



SIR M. VISVESVARAYA INSTITUTE OF TECHNOLOGY
DEPARTMENT OF CIVIL ENGINEERING

INFRA

Vol. 4 Issue 1 March 2020

TODAY

**ALUMNI'S
SPEAK**

A blend of their
experience and knowledge.

**EXCITING
ARTICLES**

Insight and ideas of the
writer.

**DEPARTMENT
GALLERY**

Vivid memories of the year.

**FACTS THAT ARE
ALIVE**

QR codes which tells
much more about the
facts.

Supported By:

Dr. V. R. Manjunath, Principal

Mr. H. P. Mahendra Babu, Head

Ms. Vyshnavi D. R., Assistant Professor

**THE DAM WHICH SLOWED
DOWN EARTH'S ROTATION**

Sneak in to find an interesting insight on this marvelous Dam.



SIR M. VISVESVARAYA INSTITUTE OF TECHNOLOGY

Affiliated to VTU, Belagavi | Approved by AICTE, New Delhi / Govt. of Karnataka | Accredited by NAAC UGC

DEPARTMENT OF CIVIL ENGINEERING

VISION AND MISSION OF CIVIL ENGINEERING DEPARTMENT

VISION

- To create competent, disciplined quality Engineers and administrators of global standards in Civil Engineering with capability of accepting new challenges.

MISSION

- To impart quality education in civil engineering to raise satisfaction level of all stake holders.
- To serve society and the nation by providing professional civil engineering leadership to find solution to community, regional and global problems and accept new challenges in rapidly changing technology.
- To create competent professionals who are trained in the design, and development of civil engineering systems and contribute towards research & development activities.

DEPARTMENT OF CIVIL ENGINEERING

Program Educational Objectives (PEOs):

1. Graduates will become leaders in the industries associated with civil engineering and become professional entrepreneurs. They will be experts working in public sector, private 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 in professional 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.

PROGRAM SPECIFIC OBJECTIVES (PSO'S):

1. Identify the broad context of civil engineering problems, including describing the problem Conditions, identifying possible contributing factors and generating alternative solution strategies.
2. Undertake laboratory, field and other data collection efforts using commonly used Measurement techniques to support the study and solution of Civil Engineering problems.
3. Employ mathematics, science and computing techniques in a systematic, comprehensive and rigorous manner to support the study and solution of civil engineering problems.
4. Exhibit good teamwork skills and serve as effective member of multi-disciplinary project teams.

DEPARTMENT NEWS

- 1) IV Semester B.E Civil Engineering students along with Dr S.Shivanna, Associate Professor visited Jakkalamadugu Water Storage & Treatment Plant near Chickaballapur on 9th May 2018.**
- 2) The Department of Civil Engineering conducted two days workshop on Concrete Mix Design – Theory & Practice on 24th & 25th August 2018 at Sir MVIT, B'lore.**
- 3) A Technical Lecture by Dr.D.M. Dewaikar, Professor Emeritus, IIT Bombay was conducted for Civil Engineering staff and students on 4th September 2018 at Sir MVIT, B'lore.**
- 4) Parents & Alumni meet of Civil Dept. was held on 6.10.2018 at Sir MVIT, B'lore.**
- 5) V Semester B.E Civil Engineering students along with Sri K.V.R Prasad, Associate Professor visited Kempegowda International Airport, Bangalore on 3rd November 2018.**
- 6) Around 15 students of VIII Sem B.E Civil Engineering accompanied by Dr Shivanna .S, Asso. Prof. & Dr H.Ravikumar, Asso. Prof. visited Maruthi Power Generation India Pvt. Ltd a Mini Hydel Project near Hongadahalla village, Sakleshpura Taluk, Hassan District on 15th February 2019.**
- 7) Smt Pradeepa S., Asst Professor & Miss Bhavya S.,Asst. Professor along with VIII Sem B.E Civil Engineering students visited BMRCL, Whitefield, Soky road, Bangalore on 2nd May 2019.**

STUDENT NEWS

- 1) Miss Sinchana R.Nayak with USN – 1MV15CV052 of 2015 batch has secured 8th rank in the VTU 19th convocation for the academic year 2018-2019 & Ultratech Endowment Gold Medal for securing the highest marks in Concrete Technology subject in the University Examinations.**
- 2) VIII Sem B.E Civil Engineering students Madan Gowda L.B, S.Harshitha & Sinchana R.Nayak were selected in the campus recruitment by RDC Concrete on 5th February 2019.**
- 3) Miss Anupama V.S, 2016 passed out student of Civil Engineering has been selected for the Gandhi Eco Philosophy Fellowship being anchored by the State Knowledge Management Centre on Climate Change at Environmental Planning & Coordination Organization, Government of Madhya Pradesh. In its debut year, the fellowship seeks to provide a platform to support and stimulate scholarly deliberations on the relevance of Gandhian Philosophy in context of sustainable development, environment and climate change.**

STAFF NEWS

- 1) Sri K.V.R Prasad, Associate Professor & Sri H.Ravikumar, Associate Professor published a paper on "Use of Plastics in Concrete Pavements: Review", in 6th National Conference on "Futuristic Technology in Civil Engineering for Sustainable Development", held on 9th May 2018, organized by Dept. of Civil Engg., SJBIT, Bangalore.
- 2) Dr Shivanna .S, Associate Professor & Smt Vyshnavi D.R, Asst. Professor presented a paper "Geomorphological Study of Bangalore Metropolitan City at the 6th National Conference on Futuristic Technology in Civil Engineering for Sustainable Development held on 9th May 2018, organized by the Department of Civil Engineering, SJBIT, Bangalore.
- 3) Dr Shivanna .S, Associate Professor, Sri H.P Mahendra Babu, Associate Professor & Smt Vyshnavi D.R, Asst. Professor presented a paper "Morphometric Analysis and Associated Land use Study of Yelahanka Watershed, Bangalore Rural District, Karnataka at the 6th National Conference on Futuristic Technology in Civil Engineering for Sustainable Development held on 9th May 2018, organized by the Department of Civil Engineering, SJBIT, Bangalore.
- 4) Sri H.Ravikumar, Associate Professor completed his final Ph.D Viva Voce examination of VTU at M.S Ramaiah Institute of Technology, Bangalore on 15 June 2018.
- 5) Dr H.Ravikumar, Associate Professor, Smt Anitha J., Asst. Professor & Smt Ramya N., Asst. Professor attended a workshop on "Design & Detailing of RC & Steel Structures" at Brindavan College of Engineering, Bangalore on 13th & 14th August 2018.
- 6) Dr S.Shivanna, Associate Professor has been appointed as Board of Examiner by VTU for the odd semester 2018 -19.
- 7) Smt Pradeepa S., Asst. Professor published a paper on "Study on Modulus of Elasticity with Incremental Replacement of Natural Sand with Manufactured Sand in Elixir International Journal November 2018.
- 8) Smt Pradeepa S., Asst. Professor published a paper on "Comparison Study on Mechanical Properties of Concrete with Water washed and Air washed Manufactured Sand" in International Journal of Research in Engineering & Technology, October 2018.
- 9) Smt Pradeepa S., Asst. Professor published a paper on "Study on Incremental Replacement of Natural Sand with Manufactured Sand in Elixir International Journal November 2018.
- 10) Sri K.V.R Prasad, Associate Professor published a paper on "An Experimental Investigation on modification of properties of bitumen by using Poly Ethylene Terephthalate waste in International Journal of Applied Engineering Research (ISAER) ISSN0973-4562, vol 13, no. 7 (2018), pp 150 -153.
- 11) Dr S.Shivanna, Associate Professor attended 3rd International Conference on 12th & 13th July 2019 at Reva University, Bangalore and also presented a research paper titled "Assessment of Groundwater Quality in Hosakote Taluk, Bangalore Rural District, Karnataka.
- 12) Dr S.Shivanna, Associate Professor was a resource person for Faculty Development Programme on "Importance of Geology in Civil Engineering on 12th & 13th July 2019 at the Senate Hall, VTU campus, Belagavi.
- 13) Dr H.Ravi Kumar, Associate Professor presented a paper titled Statistical & Experimental Study on Concrete filled steel tubular columns under Axial loads in the 3rd International Conference on Recent Research Emerging Trends in Civil Engg. Held on 12th & 13th July 2019 at Reva University, Bangalore.
- 14) Dr H.Ravi Kumar, Associate Professor published a paper "Numerical Investigation on Load carrying Capacity of Concrete filled steel tubular columns under axial loads in 2010-2018 S-JPSET : vol. 10, Issue Supplementary, ISSN : 2229-7111.
- 15) Sri K.V.R Prasad, Associate Professor presented a guest lecture on Fluid Mechanics for III semester B.E Civil students of Cambridge Institute of Technology, Bangalore on 21.10.2019.
- 16) Dr S.Shivanna, Asso.Professor published a paper "Assessment of Groundwater Quality in Hoskote Taluk, Bangalore Rural District, Karnataka in S-JPSET : Vol.10, Issue Supplementary, ISSN : 2229-7111, dated 22 November 2019.
- 17) Dr S.Shivanna, Asso.Professor published a paper "Application of fuzzy logic on Groundwater Quality Assessment Using Water Quality Index in S-JPSET : Vol.10, Issue Supplementary, ISSN : 2229-7111, dated 25 November 2019.

LOOKING AHEAD: FUTURE OF CIVIL ENGINEERING

Historically, all engineers were mathematicians. Revolutions, discoveries and inventions have given birth to different disciplines of engineering and “Engineers”. Each species of engineers focuses on different aspects. As Civil Engineers we propose, plan, design, construct, and demolish civil structures on- and off-shore and repeat the same. But what’s the fun in repeating the age-old practices? Though all these sectors within Civil Engineering have evolved over decades, it is important for all of us to now start to collaborate and work towards common goals and challenges to make the world a better place. This calls for inter-disciplinary knowledge and experience. It is quite important for Civil Engineers to start thinking of ways to apply concepts from other disciplines and get acquainted with multi-disciplinary skills. As the world is heading towards a data revolution, an immediate plan of action could be to determine how Civil Engineers could digitize and analyze existing data and apply some statistical tool to make decisions based on the results in order to generate more efficient designs and constructional methods.

So, it is time for Civil Engineers to not just buckle their shoes and tighten their helmets, but also to sharpen their computational and decision-making skills.

**PRANAV P
ALUMNI**



ABOUT HYPERLOOP TRAINS



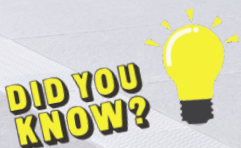
A Hyperloop is a proposed mode of passenger and/or freight transportation, first used to describe an open-source vac train design released by a joint team from Tesla and SpaceX. A Hyperloop is a sealed tube or system of tubes through which a pod may travel free of air resistance or friction conveying people or objects at high speed while being very efficient. The Hyperloop Alpha concept was first published in August 2013, proposing and examining a route running from the Los Angeles region to the San Francisco Bay Area, roughly following the Interstate 5 corridor. The Hyperloop Genesis paper conceived of a Hyperloop system that would propel passengers along the 350-mile (560 km) route at a speed of 760 mph (1,200 km/h), allowing for a travel time of 35 minutes, which is considerably faster than current rail or air travel times.

HYPER LOOP TRAINS IN INDIA : India is all set to whoosh through a tube at the speed of flight. And Andhra Pradesh will likely be the first state to do it. Elon Musk's Hyperloop Transportation Technologies (HTT) has signed an agreement with the AP government to connect the two cities of Vijayawada and Amaravathi. The 43 km drive between the two cities takes a little over an hour. With the Hyperloop, it will come down to just six minutes. Starting October this year, the company will first conduct a six-month feasibility study to find the best possible route between the two cities. Construction begins thereafter, though the launch date isn't known yet. In India, Musk's HTT isn't the only startup in the fray. Earlier this year, another company called Hyperloop One identified five routes for its India debut. On its list are:

- Bengaluru-to-Chennai: 334km in 20 minutes.
- Bengaluru-to-Thiruvananthapuram: 736 km in 41 minutes
- Delhi-to-Mumbai via Jaipur and Indore: 1,317 km in 55 minutes

Mumbai-to-Chennai via Bengaluru: 1,102 km 50 minutes.
Operations, however, would only start from 2021.

**SHILPASHREE K
VIII SEMESTER**



AMERICAN FIRST STEAM LOCOMOTIVE WAS IMPORTED FROM ENGLAND IN 1830. THEIR FIRST AMERICAN BUILD TRAIN WAS BUILT LATER DURING SAME YEAR. FIRST RAILWAY IN GREAT BRITAIN WAS MADE BETWEEN 1603 AND OCTOBER 1604 AS A SIMPLE "WAGON WAY". MODERN RAILWAYS CAME IN 1800S. TODAY 40% OF WORLD'S FREIGHT CARGO IS TRANSPORTED VIA TRAINS, AND THAT NUMBER CONTINUES TO GROW WITH EACH YEAR



Need of the hour...!

Few incidents around the world made me pen down this article; I could have just ignored them thinking it as a part of evolutionary process but my intuitions pull me down to think about it in a repeat mode. The present day human mind is said to be so well developed that we are on the verge of creating anything we desire and controlling everything on this planet. We are ruling the world, but without our consciousness are ending it in our own hands!

What does it mean to end? Is it by natural calamities or by our negligence on consciousness? In fact, it's the later that has triggered the former to new heights. I believe the reason for all this is the way we were educated. Few moral classes & high level mathematics, statistics, accounting or management skills will not help us come out of this disaster. It has to resonate at the core of our education system, especially in our country.

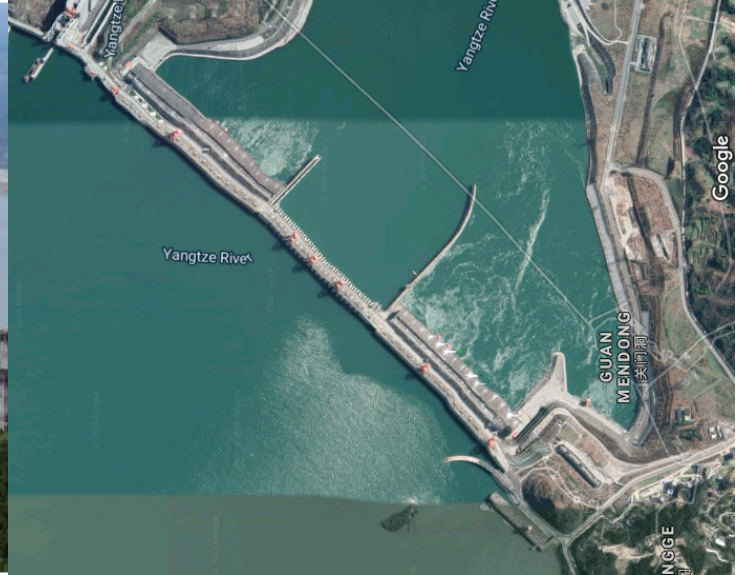
The whole of economy in the world runs not just because of so called intellectuals but also because of many minds with consciousness and common sense. In the same context, it doesn't mean that illiteracy can increase our economic prosperity or social well being. Literacy can be increased by quality education and healthy schooling of any child. So what does it mean to be educated and to have a proper education system?

Well before explaining about that let me enlighten you about the present state of Indian education system. Indeed it is not required to elaborate much on this as we all have gone through the same storm sailing on different ships, where even a fish must fly to reach the so called destination. Does this mean an athlete, artist or a wildlife photographer in our country would have to complete a popular degree going through all those difficult situations against his/her will only because the system or society forces them to do so? What can be the reason for such a narrow minded approach on the most important aspect of our life?

Invasion...? Yes, the series of invasions on land, heritage, culture and finally our understanding of the education system of the then called vibrant nation Bharat. The whole of civilization and down trodden habits of west influenced and scrapped our culture. A small example of which is the Indian Education Act of 1835, which forcefully closed all the Gurukuls and Madrasas in our country, along with the ocean of knowledge & values it had. If you were to ask me why Gurukuls were important, Oh, again imposing Religious Beliefs..? No...! To seek and to believe it's different. Beliefs only lead to superstition, and they are baseless. Our culture never believed that there are 9 planets or that there are atoms and sub atomic particles, but they had experienced and explained them far before telescope or microscope were known to mankind. To be precise, Gautama Buddha told that we emerged from a single celled organism far before Darwin's theory proved our solid understanding of evolution. And he was not the first to say that, many had cast light on many such things in their own poetic ways. The secret behind their immense knowledge and understanding on life which later made them to be termed as GOD was consciousness.....! It is the modern world that has given it a religious color.

So what effects does this have on a technologically driven world...? Consider artificial intelligence which is all about trying to replicate our intelligence. This means we humans will have nothing to do in the near future. We wouldn't need teachers to teach us or a maid to clean and even a decent farmer would probably be a low level programmer. This only concludes to the fact that the way most of the students learn concepts by memorizing them does not make any sense. The education system which pushes individuals to take such approaches will have nothing to do in coming days.

So what does it mean to be educated and what is a good education system? It is very simple. Whatever you dream and the system which supports your passion would be an ideal case for now. To be educated is to understand how everything is connected and how important every action is. To know of one's role in society as an individual and to make this world a better place to live. Something which needs our pure consciousness, emotions, intuition and intellect to work and these are some of the things AI can never possess. These qualities are already within us and our culture had once nourished them as I stated earlier. But just on a different backdrop. Remember, if your passion or goal is one which Siri or Alexa can do easily in the near future, it's better to rethink on your goals.



The Dam which slowed down Earth's Rotation

The world's largest dam, one of the greatest yet the most controversial public project of modern times, the Three Gorges dam is a technical feat engineered on Yangtze river in China. Built on Yangtze river, the longest river in Asia, the name Three Gorges comes from the fact that the river floods three gorges or valleys namely Qutang, Wu xia and Xiling.

Initially envisioned by Mao Zedong, the founding father of People's Republic of China, in 1950, the idea of this project reemerged in 1980. However, it does not matter whether you are USA or China, when you are going to construct a project of this scale, one cannot simply predict its economic, environmental upshots and assess its future economic implications and viability. After hundreds of studies, research and decade long arguments in favor and against the project, China's National People's Congress gave referendum in favor of Three Gorges hydroelectric dam project with in 1992. Its construction was started in 1994 and finished in 2006.

Three Gorges dam is a gravity dam with concrete wall 594 ft. tall and 2.3 Km wide. With a cost of 37 billion dollars, the dam consumed a colossal amount of 27 million cubic meters of concrete and 450,000 tons of steel.

Since, the dam has capacity to flood about 640 km sq. of land, around 1.4 million people have been relocated, a disputed number as it comes from Chinese government.

Three Gorges dam is world's largest hydroelectric project generating 22,500 megawatts of power with the help of 32 turbines that is 20 times that of US's Hooverdam. The dam alone fulfills China's 3% of massive energy appetite! With 37 Billion Dollar project cost, the dam fully recovered its project cost by Dec 2013 proving its economic viability.

The main force behind this project was to control floods when China experienced one of the deadliest floods of 20th century that killed 3 Lakh people and left 4 crore homeless.

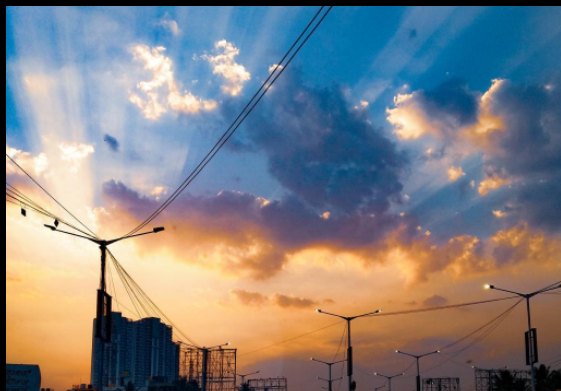
The 594 ft. tall wall of three Gorges dam has capacity to withstand floods of once-in-a-century intensity. It has saved millions of lives each year by holding back massive waters of Yangtze River.

In addition to 27 million cubic meters of concrete and 450,000 tons of steel used, the total surface area of this dam's reservoir is 1045 km sq. which holds water weighing 42 Billion tons that resulted in increase in earth's moment of inertia that in turn slowed down the earth's rotation.

With its scale, challenges it faced, controversies and innovations underneath, the Three Gorges dam is hell of a structure.

SHUBHAM SHINDE
VI SEMESTER

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ANKUSH A GUDIGAR



PRAJWAL NAIK

Our Editorial Team



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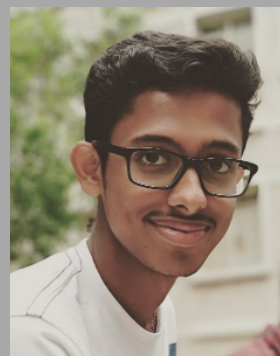
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