

**VISVESVARAYA TECHNOLOGICAL
UNIVERSITY, BELAGAVI- 590 018**



MICRO PROJECT REPORT

ON

“CONCRETE MIX DESIGN AS PER INDIAN STANDARD CODE”

Submitted By,

4AL20CV407	POOJA B
4AL20CV408	POOJA SANJAY BALLARI
4AL20CV409	PRERANA SHETTAR
4AL20CV410	RAGHU R

Under the Guidance of

Mr. BILLIGRAHAM M KURIAN

Assistant Professor



**DEPARTMENT OF CIVIL ENGINEERING
ALVA'S INSTITUTE OF ENGINEERING AND
TECHNOLOGY MOODBIDRI-574225, KARNATAKA**

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ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR, MOODBIDRI D.K. -574225

KARNATAKA



DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

This is to certify that the Micro-Project entitled **"CONCRETE MIX DESIGN AS PER INDIAN STANDARD CODE"** has been Successfully Completed

By


4AL20CV407 POOJA B

4AL20CV408 POOJA SANJAY BALLARI

4AL20CV409 PRERANA SHETTAR

4AL20CV410 RAGHU R

The bonafide students of Department of Civil Engineering, Alva's Institute of Engineering and Technology, affiliated to VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI, during the academic year 2020-2021. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report. The report has been approved as it satisfies the academic requirements in respect of Micro-Project work prescribed for Bachelor of Engineering.


Mr. Billigraham M Kurian
Mini Project Guide


Dr. H Ajith Hebbar
HOD

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

Abstract

The process of selecting suitable ingredients of concrete and determining their relative amounts with the objective of producing a concrete of the required, strength, durability, and workability as economically as possible, is termed the concrete mix design. The proportioning of ingredient of concrete is governed by the required performance of concrete in 2 states, namely the plastic and the hardened states. If the plastic concrete is not workable, it cannot be properly placed and compacted. The property of workability, therefore, becomes of vital importance.

The compressive strength of hardened concrete which is generally considered to be an index of its other properties, depends upon many factors, e.g. quality and quantity of cement, water and aggregates; batching and mixing; placing, compaction and curing. The cost of concrete is made up of the cost of materials, plant and labour. The variations in the cost of materials arise from the fact that the cement is several times costly than the aggregate, thus the aim is to produce as lean a mix as possible. From technical point of view the rich mixes may lead to high shrinkage and cracking in the structural concrete, and to evolution of high heat of hydration in mass concrete which may cause cracking.

The actual cost of concrete is related to the cost of materials required for producing a minimum mean strength called characteristic strength that is specified by the designer of the structure. This depends on the quality control measures, but there is no doubt that the quality control adds to the cost of concrete. The extent of quality control is often an economic compromise, and depends on the size and type of job. The cost of labour depends on the workability of mix, e.g., a concrete mix of inadequate workability may result in a high cost of labour to obtain a degree of compaction with available equipment.