



Vidya Vikas Education Trust's

# Universal College of Engineering

Gujarati Linguistic Minority Institution

Accredited with "B+" Grade by NAAC



# The Benchmark

Issue 013: September 2019 Edition

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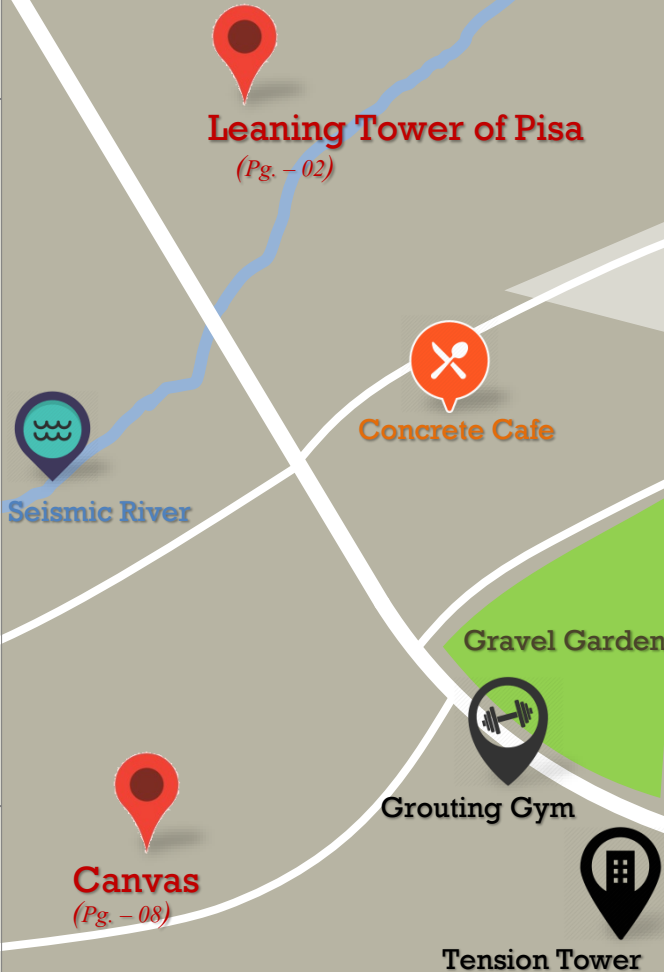
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### Department Vision

- 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.

### Editor's Desk

We are pleased to present the September 2019 Edition of Benchmark. This Edition consists of an article on "Leaning Tower of Pisa" & it also highlights activities, achievements and contribution of students & faculties of Department of Civil Engineering in the month of August.

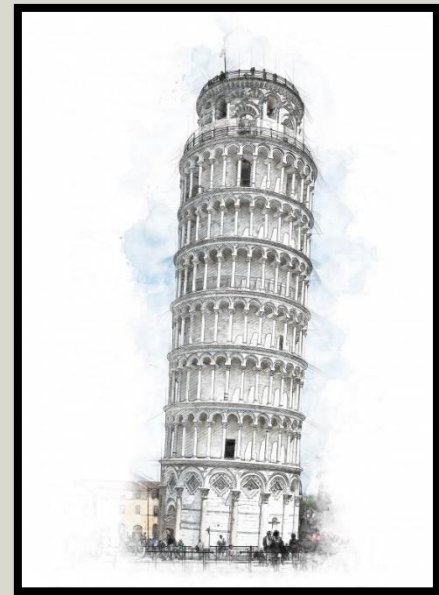
## Volume Village

# Leaning Tower of Pisa

## Overview

- **Leaning Tower of Pisa** is a freestanding bell tower in the Italian city of Pisa. The tower is located behind the Pisa Cathedral and is the third oldest structure in the city. The height of the tower is 55.86 metre from the ground on the low side and 56.67 metre on the high side. The weight of the tower is around 14500 metric tons. It consists of 294 or 296 steps. The tower began to lean during its construction in 12<sup>th</sup> century, due to soft ground which could not properly support the structure's weight. By 1990 the tilt had reached 5.5 degrees. Then the structure was stabilized by remedial work to 3.97 degrees.
- **History and construction-**
  - 1) The construction of tower occurred in three stages over 199 years. On 5<sup>th</sup> January 1172, Donna Berta di Bernardo, a widow and resident of the house of dell'Opera di Santa Maria, bequeathed sixty "soldi" to the Opera Campanilis Petrarum Sancte Marie. The sum was then used towards the purchase of few stones which still form the base of the bell tower.
  - 2) On 9<sup>th</sup> August 1173, the foundations of the tower were laid. Work on the ground floor of the white marble began on 14<sup>th</sup> August of the same year.
  - 3) The tower began to sink after construction had progressed to the second floor in 1178. This was due to the mere three metre foundation, set in weak & unstable subsoil & the faulty design. Construction of the tower was halted for almost a century.
  - 4) On 23<sup>rd</sup> February 1260, Guido Speziale, son of Giovanni Pisano, was elected to start the building of the tower. On 12<sup>th</sup> April 1264, the master builder, architect, and 23 workers went to the mountains close to Pisa to cut marble.
  - 5) In an effort to decrease the tilt of the tower, Engineers build upper floors with one side taller than the other. Because of this, the tower is curved.
  - 6) The construction was again halted in 1284. The seventh floor was completed in 1319. Later, the bell-chamber was added in 1372.
  - 7) In 1989, the bells were removed to relieve some weight and cables were cinched around the third level and anchored several meters away to stabilize the tower against tilting.
  - 8) On 15<sup>th</sup> December 2001, the tower was declared stable for atleast 300 years. After some phase of years the tower had faced surface restoration to repair visible damage, mostly corrosion and blackening. In May 2008, Engineers stated that it would be stable for more 200 years.

## Photos



Germans used the tower as a lookout (observation post) during World War-II. The Allies knew this, but still they decided to spare it from bombing because of its mesmerizing beauty.

### DID YOU KNOW?

*The Eiffel Tower is made of  
Iron & weighs around  
10000 tonnes*

*To know more about  
Leaning Tower of Pisa,  
Scan the QR Code*



# Page 03:- Events/Seminar Conducted under ACES in month of August 2019

## Workshop on “Building Service & Repair”

- A Workshop on “Building Service & Repair” was conducted by **Mr. Shreyans Dodia** (Assistant professor, Dept. of Engineering), organized by ACES (Association of Civil Engineering Students) in association with IQAC of Universal College of Engineering on **30<sup>th</sup> August 2019**. The workshop was attended by final year students of Civil Engineering. Curriculum designed by University of Mumbai allows students to opt either Building Service and Repairs (BCR) or Advance Concrete Technology (ACT) as the elective in Sem VI. It is a known fact that both are important topic as far as site work is concerned. Hence the objective of organising this seminar was to fill this gap for students who could not learn BSR.
- The workshop commenced at 10.30 am by giving brief introduction about concrete, its properties and effect on concrete due the external agent. Later, how an investigation should lead to identification of various types of fault in concrete & some examples of concrete defects were also explained to the students.
- As the workshop proceeded corrosion of reinforcement which is the major factor in deterioration of concrete was discussed that such deterioration is induced by chloride or carbonation. The basic concept was that when the steel rod corrodes, the rust occupies a greater volume than the steel and this causes expansion which leads to damage. Various analogies were shown using pie charts & flow charts for better understanding of the content.
- Students were deeply immersed in the topic while they understood the scope of visual inspection of the structural system, layout of the building & identifying critical areas for inspection.
- The session further proceeded by interaction with students & at the end small test was conducted to check how far students have been benefitted.



## Seminar on GRE (Graduate Record Examination)

- A seminar on Graduate Record Examination (GRE) was conducted by **Mr. Gautam Umashkar** (Manager Counselor) organized by Association of Civil Engineering Students (ACES) in association with IQAC in Universal College of Engineering on **13<sup>th</sup> August 2019**. The seminar was attended by Third year Civil Engineering students. The seminar was organized with an aim to create awareness about present scenario of employability in India and abroad.
- The seminar commenced at 11 am by showing some eye opening and realistic facts about the Engineering Institutions & employment rate. According to HRD (Human Resource Development) ministry, India has 6,214 Engineering & Technology institutions which are enrolling 2.9 million students. Millions of students get released in the market every year but very few have the adequate skills to get employed.
- As the session gracefully moved forward many differences between the education systems in India & Abroad were manifested. Later, the passing criteria for MIS program in USA was displayed, 16 universities with their GRE score were showed. Also GRE wise universities in USA were displayed & bifurcated into 3 parts GRE 325+, GRE 300-325, and GRE less than 300. Brief information about difference between TOFL & IELTS was made clear and among both which one is easier to attempt also clarified to the students.
- For future reference the students were informed about the 2020 exams fall of TOEFL, GRE, & IELTS. Note was given that, if any student is looking for financial aid, enrol for exam & apply by at least 2 months prior to the university deadline. Costing criteria was discussed too.
- The session ended at 1 pm by interaction with students & also some perfect examples of other students who have enlighten their future by studying in Germany, USA, & Canada was also showed.



# Seminar on “Preparation for G.A.T.E (Graduate Aptitude Test in Engineering) Examination ”

- Seminar on “Preparation for G.A.T.E Examination” was conducted by **Mr. Gaurav Bharadwaj** (Assistant professor, Dept of Civil Engineering), organized by Association of Civil Engineering Students (ACES) in Universal College of Engineering on **9<sup>th</sup> August 2019**. The workshop was attended by B.E. students. The workshop commenced at 9.30 am by giving brief introduction about Graduate Aptitude Test in Engineering (GATE) an all India examination that primarily tests the comprehensive understandings of various undergraduate subjects in Engineering and Technology.
- GATE is conducted jointly by the Indian Institute of Science and seven IITs (IIT Bombay, IIT Delhi, IIT Guwahati, IIT Kanpur, IIT Kharagpur, IIT Madras and IIT Roorkee) on behalf of the National Coordination Board – GATE, Department of Higher Education, Ministry of Human Resource Development (MHRD), and Government of India. Numerous points and its benefits were flashed out in front of students on the benefits of qualifying GATE EXAM.
  - PSU recruitment through Gate Exam.
  - Getting M.Tech. Degree from IITs & NIITs.
  - Stipends in ME/M.Tech through Gate Exam.
  - GATE qualified students are eligible for the award of Junior Research Fellowship in CSIR Laboratories & CSIR sponsored projects.
  - Foreign studies through GATE exam.
  - Teaching jobs through GATE exam.
  - Higher Chance of recruitment in top MNC's after GATE exam.
- Further the seminar proceeded to the main section of the GATE, that is the exam pattern. General Aptitude, Engineering Mathematics & core subjects are the three phases of GATE. General Aptitude: - 15%, 5 question-1 mark & 5 question– 2 mark; Engineering Mathematics & Core subject:- 15% mathematics & 70% core subject, 25 question- 1 mark, 30 question- 2 mark. Awareness about important dates of GATE 2020, Online application, date submission, extended closing for submission to the last date of requesting of examination of city, etc. was told. Passing Criteria was shown as per caste system & respective branches. A proper time table was discussed with the students for the preparation of GATE according to importance of the specific subjects.
- Do's for GATE- Solving at least 10 years paper, Selecting subjects having maximum weightage, focusing on 2 marks question, practicing mock test weekly, having clear concept about all the topics and information about paper pattern.
- Don'ts for GATE-Wasting time for subjects which are out of syllabus, never lose hope & confidence while preparation, beginning with difficult subjects which can lose your confidence, discussing doubts just before exam.
- This was further followed by interaction with students, some sample questions from past papers were shown to the students & the session ended at 12.30 pm.



## Scratch Your Head !!

1) *Strength based classification of brick is made on the basis of :-*

- ❖ IS: 3101
- ❖ IS: 3102
- ❖ IS: 3495
- ❖ IS: 3496

### Why CIVIL Engineers must learn programming ?

➤ In recent years, there's been an admirable push to get more people to learn programming. But if I've never been exposed to programming, why should I invest all of the effort to learn? what's in it for me? If you're a engineer, programming can enable you to work 10 to100 times faster and to come up with more creative solutions than your colleagues who don't know how to program.

#### ➤ Three Reasons to Learn

I've come up with three reasons why engineers must learn programming:

1. You can **work 10 times faster** by writing computer programs to automate tedious tasks (such as data cleaning and integration) hat you would otherwise need to do by hand. If you know how to program, computer-related tasks that used to take you a week to finish will now take only a few hours. I can't think of any other skill hat leads to an instant 10x productivity boost for engineers.

2. Programming allows you to **discover more creative solutions** than your colleagues who don't know how to program. It lets you go beyond uses, to transcend the limitations that your peers are stuck with. For example, you'll be able to write programs to automatically acquire data with your existing data, and to implement far more sophisticated analyses than your colleagues who can only use pre-existing tools. By doing so, you're more likely to make a creative innovation that your colleagues wouldn't even think of exploring due to lack of programming skill.

3. Finally, knowing how to perform allows you to communicate effectively with programmers that your lab hires to do the heavy-duty coding. I don't expect you to become as adept as the professionals, but the more you know about programming, the more you'll be able to relate to them and to command their respect. If you can motivate programmers in your lab to send more of their time helping you solve technical problems (e.g. by writing parallel programs that run on a compute cluster), you can **work 100 times faster** than if you had to attack those problems alone.

➤ Programming languages help automate repetitive tasks. That is why software such as AutoCAD, STAAD.Pro, SAP2000, ETABS, PrimaVera are commonly used. Software eliminate human error and increase productivity, provided the user of the software knows the underlying theory. Not every Civil engineer will go on to write software such as the ones I mentioned above, but it requires Civil engineers to write these software as CS engineers do not possess the requisite domain knowledge. Thus the question is, are you a Civil engineer who wants to go on to write such software? If yes, C/C++, JAVA are the languages most commonly used to write such programs and you will be able to develop such software. Of course, you will need other CS skills such as program analysis and design, software engineering etc. But there are routine Civil engineering office tasks that need automation, such as estimation and costing etc. A language such as Microsoft Excel VBA is good enough for these and every Civil engineer ought to learn it.

➤ Languages such as Python, Scilab, GNU Octave or MATLAB (one of them is enough, no need to learn all) are high level mathematical languages and are useful for Civil engineers in automating tasks related to analysis and design of structures or other problems requiring maths.

Prof. Venkatesh R.

Training and Placement Officer,

Universal College of Engineering, Kaman

## IN OTHER NEWS

### SEMINAR SERIES

Seminar details:

Seminar series conducted by faculties in the month of August 2019 as follows:

Sr. No.	Date	Topic	Presenter
1.	1 <sup>st</sup> August 2019	Future Scope of” <b>Structural Engineering</b> ”	Mr. Yusuf Sagri
2.	14 <sup>th</sup> August 2019	Future Scope of “ <b>Structural Engineering</b> ”	Mr. Yusuf Sagri
3.	14 <sup>th</sup> August 2019	<b>Water Resource Engineering</b>	Mr. Nitin Rane
4.	26 <sup>th</sup> August 2019	<b>Water Resource Engineering</b>	Mrs. Mitali Poojari

### DID YOU KNOW?

*The Hoover Dam is made of enough Concrete to make a two Lane Highway from New York to San Francisco. That is around 2902 miles (4670 Kilometer)*

### Scratch Your Head !!

2) Out of the following Rocks, which of the following may be termed as unstratified rocks ? :-

- ❖ Limestone
- ❖ Marble
- ❖ Slate
- ❖ Sandstone

## A Visit to “KAMAN” .....

Under **Unnat Bharat Abhiyan**, Mr. Rajesh Dubey (Head, Department of Civil Engineering) and Mr. Asir Khan (Assistant Professor, Dept. of Civil Engineering) along with some students of the college paid a visit to Kaman village in the last week of August. The agenda behind this visit was to know the basic demands of the people in the village, problems faced by the people and overall land details. As the visit commenced they got to interact with the locals and after interaction they were enlightened by the fact that the basic needs of the locals needed to be improved.



The people of Kaman are facing the major problem of water scarcity and lack of electricity. After interacting with the locals they had a meeting with the head of the Panchayat Sarpanch Mr. Mhatre where they got to know more about the village and its culture. The next stop was at the Talathi office where they were made familiar about the land features such as amount of cultivated, uncultivated land, types of crops cultivated in the village and last visit was at the forest department to know the role of the same as they were owning some of the lands in the village. Overall it was a very fruitful experience and helped to gain a perspective about the village and the local condition. The Universal College of Engineering is looking forward to improve the overall status of the village with the help of competent students through various projects.

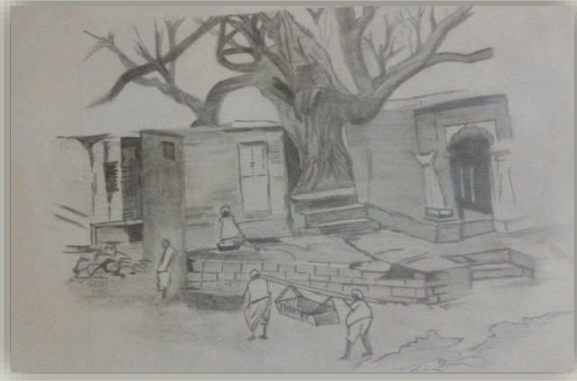
### DID YOU KNOW?

*The Zhaozhou Bridge is the oldest standing bridge in China and the World's oldest stone segmental arch bridge . It is still standing today, over 1400 years later.*

#### Upcoming Events:

1. Tanrotsav - an Intra- Collegiate Technical Competition on 21<sup>st</sup> September 2019.
2. Guest Lecture on **New Pavement Techniques** adopted in Mumbai on 16<sup>th</sup> September 2019.

# CANVAS AND PHOTOGRAPHY



- Tejal Pawaskar  
B.E. Civil B

*"Take up one idea. Make that idea your life – think of it, dream of it, live on that idea. Let the brain, muscles, nerves, every part of your body, be full of that idea and just live every other idea alone. This is the way to success".*

Shri. Swami Vivekananda

*"When a man is denied the right to live the life he believes in, he has no choice but to become an outlaw".*

Nelson Mandela



- Sanket More  
S. E. Civil

## Happy Ganesh Chaturthi



**वक्रतुण्ड महाकाय सूर्यकोटि समप्रभ ।  
निर्विघ्नं कुरु मे देव सर्वकार्येषु सर्वदा ॥**

ANSWERS to "Scratch Your Head"

- 1) IS: 3102
- 2) Limestone