

SREE DATTHA INSTITUTE OF ENGINEERING AND SCIENCE, HYDERABAD

DEPARTMENT OF CIVIL ENGINEERING



EDITORIAL BOARD

Dr. Ashwin Raut,
Editor.

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DEPARTMENT OF CIVIL ENGINEERING PROFILE

The department of **Civil Engineering** is one of the most important departments of **Sree Dattha Institute of Engineering and Science**. This department was established in the year 2001 and is presently offering Bachelor's Degree in Civil Engineering. The present intake for the Bachelor's program is 120 students. The department carries out a periodic review of its curricula to ensure concurrency and keep abreast with latest technologies and developments in science and technology.

COLLEGE PROGRAM

Haritha Haaram

Haritha Haaram is a large-scale tree-planting program implemented by the Government of Telangana to increase the amount of tree cover in the state from 24% to 33%. (Established: 3 July 2015) B. Tech students who are studying Civil Engineering Course were self motivated and initiated the program on 16/08/2019 in Sree Dattha Engineering and Science campus in the presence of college management. Students planted more than 500 trees in campus of different species and also educated about their importance.



STUDENTS PLANTING TREES IN THE EVENT OF HARITHA HAARAM

ORIENTATION DAY

Sree Dattha Institute of Engineering and Science (SDES) organised a warm welcome to the fresher's and parents for the orientation and induction programs. All students were officially welcomed to the college and a speech was delivered by Dr. Ashwin Raut, Head of the Department, Department of Civil Engineering.

It was a joy filled morning at which the freshers got an opportunity not only to showcase their talents but also to interact with the seniors. Soon after the inauguration, the program started with the speeches of dignitaries followed by prize distribution to the students who topped the State Board as well as their branch where some of the speeches seemed to be inspirational.

Prize distribution was followed by many dance performances and skits by both fresher's and seniors. Finally, the party ended with a message to all the beginners that "A college degree is not a sign that one is a finished product but an indication that a person is prepared for life".



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**DIRECTOR SRI
MD.SAMEERUDDIN
KHAN GARU
RECEIVING THE
FLOWER BOUQUET AND
WELCOMING
EVERYONE.**

STUDENTS RALLY ON AN AWARENESS PROGRAM TITLED "SAY NO TO PLASTIC"

Students and SDES members marched through Sheriguda and Ibrahimpatnam village in RR district of Telangana on 03/10/2019, to spread mass awareness on ill effects of indiscriminate use of plastic. The rally was organized by the Department of Civil Engineering SDES. Students carried hundreds of placards with messages of safe environment. During the 2.5 km rally, they distributed pamphlets on 'Refuse-Reuse-Recycle Plastic' and explained people on the need of environmental protection. Students pledged to refrain from unnecessary usage of plastic and convinced their family and friends against plastic usage to create environmental responsibility.



STUDENTS TAKING A PICTURE AFTER THE COMPLETION OF THE RALLY IN SHERIGUDA VILLAGE

BATHUKAMMA FESTIVAL

The BATHUKAMMA festival or Panduga is one of the most unique festivals of Telangana region celebrated mainly by the women. Celebrated during Navarathri it's honours Goddess Gouri in the name of Bathukamma. In Telugu, Bathukamma means 'come alive Mother Goddess'. Bathukamma panduga, the spring festival, is the second largest festival after Dasara or Vijaya Dashami in Telangana Region. Celebrated during Durga Navaratri, the 9-day festival will conclude two days before Dasara. The Bathukamma festival is celebrated with all pomp and splendor at SDES, Sheriguda.



STUDENTS PERFORMING TRADITIONAL DANCE IN THE EVENT OF BATHUKAMMA ON 04/10/2019

VINAYAKA NIMAJJANAM

Civil Engineering Department participated in the Vinayaka Nimajjanam organized by students and SDES on 07/09/2019.



A LARGE CROWD OF STUDENTS PARTICIPATING IN THE EVENT OF GANESH NIMAJJANAM 2019

INDEPENDENCE DAY

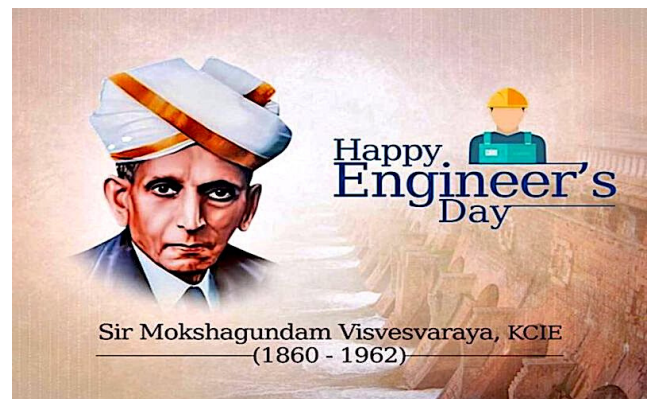
Swatantrata Divas, India's Independence Day, is celebrated annually on the 15th of August. This day commemorates the independence and the end of the colonial rule of the British achieved in 1947. The British had ruled India since the 18th century. This foreign rule ended in 1947. The students and teachers of Sree Dattha Institute of Engineering and Science also celebrated this day and raise the national flag in a ceremonial way. Around the flag a beautiful flower mandala was designed.



FLAG HOISTING EVENT CONDUCTED ON 15/08/2019

ENGINEER'S DAY CELEBRATION

Engineers operate at the interface between science and society. To identify the great works done by our hard working engineers each year 15th September is celebrated as Engineer's Day. On this occasion, Department of Civil Engineering organized various events for every semester by faculty coordinators Mr. Sunil, Mr. Naveen.



THE OFFICIAL POSTER OF ENGINEER'S DAY

TEACHER'S DAY CELEBRATIONS

To mark the great Teacher and Philosopher, Dr Sarvepalli Radhakrishnan's Birthday, Teachers Day was observed and celebrated at College of Nursing on September 05, 2019 at 2.00 p.m. at college seminar hall. Both the students and staff of Department of civil engineering gathered joyfully for the celebration.



STUDENTS AND THE FACULTY OF CIVIL ENGINEERING DEPARTMENT PARTICIPATING IN THE EVENT OF TEACHER'S DAY 2019

FIRST INTERNATIONAL CONFERENCE ON INNOVATIVE RESEARCH IN ENGINEERING, APPLIED SCIENCE AND MANAGEMENT (IC - IREASM 2019)

To encourage the research and development among the teachers SDES arranged an International Conference on 15 and 16 th October 2019 with Chief Guest PANKAJ DEWAN (founder of Ideal Labs). Many intra college participants submitted their journals in this conference.



INAUGURATION OF IC - IREASM 2019

ACHIEVEMENTS BY CIVIL ENGINEERING DEPARTMENT FACULTIES

- Mr. Prudhvi Raj, Ms. R Aparna, Mrs. K Vishala and Ms. A Prameela attended IJSER on 02/10/2019 held in online and presented paper on Improvement of clay soil by adding agriculture waste by flexible pavements.
- Mr. Prudhvi Raj attended International conference held in SDES on 15/10/2019 and presented a paper on Stabilization of gravel soil by using chloride.
- Mr. Prudhvi Raj registered SWAYAM-NPTEL online courses for accreditation and outcome based learning on 26/08/2019.
- Dr. R Vignesh attended the International conference held in SDES on 15/10/2019 and presented a paper on "Desalination – A particular focus on Indian plants and their environmental impacts" and won a prize of best presentation award.
- Ms.B Prathyusha contributed a paper A comparative study on effects of various insulating layers of roof system on energy usage of building envelope to the conference NEFES (NEW ENERGY AND FUTURE ENERGY SYSTEMS) held in Macau (China) .
- Ms. Manjula Ramancha, Ms. B Prathyusha attended the International conference held in Sree Dattha Group of Institutions on 15/10/2019 and presented a paper on Analysis of single- celled box girder bridge.
- Dr. Ashwin Raut attended the International conference (Innovative Trends in Civil Engineering for Sustainable Development) held in NIT Warangal on 29/08/2019 and presented a paper on 'A Review on the Effects of Various Influence Factors in Formation of Geopolymer Binder'.



DR. R. VIGNESH GARU BEING AWARDED A CERTIFICATE

FACULTY CORNER

Article by:

G Uma Shankar, Assistant Professor, Department of Civil Engineering, SDES.

Title: [How do forensic engineers investigate bridge collapses, like the one in Miami?](#)

On March 15, a 950-ton partially assembled pedestrian bridge at Florida International University in Miami suddenly collapsed onto the busy highway below, killing six people and seriously injuring nine. Forensic engineers are taking center stage in the ongoing investigation to find out what happened and why – and, crucially, to learn how to prevent similar tragedies in the future. I'm not actively involved in this investigation, but I've been a forensic engineer for nearly 20 years and am the 2018 president of the National Academy of Forensic Engineers. Similar to forensic scientists, we visit scenes of disasters and crimes to determine what role engineering practices played in what happened. The first step in any forensic investigation, collecting evidence, often can't begin until survivors are rescued and victims are recovered. Those operations displace material and can damage evidence, which means forensic engineers must study the emergency response as well, to be able to tell whether, for instance, a support column collapsed during the event or was destroyed to reach a victim in need of help. During the FIU recovery efforts rescuers used large equipment to break up massive blocks of concrete so that victims' bodies could be recovered. In Miami at the moment, forensic engineers and technicians from the National Transportation Safety Board are on the scene. Right now they're collecting samples of materials from the bridge to test for their physical properties. They're reviewing drawings and plans, and examining both industry standards and site engineers' calculations to understand what was supposed to be built – to compare with what was actually constructed. They'll look at photographs and videos of the collapse to identify the sequence of events and locations of key problems. Of course, they'll also talk to witnesses to find out what workers and passersby saw and heard around the time of its collapse. Then they'll combine and analyze all that data and information to identify as clearly as possible what went wrong, in what order. Often there are many factors, each leading to or amplifying the next, that ultimately caused the disaster. Putting that puzzle together is a key part of the forensic engineer's role.

Weakness in partial structure:

The FIU bridge was being built using a method called “accelerated bridge construction,” with separate sections that needed to be put together: The footings were installed beside the road and the span was built nearby and lifted into place just days before the collapse. In a plan like that, each piece must be able to withstand the forces acting on it as they're all being put together. A weakness in one place can cause problems elsewhere, ultimately leading to catastrophe. Two key elements of the bridge design, the tall center pylon and pipe supports, were not yet in place when the structure collapsed. They hadn't been scheduled to be added until later in the process – and the bridge wasn't slated to open until next year, so it's likely that the project's designers and engineers expected the bridge segment to hold while construction continued. Part of a forensic engineering evaluation will investigate whether that was a reasonable expectation, and whether those missing elements reduced the strength of what was there enough for it to collapse.

Searching for clues:

There are some other publicly available clues, too, that shed light on avenues likely under investigation already. Dashcam video of the bridge collapse seems to indicate that the initial failure was very close to the north end of the structure. It has been reported that a couple of days before the collapse, a crack had been discovered near the bridge's north end. Additionally, the bridge span might have been either undergoing stress testing or other adjustments when it collapsed. It's too early to say now – but the inquiry will certainly reveal – whether the crack and the stress testing put too much load at the north end of the bridge.



**THE CRACKS IN THE CONCRETE
AND STRESS MARKS IN THE
METAL RODS**

STUDENT CORNER

Article by:

Mr. Sriharsha Ramaraj, IV - A , Department of Civil Engineering, SDES.

Title: Upgrading our infrastructure: Targeting repairs for locks, dams and bridges.

Introduction:

For the second time in a row, America's infrastructure has earned a grade of D+ from the American Society of Civil Engineers. ASCE issues these report cards every four years, grading the state of U.S. bridges, dams, parks, airports, railroads and other vital links. The fact that our nation's overall grade has not improved since the last report card in 2013 shows that major investments are long overdue. President Trump has promised to propose US\$1 trillion in investments over 10 years to modernize the nation's infrastructure. If the Trump administration finds a way to fund such a plan, it will face many pressing questions over how to spend the money. The most likely and logical strategy would be to pursue a combination of new construction projects, repairs and retrofits, selected to provide maximum bang for the buck. Repairing a structure is typically less expensive than retrofitting it by adding new components, which in turn is cheaper than building a new structure. At Colorado State University (CSU) we are developing two strategies that can prolong the service life of structures such as bridges and navigation locks. First, we are identifying appropriate intervals between inspections, to minimize inspection costs without undercutting public safety. Second, we are using innovative methods to effectively increase structures' service lives, reducing the need for expensive new construction projects.

Cracks in aging bridges:

The United States has 614,837 bridges, of which almost 40 percent are 50 years old or more. Since many were originally designed with 50-year service lives, it is not a surprise that they are degrading. According to ASCE, on average there were 188 million trips across structurally deficient bridges daily in 2016. In steel bridges, localized structural damage produces a weakened condition that material scientists call fatigue. Cyclical loading from years of passing traffic then causes cracks to develop. Most older steel bridges suffer from fatigue and eventual cracking because codes in place when they were designed did not adequately address this problem, or because they are carrying loads heavier than they were originally designed to bear. Fatigue crack growth generally can be managed through regular repairs without compromising the bridge's performance. However, if cracks are not repaired, they can grow quickly, which could lead to catastrophic failure. This means it is critically important to quantify rates of crack growth, and to understand how rapid crack growth can affect the integrity of bridges.

Which bridges should be repaired first?

Some bridges are high priorities for inspection and repair because the American Association of State Highway and Transportation Officials classifies them as "fracture critical." This means that they contain elements whose failure is expected to cause part or all of the bridge to collapse, because the bridge does not have other components that can support the weight. The National Bridge Inspection Program was created after the Point Pleasant Bridge over the Ohio River collapsed in 1967, killing 46 people, when a single metal bar in a suspension chain failed. Standards were tightened after a 100-foot section of the Mianus River Bridge on Interstate 95 in Connecticut collapsed in 1983, killing three people. The collapse occurred after rusting caused an outer bearing to fail. Most bridges built since the mid-1970s have redundant designs that can still support loads if a component fails. This means that a bridge may develop large cracks without risking a structural collapse. At CSU we are using probabilistic evaluation and advanced 3D computer models to see how fatigue cracks grow in two-girder steel bridges and assess the potential for bridge collapse. (Girders are the horizontal beams or structures that support the deck of a bridge). Two-girder bridges are critical targets, since only one girder will remain to support loads if the other fails.



MAINTENANCE WORK ON LOCK AND DAM 8
ON THE MISSISSIPPI RIVER NEAR GENOA,
WISCONSIN