

**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**



**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

**Dr. H Ajith Hebbar**

Signature of the H.O.D

**Dr. H Ajith Hebbar**

**Dept. of Civil Engineering**

**Alva's Institute of Engineering & Technology**  
**Mijar, Moodbidri - 574 225**

Signature of the Principal

**Dr. Peter Fernandez**

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

**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.