



Vidya Vikas Education Trust's

# Universal College of Engineering

Near Bhajansons and Punyadham, Kaman Bhiwandi Road, Vasai, Palghar-401208.  
(Permanently Unaided | Approved by AICTE, DTE & Affiliated to University of Mumbai)

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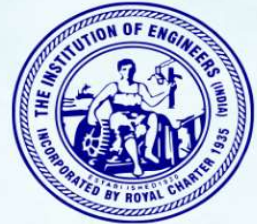
NOVEMBER 2021

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THE

BENCHMARK



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## Editor's Desk



We are pleased to present November 2021 edition of Benchmark. In this edition you will find an article on Millau Viaduct and contribution by Students and Faculty members of Department of Civil Engineering highlighted in the month of October. News update and departmental activities are the part along with Canva.

### Department Vision:

- To excel in every area of Civil Engineering, inculcate research oriented study to explore hidden talent.
- Providing Opportunity to display creativity, out of the box thinking & innovativeness, aimed at providing cutting edge technology for sustainable development.

### Department Mission:

- Providing qualified, motivated faculties to deliver the content using updated teaching methodology, inviting industry experts from various areas to disseminate subject knowledge in Civil Engineering.
- Motivating students to undertake the Research Oriented studies, participate in competitions at all levels, grasping new techniques and methods which can be improved on further.
- Conducting and participating in seminars, workshops and training programs with a view to make the students industry ready and improve their employability factor for global career ahead.
- To create quality professionals capable of planning, designing and analytical skills for better infrastructural development in the field of Civil Engineering.

## MILLAU VIADUCT

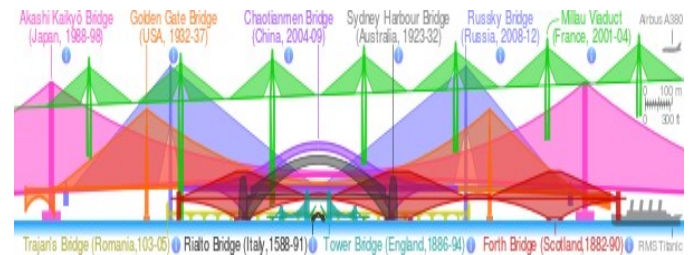
The world has seen many magnificent bridges and dam structure such as London Bridge situated in London, Golden Gate Bridge in San Francisco, Bandra-Worli Sea link in India and many more, but between all those elegant bridges there is one more miraculous bridge situated in Southern France known as Millau Viaduct.



Millau Viaduct is a multi-span cable-stayed bridge of height 343 meters and a length of 2,460 meters which was completed in 2004 across the gorge valley of the Tran near Millau in Sothern France. The design team was led by engineer Michel Virlogeux and English architect Norman Forest.

The very existence of this bridge came back from in 1980s when due to heavy traffic near Millau were causing congestion especially in the summer due to holiday traffic on the route from Pairs to Spain. Since by than a method of by-passing was considered, later this idea took place in the construction of Millau Viaduct. Simultaneously, a school of international experts representing a wide spectrum of expertise (technical, architectural, and landscape) was established to clarify the choices that had to be made. In February 1995, on the basis of proposals of the architects and structural engineers, and with support of the school of experts, five general designs were identified. A multiple-span viaduct cable-stayed bridge, presented by the structural engineering group Sogelerg, Europe

Etudes Gecti and Serf, and the architects Fosters' Partners was declared the best.



Hence, the construction of Millau Vaiduct was started on 16<sup>th</sup> October 2001. All the members and companies of the eiffage group had some role in the construction work. The construction consortium was made up of the Eiffage Company for the concrete part, the Eiffel Company for the steel roadway, and the Enerpac Company for the roadway's hydraulic supports.

Appia Company was responsible for the job of the bituminous road surface on the bridge deck, and Forclum electrical installations. Management was handled by Eiffage Concessions. The only other business that had a notable role on the building site was Freyssinet, subsidiary specialising in prestressing. It installed the cable stays and the where put under tension, while the prestress division of Eiffage was responsible for prestressing the pillar heads. The steel road deck and the hydraulic action of the road deck were designed by the Walloon engineering firm Greisch from Liège . The sliding shutter technology of the piers came from PERI.



Hence in 2004 the construction of the bridge completed since then the deck height of Millau has been surpassed by several suspension bridges in China, including Side River Bridge, Baling River Bridge, and two spans over the Beipan River. Later

on, this bridge became the reason for improvement of local business in Millau. Due to this bridge, transportation became easy and therefore one can say that the construction of this bridge was a miracle for the people of France.

-BY PRANALI GUDEKAR  
B.E. CIVIL

### **DID YOU KNOW**

Millau Vaiduct has been consistently ranked as one of the greatest engineering achievement of modern times, and received the 2006 outstanding structure award from the international association for bridge and structural engineering

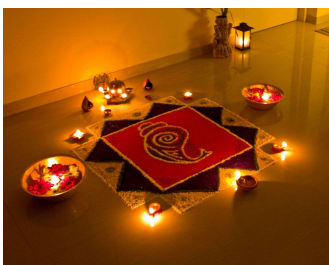
*To know more about Three Gorges Dam,  
Scan the QR Code*



### ***Scratch Your Head!!***

**1) Which of the following values of pH represents a stronger acid?**

- A. 2      B. 5  
C. 7      D. 10



Diwali is India's biggest and most important holiday of the year. The festival gets its name from row (avali) of clay lamps (diya) that Indians light outside their homes to symbolize the inner light that protects from spiritual darkness. Happy diwali everyone!!

"If you cannot do great things, do small things in a great way." If you cannot do great things, do small things in a great way."

## “TO ANALYSE THE TUNNEL USING PLAXIS 2D “

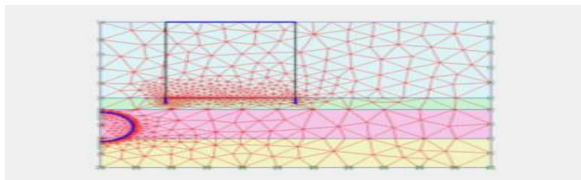
There has been considerable development in tunnel construction techniques in the last 200 years, especially since Marc Brunel's famous first use of a tunnelling shield when constructing the first tunnel under the River Thames in London in 1825. Nevertheless, if Marc or his son Isambard Kingdom Brunel were to look at today's tunnelling methods, they would see certain similarities with the techniques used in their day, particularly drill and blast and even tunnel boring machines (TBMs). The primary purpose of a TBM is to provide stability to the face and the surrounding ground, thus improving health and safety for the tunnellers, just as Brunel's own Thames Tunnel shield did. Although they would also notice great advances in technology, it would probably be the extent to which tunnelling has been used around the world and the sheer scale of many of these tunnels in terms of diameter, length and difficult construction conditions that would amaze them the most.

The first recorded use of gunpowder as a construction tool was for a pioneering tunnel of the canal age. This was constructed on the Canal du Midi, a canal built across France in the years 1666-81 connecting the Atlantic Ocean to the Mediterranean Sea. The main tunnel on this route was 157 m long with a rectangular cross section of 6.5 m by 8 m, and was built during the years 1679-81

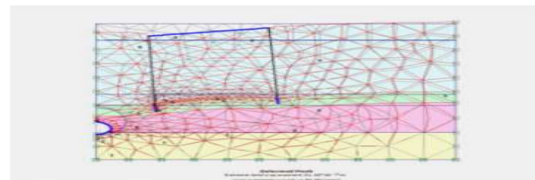
Civil engineering as a profession was largely created in the UK by the development of the canal system, which itself was part of the industrial revolution of the eighteenth century. Two significant tunnels of this era included the 2090 m Hare castle Tunnel, constructed using gunpowder as part of the Grand Trunk canal during the 1770s, and the 5000 m long tunnel at Stand edge, constructed through millstone grit. This latter took 17 years to complete and opened in 1811.

### MODEL 1 TUNNEL IS LOCATED AT DEPTH OF 18 M ON LEFT HAND SIDE FACE.

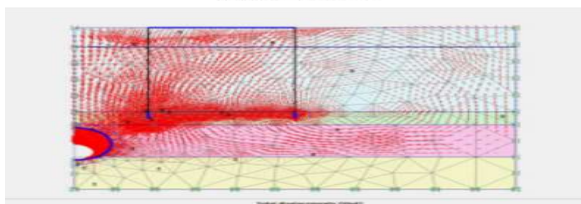
COMPONENT	LENGTH
MODEL	30 M*25M
TUNNEL DIAMETER	2.5 M
TUNNEL POSITION	LHS
TUNNEL DEPTH	18 M FROM GROUND LEVEL
SOIL LAYER	<ul style="list-style-type: none"> <li>• CLAY</li> <li>• SAND</li> <li>• PEAT</li> <li>• DEEP SAND</li> </ul>



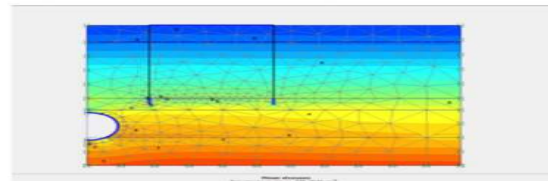
**GENERATION OF MESH**



**DEFORMED MESH**



**TOTAL DISPLACEMENT**



**MEAN STRESS**

**Prof. Naved Qureshi**  
Assistant Prof.  
Dept. of Civil Engg. ,UCoE

# News Bulletin



## Crane falls from 40ft height at B'luru metro site; workers unhurt

Several workers at a Bengaluru metro construction site escaped unhurt after a crane fell from a height of 40 feet on Sunday. Bangalore Metro Rail Corporation Limited (BMRCL) attributed the accident to a mechanical failure and said that while auto launching, "instead of taking support on its own leg, the crane was resting on the metro pier".



## 1 dead, 6 injured as beam of under-construction bridge collapses in Navi Mumbai

One labourer died while six others suffered injuries after the beam on the pillars of an under-construction bridge collapsed in Uran in neighbouring Navi Mumbai on Tuesday. The incident took place around 4:15 pm while the labourers were filling the cement-concrete mixture at the pillar's pier cap, according to the police.



## Jammu-Srinagar National Highway shut due to landslide caused by rains

The Jammu-Srinagar National Highway, the only road connecting Kashmir to rest of India, was shut due to a landslide triggered by heavy rains. SSP National Highway Shabir Ahmad Malik said it will take five hours to clear the landslide after the rain stops. Separately, traffic on Mughal Road, which connects Poonch and Rajouri to Shopian, was suspended due to snowfall.



## Over 20 killed amid heavy rains in U'khand, Naini lake overflows & floods streets

As many as 20-24 people have so far died due to heavy rain-related incidents in Uttarakhand as floods and landslides were reported from various parts of the state. Of these, the maximum number of deaths were reported from Nainital district, DGP Ashok Kumar said. Naini lake overflowed due to incessant rains, flooding the streets and entering buildings and houses.



## US to have world's 1st 3D-printed housing community: US startup

US-based construction technology startup Mighty Buildings and Palari Group announced they have started developing the world's first community of 3D-printed zero net energy homes in California. The community will have 15 eco-friendly homes, built using Mighty Buildings' 3D-printed panelized Mighty Kit system. Energy will be supplied by solar power, with optional Tesla Powerwall batteries.



The capacity to learn is a gift; the ability to learn is a skill; the willingness to learn is a choice.

# PLACEMENT CORNER

## **Company Name :BILTRAX**

Company Address :Nasscom Warehouse, Suite 304,  
Building No. 2, Millennium Business Park, Sector 1, Mahape,  
Navi Mumbai 400710, Maharashtra, India

We are India's leading source of Construction Market Intelligence

We are India's leading Market Intelligence provider and pioneers in Construction Relationship Analytics Platform for building product manufacturers, suppliers, architects, engineers, contractors and service providers. We help you identify and execute on growth opportunities for your services and product. With more than a decade's experience of our leadership team, we help our clients with actionable insights for their business development and sales initiatives.

The impact of market intelligence extends across departments and is directly tied to overachieving business goals. We help your sales and marketing teams by increasing their efficiency.

Unmatched Project Intelligence and Analytics

The penetration of digital construction technologies in India is still at a very nascent stage. For productivity gains, it is critical that the Indian construction fraternity adopts new workflows & technology platforms.

We @ Biltrax are passionate about introducing new technologies in areas of Document Management Systems, Internet Of Things (IOT), Workflows, Tracking Systems, Mobility, Drones, ERP & other innovations to the construction sector.

Using our insights & access, we can help accelerate the adoption of your scale-able technology product within the building industry

Find deep information on major Consultants, Contractors & other Vendors

BiltraxDIA (Data, Insights & Analytics) is the most comprehensive source of building projects and associated companies' information in India. It is a multi-functional platform to help you identify and analyze growth opportunities.

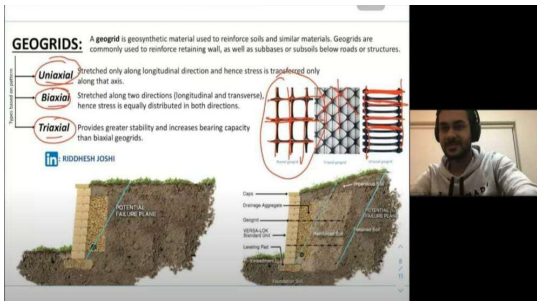
Our dedicated analytics expert's domain experience and efficiency allow you to analyze, target and build industry relationships in both public and private sector projects.

### **Various projects undertaken by the company :-**

1. Upcoming MHADA Residential and Commercial Complex in Thane
2. Arvind Fables by Arvind Smart Spaces Limited
3. NIT Campus Development by National Institute of Technology
4. PWD Sports University by Public Works Department
5. Mopa Greenfield International Airport by The Government of Goa.
6. SRM Hospital by SRM Group of Educational Institutions
7. LIC Management Development Centre by Life Insurance Corporation
8. Alliance Residential Group Development by Alliance Infrastructure projects Limited
9. PMC Administrative head office by Panvel Municipal Corporation
10. Raheja Affordable Housing at Wazirpur by Raheja Developers
11. NMDC Residential Towers by NMDC Limited in Chhattisgarh
12. HFWD Multispecialty Hospital by The Department of Health and Family Welfare
13. Jhamtani Ace Aasheeyana by Jhamtani Group
14. Puravankara Commercial by Purvanchal Projects Private Limited
15. Residential-cum-commercial building by Garudachala Estates Private Limited
16. Public Works Department Delhi Sports University in the Village of Ghevra
17. Aparna Serenity by Aparna Constructions and Estates Private Limited in Hyderabad
18. A Residential-Commercial project by North Delhi Municipal Corporation (NDMC) in Azadpur

# DEPARTMENTAL ACTIVITIES

## INTRODUCTION TO GEO-SYNTHESIS



Geosynthetics are man-made materials used to improve soil conditions. The webinar was conducted by guest speaker Mr. Riddesh Joshi in association with ACES on 13th October, 21 at 2pm.

ACES feels immense pleasure to inform you that Mr. Riddesh is an alumni of Universal College of Engineering (Batch 4)

## Faculty Achievement



Congratulations to Prof. Sachin Pawar for successfully completing a short course on soil exploration which was organized by IGS SC 7-Student chapter activities and continuing education

Congratulations to Prof. Asir Khan for participating in one day faculty development programme on ICT tools for online teaching which was organized by Sanjivani College of engineering

## DID YOU KNOW

In January 1995, the government of France announced a competition among all the people for solicit design approaches of Millau Vaiduct Bridge. Later In March 2001, a France construction company named as Eiffage was declared winner of the contest and awarded the prime contract of Millau Vaiduct Bridge.

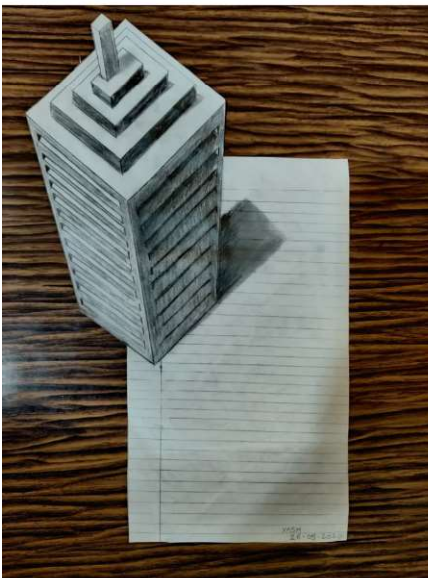
# CANVAS



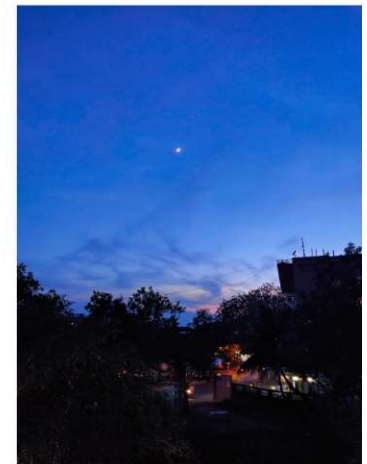
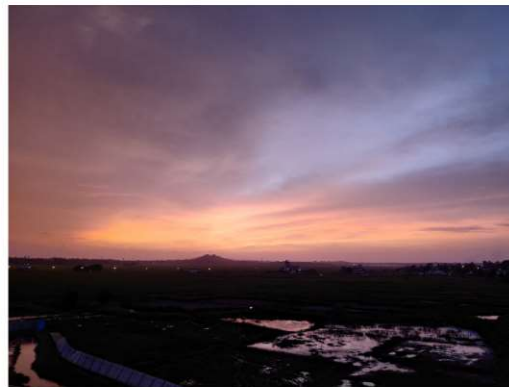
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