

## **Alternative Planning and Design of M. I. Tank At Kosabi**

Pashte Akshay Chandrakant      Pawar Shubham Sunil

Padave Akshay Ramesh              Patil Sachin Subhash

Name of Guide: Prof. Komal Shinde

### **Abstract**

Due to non-uniform distribution of rainfall characterized by heavy downpour in a short period followed long dry periods, it has necessitated the design of artificial structures to store water during heavy downpour to control floods which the same water will be used for irrigation as well as drinking during dry periods.

The overall objective of this project is to design an off-stream earth dam of sufficient capacity which will be used to supply adequate water for irrigation as well as domestic purposes.

The specific objectives of the design project were to: review geophysical condition of the site which included obtaining geotechnical, topographical and hydrological data. By changing factor storage capacity estimate the reservoir capacity and find the Alternative design of the M.I. Tank (Earthen dam).

Based on the information obtained, the dam's structural specifications such as height of embankment, slopes, crest width spilling capacity and volume of earthworks were determined. The system designed was big enough to supply the necessary water for irrigation as well domestic use. Doing alternative design of the earthen dam by changing any factor like height, storage capacity, downstream slope, upstream slope etc. which will aid in development of knowledge about designing earthen dam.

## **Analysis of Elevated Water Tank Using ETABS**

Mulla Mohasin Hasan

Mulye Mrunmay Madhav

Lingayat Dinesh Chandrashekhar

Patil Siddhi Ramchandra

Name of Guide: Prof.Venkatesh  
Taduvai

### **Abstract**

In order to complete in the ever growing competent market it is very important for a structural engineer to save time as a sequel to this an attempt is made to analyze elevated water tank by using a software package ETABS. For analyzing elevated water tank one has to consider all the loadings and see that the structure is safe against all possible loading conditions.

There are several methods for analysis of different frames like kani's method, cantilever method, portal method and matrix method. The present project deals with the analysis of elevated water tank. The dead load, superimposed load, seismic load, wind load are applied and the design bracings and columns is obtained ETABS with its new features surpassed its predecessors, and compotators with its data sharing capabilities with other major software like AutoCAD and MS Excel.

## **Coconut Coir Fibre Reinforced Concrete**

Pawar Tejas Tulshiram

Name of Guide: Prof. Shekhar G. Sawant

### **Abstract**

Natural fibers are those fibers which are pollution free, environment friendly and does not have any bad effect on climate. Every year there is ample amount of wastages of natural fiber .If these natural fibers used as a construction material it could save the bio-reserves. They acts as green construction material. Amongst all natural fibers, CF is the fiber which has the better physical and chemical property also it is renewable, cheap, resistant to thermal conductivity, more durable, highest toughness, most ductile then the other natural fiber, it can take strain four time more than other fibers. Hence, CF is a best material to be used in construction. The objective of this investigation is to enhance the strength properties of concrete using coconut fiber.

Addition of CF resulted into cohesive mix. To overcome this drawback the suitable dosage of admixture was incorporated without effecting it strength properties. In the present study the behavior of specimen with respect to compressive strength and the cracking behavior of concrete and CFRC has been investigated. Per I.S. specification different test is conducted to enhance the workability and strength properties by addition of CF. different test such as slump test and flow table test on fresh concrete is carried out and compressive strength and split tensile strength is carried out on hard concrete.

## **Design and Analysis of Underground Water Tank by using ETABS**

Patil Jagadish Dnyandev

Kadam Sagar Satyavan

Ambre Sanket Santosh

Gunijan Anup Narendra

Name of Guide: Prof. Mandar Pawari

### **Abstract**

To fulfill the water requirement in summer season and also reducing the water scarcity effect in MPCOE campus Velneshwar, we are designing a rain water harvesting system for our college campus.

Ground catchment is a broad term that describes all types of ground surfaces that serve as source of surface runoff used in water harvesting. Most ground surfaces are covered by soil, thus, water harvesting is hampered by losses due to infiltration, soil moisture storage, deep percolate losses, evaporation and transpiration by plants. Therefore, the runoff coefficient of ground catchments is low. Furthermore, ground catchments yield runoff that is laden with sediments, dirt, as well as other pollutants. But due to the vastness of available runoff, e.g. in watershed, they offer the best option for large scale water harvesting projects. Same situation happens at selected project site. Hence we are trying to eliminate those losses by providing proper drainage system as well as good water collection system which is required to our project.

The average annual rainfall in the campus area is about 3100 mm per year. The college campus area is about 33 acres. We can collect the rain water from the catchment area of 13 acres. The water we will collect in four months of rainy season is about  $19,688 \text{ m}^3$  or 1,96,68,090 liters. As this is very huge quantity of water sufficient quantity of water will be stored in underground water tank which we are designing. The water from this tank will be pumped to overhead water tank which is already built in campus also for college and hostel buildings.

## **Design Development and Estimation of Hill Road on Strip of Arabian Coast**

Hodbe Tushar Vijay

Kale Leena Prakash

Mestri Ajinkya Murlidhar

Pawar Kunal Sanjay

Name of Guide: Prof. Nandkishor S. Chougule

### **Abstract**

India has vast area located in hilly regions of Northern and North-Eastern regions and border area of the country. Apart from these, there are several hilly and mountainous areas in the Western Ghats and several other interior parts of the country. Roads in high altitude possess other special problems such as high rainfall and landslides during and after rainy season; also, problems such as snowfall and avalanche may exist in winter season. Therefore, hill roads need special attention in order to address the special problems and challenges. Selection of suitable alignment in hill regions is complex job where the valley pattern takes radial form and where the valley converges in the knot of mountains due to meeting of several mountains. While designing, a number of sharp horizontal curves and 'hair-pin bends' cannot be avoided.

## **Design of Waste Water Treatment Plant For Rural Area Sakhariagar, Guhagar, District Ratnagiri, State Of Maharashtra**

Tandel Pranay Kusha

Pashte Diksha Dilip

Pandit Bhushan Vilas

Pawar Sonali Anil

Name of Guide: Prof. Mandar J. Pawari

### **Abstract**

All of we know that development of any country is depend upon the development of the rural area within that country. In India almost in all villages all facilities like transportation, electricity and water are available, but some of the rural area still not having facility like transportation, electricity and water sources. In some of the villages water facilities are available, but no any disposal facilities are available. Due to directly dispose of waste water into surrounding it directly effect on environment sources of water. So it is necessary to take care during disposal of waste water.

We are going to study one of the rural area. The name of this village is sakhariagar in guhagar, district Ratnagiri. In this village all the waste water is disposed into three ways. Some of the houses dispose their waste water into river .Some houses dispose their waste water into sea. Out of 237 houses 13 house disposing their waste into their gardens. So it is directly effect on river, sea and garden respectively. Sewage contain organic matter, suspended solid and chemicals which causes skin infection to the children during swimming and disturbance to aquatic system.

Here we are going to provide low cost treatment method for the disposal of sewage for same village. So that we can use that treated water for flushing, gardening and domestic purpose which can be minimise shortage problem of water in summer season. It will also help to minimise the harmful effect of waste water over a sea and river and we can sustain the aquatic life.

## High Strength Concrete by Passing Electric Conductivity

Sutar Priya Ravindranath

Shigvan Mayur Vijay

Ghorpade Jyoti Vijay

Gargade Rohit Raju

Name of Guide: Prof. Venkatesh Taduvai

### **Abstract**

Concrete is one of the oldest manufactured construction material used in construction of various structures around the world. Due to its high demand the material used for concrete production depleting every year. In this study electric conductivity was used in concrete for increasing the strength of concrete. The scope of study includes the investigation on the compressive strength and to get early age setting of concrete. The main objective of the research is to study the bypassing electric current through the concrete to increasing the strength of concrete.

The method of study to be carried out is through the appropriate test of aggregates. The types of test done were specific gravity test and water absorption test. All the test have been carried out and the result had been recorded and analyzed in appropriate table and graph.

## **Landslide Investigation and Remedial Measures, in Guhagar**

Surve Premkumar Eknath

Gurav Dipak Vinayak

Sawant Nikhil Pramod

Wadekar Shweta Suresh

Name of Guide: Prof. Komal S. Shinde

### **Abstract**

In recent time the hazards due to natural and man-made activity in India and all around the globe increasing rapidly. One such example of the natural hazards is landslide, which have the effects in socio-economic way on the society. Konkan is also one of region highly prone to landslide, to understand their technical aspects we undertake investigation at some selected sites in Guhagar. First stage of project is the pre-field interpretation in which we studied of various past literature review, collection of data, maps, study of landslide, geology, geomorphology of site and then we collected soil sample for testing in lab. The second stage is providing remedial measures for selected sites from the obtained results and data.



## **Reservoir Planning, Design and Distribution**

Chiplunkar Sihab Mehboob

Kambale Tejas Anant

Bangal Sujit Chandrakant

Pawar Pankaj Dilip

Name of Guide: Prof. Mandar J. Pawari

### **Abstract**

The economic and social status of country depends upon the water resources of country. As the result of rapid growth in population and industrialization, shortage of water resource is experienced. Hence efficient utilization of water resource is of paramount importance for any society. The rainfall distribution in India varies over time as well as place. With such an uneven distribution of rainfall if it would be necessary to construct reservoir for shorting water during excess rainfall periods and to transfer the required quantity of water at given location in given time period with designer quality of water to fulfill the objective.

A reservoir is a pool of water created by an obstruction across the river and canal. The basic function of a reservoir is to store water for various purposes such as irrigation, hydropower, water supply and flood control. Reservoir help to maintain the balance between water resource and water demand.

A reservoir operation policy specified the amount of water to be released from storage at any time depending upon the state of reservoir, level of demand and any information about the likely inflow in to the reservoir. In this project we are going to planning and designing a reservoir in Burondi village which is situated Dapoli, Dist Ratnagiri. It can minimize the water shortage problem in Burondi village. In the present study, methodology of deterministic dynamic programming is demonstrated over the existing system of reservoir to determine monthly optimal operating policies by duly considering all the relevant data.

## **Upgradation of Chiplun Railway Station**

Bandagale Avinash Dattaram

Gurav Kedar Harishchandra

Mandavkar Amar Tukaram

Patil Tejas Jaywant

Name of Guide: Prof. Nandkishor S. Chougule

### **Abstract**

Chiplun is a developing city in Maharashtra. As it is rapidly developing the city is very costly. Chiplun railway station is located in Chiplun city on the line of konkan railway. Now a day's railway transport is a life line of the country. Easy and quick transportation of men, heavy machines, animals, materials and goods can be made by railways. Areas which are connected by railways can be developed fast. Railway plays an important role in development of the country.

Now a day's number of trains are increased by year by year due to its huge requirement. But the capacity of the railway station is same. For carrying the traffic of increased number of trains, it is necessary to increase the capacity of station by increasing number of platforms and tracks. The same situation on the Chiplun railway station. There are only two platforms for parking the passenger trains and the traffic of trains is more on the konkan railway line. It is necessary to increase the number of platforms on the Chiplun railway station because maximum trains having halt on Chiplun station including passenger and wagon trains. According to future point of view it can be increased upto 1.5times because connection of new railway line between Chiplun and Karad and Chiplun station will get a Junction status.

## **Behaviour of concrete after adding PET Fibre**

Kamble Suchit Chandrakant  
Surve Radhika Sudhir

Kumathekar Vinayak Pandurang  
Vichare Ruchita Gajanan

Name of Guide: Prof. Shekhar G. Sawant

### **Abstract**

Polyethylene terephthalate (PET) as alternative construction entity. As plastic is non biodegradable, its disposal has been a problem. Recently, PET fibers were proposed to be used as either reinforcement in concretes or being casted as blocks. And recent studies show that they can be accepted as successful building materials. Although PET fiber reinforced concrete offer less compression strength and flexural rigidity than conventional concrete but it offers high ductility thereby increasing deforming capability of the concrete. Also, it reduces the density of the reinforced concrete thus aiding in light weight materials production.

This paper also presents the study on some other innovative ideas like PET panels and mattress or direct use of PET bottles for construction of non load bearing walls with suitable fillers. The solution offered in the paper is one of the answers to long standing menace of waste disposal Fiber-Reinforced concrete represents the current tendency to apply more efficient crack resistant concrete. For instance, Polyethylene terephthalate (PET) is a polyester polymer obtained from recyclable bottles; it has been widely used to produced fibers to obtained cement - based products with improve properties. Therefore, this paper reports on an experimental study of recycled-bottle-PET fiber-reinforced concrete. Fibers with lengths of 100mm and volume fraction of 0.5%,0.75% and 1% related to the volume of the concrete were used.

Physical and mechanical characterization of the concrete was performed, including the determination of compressive strength, flexural strength as well as analysis using mercury intrusion porosimetry (MIP) and scanning electron microscopy(SEM). Flexure and impact test were performed after 28 days. NO significant effect of the fiber addition on the compressive strength and modulus of elasticity was observed. However, the Young's modulus was observed to decrease as the fiber volume increased. At 28 days, the concrete flexural toughness and impact resistance increase with the presence of PET fibers, except for the 0.05 volume % sample. However, at 150 days, this improvement was no longer present due to recycled-bottles-PET fiber degradation in the alkaline concrete environment, as visualized by SEM observations. An increase in porosity also has occurred at 365 days for the fiber-reinforced concrete, as determine by MIP.

## **Performance Anaysis of Concrete by Using E- Waste**

Pawaskar Pritam Krishna  
Tamore Bhavak Gajanan

Shirgaonkar Akshay Ashok  
Yadav Sutej Santosh

Name of Guide: Prof. Shekhar G. Sawant

### **Abstract**

Recently the electronics industry had made advancement with leaps and bounds in the production of products. The amazing developments have certainly enriched the quality of our lives. Rapid growth of technology, up gradation of technical innovations and a high rate of obsolescence in the electronics industry have led to one of the fastest growing waste streams in the world, simply called as E-waste. Improper disposal of E-waste can cause serious threats to human health and environment

We are in project shown that there is a strongly possibility of E-waste being used as substitute or replacement of aggregate. Its use in concrete becomes more significant and important in view of the fact that sources of natural aggregates are getting depleted gradually, and it is of prime importance that substitute of aggregates be explored

This project we are use of E-waste in concrete. The main aim of this study is to investigate the change in mechanical properties of concrete with the addition of Electronic waste in concrete.

## **Pervious Concrete Pavement**

Bhagat Suraj Devidas Bhosale

Siddhesh Chandrashekhar

Rahate Prathamesh Anand

Rahate Raturaj Arun

Name of Guide: Prof. Shekhar G. Sawant

### **Abstract**

Our cities are being covered with building and the air-proof concrete road more and more. In addition, the environment of city is far from natural. Because of the lack of water permeability and air permeability of the common concrete pavement, the rainwater is not filtered underground. Without constant supply of water to the soil, plants are difficult to grow normally. In addition, it is difficult for soil to exchange heat and moisture with air, therefore, the temperature and humidity of the Earth's surface in large cities cannot be adjusted. This brings the phenomenon of hot island in city. At the same time, the splash on the road during a rainy day reduces the safety of traffic of vehicle and foot passenger.

Pervious concrete is a special type of concrete with a high porosity used for concrete flatwork applications that allows water from precipitation and other sources to pass through it, thereby reducing the runoff from a site and recharging ground water levels. Typically pervious concrete has little to no fine aggregate and has just enough cementations paste to coat the coarse aggregate particles while preserving the interconnectivity of the voids. Pervious concrete is traditionally used in parking areas, areas with light traffic, pedestrian walkways and greenhouses. Pervious Concrete is an important application for sustainable construction.

Pervious concrete allows for runoff volume, rate control and pollutant reductions. Projects use pervious concrete to meet post-construction storm water quantity and quality requirements. The use of pervious concrete can potentially reduce additional expenditures and land consumption for conventional storm water collection, conveyance, and detention infrastructure. It also has a naturally brighter surface than traditional asphalt, which will reduce lighting needs and increase nighttime safety. Pervious concrete can be designed to handle heavy loads.

**Performance Evaluation of  
Sewage Treatment plant  
at MPCOE Campus**

Gurav Nitin Baliram  
Sakharkar Madhura Manish

Kasekar Dilip Bhikaji  
Malgunkar Pranoti Pandurang

Name of Guide: Prof. Shekhar G. Sawant

**Abstract**

The present study has been undertaken to evaluate the performance of sewage treatment plant (STP) located at MPCOE, Velneshwar campus. It is essential to monitor parameter of this effluent as the treated water is used for gardening and flushing purpose. The samples were collected from inlet, aeration tank and outlet of STP. Quality parameter is analyzed and it is observed that there was negligible change in quality parameter at inlet and outlet. Thus, the efficiency of STP is very less; to enhance the efficiency of STP various provisions is to be made. To increase the DO level in aeration tank control valve is fixed, which reduces the flow in aeration tank and sewage get more time to aerate. Further improvements like provision of tube settler, performance analysis of filter and aeration grid at equalization tank are in planning phase. Present work emphasizes on every possible attempt to improve overall performance of STP

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There are several methods for analysis of different frames like kani's method, cantilever method, portal method and matrix method. The present project deals with the analysis of elevated water tank. The dead load, superimposed load, seismic load, wind load are applied and the design bracings and columns is obtained ETABS with its new features surpassed its predecessors, and compotators with its data sharing capabilities with other major software like AutoCAD and MS Excel.

## **Strom Water Drainage System for Chiplun City (Market)**

Narvekar Akash Dattaram

Panchal Nikhita Mohan

Vaidya Ashwini Sadanand

Name of Guide: Prof. Mandar J. Pawari

### **Abstract**

A scientific drainage system to catch the storm water is a long term ambition of the society especially in cities. Increasing development activities have called badly for the necessity of discharging runoff safely in to environment. The purpose of this project is to find an effective solution to the consistent problem of blockages and water logging in city of Chiplun. The project is not intended to design the Storm water drainage system for all roads of the city, but is restricted to the main roads where the problem of water logging arises every year. This report includes the information about the situation in the market of Chiplun city, problems faced by the citizens as well as shop owners, information about Storm water drainage system and the design criteria adopted in the project and design details of the storm water drains. It suggests the basic design and outline of the storm water drainage system, its components, and factors affecting the design of the system, the design criteria of the system and design details of the drains.