



SIR M. VISVESVARAYA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING presents

INFRA TODAY

Special points of Interest:

- Quantum entanglement and civil engineering
- It's not about womenit's who-men
- Is Bengaluru doomed to be next Cape Town....?

LET'S LIVE AND LET LIVE

Supported By:

Dr. V. R. Manjunath, Principal

Dr. B. R. Karnure, Head

Ms. Vyshnavi D. R., Assistant Professor

DEPARTMENT OF CIVIL ENGINEERING

DEPARTMENT VISION

To create competent, disciplined, quality engineering and administrators of global standards in civil engineering with capability of accepting new challenges

DEPARTMENT MISSION

1. To impart quality education in civil engineering to rise satisfaction level of all stake holders
2. To serve society and the nation by providing professional civil engineering leadership to find solution to community, regional and global problems and also accept new challenges in rapidly changing technology
3. To create trained competent professional who can develop civil engineering systems and contribute towards developmental activities.

Program Educational Objectives (POEs)

1. Graduates will become leaders in the industries associated with civil engineering and become professional entrepreneurs. They will be experts working in public sector, and international organizations.
2. Graduates will engage in continual learning by pursuing advanced degrees or additional educational opportunities through coursework, professional conferences and training, or participation societies.
3. Graduates will adapt to different roles and responsibilities in multidisciplinary environment by respecting professionalism and ethical practices. They will contribute to the well-being of the society and environment through responsible practice of engineering profession.

Program outcomes (POs)

PO1-Engineering knowledge: Apply the knowledge of mathematics, science, engineering Fundamentals and an engineering specialization to the solution of complex engineering problems in CIVIL Engineering.

PO2-Problem analysis: Identify, formulate, review research literature, and analyse complex Engineering problems in CIVIL Engineering reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3-Design/development of solutions: Design solutions for complex engineering problems and design system components or processes of CIVIL Engineering that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4-Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments in CIVIL Engineering, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5-Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities in CIVIL Engineering with an understanding of the limitations.

PO6-The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice in CIVIL Engineering.

PO7-Environment and sustainability: Understand the impact of the professional engineering solutions of CIVIL Engineering in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.

PO8-Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9-Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10-Communication: Communicate effectively on complex engineering activities with the Engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11-Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12- Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PRINCIPAL'S MESSAGE

I feel very proud to congratulate the Civil Engineering Dept. for its great initiative in bringing out its annual newsletter "INFRA TODAY". As we all know, a news letter serves as one of the means of projecting a departments vision and mission. It also highlights events, activities, academic prowess and achievements. I wish this news letter encourages many more including the students and staff to use it as a platform to express their creativity and may encourage all to work with new spirit and passion. I sincerely hope that this edition makes for an interesting read and Civil Engineering Dept. will continue to excel with its exuberant achievements and research activities in the coming days. I wish to convey my appreciation to the editorial team for their efforts in bringing out this news letter.



Dr. V R Manjunath

HOD'S MESSAGE

It gives me immense pleasure that the Department of Civil Engineering is publishing the departmental News Letter, Infra Today during 2017-18. I appreciate the efforts of the Editorial Committee in bringing out this magazine.

I am also happy that our alumni Mr. Ankit Pattnaik secured 4th rank VTU exams 2016-17. He had also won the Student Merit Award for the year 2017. I congratulate him and also those who are directly or indirectly instrumental in this. I am confident that, with good guidance and sincere hard work our Students are able to achieve many milestones like this.



Dr B R Karnure

ALUMNI SPEAKS

As a student we had dedicated teachers for the subjects, which made our subject foundation really strong. The huge campus gave way for our all-round development including cultural activities.



Mrs. Veera Biradar

ACKNOWLEDGEMENT

We, the students of 8th semester thank our Principal Dr V R Manjunath for motivating us every time we wanted to do something new. Also, our HOD Dr B R Karnure for being encouraging throughout our four years of engineering. We are very grateful to all our Professors, especially Mrs Vyshnavi D R for guiding us throughout in the making of INFRA TODAY.

And finally we are much thankful to Mrs Veera Biradar, our Alumni who passed out during the year 2003-04, for her immense support in bringing out this News Letter.

ACHIEVEMENTS OF OUR STAFF

- Ramya N, Pradeepa S, and Anitha J along with Vishal Singh & Shadab Khan, VII sem B.E students have published a paper:-“Experimental investigation on Partial Replacement of Coarse Aggregate by Palm Kernel Shell and Cement by GGBS, Volume 5, Issue 1 of International Journal of Research in Advent Technology (IJRAT) (e-ISSN 2321-9637).
- K.V.R Prasad, along with VIII sem students Kumar Saurabh, Arka Singha & Siddharth Barbhuiya published research paper on “Experimental Investigation on the properties of Concrete for Rigid Pavement Construction with Pet Fibres” International Journal of Engineering Sciences & Management Vol. 7, Issue 2: April-June 2017.
- Shivanna .S, and H. Ravi Kumar presented paper entitled “Ground Water Quality and Management in Chikkaballapur District” in the Second National Students Project Exhibition– 2017 organized by Alpha college of Engineering, Bengaluru, in association with the AICTE, New Delhi held on 7th May 2017.
- Shivanna .S, presented a paper entitled “Rainwater Harvesting System at Sir MVIT” in the Second National Students Project Exhibition– 2017 organized by the Alpha college of Engineering, Bengaluru, in association with the AICTE, New Delhi held on 7th May 2017.
- Shivanna .S, presented a paper on “Land use and Land cover Study of Dakshina Dinakini river Basin, Bangalore & Chikkaballapur Districts” at the 5th National Conference on Futuristic Technology in Civil Engineering for Sustainable Development NCFTCES-17 held on 10th May 2017 organized by the Department of Civil Engineering, SJBIT, Bengaluru.
- Shivanna .S, H.P Mahendra Babu, and Smt Vyshnavi D.R, presented a paper “Removal of Environmental Pollutants in the soil by Phytoremediation : A Green Technology” at the 5th National Conference on Futuristic Technology in Civil Engineering for Sustainable Development NCFTCES-17 held on 10th May 2017 organized by the Department of Civil Engineering, SJBIT, Bengaluru.
- Shivanna .S, and H. Ravi Kumar along with VIII Sem students Anusha,P., Meghana and Joel Junias presented a paper on “Groundwater Pollution – a Case Study near Mandur Land Fill site, Bangalore, Karnataka” at the 5th National Conference on Futuristic Technology in Civil Engineering for Sustainable Development NCFTCES-17 held on 10th May 2017 organized by the Department of Civil Engineering, SJBIT, Bengaluru
- K.V.R Prasad, presented a paper on “Comparative study on improvement in the properties of bituminous mixes by using PET waste” in the one day National Students conference on “Explorations in Civil Engineering” (EXCE-17) held on June 1st, 2017 conducted by Department of Civil Engineering, Ghousia College of Engineering, Ramanagram.
- Pradeepa .S, has completed her Ph.D. comprehensive viva voce. VTU, Belgaum.
- K.V.R Prasad, presented a paper on “Improvement in the properties of Bituminous mixes by effective use of Poly Ethylene Terephthalate waste” in National Seminar on “Role of Engineers in Infrastructure, Energy & Irrigation” organized by Dept. of Civil Engg., Dayananda Sagar College of Engineering, SERB, MOES, ISRO & WRD, Government of Karnataka held on 27th and 28th, September 2017.
- Pradeepa S. and Anitha J presented a paper on “Review on Flash bainite technique-Manufacturing steel” in International Journal of Innovative Research in Science, Engineering & Technology, Vol. 6, Issue 10, October 2017.
- H. Ravi Kumar and Pradeepa S. published a paper on “A Study on Durability of Sisal Fibre Reinforced Concrete Composites” in International Journal of Emerging Technology & Advanced Engineering (ISSN 2250-2459) Volume 7, Issue, November 2017.
- Pradeepa S. and Anitha J presented a paper on “Review on Fatigue Analysis Using Field Measurement Data” in International Journal of Innovative Research in Science Engineering & Technology, Vol. 6, Issue 10, October 2017.
- H. Ravi Kumar Published a paper on “Study on Predicting Axial Load Capacity of CFST Columns” Journal of Institution of Engineers (India): Series A doi:10.1007/s40030-017-0234-y, Published on 14th November 2017 by Springer- Verlag, pp 1-8.
- H. Ravi Kumar published a paper on “A Statistical and Experimental Study on Prediction of the Axial Load Capacity of Concrete filled Steel Tubular Columns” The International Reviewer, Volume 4, Issue 2, July – December 2017, pp. 26-28, ISSN 2395-1575.
- Shivanna S, Vyshnavi D R, H P Mahendra Babu published a paper on “Water Management System-A Case Study” at the International Journal of Advanced Scientific Research and Management, Volume 3, Issue 2 during Feb 2018.

ACHIEVEMENTS OF OUR STUDENTS

- Mr Sriram Mustapure and Mr Arjunappa of VIII semester B.E Civil Engg. secured I place in Poster competition held on 3rd & 4th May 2017 conducted by Innerve Club at SJCIT, Chikkaballapur.
- Mr Abhinav Kshatriya and Mr Sriram Mustapure of VIII sem B.E Civil Engg. presented the paper on “ Ground Water Quality and Management in Chikkaballapur District” in the Second National Students Project Exhibition – 2017 organized by the Alpha college of Engineering, Bengaluru, in association with the AICTE, New Delhi held on 7th May 2017.
- Mr Sriram Mustapure of VIII semester B.E Civil Engg. presented a paper “Removal of Environmental Pollutants in the soil by Phytoremediation : A Green Technology” at the 5th National Conference on Futuristic Technology in Civil Engineering for Sustainable Development NCFTCES-17 held on 10th May 2017 organized by the Department of Civil Engineering, SJBIT, Bengaluru
- Anusha, P., Meghana and Joel Junias of VIII semester students of B.E. Civil Engg have been given Best Paper Award for their paper on “Groundwater Pollution a Case Study near Mandur Land Fill Site, Bangalore, Karnataka” presented at the 5th National Conference on Futuristic Technology in Civil Engineering for Sustainable Development NCFTCES-17 held on 10th May 2017 organized by the Department of Civil Engineering, SJBIT, Bengaluru.
- Ms Sabiha Bano of VI semester B.E Civil Engg student has undergone a “In plant Training” in the office of Chief Engineer, Andaman Public Works Department from 12.6.2017 to 22.6.2017 at Andaman Nicobar.
- Mr Ankit Pattanaik, 2017 passed out student of Civil Engineering (USN: 1MV13CV010) has been conferred 2017 year’s Association of Consulting Civil Engineers (India) Bangalore Centre’s Student Merit Award on 18th September 2017 at NIMHANS Convention Centre, Hosur Road, Bangalore, instituted by the Bangalore Centre of Association of Consulting Civil Engineers (India).
- VII semester students: Anvi Jha and Sindhuja .T were selected in the campus recruitment conducted by Accenture on 12.9.2017.
- Mr Ankit Pattnaik with USN: 1MV13CV010 secured **4th rank in VTU exams** for academic year 2016-17.
- 4 students of 8th semester cleared the NICMAR entrance exam.
- 6 students of 8th semester cleared GATE.
- 1 student of 8th semester cleared IELTS.
- 17 students of 8th semester were selected in the campus recruitment conducted by NCC on 13th April 2018.

WORDS OF WISDOM

- 1MV14CV--- batch i.e.; 2014-18 batch of Civil engineering is the 25th batch of students I have taught in this college. I have a bit of a sentimental attachment to this batch as it happens to be of the age group of my son. In fact one of them was a classmate of my son in middle school. As it is with every batch I could find a couple of miscreants, a couple of lazy and a couple of very studious students with this batch also. Some of them have disappointed me with their performance and some of them have performed well up to my expectation. I expect VTU ranks from this batch as well and hope they will not disappoint me. All the students have great potential in them but not properly utilizing it. I wish everyone good luck and a great future.
~ H P Mahendra Babu, Associate Professor
- My best wishes and blessing to our dear outgoing 2014-18 batch students, who are a blend of enthusiastic, creative and dynamic people.
Congratulations to the editorial team for their determined effort in bringing this newsletter.
~ K V R Prasad, Associate Professor
- The department of civil engineering was established in the year 1986. It is having a blend of experienced, young and dynamic faculty. The students admitting to the department every year bring laurels to the department by securing ranks in VTU examinations

The present batch students are very good at studies and have participated in several events in the college as well as other colleges.

~ Dr Shivanna S, Associate Professor

- The students admitting to the department every year bring laurels to the department by securing ranks in VTU examinations as well as in sports. Students are interactive and blend with us very well in making our department better and to achieve great heights. I wish you all good luck for all your future endeavours.

~ H Ravi Kumar, Associate Professor

- Students are capable of doing amazing things. The world belongs to you, get in there & make life beautiful ...Loved teaching your class, hope I made a positive impact on you.

~ Anitha J, Assistant Professor

- The batch of 2014-18 is an outstanding, enthusiastic and a very cheerful batch. Just believe in yourself even if you pretend to do so and at some you will. ALL THE BEST.

~ Pradeepa S, Assistant Professor

- As a class teacher of your batch, I always relaxed because of your overall class good behaviour. I also feel proud and excited about your academic performance and the interest you all show towards seminar and project activities. Dear students keep up the spirit make yourselves, your parents and your communities proud. My best wishes are always with all of you.

~ Tamil Selvi, Assistant Professor

- I wish good luck to all the outgoing students of batch 2014-2018. May all of you reach the success you deserve.

~ Ramya N, Assistant Professor

- I'm immensely happy that the department of civil engineering is bringing out the departmental magazine Infra Today 2018. I appreciate all the efforts of editorial team for making it happen. I also admire their dedication and enthusiasm in making it a success. I wish all the very best and great success for your future. You guys are the best and remembered always batch 2014-18

~ Vyshnavi D R, Assistant Professor

- In Bangalore, my teaching experience started from your batch. First day first class was your class & I do remember it was Anusha's birthday. Right from that time I have noticed that most of you people are highly talented. I wish that you all to succeed & reach higher heights in life.

~ Agilin R, Assistant Professor

- The department is well established & staffs are having different knowledge about the subjects. 2014-2018 batch students are well knowledgeable in both academics & industries.

~ Bhavya S, Assistant Professor

- I have noticed that you people are too good in your character apart from academics. Never give up your nature and good character. Though you may see various dimensions of life but be good at all. Respect the elders; don't argue with parents and elders. All of you should succeed in life. All the best for your future. Your batch students have much higher level of maturity and think a lot about future. But trust in god, do hard as well as smart work. Surely you'll achieve success in life. Be happy and keep your surrounding joyful.

~ Saranya S, Assistant Professor

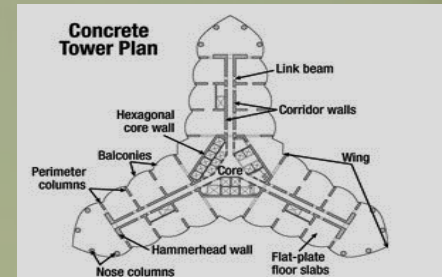
- The Millau Viaduct is the highest bridge being 343 meters high. That's more than the height of Eiffel Tower. A 90-story building extends that high.

IDEA BEHIND WORLD'S TALLEST STRUCTURE

Rising 828 meters over the desert metropolis of Dubai, the Burj Khalifa tower is the world's tallest structure.

"Have you ever wondered what made BURJ KHALIFA world's tallest building? "Its unique BUTTRESSED CORE AND HEXAGONAL STRUCTURE IDEA developed by WILLIAM BILL BAKER, the man behind world's tallest structure, He is chief structural engineer and partner at Skidmore Owings & Merrill (SOM).

The three main challenges in any skyscraper are gravity, wind and seismic factors. All of them were encountered by Buttressed core and hexagonal structure idea. Burj Khalifa represents the state-of-the-art in building design. From initial concept through completion, combinations of several important technological innovations and innovative structural design methods have resulted in a superstructure that is both efficient and robust



The hexagonal structure helps in resisting earthquake forces. The six sides of hexagonal structure have two different lengths, which mean that each of the long sides is surrounded by two short neighbouring sides and vice versa. Roughly speaking, the three long sides only carry themselves, while the three short sides each supports their own tower with apartments and hotel rooms, each of the three towers has a core extending from the short side of the centre core. This means that each side core supports the centre core in a way that resembles the support pillars in large medieval cathedrals, which helps the building frame to carry its lateral forces and withstand gravity. Bill Baker has named it '**The Buttressed core principle**'.

Out of the three, wind was major headache when designing a tall building. That is because when the wind goes past a building, it has to go around it.

As Bill Baker says that, the design of the tower is such that it confuses the wind force. The wind force increases as the height of the tower increases, and if the building height is like that of Burj Khalifa, small allowable deflection can also make the people inside the building uncomfortable. So SOM changed the profile of the building so that the boundary layer of wind that is formed around the building is the turbulent one. Also the wind that is flowing will get confused with height because of the change in the shape of the structure, wind vortices never get organized over the height of the building because at each new tier the wind encounters a different building shape. This reduces wind force drastically and helps the tower to remain upright.

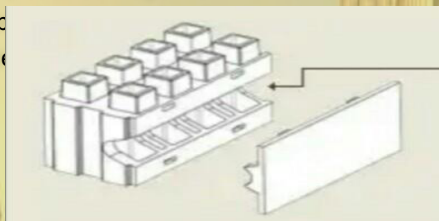
By Karthik Sagar R (4th semester)

KEY BRICKS A NEW WAY TO BUILD

Key bricks also known as smart bricks, is the one that will change the way we build houses, building, bridges and sidewalks. From now on structures will be highly insulated, much stronger and a lot cheaper.

The block is constructed of high strength concrete with unique properties that allow for the building of truly ecological structures with large savings in electricity expenses associated with seasonal heating and cooling as the bricks feature open internal spaces for insulation and infrastructure elements to be run through the bricks and allow for easy access to these elements.

The bricks are designed to be easily joined together are much like logo in that they come in a variety of forms for different purposes and can easily connect together with rows of knobs along with top of bricks that slot into voids along the bottom of other brick. The bricks will enable the construction of more precise and stronger buildings than is available through traditional building methods.



By Pavithra K L (8th semester)

BIOMIMETICS

(THERE IS NO BETTER DESIGN THAN NATURE)

The term bio mimetics comprises Greek words “bios” and “mimesis”, which mean “life” and “to imitate” respectively. Bio mimetics is also termed as bionics or biomimicry and is possibly popularized by an American natural science writer Janine Benyus through her revolutionary book titled “Biomimicry”. She describes it as a new science that studies nature’s models and imitates or derives inspiration from the natural designs and processes to help solving human problems and issues. As its name suggests the aim of bio mimetics is to mimic or imitate the nature (i.e. different plants, vegetation, insects and animals from various ecosystems) in order to provide efficient solutions to the engineering problems. Studying the hydrophobic surface of a lotus leaf to develop self-cleaning paints is an example.

It is an intriguing innovation that is becoming increasingly relevant and significant in a carbon conscious, ever expanding and rapidly developing world. There is huge potential and ability in the field of bio mimetics to solve the difficulties in urbanization and industrialization faced by humans by imitating the nature as it has given a new direction to think in engineering applications especially civil engineering. Mixture of simplicity and complexity makes bio mimetics a useful tool in innovating construction materials and designs for sustainable development.

Examples of application of bio mimetics:

Cement - inspired from the process of forming of corals in oceans.

Artificial Aggregates - made from waste paper sludge, ash and rubber wood dust to replace coarse aggregates.

Self-cleansing Paint – inspired from lotus leaf.

Concentrated Solar Power Plants – design copied from the arrangement of sunflower petals.

Taipei 101, Taiwan – structure is inspired from the slender bamboo.

Bird’s Nest Stadium – structure as that of a bird’s nest.

By C V BALASUBRAHMANYAM

(8th semester)

QUANTUM ENTANGLEMENT AND CIVIL ENGINEERING

Technology is the making, modification, usage and knowledge of tools, machines, techniques, crafts in order to solve a problem, improve a pre-existing solution to a problem, achieve a goal, handle an applied input/output relation or perform a specific function. Technologies make our lives simpler and help in solving our problems in a much easier and faster way. One such amazing technology is Quantum Technology – QUANTUM ENTANGLEMENT.

Two particles created at the same time, even when separated at a distance as much as the entire universe, any change in one particle can cause a corresponding change in the other particle. This is quantum entanglement.

Such entangled photons can be used in different fields of civil engineering such as into highway and traffic engineering to replace the detectors or in seismic zones for early warning systems, ground water detections and also in quality controls. This technology can prove to be very effective when few of its challenges are overcome.

Quantum entanglement enables particles to affect each other instantaneously across any distance.



By Anusha V (8th semester)

LET'S LIVE AND LET LIVE

Long ago, we learned how to build a hut, today we are building skyscrapers. Similarly, we used animals to ride on but today have vehicles travelling faster than the speed of sound. We have evolved and learnt a lot. At the same time we are walking towards mass destruction.

During olden days EARTH, WATER, FIRE, AIR & SPACE were worshipped as the 5 ultimate sources for the life. The irony is, these are now used as just materials. We are in the race of fulfilling our desires at the cost of many lives around us. We are responsible for the extinction of more than **322** species and almost **16,306** species are being threatened to be endangered. And all these are our invasions. Yes, I repeat **"INVASION"** not **"INVENTION"**. As a result of this blunder human's lifespan has come down to average of 60-70 years.

As an upcoming Engineer we are all a part of this dramatic changes, do you think we are leading a sustainable life? Let me explain you my views. Having desires is not wrong, but too much of sweet tastes bitter in the end. We travel alone in car while public transportation is available; we build a 3 story house for 4 members to reside. Yes, I know it's not under my control to guide about desires, but think of those creatures that lost their lives in fulfilling it. If a tree having many lives depending on it is being chopped, isn't it being inhuman.....? If a human doesn't have any power to give life to a creature then he doesn't even have the right to snatch it back.

This instance of tree is just a part of our invasion, there are many such devastating activities on creatures which are helpless, and many innocent animals are used for experiments. We pollute water, air, soil and one fine day we may all end up killing ourselves. Above all our Earth has tolerated all our crimes, may be that is why she is addressed to as **Mother**.

Just imagine what if new specie evolves and over powers us in the same manner, we may also end up as their prey one day.

To sum up I would like to say, being an intelligent animal who can prepare his own meal, lets learn to be more humane and spread peace in this world, **"Let's live and let live"**

By ASHISH (4th semester)

ಹೀಗೊಂದು ಮಾತು

ಮೊನ್ನೆ ಏಪ್ರಿಲ್ 22 ರಂದು ನಡೆದ ವಿಶ್ವ ಭೂ ದಿನದಂದು ಕೆಲ ಆಲೋಚನೆಗಳು ಮನದಲ್ಲ ಮೂಡಿತ್ತು. ಅವುಗಳನ್ನು ಪದಗಳಲ್ಲಿ ಪ್ರಸ್ತಾಪಿಸಲು ಇಷ್ಟಪಡುತ್ತೇನೆ.

ಆದಿನ ಸಂಜೆ ಫೇಸ್‌ಬುಕ್‌ನಲ್ಲಿ ಗೆಳತಿಯೊಬ್ಬಳು ಗಿಡಗಳನ್ನು ನೆಡುವ ಕಾರ್ಯ ಹಮ್ಮಿಕೊಳ್ಳಲಾಗಿದೆ ಎಂಬ ಪೋಸ್ಟ್ ಮಾಡಿದ್ದಳು ಖುಷಿಯಾಯ್ತು. ಹಾಗೇ ಒಂದು ನಿದಿ ಷ್ಟ್ ಯೋಚನೆ ಮುಡಿದ್ದು ಕೂಡ ನಿಜ. ಬರಿ ಗಿಡ ನೆಟ್ಟು ರಕ್ಷಣೆ ಸಾಧ್ಯವೇ ? ನಮ್ಮ ಮುಂದಿನ ಪೀಳಿಗೆಗೆ ಈ ಭೂಮಿಗೆ ಗಾಳಿ ಬೇಕು ತಾನೆ ? ಪರಿಸರ ಯಾವ ರೀತಿಯಲ್ಲಿ, ಎಷ್ಟರ ಮಟ್ಟಿಗೆ ಹಾಳಾಗಿದೆ ಎನ್ನುವುದನ್ನು ಅರಿಯದೆ ಪರಿಸರ ರಕ್ಷಣೆ ಸಾಧ್ಯವಿಲ್ಲ ! ಗಿಡ ನೆಡುವುದು ಒಂದು ಭಾಗವೆಂದೆನಿಸಿತು.

ಪರಿಸರ ಮತ್ತು ಅಭಿವೃದ್ಧಿ ಒಂದೇ ನಾಣ್ಯದ ಎರಡು ಮುಖಗಳು ನಮ್ಮ ಅನಕೂಲಕ್ಕಾಗಿ ನಾವು ಬರಡಾಗಿಸಿರುವ ಭೂಮಿಗಳು, ಬೋಳಾಗಿರುವ ಬೆಟ್ಟಗಳು, ಬುಡಮೇಲಾಗಿರುವ ಮರಗಳು ಅಸಂಖ್ಯ. ಇಷ್ಟತ್ತು ವರ್ಷ ಜೀವತಾವಧಿಯ ರಸ್ತೆಗಳು ಹುಟ್ಟುತ್ತಲೆ, ಸಾವಿರಾರು ವರ್ಷದ ಗುಡ್ಡಗಳನ್ನು, ನದಿಗಳನ್ನು ನುಂಗಿ ನೆಲಸಮಗೊಳಿಸುವುದು ವೈಪರೀತ್ಯವೇ ಸರಿ. ಪರಿಸರವೇ ಉಳಿಯದಿದ್ದರೆ ಅಭಿವೃದ್ಧಿ ವೃಥಾ ಎಂಬ ಅಪ್ಪನ ಮಾತು ನಿಜ, ಬಹಳ ನಿಜ.

"We are in danger of destroying ourselves by our greed and stupidity. We cannot remain looking inwards at ourselves on a small and increasingly polluted and overcrowded planet." ಎಂಬ ಸ್ಟೀಫನ್ ಹಾಕಿಂಗ್‌ರವರ ಮಾತು ಅಪಾಯದ ಎಚ್ಚರಿಕೆಯಂತಿದೆ. ಹಾಗಾದರೆ ಸಮಸ್ಯೆಗೆ ಪರಿಹಾರ ?

ಪರಿಹಾರ ನಮ್ಮಲ್ಲೇ ಇದೆ, ಯಾಕೆಂದರೆ ಕಾರಣಿಕರ್ತರು ನಾವೇ ತಾನೆ ! ಹಸಿರು ಕಟ್ಟಡ ನಿರ್ಮಾಣ ಒಂದು ಅದ್ಭುತ ತಂತ್ರಜ್ಞಾನ, ಇದು ಒಂದು ಮಟ್ಟಿಗೆ ಪರಿಹಾರ ಒದಗಿಸುತ್ತದೆ. ಇಂಧನ ಉಳಿತಾಯ, ಕಡಿಮೆ ವೆಚ್ಚ, ತ್ಯಾಜ್ಯ ನಿಯಂತ್ರಣ, ಶಬ್ದ ಮಾಲಿನ್ಯ ತಡೆಗಟ್ಟುವಿಕೆ, ಶಕ್ತಿಯ ವಿನಿಯೋಗವನ್ನು ಒಳಗೊಂಡಿದೆ. ಅತ್ಯಂತ ನೈಸರ್ಗಿಕ ರೀತಿಯಲ್ಲಿ ಮನೆಗೆ ಗಾಳಿ, ಬೆಳಕು, ನೀರು ಹೊಂದಿಸುವ ಏರ್ಪಾಡುಗಳನ್ನು ಮತ್ತು ಹಸಿರು ಚಾವಣಿಗಳನ್ನು ಹೊಂದಿರುವ ತಂತ್ರಜ್ಞಾನಯಿದಾಗಿದೆ. ಪರಿಸರ ಪ್ರೇಮಿಗಳು ಇಂತಹ ಮನೆಗಳನ್ನು ಸಹಜ ಸಾಧ್ಯವಾಗಿ ಒಪ್ಪಿಕೊಳ್ಳುತ್ತಾರೆ.

ಮಾನವ ಬದಲಾದರೆ ಪರಿಸರವು ಕೂಡ ಬದಲಾಗುತ್ತದೆ. ಹಿತ ಮಿತ ಬಳಕೆ, ಹಸಿರು ತಂತ್ರಜ್ಞಾನದ ವಿನಿಯೋಗದೊಂದಿಗೆ ಭೂಮಿಯನ್ನು ಉಳಿಸೋಣ.

-ಸಿಂಚನಾ.ಆರ್.ನಾಯಕ

- The Pan-American Highway is the longest highway in the world. It is 47,958 kilometres long and travels through 14 countries.

Is Bangalore doomed to be the next Cape Town?

A recent report says the south Indian city Bangalore could be doomed, like Cape Town in South Africa which is facing the threat of running out of drinking water. But is this really the case?

The fact that Bangalore is under “water crisis” cannot be denied. Officials and experts admit the growth of the city has put pressure on its water resources. In 2012, while 9million lived in Bangalore and now it has escalated to 11million. Government officials say shortage of water is problematic, particularly in the peripheral areas of the city which depend on tankers for drinking water supply. Due to decline in the ground water table, digging deeper bore wells has become a necessity.

In 2013, the govt happened to divert an extra 10TMC of Kaveri River which is the principle source of water for both irrigational and drinking purposes. The additional supply was expected to help the city, provide drinking water to a 225sqkm area that is currently depending on water supplied via bore wells & tankers. Apart from Kaveri, the city will be receiving water from River Nethravathi in the next 18 months.

Experts say, “Yes, we’ll face some water stress until 2023. But we certainly aren’t facing crisis, because we are augmenting the supply”. Merely increasing supply will not be enough to ensure Bangalore has adequate water supply throughout the year. The city’s residents have to focus on conservation and harvesting practices, since Bangalore’s annual rainfall alone could give the city 2740 MLD of water. But this has not been the case so far. The water board has conducted massive campaigns for promoting harvesting, in order to help replenish ground water supplies. But this has got a disappointing response. Water can be conserved by recycling it from sewage treatment plants and in addition to that, there are many other methods of conservation which can be adopted. Citizens have to note that, “Bangalore is not likely to run out of water but we’ll have to manage it well”. Also, not just in Bangalore, we need to conserve water all across the world.

By Srishty N (8th sem)

WASTE IN PAVEMENT SURFACE

Pavement is an essential requirement of road transportation all over the world. Especially in India, during monsoon rains both the southern and the northern regions get affected. Some states also experience extreme weather conditions (too hot and too cold). It’s essential to provide pavement surfaces with appropriate properties to withstand these unavoidable situations. The research going on in Washington State University may be the answer.

A Washington State University research team is solving a high-tech waste problem while addressing the environmental challenge of storm water run-off. The researchers have shown they can greatly strengthen permeable pavements by adding waste carbon fibre composite material. Carbon fibre composites have become increasingly popular in numerous industries. They used mechanical milling to refine the composite pieces to the ideal sizes and shapes. The added material greatly increased both the durability and strength of pervious concrete. They are also working with industry to begin developing a supply chain.



By Raghunandan R (8th sem)

RECENT ADVANCES IN SMART MATERIALS

Different varieties of materials and methods have been used with a considerable effect on economy as well as environment. Hence the capability to make numerous environmental friendly and economic choices that affect the structural integrity, longevity, efficiency of material, cost and industrial ethics is of the major importance. A great attention has been given to use of inventive smart materials which offer creative solutions for the repair and maintenance of the structures.

The aim of the research in smart materials is to find advanced materials with multipurpose characters. It will bring fundamental change in approach in the design and performance of building creating a new revolt in one built environment.

A smart material plays a critical role in building technology development in the mechanical world and performs like a living system. Smart materials which were initially used in fields such as aerospace, mechanical and biomedical engineering have now come into use in civil engineering. The smart material for structural applications include ferromagnetic sensors, shape memory alloys, piezoelectric sensor and magneto restrictive materials.

The term “smart material” describes a group of material with unique properties. These are the materials that can significantly change their thermal, optical, mechanical and electromagnetic properties in a controllable and predictable manner in response to their environment. The materials correspond to the variation in heat, electricity and magnetic waves. Some of the smart materials do not possess the shape change property, but they exhibit certain properties like electro and magneto rheological fluids. Upon the application of external magnetic or electric field the fluids can change the viscosity over many orders of magnitude.

Smart materials have its potential applications wide spread in the construction industry. These materials are characterized by high strength, toughness, durability and high resistance to corrosion by chemicals and abrasion. Smart materials can be used in both new and existing constructions. It can serve for many purposes.

It has ability to improve existing technology. The technologies available require further research to intensify its effects. Today's smart materials are promising way to boost revenues and profits. The building systems may be completely priced when compared to traditional building approaches, but they offer substantial savings in terms of reduced operating cost over the life span of building. The piezoelectric actuators and magneto restrictive had enough responses for smart structures. Work is to be done on developing quality for design and implementation of the construction by using smart materials.

By D.Lakshmi Vennela, Sinchana R Nayak, Ankit Kumawat, Shreesha Kotegar (6th semester)

FATIGUE ANALYSIS USING FIELD MEASUREMENT DATA

Fatigue is the weakening of materials caused by repeatedly applied loads. It is the progressive & localized structural damage that occurs when the material is subjected to cyclic loading. Fatigue analysis using field measurement is of utmost importance as theoretical methods of analysis of fatigue are not accurate. Fatigue failure is defined as the tendency of material to fracture by means of progressive brittle cracking under repeated alternating (or) cyclic stresses of intensity considerably below the normal strength. Fatigue failure is an immediate (or) sudden phenomenon; hence to avoid the disaster which may follow fatigue analysis is essential.

This paper presents review on fatigue analysis using field measured data. When analysing data obtained from field measurements, methods are needed to properly evaluate fatigue damage. The traditional method of converting distribution of stress cycles used for a rain flow analysis to an effective stress range using Palmgren-Miners rule has some short comings. Namely, the calculation of the effective stress range can be skewed if there is a large percentage of a cycle in the first few bins. A new method, denoted as the index stress range has been developed. This method has advantages over effective stress range since this method is targeted for evaluating & comparing fatigue damage at multiple locations in a structural system based on rain flow data from strain gauges. This analysis has huge range of applications in estimating the remaining fatigue life of the steel bridges & also it is required especially for decisions on structure replacement, deck replacement, (or) other major retrofits in steel bridges.

Conclusion: By following the above methods, reliable fatigue condition assessment of steel bridges and rational strategies on bridge inspection and maintenance can be executed in accordance with the correlativity between reliability indices and predefined inspection and/or maintenance actions.

By Ganesh.L.G & Srinidhi Bhat.K (6th semester)

- Researchers have developed a stretchable, flexible patch that could make it easier to perform ultrasound imaging on odd-shaped structures.

The Empire State building is designed to be a lightning rod. In fact, it is struck by lightning more than 100

Flash Bainite Process: Manufacturing of Steel

As we know, in our rapidly growing world the need for stronger, safer and efficient structures are required. Steel plays a vital role in this aspect. Hence, development of steel i.e. for a better product becomes necessary.

Flash bainite process is one of the methods for improving the quality of steel. It's a patented process for heat treating steel that yields the Strongest, Most Ductile, Lean alloyed, Readily Weld-able and cheapest with Maximum Strength known to man.

It can be used in concrete as it is low cost and stronger than the conventional steel. Steel building components can be manufactured to rely on much higher tensile strength. Significantly lighter roof trusses could be constructed from Flash Bainite members with greater tensile strengths. Tensioning components such as wire and re-bar may positively impact the bridge and highway building industries. The Combination of high strength and increased quality of steel allows engineers to design vehicles made from parts that are lighter yet stronger than the existing parts making the vehicle more efficient.

It employs rapid thermal cycling to strengthen steel sheets and tubing into AHSS (Advanced High Strength Steel). This process is environment friendly and consumes less than half Kilowatt of energy per Kilogram of steel processed. Flash Bainite is still a new field for study. More information and principles regarding this topic is still needed to be developed for which research is being conducted.

To conclude, for the improvement of the strength of the structure, different methods and techniques must be implemented. Implementation of such methods improves the country's infrastructure and makes space for bigger and better possibilities in the near future.

By, Deekshith.T, Harsha.R, Shashanka.J(6th semester)

TUNED LIQUID COLUMN DAMPERS (TLCD)

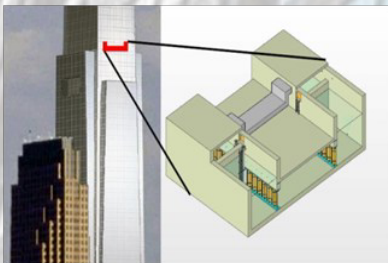
Now-a-days several techniques are available to minimize the vibration of the structure, out of those available for vibration control; concept of using TLCD is a newer one. (i.e., it protects buildings and bridges from extreme loads of earthquakes and winds).

A tuned liquid column damper (TLCD) is likely a U – shaped tube, filled with liquid that is attached to a structure in order to reduce the dynamic response of the structure as shown in fig no.1. The TLCDs are made of concrete tanks. It consists of an orifice known as damping valves or screens.

Liquid flows from one vertical column to the other, creating horizontal damping force due to impact on vertical columns/walls and friction between liquid and tube in horizontal part. Liquid motion in TLCD can be well described by hydraulic laws. The length ratio, excitation frequency ratio, mass ratio, etc. are the significant parameters for defining the effectiveness of the TLCDs.

For real structures that oscillate in all directions improvements should be made, and it produces relatively small damping force to their own mass when compared to other type of dampers. Apart from these limitations, TLCDs also have advantages like – they doesn't require external power source, can be used as water reservoir for fire fighting and as building water supply, easy implementation, cost effective, etc.

Hence, it can be concluded as TLCDs are effective tool to prevent structures from various lateral forces, wind forces, and earthquake force. Control can be exercised (by dictating orifice dimensions) for further efficiency, but costly. Can expect 60 – 70% reduction in the vibration after installation of TLCDs and these can be used for all kind of structures...



By Deepthi R (8th semester)

It's not about women... it's about who-men

Rape is one of the biggest and gruesome crimes happening all over the globe today. When we consider our Nation, which is looked upon by other countries as a nation which worships women as Goddess, it is shocking to see the statistics of having a woman abducted and raped every 8th minute.

Every time a woman is raped, she alone is held responsible instead of penalizing the culprit. The root of this problem lies in the mind set of public. Therefore self-realization becomes mandatory. The growth environment of every individual has to be improved or basically changed to make them a better human being in order to think and act responsible enough to not objectify any woman or a person for that matter.

We as educated personnel should take initiative in educating and bringing about moral ethics among the people we know. Few of the steps are listed below:

- A boy has to be groomed from his childhood to be a man who respects woman. He should learn to be a gentleman.
- As much concentration is given towards self-defence for a girl at schooling level, likewise all the children should be given ethical and moral education.
- While smartphones are used extensively (especially by kids) to a level where it acts like human beings' 3rd hand, software developers can try to come up with solution which could help the parents keep a track on the child's activity on phones till he/she comes of age to be self-responsible.
- We ourselves should step up in this regard. Whenever we notice a person being molested, we should make it our responsibility to act against the crime.

These are some glimpses of the various responsibilities that are bestowed upon us, which can be implemented to make a clean society, free from a hideous crime as this....

A push in the right direction can make a big difference

By Shashi & Shruthi (8th semester)

How to overcome mental illness

Being mentally ill is not a joke. It is a most painful thing. If u have physical ailments you will get everyone's compassion, but when u have a mental ailment you will get laughter unfortunately. This is because it is very difficult to make out when somebody is sick and when somebody is being stupid. Human sanity is a very fragile thing. The line between sanity and insanity is so thin. If you push it every day you will cross it. When you get angry, what is the expression that is used? "I am mad with you" or "I am mad right now". You may enjoy that little bit of madness – you crossed the line and it felt like some kind of freedom and power. But one day when you cannot cross back that is when suffering begins. It is not like physical pain- it is immense suffering. I have been around people who have been mentally ill. Nobody should have it. But unfortunately, it is becoming an epidemic in the world. If you have witnessed it you know there is no other suffering like mental illness because the human mind has enormous capabilities. If these capabilities work in your favor life becomes fantastic. If they work against you there is no escape because the stimuli for suffering is not even coming from outside. If the stimuli for your suffering were coming from your neighbor, friend, teacher you could run away. Nobody can cause suffering to you mentally. They do things and you react to it in a certain way. But if you come to a place where without anyone doing anything suffering is simply happening, it is psychological condition.

Our education systems are horribly demanding. Not everyone is ready for it. For someone it may be a cake walk. For somebody else they may read one sentence 25 times and not get it, but they may be capable of doing something else." No, we don't allow them to do something else. They must do this first" there are so many horrible structures. It's like they are trying to manufacture cogs for a larger machine we have built. We want the machine to live; we do not care what happens to the individual human being. If you are not made of the material to make a proper part for that big machine, you will break in so many ways.

How does one come out of it? It depends on the level of damage. There are some who can come out of it but in some cases, it would have manifested in a physical form in the brain. Such conditions have to be supported chemically from outside. It is like how the physical body gets ailments. You could be fine today, tomorrow morning your doctor tells you something. Similar things can happen to the mind. At least if it happens to your body you will get sympathy from everyone around you. When it happens to your mind no one wants to be anywhere around you because it is very difficult. It is not easy. It is painful for the person and even more painful for people around them. About 100 to 300 years ago there were hardly any mentally ill people in the country simply because of certain structures in the society. Slowly without awareness we are pulling it down. This is because a human being is social animal. Either we should work for experiencing beyond the physical level or we should create a society which is supportive, which is not demanding. A human being needs a certain level of psychological, emotional and physical space and a certain atmosphere for him to be nurtured.

You did escape the trap of elemental hive.

But it is your own doing that is the ultimate trap.

By D.L. Vennela (6th semester)

Health Is A State Of Complete Physical Mental And Social Well Being And Not Merely The Absence of Disease Or Infirmary

Art work



Photography



Balasubrahmanyam



Shashi Gowda's



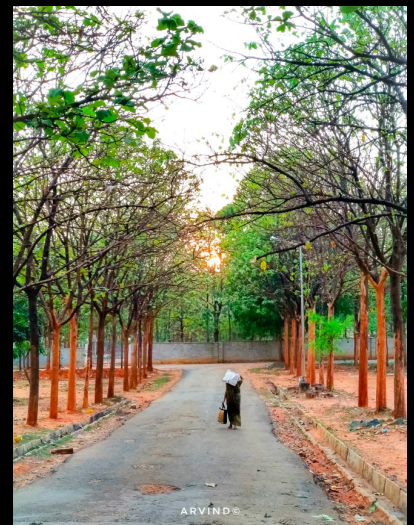
Shashi Gowda's



Balasubrahmanyam

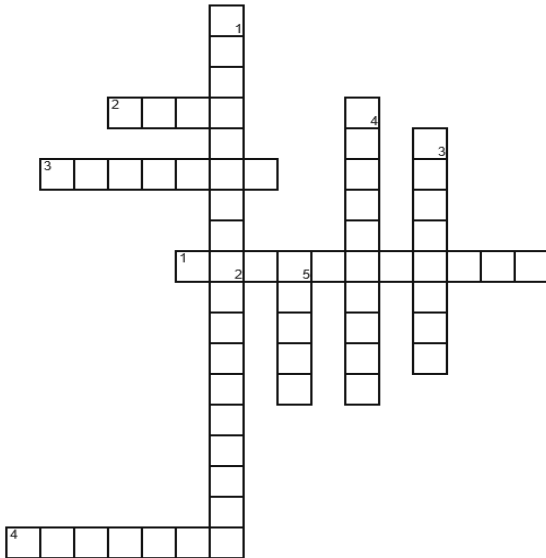


SINCHANA NAYAK



ARVIND

FUN TIME



Across

1. An instrument used to measure the vibrations in the ground during an earthquake.
2. This building material is commonly used in small houses.
3. When a material bends a lot before
4. When a material breaks really fast without bending (like a pretzel), it is called _____.

Down

1. A mountain side that moves downhill during an earthquake
2. A _____ happens when a fault breaks and causes the ground to shake.
3. This building material is a mixture of sand, rocks, water, and cement.
4. When engineers add steel to concrete they call it _____ concrete.
5. This building material is the most common

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 7 | | | | 2 | | | | |
| | | | 1 | | | | 2 | |
| | 4 | | | | 5 | | | 8 |
| | 9 | | | 5 | | 7 | | |
| | | | 8 | | | | | |
| 1 | | | | | | | | 9 |
| | | 1 | | | | 9 | | |
| | | 4 | | | 1 | | | |
| 8 | | | | 6 | | | 4 | |

ANSWERS:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 7 | 1 | 5 | 6 | 2 | 8 | 3 | 9 | 4 |
| 3 | 8 | 6 | 1 | 4 | 7 | 6 | 2 | 5 |
| 6 | 4 | 2 | 3 | 9 | 5 | 1 | 7 | 8 |
| 4 | 9 | 8 | 2 | 5 | 6 | 7 | 1 | 3 |
| 5 | 3 | 7 | 8 | 1 | 9 | 4 | 6 | 2 |
| 1 | 2 | 6 | 4 | 7 | 3 | 8 | 5 | 9 |
| 2 | 6 | 1 | 5 | 3 | 4 | 9 | 8 | 7 |
| 6 | 5 | 4 | 7 | 8 | 1 | 2 | 3 | 6 |
| 8 | 7 | 6 | 3 | 9 | 2 | 5 | 4 | 1 |

Across

1. seismograph
2. wood
3. ductile
4. brittle

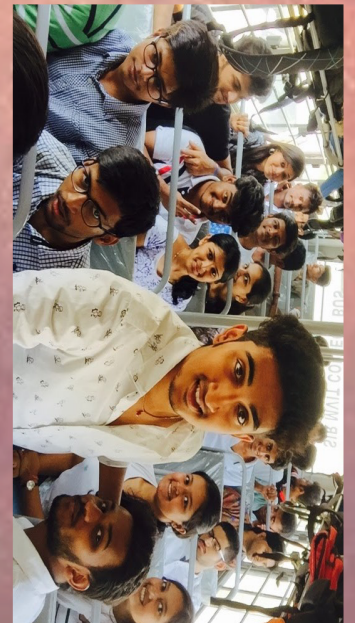
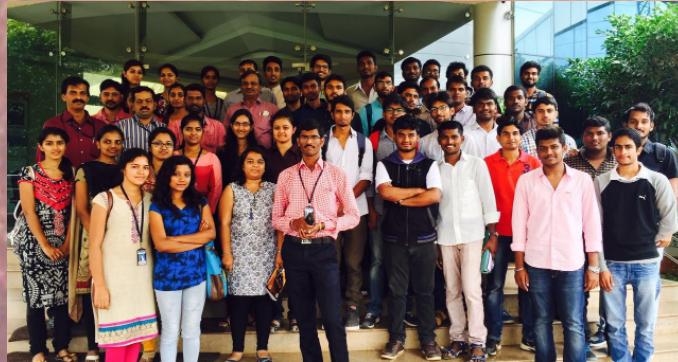
Down

1. landslide
2. earthquake
3. concrete
4. reinforced
5. steel

Her grace strikes me more,
than the beauty, unseen.
She'd made me bask in the joyous years of life
Set free of my creative self.
Reminded me of how often I was loved,
Was safer to the thought of expressing.
Showed me of my capacity to love.

It isn't a body, but the soul.
Isn't beauty but grace, that's loved.
-SINCHANA NAYAK

DEPARTMENT GALLERY



INFRA TODAY Presented by Batch of 2014-2018



Designed by
Karthik & Ashish (4th semester)