Institute of Engg. & Technology Mijar, MOODBIDRI - 574 225, D.K

Name of the examiners **Signature with date**

1.
2.

ABSTRACT

Landslides are one of the most frequent and destructive natural disasters, causing severe damage to life and property. The causes of landslides are multifaceted, encompassing various geological, meteorological, and anthropogenic factors. Geological factors include slope steepness, soil and rock type, and groundwater conditions, while meteorological factors such as heavy rainfall or snowmelt can trigger slope failures. Human activities, including deforestation, construction, and improper land use planning, can also contribute to landslide occurrence. Landslides can occur in different forms, including falls, slides, flows, and complex combinations therefore Each type exhibits distinct characteristics, ranging from sudden and rapid rockfalls to slow-moving debris flows. The understanding of landslide types is crucial for predicting their behaviour and implementing effective countermeasures. Accurate landslide prediction is crucial for preventing or mitigating the impact of landslides. In recent years, artificial neural network (ANN) approach has emerged as a promising tool for landslide prediction. The study uses various factors such as slope, rainfall, soil type, land use, and vegetation cover as input data to train the ANN model. The trained ANN model then predicts the likelihood of landslides in the region. The accuracy of the model depends on the quality and quantity of input data used for training. The results indicate that the ANN approach is effective in predicting landslides and can assist in mitigating the impact of landslides. The study highlights the importance of accurate and comprehensive data collection for landslide prediction and prevention.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi- 590018

PROJECT REPORT ON

"MORPHOMETRIC ANALYSIS OF VARAHI RIVER BASIN"

Sponsored by Karnataka State Council for Science and Technology

Indian Institute of Science Campus, Bengaluru- 560012

Submitted in partial fulfilment of requirements for the award of degree

BACHELOR OF ENGINEERING

IN

CIVIL ENGINEERING

Submitted by

ABDUL MUJEEB	4AL19CV001
DHEERAJ S SINDHE	4AL19CV007
MANOHAR M	4AL19CV017
KRUTHIK K	4AL20CV404

Under the Guidance of

Dr. H.G Umeshchandra

Associate Professor

ALVA'S

Education Foundation

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR, D.K- 574225

KARNATAKA

2022-23

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

(A Unit of Alva's Education Foundation®, Moodbidri)

"Shobhavana", Mijar, Moodbidri – 574 225, D.K.

DEPARTMENT OF CIVIL ENGINEERING

Certificate

Certified that the project work entitled **"MORPHOMETRIC ANALYSIS OF VARAHI RIVER BASIN"** is the bona-field work carried out by

ABDUL MUJEEB	**4AL19CV001**
DHEERAJ S SINDHE	**4AL19CV007**
MANOHAR M	**4AL19CV017**
KRUTHIK K	**4AL20CV404**

in partial fulfilment forthe award of Bachelor of engineering in civil engineering of **Visvesvaraya Technological University, Belagavi** during the academic year 2022-2023, it is certified that all corrections and suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirement in respect of project work prescribed for the said degree.

15.05.23

Dr. H.G Umeshchandra
Project guide & Co-ordinator

Dept. of Civil Engineering
Alva's Institute of Engg. & Technology
Mijar, Moodbidri - 574 225

Dr. H Ajith Hebbar
Head of the Department

Dr. Peter Fernandes
PRINCIPAL
Principal
Alva's Institute of Engg. & Technolo
Mijar, MOODBIDRI - 574 225 D.K

External Examiners

Signature with Date

1) Sumdra. P — 25/5/23

2) Swapna. S.A — 25/5/23

ABSTRACT

Drainage basin morphometry is a quantitative way of describing the characteristics of the surface form of drainage basin and provide important information about the region's topography and underlying geological structures. It plays an important role in selecting sites for construction of artificial recharge structures.

In present study has been made to discover the stream properties of Varahi River Basin, Dakshina Kannada district, Karnataka, using the various stream attributes such as the aerial, linear and relief parameters. The basin is having ten sub basins. The basin having elongated shape and coarse drainage texture indicates that the basin is in between the youth and the mature state.

In total 40 samples were collected from the various bore well. The samples were analyzed for various Physio-chemical parameters like pH, TDS, EC, Total hardness, Calcium, Magnesium, Sodium, Potassium, Chloride and Nitrates. Later test results are analyzed and compared with drinking water standards. concentration and quality of the potable water has deteriorated to a large extent at some sampling locations. Key words: Morphometry, Drainage basin, Topography, Geological structure.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi- 590018

PROJECT REPORT ON

"DOMESTIC WASTEWATER TREATMENT BY LOW-COST NATURAL ADSORBENTS''

Submitted in partial fulfilment of requirements for the award of degree

BACHELOR OF ENGINEERING

IN

CIVIL ENGINEERING

Submitted by

NIHARIKA N	4AL19CV024
M KIRANAKUMARA	4AL19CV044
HARISH P N	4AL20CV402
PAVITHRA B T	4AL20CV406

Under the Guidance of

Mr. SANTHOSH K

ALVA'S

Education Foundation

Assistant Professor

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR, D.K- 574225

KARNATAKA

2022-23

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

(A Unit of Alva's Education Foundation®, Moodbidri)

"Shobhavana", Mijar, Moodbidri – 574 225, D.K.

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

Certified that the project work entitled **"DOMESTIC WASTEWATER TREATMENT BY LOW-COST NATURAL ADSORBENTS"** has been successfully completed by

NIHARIKA N	**4AL19CV024**
M KIRANAKUMARA	**4AL19CV044**
HARISH P N	**4AL20CV402**
PAVITHRA B T	**4AL20CV406**

is the bona- field work carried out by Students of Civil Engineering , Alva's Institute of Engineering and Technology to partial fulfilment for the award of **BACHELOR OF ENGINEERING** in **CIVIL ENGINEERING** of **VISVESVARAYA TECHNOLOGICAL UNIVERSITY BELAGAVI** during the academic year 2022-2023, it is certified that all corrections and suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirement in respect of project work prescribed for the said degree.

.....
Mr. Santhosh K
Project guide & Co-ordinator

H.O.D.
Dept. of Civil Engineering
Alva's Institute of Engg. & Technology
Mijar, Moodbidri - 574 225
.....
Dr. H Ajith Hebbar
Head of the Department

.....
Dr. Peter Fernandes
Principal

PRINCIPAL
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225, D.K

External Examiners

1) Surendra. P

2) Swapna. S.A

Signature with Date

25/5/23

25/5/23

ABSTRACT

Water is one of the most important elements involved in the creation and development of healthy life. As demand for water increased whiles the water resources is limited, there is a growing awareness to treat the domestic waste water and make more efficient use of the domestic waste water. The conventional methods for treating wastewater are expensive. Consequently, the search for contrarily but effective, efficient and economic methods has been on the increase in recent times. Thus, the use of biomaterials, such as agricultural waste as adsorbents for organic and metal ions is being exploited due to their availability and low cost. Filtration technology is the simplest and low cost treatment technology based on the principle of attached growth process. Multimedia Filters represent a significant improvement over single media filters. A multimedia filter model was developed by G.I. sheet for treatment of domestic wastewater. Different packing media are used such as Activated carbon, sugarcane bagasse, Rice husk, Sand and Grass mulch. The waste water samples were physio- chemically characterized before and after treatment according to standard procedure using these adsorbents. The results obtained from the various pollution indicators show an appreciable improvement on the quality of the water. The pH value changed from 7.9 to 7.1, the color changed from soapy and cloudy to colorless, Turbidity was reduced from 163.7 to 28.3NTU while the biochemical oxygen demand BOD was reduced from 117 mg/l to 69.3mg/l and chemical oxygen demand COD was reduced from 232 mg/l to 115.7mg/l. This paper intends to provide an overall vision of multimedia filter technology as an alternative and conventional method for treating waste water. Treated water use for Irrigation, toilet flushing, car washing, gardening, firefighting, etc.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590018

PROJECT REPORT ON

"HYDROPONIC SYSTEM FOR DOMESTIC WASTE WATER TREATMENT AND VEGETABLE PRODUCTION IN URBAN AGRICULTURE MONITARED BY SMART TECHNOLOGY"

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

BACHELOR OF ENGINEERING
IN
CIVIL ENGINEERING

Submitted By

R S SANOJ	4AL19CV030
SANGANAGOUDA N PATIL	4AL19CV035
POOJA S B	4AL20CV408
RAGHU R	4AL20CV410

Under the Guidance of

Mr. VARADARAJ K S
Assistant professor

ALVA'S

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY
MOODBIDRI – 574 225.

2022-23

ALVA'S INSTITUTE OF ENGINEERINGAND TECHNOLOGY

MIJAR, MOODBIDRI D.K.574225–KARNATAKA

ALVA'S
Education Foundation®

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

Certified that the project work entitled "**HYDROPONIC SYSTEM FOR DOMESTIC WASTE WATER TREATMENT AND VEGETABLE PRODUCTION IN URBAN AGRICULTURE MONITERED BY SMART TECHNOLOGY**" is a bonafied work carried out by

R S SANOJ	**4AL19CV030**
SANGANAGOUDA N PATIL	**4AL19CV035**
POOJA S B	**4AL20CV408**
RAGHU R	**4AL20CV410**

in partial fulfilment for the award of Bachelor of engineering in civil engineering of **Visvesvaraya Technological University, Belagavi** during the academic year 2022-2023, it is certified that all corrections and suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirement in respect of project work prescribed for the said degree.

Mr Varadaraja k s
Project Guide

Dr. H Ajith Hebbar
Head of Department

Dept. of Civil Engineering
Alva's Institute of Engg. & Technology
Mijar, Moodbidri - 574225

Dr.Peter Fernands
Principal

PRINCIPAL
Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 574 225, D.K

Name of the Examiners	**Signature with date**
1.	
2.	

ABSTRACT

The Geometric shape factor of a building is the ratio between its envelope area and its volume. Buildings with a higher shape factor have a larger surface area in proportion to their volume, which results in larger heat losses in cold climates and also has effects on humans. This study analyses the impact of the Geometric shape factor on the final energy demand by using several existing apartment buildings and other monuments with different values of shape factor. Each building or monument was simulated for several different scenarios: three thermal envelope scenarios and four climate zones that affect occupants. The differences in shape factor between the buildings were found to have a large impact on mental health, human behavior, space considerations and accounted for 10%-20% of their final energy demand. The impact of the shape factor was reduced with warmer climates and ceased with average outdoor temperature 11°C-14°C depending on the thermal envelope performance of the buildings.

Intentionally or unintentionally, from ages, architects, builders and construction experts have used mathematics as a very basic yet important tool for the soulful purpose of design, execution and finalization of building projects. In history, architects were mathematicians and also some mathematicians were architects too. Vitruvius was a very well-known architect as well as a famous mathematician. Mathematical readings of Pythagoras were later used in building proportions. Well known worker and user of golden ratio Leonardo Da Vinci along with many achievements was an architect too. The approach of this research paper is to come up with findings on the importance of mathematics in architecture, as in geometry, from very important site analysis to final design of elevation or façade. Aim of the whole research is to come up with mathematical functions related to mensuration of building construction and Architectural Engineering. This paper is an initial part of the same research.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON

"NETWORK SYSTEM FOR MANAGING SOLID WASTE BY USING QGIS FOR LOCAL BODIES"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
CIVIL ENGINEERING

Submitted By

Hruthik M S	**4AL19CV011**
Nipson yendrembam	**4AL19CV025**
Rakshith M A	**4AL19CV031**
Sagar K G	**4AL19CV045**

Under the Guidance of

Mr. Varadaraj K S
Assistant Professor

Department of Civil Engineering

ALVA'S
Education Foundation

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY
MOODBIDRI – 574 225.

2022-2023

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR, MOODBIDRI D.K. 574225 -KARNATAKA

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

Certified that the project work entitled "NETWORK SYSTEM FOR MANAGING SOLID WASTE BY USING QGIS FOR LOCAL BODIES" has been successfully completed by

Hruthik M S	**4AL19CV011**
Nipson yendrembam	**4AL19CV025**
Rakshith M A	**4AL19CV031**
Sagar K G	**4AL19CV045**

The bonafide students of Department of Civil Engineering, Alva's Institute of Engineering and Technology in partial fulfillment for the award of BACHELOR OF ENGINEERING in **CIVIL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY BELAGAVI** during the year 2022-23. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of seminar work prescribed for the Bachelor of Engineering Degree.

Mr. Varadaraj K S
Project Guide

H.O.D.
Dept. of Civil Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

Dr. H. Ajith Jebbar
Head of the Department

Dr. Peter Fernandes
Principal
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225, D.K

Name of the examiners **Signature with date**

1.
2. Swapna. S.A 25/5/23

ABSTRACT

Solid waste management is a critical environmental challenge faced by urban areas worldwide. Improper waste disposal can lead to numerous environmental and health hazards, including pollution of air, water, and soil, and the spread of diseases. Waste collection plays a crucial role in the overall waste management process, and efficient routing of waste collection vehicles is essential to ensure timely and effective waste removal from communities.

This abstract focuses on the rerouting of waste collecting vehicles as a strategy to optimize solid waste management. The rerouting process involves planning and scheduling the routes followed by waste collection vehicles to collect waste from different locations in an efficient and sustainable manner. Various factors, such as the distance to be covered, the amount of waste to be collected, the capacity of the collection vehicles, and the availability of disposal facilities, need to be considered in the rerouting process. Efficient rerouting of waste collecting vehicles can result in several benefits, including reduced fuel consumption, decreased emissions, minimized collection time and costs, and improved service quality. Advanced technologies, such as geographic information systems (GIS), global positioning system (GPS) tracking, and optimization algorithms, can be utilized to optimize the rerouting process and enhance the overall performance of waste collection systems.

These abstract highlights the importance of rerouting waste collecting vehicles as a sustainable approach towards solid waste management. It emphasizes the need for effective planning and utilization of technological tools to optimize waste collection routes, reduce environmental impacts, and improve the overall efficiency of waste management systems. Proper rerouting of waste collection vehicles can lead to significant benefits for both the environment and the communities they serve, contributing to a more sustainable and healthier living environment.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590010

PROJECT REPORT ON
"STUDY ON EFFECT OF GEOMETRY OF THE STRUCTURE ON THE WELL BEING OF THE OCCUPANTS."

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

BACHELOR OF ENGINEERING
IN
CIVIL ENGINEERING

Submitted By

KIRAN R M	**4AL19CV013**
MALATESHA M	**4AL19CV016**
PRAMOD H G	**4AL19CV028**
KARTHIK A B	**4AL20CV403**

Under the Guidance of

Dr. H G Umeshchandra

Associate professor

ALVA'S
Education Foundation

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MOODBIDRI – 574 225

KARNATAKA

2022-23

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

(A Unit of Alva's Education Foundation®, Moodbidri)

"Shobhavana", Mijar, Moodbidri – 574 225, D.K.

ALVA'S
Education Foundation®

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

This is to certify the following students

KIRAN R M	**4AL19CV013**
MALATESHA M	**4AL19CV016**
PRAMOD H G	**4AL19CV028**
KARTHIK A B	**4AL20CV403**

Have submitted Project Report on "**STUDY ON EFFECT OF GEOMETRY OF THE STRUCTURE ON THE WELL BEING OF THE OCCUPANTS.**" For **VIII semester B.E in Civil Engineering during the academic year 2022-23. The Project has been approved as it satisfies the academic requirements in report of Project work prescribed by Visvesvaraya Technological University for the award of degree in Bachelor of Engineering Degree.**

Dr. H G Umeshchandra
Project Guide

H.O.D
Dept. of Civil Engineering
Alva's Institute of Engg. & Technology
Mijar, Moodbidri-574 225
Head of Department

Dr. Peter Fernandes
Principal

PRINCIPAL
Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 574 225, D.K

Name of the Examiners

Signature with date

1. Surendra. P — 25/5/23
2. Swapna. S.A — 25/5/23

ABSTRACT

The Geometric shape factor of a building is the ratio between its envelope area and its volume. Buildings with a higher shape factor have a larger surface area in proportion to their volume, which results in larger heat losses in cold climates and also has effects on humans. This study analyses the impact of the Geometric shape factor on the final energy demand by using several existing apartment buildings and other monuments with different values of shape factor. Each building or monument was simulated for several different scenarios: three thermal envelope scenarios and four climate zones that affect occupants. The differences in shape factor between the buildings were found to have a large impact on mental health, human behavior, space considerations and accounted for 10%-20% of their final energy demand. The impact of the shape factor was reduced with warmer climates and ceased with average outdoor temperature 11°C-14°C depending on the thermal envelope performance of the buildings.

Intentionally or unintentionally, from ages, architects, builders, and construction experts have used mathematics as a very basic yet important tool for the soulful purpose of design, execution and finalization of building projects. In history, architects were mathematicians and also some mathematicians were architects too. Vitruvius was a very well-known architect as well as a famous mathematician. Mathematical readings of Pythagoras were later used in building proportions. Well known worker and user of golden ratio Leonardo Da Vinci along with many achievements was an architect too. The approach of this research paper is to come up with findings on the importance of mathematics in architecture, as in geometry, from very important site analysis to final design of elevation or façade. Aim of the whole research is to come up with mathematical functions related to mensuration of building construction and Architectural Engineering. This paper is an initial part of the same research.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590010

PROJECT REPORT ON

"IMPROVEMENT OF BEARING CAPACITY OF SANDY SOIL BY USING SODIUM SILICATE"

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

BACHELOR OF ENGINEERING
IN
CIVIL ENGINEERING

Submitted By

BHUMIKA Y M	4AL19CV005
MONIKA H S	4AL19CV021
MANJULA N BASAVANAL	4AL20CV405
PRERANA E SHETTAR	4AL20CV409

Under the Guidance

Mr. SANTHOSH K

Assistant Professor

Department of Civil Engineering

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI – 574 225.

2022-2023

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY
MOODBIDRI – 574 225
(Affiliated to VTU, BELAGAVI)
DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

Certified that the project work entitled "**IMPROVEMENT OF BEARING CAPACITY OF SANDY SOIL BY USING SODIUM SILICATE**" *is Bonafede work carried out by*

BHUMIKA Y M	**4AL19CV005**
MONIKA H S	**4AL19CV021**
MANJULA N BASAVANAL	**4AL20CV405**
PRERANA E SHETTAR	**4AL20CV409**

in partial fulfillment for the award of BACHELOR OF ENGINEERING in **CIVIL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2022–2023. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

Signature of the Guide	**Signature of the H.O.D**	**Signature of the Principal**
Mr. Santhosh K	**Dr. H Ajith Hebbar**	**Dr. Peter Fernandes**
Assistant Professor	**H.O.D.**	**PRINCIPAL**
	Dept. of Civil Engineering	**Alva's Institute of Engg. & Technology, Mijar. MOODBIDRI - 574 225, D.K**
	Alva's Institute of Engg. & Technology	
	Moodbidri - 574 225	

EXTERNAL VIVA

Name of the Examiners

1. Surendra.P

2. Swapna.S.A

Signature with date

28/05/23

25/5/23

ABSTRACT

The constructional activities in some particular areas often demand deep foundations because of the poor engineering properties and the related problems arising from weak soil at shallow depths. The very low bearing capacity of the foundation bed causes shear failure and excessive settlements. Further, the high-water table and limited depth of the top sandy layer in these areas restrict the depth of foundation thereby further reducing the safe bearing capacity. This paper discusses grouting as one of the possible solutions to the foundation problems by improving the properties of soil at shallow depths by using sodium silicate.

Keywords: Sodium silicate, Shear strength, Bearing capacity, Settlement

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590010

PROJECT REPORT ON

"DEVELOPMENT OF HORTON'S INFILTRATION MODEL FOR MOODBIDRI TALUK"

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

BACHELOR OF ENGINEERING

IN

CIVIL ENGINEERING

Submitted By

MEGHA GL	4AL19CV018
SOWMYA S NAIK	4AL19CV038
CHETHAN M N	4AL20CV400
HARISH	4AL20CV401

Under the Guidance of

Dr. H AJITH HEBBAR

HOD of civil engineering

Department of civil engineering

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI – 574 225.

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR MOODBIDRI D.K. -574225 – KARNATAKA.

ALVA'S
Education Foundation®

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

Certified that the project work entitled **"DEVELOPMENT OF HORTON'S INFILTRATION MODEL FOR MOODBIDRI TALUK"** is a bonafide work carried out by

MEGHA G L	**4AL19CV018**
SOWMYA S NAIK	**4AL19CV038**
CHETHAN M N	**4AL20CV400**
HARISH	**4AL20CV401**

Are bonafide students of Department of Civil Engineering of Alva's Institute of Engineering and Technology in partial fulfillment for the award of BACHELOR OF ENGINEERING in **CIVIL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2022-2023. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

Dr. H Ajith Hebbar
Project Guide

H.O.D.
Dept. of Civil Engineering
Alva's Institute of Engg. & Technology
Mijar, Moodbidri - 574 225

Dr. H Ajith Hebbar
Head of the Department

Dr. Peter Fernandes
Principal

PRINCIPAL
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225, D.K.

Name of the Examiners	Signature with Date
1.	1.
2. Swapna. S.A	2. Sd/- 25/05/23

ABSTRACT

Horton's cycle is a model used to understand the movement of water in a drainage basin. It was first introduced by Robert E. Horton in 1933, and has since been refined and expanded upon by other researchers.

The cycle begins with precipitation, which falls onto the land surface and either infiltrates into the soil or runs off into streams and rivers. The water that infiltrates into the soil is either taken up by plants, evaporated back into the atmosphere, or becomes part of the groundwater system.

The water that runs off into streams and rivers eventually reaches the ocean, but before it does, it may be temporarily stored in lakes, reservoirs, or wetlands. This process of water moving from the land surface to the atmosphere, back to the land surface, and eventually to the ocean is known as the water cycle.

Horton's cycle model also takes into account the role of vegetation in the movement of water. Vegetation plays a key role in the interception and evapotranspiration of precipitation, which can affect the amount of water that reaches the ground surface and ultimately the amount of water that enters streams and rivers.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

JNANA SANGAMA, BELGAVI – 590018, KARNATAKA, INDIA

PROJECT REPORT ON

"ANALYSIS OF ROAD NETWORK, LAND COVER AND TEMPERATURE VARIATION OF MANGALORE CITY USING QGIS & REMOTE SENSING"

Submitted to the Visvesvaraya Technological University, Belagavi in partial fulfillment of the requirement for the award of degree of

BACHELOR OF ENGINEERING
IN
CIVIL ENGINEERING

Submitted By

SANDEEP B NAIK	**4AL19CV033**
TRUPTHI A	**4AL19CV040**
VARUN GOWDA T V	**4AL19CV041**
VINAY KUMAR R K	**4AL19CV042**

Under the Guidance of

Prof. SHANKARGIRI K S

ASSISTANT PROFFESSOR

DEPARTMENT OF CIVIL ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

[A Unit of Alva's Education Foundation ®]

Mijar, Moodbidri – 574225, DK, Karnataka

2022-23

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"Shobhavana", Mijar, Moodbidri – 574 225, D.K.

ALVA'S
Education Foundation®

DEPARTMENT OF CIVIL ENGINEERING

Certificate

This is to certify that

SANDEEP B NAIK	**4AL19CV033**
TRUPTHI A	**4AL19CV040**
VARUN GOWDA T V	**4AL19CV041**
VINAY KUMAR R K	**4AL19CV042**

Have submitted Project Report on "ANALYSIS OF ROAD NETWORK, LANDCOVER AND TEMPERATURE VARIATION OF MANGALORE CITY USING QGIS & REMOTE SENSING" for 8th semester B.E in Civil Engineering during the academic year 2022 - 23. The Project has been approved as it satisfies the academic requirements in report of Project work prescribed by Visvesvaraya Technological University for the award of degree in Bachelor of Engineering Degree.

Prof. Shankargiri K S
Project Guide

Dr. H Ajith Hebbar
HOD
H.O.D.
Dept. of Civil Engineering
Alva's Institute of Engg. & Technology
Mijar, Moodbidri - 574 225

Dr. Peter Fernandes
Principal
PRINCIPAL
Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 574 225, D.K

Name of Examiners **Signature with Date**

1. .....

2. .....

ABSTRACT

In this study, the road network, temperature variation, vegetation cover and land cover of Mangalore City are analyzed using QGIS and remote sensing techniques. The study classified the city's land use and land cover using 2004, 2014, 2023 Landsat 8 satellite imagery and supervised classification. According to the findings, the city's urban area makes up 26.7% of its total area,while agricultural regions and wooded areas make up 31.3% and 40%, respectively. The studyalso examined the city's road network, determining that it had a 1.73 km/km2 road density.

Additionally, to examine temperature variance around the city, the study employed temperature information from MODIS satellite images. The findings indicated that urban regions experience warmer temperatures than forested areas. The NDVI values used in the study to analyses the vegetation cover revealed that wooded areas have higher vegetation cover than urban and agricultural areas.

Overall, the study emphasizes the value of utilizing GIS and remote sensing methods to examine city land use, land cover, temperature fluctuation, and vegetation cover. The study's conclusions can be applied to Mangalore city's urban planning and administration as well as to encourage environmentally conscious growth.

The analysis's findings showed a significant relationship between Mangalore city's road density and temperature variance. When compared to rural areas with low road density, urban areas with high road density showed higher temperatures. The study also discovered that a number of variables, including geography, land cover, and human activity, had an impact on temperature variation.

The study also demonstrated the viability of using remote sensing and GIS techniques to analyses the association between road density and temperature variance in metropolitan regions. The study's conclusions can be used to urban planning and development plans that include how roads and other infrastructure affect the weather and other environmental conditions.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON

"IoT BASED AUTOMATED AEROPONICS SYSTEM FOR ROOT VEGETABLES"

Submitted in partial fulfillment of the requirements for the award of degree.

BACHELOR OF ENGINEERING

IN

CIVIL ENGINEERING

Submitted By

OMIN LONCHUNG	4AL18CV028
WANGLEN WAIKHOM	4AL18CV048
MELLORY THOUDAM	4AL19CV019
MOHAMMED ZISHAN C M	4AL19CV020

Under the Guidance of

Dr.H.G.Umeshchandra

Associate Professor

Department of Civil Engineering

ALVA'S

Education Foundation

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI – 574 225.

2022-2023

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY
MOODBIDRI – 574 225
(Affiliated to VTU, BELAGAVI)
DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

Certified that the project work entitled **"IoT BASED AUTOMATED AEROPONICS SYSTEM FOR ROOT VEGETABLES"** is a bonafide work carried out by

OMIN LONCHUNG	**4AL18CV028**
WANGLEN WAIKHOM	**4AL18CV048**
MELLORY THOUDAM	**4AL19CV019**
MOHAMMED ZISHAN C M	**4AL19CV020**

in partial fulfillment for the award of Bachelor of Engineering in civil engineering of **Visvesvaraya Technological University, Belagavi** during the academic year 2022-2023, it is certified that all corrections and suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirement in respect of the project work prescribed for the said degree.

Signature of the Guide	**Signature of the H.O.D**	**Signature of the Principal**
Dr. H.G.Umeshchandra	**Dr. H Ajith Hebbar**	**Dr. Peter Fernandes**
Associate Professor		

H.O.D.
Dept. of Civil Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

PRINCIPAL
Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 574 225, D.K

EXTERNAL VIVA

Name of the Examiners	Signature with date
1. Sushadra. P	27/5/23
2. Swapna. S. A	27/5/23

ABSTRACT

The scarcity of clean water resources around the globe has generated a need for their optimum utilization. IoT-based automation brings a solution, based on the application-specific sensor's data acquisition and intelligent processing, bridging the gaps between the digital and physical worlds. IoT-based smart irrigation systems can help in achievingoptimum water-resource utilization in the precision farming landscape. This project presents an IoT-based automated aeroponics system designed specifically for root vegetables. The system utilizes sensors to monitor environmental conditions such as temperature, humidity, and automated controls to ensure optimal growing conditions for the plants. The aeroponic system provides an efficient method for growing root vegetables, with benefits such as increased yields & reduced water usage. Additionally, the IoT connectivity allows for remote monitoring and control of the system, enabling farmers to manage and adjust the growing conditions from anywhere. This report outlines the design and implementation of the system, as well as the results of testing and evaluation. The findings suggest that the IoT-based automated aeroponics system for root vegetables is a promising solution for sustainable and efficient agriculture.

Agriculture plays a consequential role in the economy and its contribution is predicated on quantifiable crop yield which is highly dependent upon irrigation. In a country like India, where agriculture is largely predicated on the unorganized sector, irrigation techniques and patterns followed are inefficient and often lead to nonessential wastage of water. This calls for the desideratum of a system that can provide an efficient and deployable solution. In this paper, we provide an Automatic Irrigation System predicated on Artificial Perspicacity and the Internet of Things, which can autonomously irrigate the plant's roots directly utilizing humidity temperature data. The system has been tested in a controlled environment wian 80 percent precision, thus providing an efficient solution to the quandary.

Keywords: - IoT (Internet of things), Automated, Smart Irrigation, Agriculture, Humidity, Temperature, Root vegetables.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON

"TRAFFIC SIGNALS AND ACCIDENT STUDY ON NATIONAL HIGHWAY – 169 BETWEEN MOODBIDRI TO KARKALA"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING

IN

CIVIL ENGINEERING

Submitted By

DUSHYANTH K V	4AL19CV008
POOJA B P	4AL19CV026
SUHAS R S	4AL19CV039
POOJA B	4AL20CV407

Under the Guidance of

Mr. RAMESH RAO B

Assistant Professor

Department of Civil Engineering

ALVA'S Education Foundation®

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI – 574225

2022-2023

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI – 574 225

(Affiliated to VTU, BELAGAVI)

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

Certified that the project work entitled "**ACCIDENT STUDY ON NATIONAL HIGHWAY - 169 BETWEEN MOODBIDRI TO KARKALA**" is a Bona-field work Carried out by

DUSHYANTH K V	**4AL19CV008**
POOJA B P	**4AL19CV026**
SUHAS R S	**4AL19CV039**
POOJA B	**4AL20CV407**

bearing in partial fulfillment for the award of **BACHELOR OF ENGINEERING** in **CIVIL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2022–2023. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

Signature of the Guide	**Signature of the H.O.D**	**Signature of the Principal**
Mr. Ramesh Rao B	**Dr. H. Adith Hebbar**	**Dr. Peter Fernandes**

H.O.D.
Dept. of Civil Engineering
Alva's Institute of Engg. & Technology
Mijar, Moodbidri - 574 225

PRINCIPAL
Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 574 225, D.K

EXTERNAL VIVA

Name of the Examiners	Signature with date
1. Surendra. P	27/05/23
2. Suvarna. S.A	29/5/23

ABSTRACT

"Accidents are not natural but they are caused" is a common click in the area of traffic Safety. Thus, if accidents are caused by some, surely the ones responsible for could be identified and appropriate remedial measures developed and implemented to the extent feasible. Analysis of previous data indicates that 55% of the accidents occur due to human error and 45% due to road parameters such as road and vehicle interaction, other road user and environmental factors. India has a road network of 3.3 million km consisting of National Highway (NH), State Highway (SH), Major District Roads (MDR) and Other District roads (ODR). National Highways constitute 2% of the total road length and carries more than 40% of passenger traffic and 85% of goods traffic has registered more accidents accounting for 20%, as compared to other roads.

This project lays emphasis on accident studies on the 18.1 km long National Highway - 169section between Moodbidri to karkala in the State of Karnataka, India.

The Project has undertaken a study on NH-169 between Moodbidri to karkalla during the year 2018 and it runs through semi urban and rural areas. The accident data for the last four years was collected from the concerned police station and analaysed thereafter.

From the results of the analysis, it can be concluded that this National Highway section needs improvement from safety point of view. A large number of accidents have been occurring over such a small section of 18.1 km length. Proper traffic guidance and control system to guide road users ensuring safe movement of vehicles has been recommended and some of the facilities such as pedestrian crossings and median openings, acceleration and deceleration lanes should be re-designed in order to improve the safety of the road and minimize the accidents.

Key Words: Accident, Safety, Black spot, National Highways

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi- 590018

PROJECT REPORT ON

"SUBGRADE SOIL STABILIZATION USING INDUSTRIAL WASTE"

Submitted in partial fulfilment of requirements for the award of degree

BACHELOR OF ENGINEERING

IN

CIVIL ENGINEERING

Submitted by

ASHISH KUMAR	**4AL19CV004**
MAILAR KANER	**4AL19CV015**
YOGESH	**4AL19CV043**
SANJEEVAKUMAR	**4AL19CV036**

Under the Guidance of

Prof. Tanvi Rai

Associate Professor

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

ALVA'S

Education Foundation

MIJAR, D.K- 574225

KARNATAKA

2022-23

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

(A Unit of Alva's Education Foundation®, Moodbidri)

"Shobhavana", Mijar, Moodbidri – 574 225, D.K.

DEPARTMENT OF CIVIL ENGINEERING

Certificate

This is to Certify the Following Students

ASHISH KUMAR	**4AL19CV004**
MAILAR KANER	**4AL19CV015**
YOGESH	**4AL19CV043**
SANJEEVAKUMAR	**4AL19CV036**

Have submitted the project work Report entitled on **"SUBGRADE SOIL STABILIZATION USING INDUSTRIAL WASTE"** For VIII semester B.E in Civil Engineering during the academic year 2022-23. The Project has been approved as it satisfies the academic requirements in report of Project work prescribed by Visvesvaraya Technological University for the award of degree in Bachelor of Engineering Degree.

.....	.....	.....
Prof .Tanvi Rai	**Dr. H Ajith Hebbar**	**Dr. Peter Fernandes**
Project guide & Co-ordinator	Head of the Department	Principal
	H.O.D. Dept. of Civil Engineering Alva's Institute of Engg. & Technology Mijar, Moodbidri - 574 225	PRINCIPAL Alva's Institute of Engg. & Technology, Mijar, MOODBIDRI - 574 225, D.K.

External Examiners

1)

2) Swapna. S.A

Signature with Date 2/5/23

ABSTRACT

Soil stabilization is an essential technique employed in civil engineering to improve the engineering properties of subgrade soils. The use of industrial waste materials for soil stabilization has gained significant attention in recent years due to their potential as cost-effective and sustainable alternatives. This abstract provides an overview of the concept and effectiveness of subgrade soil stabilization using industrial waste.

The objective of this study is to evaluate the feasibility and performance of various industrial waste materials for subgrade soil stabilization. Industrial waste materials such as fly ash, Ground granulated blast furnace slag, Quarry dust, are considered in this research. These materials are abundantly available as byproducts of industrial processes, making them attractive options for soil stabilization.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi- 590018

PROJECT REPORT ON

"ANALYSIS AND DESIGN OF RC DECK SLAB BRIDGE"

Submitted in partial fulfilment of requirements for the award of degree

BACHELOR OF ENGINEERING

IN

CIVIL ENGINEERING

Submitted by

G MOHAMMED SHAHEER	4AL18CV014
MOHAMMED IRSHAD	4AL18CV020
NAMITH	4AL18CV023
MUHAMMAD SAFWAN	4AL19CV022

Under the Guidance of

Mr. Surendra. P
Assistant Professor
DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY
MIJAR, D.K- 574225
KARNATAKA

2022-23

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

(A Unit of Alva's Education Foundation®, Moodbidri)

"Shobhavana", Mijar, Moodbidri – 574 225, D.K.

DEPARTMENT OF CIVIL ENGINEERING

Certificate

Certified that the project work entitled "**ANALYSIS AND DESIGN OF RC DECK SLAB BRIDGE**" is the bonafide work carried out by

G MOHAMMED SHAHEER	**4AL18CV014**
MOHAMMED IRSHAD	**4AL18CV020**
NAMITH	**4AL18CV023**
MUHAMMAD SAFWAN	**4AL19CV022**

in partial fulfilment for the award of Bachelor of engineering in civil engineering of **Visvesvaraya Technological University, Belagavi** during the academic year 2022-2023, it is certified that all corrections and suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirement in respect of project work prescribed for the said degree.

24/05/23

Mr. Surendra. P
Project Guide

Dr. H Ajith Hebbar
Head of the Department

H.O.D.
Dept. of Civil Engineering
Alva's Institute of Engg. & Technology
Mijar, Moodbidri - 574 225

Dr. Peter Fernandes
Principal

PRINCIPAL
Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 574 225, D.K.

External Examiners

Signature with Date

1) Surendra. P

24/05/23

2) Swapna. S A

23/5/23

ABSTRACT

Bridge is structure which carries a road or railway across a natural or artificial obstacle such as a river, a canal or another railway or road. Designs of bridges vary depending on the function of the bridge, the nature of the terrain where the bridge is constructed and anchored, the material used to make it, and the funds available to build it.

The bridge at Kuloor (12.938828 N, 74.931107'E) is the only direct route connecting Mangalore and Bajpe. The river Phalguni serenely flows below it. Currently, the bridge is in a bad state. In brief, the bridge needs repair and maintenance even as the traffic just flows over it. The road is too narrow to allow the vehicles in both the directions. The local people have been clamoring for a new bridge from the past several years, but nobody is bothering to take the respective measures. They are also terrified that it may fail to serve the needful purpose.

The main objective of this project is to solve the problems faced by the people at kuloor. The present span and width of the bridge is 187m and 4.5m respectively. The methodology involved is to analyze and design the new RC Deck slab bridge for the span of 180m and width of 16m (4 lane) with IRC 70R+A loading using the STAAD.Pro software.

The analysis and design of RC Deck Slab Bridge has been carried out through the STAAD Pro software as per the IRC guidelines and the following results have been noted. The maximum deflection due to loads on bridge is 77.63mm and also the total quantity of concrete and steel required is 8827.63m^3 and 699968 kg respectively.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON

"ANALYSIS OF AUTOCLAVED AERATED CONCRETE BLOCKS WITH REFERENCE TO ITS POTENTIAL"

Submitted in partial fulfillment of the requirements for the award of degree.

BACHELOR OF ENGINEERING

IN

CIVIL ENGINEERING

Submitted By

PRAJWAL DK	4AL18CV029
SHREE ANIL PATIL	4AL18CV040
HANUMESH	4AL19CV010

Under the Guidance of

Dr.H.G.Umeshchandra

Associate Professor

Department of Civil Engineering

ALVA'S

Education Foundation®

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI – 574 225.

2022-2023

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY
MOODBIDRI – 574 225
(Affiliated to VTU, BELAGAVI)
DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

Certified that the project work entitled **"ANALYSIS OF AUTOCLAVED AERATED CONCRETE BLOCKS WITH REFERENCE TO ITS POTENTIAL"** is a bonafide work carried out by

PRAJWAL DK	**4AL18CV029**
SHREE ANIL PATIL	**4AL18CV040**
HANUMESH	**4AL19CV010**

in partial fulfillment for the award of Bachelor of Engineering in civil engineering of **Visvesvaraya Technological University, Belagavi** during the academic year 2022-2023, it is certified that all corrections and suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirement in respect of the project work prescribed for the said degree.

Signature of the Guide	**Signature of the H.O.D**	**Signature of the Principal**
Dr. H.G.Umeshchandra	**Dr. H Ajith Hebbar**	**Dr. Peter Fernandes**
Associate Professor		

H.O.D. Civil Engineering Alva's Institute of Engg. & Technology Mijar, Moodbidri - 574 225

PRINCIPAL Alva's Institute of Engg. & Technology, Mijar. MOODBIDRI - 574 225, D.K

EXTERNAL VIVA

Name of the Examiners	Signature with date
1. Surendra P	27/01/23
2. Swapna S.A	27/1/23

ABSTRACT

The use of Autoclaved Aerated Concrete (AAC) blocks as a sustainable building material has gained significant attention due to their lightweight, thermal insulation properties, and environmental benefits. This experimental study aims to investigate the strength characteristics of AAC blocks under different loading conditions. The research involved a series of laboratory tests conducted on AAC block specimens to evaluate their compressive strength. The findings provide valuable insights into the mechanical behavior of AAC blocks and contribute to their application in the construction industry.The experimental program consisted of fabricating AAC block specimens of standard dimensions. The blocks were cured according to the manufacturer's guidelines and subjected to various tests. The compressive strength test was conducted using a universal testing machine, applying a vertical compressive load to the specimen until failure occurred. The flexural strength test involved applying a three-point bending load to determine the load-deflection behavior of the AAC blocks. Shear strength tests were conducted to evaluate the resistance of the blocks to lateral forces.

The results of the compressive strength tests revealed that the AAC blocks exhibited an average compressive strength of , exceeding the minimum strength requirements specified by relevant building codes. demonstrating their ability to withstand bending stresses. , highlighting their resistance to lateral forces.In addition to the strength tests, the study investigated the effect of varying parameters on the strength characteristics of AAC blocks. The influence of different curing periods, block densities, and mix proportions were examined to understand their impact on the overall strength performance. The findings indicated that longer curing periods and higher block densities resulted in increased strength properties, while variations in mix proportions had a marginal effect on the strength.

The experimental study also evaluated the durability of AAC blocks by subjecting them to freeze-thaw cycles and assessing their performance. The results showed that the AAC blocks exhibited minimal deterioration and retained their structural integrity even after multiple freeze-thaw cycles, confirming their suitability for regions with harsh climatic conditions. In conclusion, this experimental study provides a comprehensive understanding of the strength characteristics of AAC blocks. The findings demonstrate that AAC blocks possess excellent compressive strength properties, meeting the necessary standards for construction applications. The investigation of various parameters contributes to optimizing the production and performance of AAC blocks. The durability assessment further confirms their resilience against environmental conditions. These findings encourage the wider adoption of AAC blocks as a sustainable and high-performance alternative to conventional construction materials.

Keywords: Autoclaved Aerated Concrete (AAC), AAC blocks, compressive, experimental study, sustainable building material.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON

"COASTAL EROSION STUDY USING MULTI DATED SATELLITE IMAGES FOR MANGALORE – UDUPI REGION"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
CIVIL ENGINEERING

Submitted By

BONNY WANGKHEM	**4AL19CV006**
AMEER HUSSAIN	**4AL19CV003**
JENIYA KATH	**4AL19CV012**

Under the Guidance of
Dr. H Ajith Hebbar
Head Of Department
Department of Civil Engineering

ALVA'S
Education Foundation

DEPARTMENT OF CIVIL ENGINEERING
ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY
MOODBIDRI – 574 225.

2022-2023

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY
MOODBIDRI – 574 225
(Affiliated to VTU, BELAGAVI)
DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

Certified that the project work entitled "**COASTAL EROSION STUDY USING MULTI DATED SATELLITE IMAGES FOR MANGALORE – UDUPI REGION**" *is a bonafide work carried out by*

BONNY WANGKHEM	**4AL19CV006**
AMEER HUSSAIN	**4AL19CV003**
JENIYA KATH	**4AL19CV012**

in partial fulfillment for the award of BACHELOR OF ENGINEERING in **CIVIL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2022–2023. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

Signature of the Guide	**Signature of the H.O.D**	**Signature of the Principal**
Dr. H Ajith Hebbar	**Dr. H Ajith Hebbar**	**Dr. Peter Fernandes**
	H.O.D.	**PRINCIPAL**
	Dept. of Civil Engineering	**Alva's Institute of Engg. & Technology**
	Alva's Institute of Engg. & Technology	**Mijar, MOODBIDRI - 574 225, D.K**
	Mijar, Moodbidri - 574 225	

EXTERNAL VIVA

Name of the Examiners	Signature with date
1.....	.....
2.....	.....

ABSTRACT

Coastal erosion is the gradual or rapid removal of material from beaches, dunes, cliffs, or other coastal features. It is a natural process that can be influenced by human activities such as coastal development, dredging, and climate change. Coastal erosion can have significant economic and environmental impacts, including loss of property, habitat, and infrastructure. Understanding the causes and effects of coastal erosion is important for developing effective management strategies to mitigate its impacts. Possible solutions include beach nourishment, coastal armoring, and managed retreat. However, each approach has its own advantages and disadvantages, and their effectiveness depends on the specific context and objectives of the management plan.

The topic is **"Coastal Erosion Study Using Multi Dated Satellite for Mangalore to Udupi Region".** Various developmental projects have come up in the coastal zone of Mangalore and Udupi districts in the last few decades. A number of beaches are subjected to erosion and lots of coastal properties are destroyed specially during SW monsoon season along the Mangalore coast in recent years. In order to protect the beaches and the properties, a number of seawalls - each ranging in length between 100 m and 2500 m - are built since 1980s. A very few of them built scientifically, but most of them are just dumping of granite blocks directly on the shoreline. In the present study, an attempt is made to understand long-term (1967-2013) shoreline changes as well as erosion / deposition patterns due to natural (including sea-level rise) and anthropogenic activities along this coast. The study area extends from Yermal in the north to Talpady in the south covering a total length of 45.63 km. Topomap of 1967 and multi-temporal satellite images have been analyzed using Remote Sensing and GIS techniques to demarcate shoreline positions and to assess the impact of anthropogenic and hydrological factors on coastal morphology of this region. An integrative approach of Remote Sensing and GIS techniques as well as seasonal field studies clearly illustrates the reasons for shoreline and beach morphological changes. Construction of seawalls has resulted in shifting of erosion sites from one place to another adjacent place, whereas, breakwaters have been acting as barriers for littoral drift. Overall, areas subjected to erosion are higher compared to those subjected to accretion in the study area. Applications of Remote Sensing and GIS have led to understanding shoreline and beach morphological changes. These have also provided data analysis tools and methods to evaluate the geospatial patterns in short-term and long-term changes.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590010

PROJECT REPORT ON

"CRITICAL PATH METHOD (CPM) ANALYSIS AND SCHEDULING OF THE PROJECT USING-PRIMAVERA"

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

BACHELOR OF ENGINEERING
IN
CIVIL ENGINEERING

Submitted By

HANAMANAT R DODAMANI	**4AL19CV009**
NALAN JOSH DSOUZA	**4AL19CV023**
SAGAR K	**4AL19CV032**

Under the Guidance of

Mr. RAMESH RAO B
Assistant professor

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY
MOODBIDRI – 574 225.

2022-23

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR MOODBIDRI D.K. -574225, KARNATAKA.

ALVA'S
Education Foundation

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

Certified that the project work entitled **"A CASE STUDY OF PLANNING AND MANAGING PROJECTS USING PRIMAVERA (P6) PROJECT PLANNER"** is a Bonafield work carried out by

HANAMANT R DODAMANI	4AL19CV009
NALAN JOSH DSOUZA	4AL19CV023
SAGAR K	4AL19CV032

Are bonafide student of Department of Civil Engineering of Alva's Institute of Engineering and Technology in partial fulfillment for the award of BACHELOR OF ENGINEERING in **CIVIL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2022-2023. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

Mr. Ramesh Rao B	**Dr. H Akb Hebbar**	**Dr. Peter Fernandes**
Project Guide	**Head of the Department**	**PRINCIPAL**

Dept. of Civil Engineering
Alva's Institute of Engg. & Technology
Mijar, Moodbidri - 574 225

Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 574 225, D.K

Name of the Examiners **Signature with Date**

1. Surendra.P 25/5/23
2. Swapna. S.A 25/5/23

ABSTRACT

Proper Planning and Scheduling is very important in construction projects for reducing and controlling delays of the projects. Substantial amount of time, money, resources are wasted each year in a construction industry due to improper planning and scheduling.
The wide acceptance of this software, especially in industries of developing cities has made the project managers to easily handle the large projects effectively and also resultedin low cost as when compared to conventional methods of management of project. These results indicate that this management tool has many features and benefits to lead to a successful project completion. The acceptance of the software Primavera as a platform ofscheduling is been on a boom in Multi-National companies, but due to ignorance andlack of Project Management concepts and discourage towards the use of computer based programs, small and medium scale Indian construction companies confront various issues such as inefficient planning, project delays, inefficiency of resources and other issues. Therefore, we also attempt to educate one such medium scale construction company about the advantages of Primavera in execution of any construction projects efficiently.