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ÉCOLE CENTRALE SCHOOL OF ENGINEERING

CIVIL ENGINEERING NEWSLETTER, 2021

In This Issue

Vol.1, Issue. 1

A Message from the *Vice Chancellor*

I am happy to note that the Department of Civil Engineering is releasing the first issue of its newsletter. I hope that the newsletter will offer a glimpse into the various academic activities of the department and will also provide an opportunity for students and faculty to showcase their scholastic achievements. I congratulate the faculty and students of the Department on this occasion and look forward to the inaugural and future issues of the newsletter.

Dr. Yajulu Medury
Vice Chancellor, Mahindra University

A Message *from the* HOD

Infrastructure is the backbone of every country's economy and becomes the very foundation for prosperity. With the advent of emerging technologies and automation, the conventional methods of infrastructural development is set to undergo a radical transformation. At MU, our curriculum is designed with a futuristic perspective so that our students are equipped in advance to tackle any challenge that might arise from the new age technological-revolution.

The Department offers a B.Tech program with a wide variety of courses across all sub-specializations of civil engineering. Several electives and the project course allow the student choice to acquire knowledge and skills in their areas of interest. In the academic year 2020-21, the department started the PhD program and ten students were admitted with full funding to conduct doctoral research in our state-of-art laboratories under the guidance of our esteemed faculty members. Approval has also been obtained for starting the M.Tech program in Computer Aided Structural Engineering (CASE) from the academic year 2021-22.

It gives me immense pleasure to observe that the students and faculty of the department have been proactive in conducting various curricular and extra-curricular activities. This newsletter will serve as a useful avenue for obtaining useful information and updates about our departmental activities.

I congratulate the editorial team for bringing out a wonderful newsletter and I look forward to the next issues. All the best!

Prabhakar Singh

Dr. Prabhakar Singh
Head of Department, Civil Engineering.

VISION
of the program

Train civil engineers of excellence instilling scientific thinking and responsive leadership for ensuring innovative and sustainable development.

MISSION
of the program

1. Impart a comprehensive and inclusive knowledgebase for arriving at innovative solutions for practical problems while ensuring environmental protection, safety, and economy.

2. Advance interdisciplinary and sustainable research and development for the ever-increasing and challenging needs of the built infrastructure of the future.

3. Inculcate in students an entrepreneurial thought through industrial interaction while enabling them to turn out to be ethical leaders in the profession of civil engineering.

Program Educational Objectives

#1 *Equip the students with the basic scientific thought for a creative engineering background to address problems with a global comprehension and perspective.*

#2 *Impart critical, analytical skills required to plan, design, construct, maintain and rehabilitate infrastructure needs for a sustainable future.*

#3 *Ensure interdisciplinary comprehension of projects using appropriate technologies to meet the implementation challenges faced by society.*

#4 *Capability to communicate and exhibit ethical leadership qualities while working in diverse teams.*

#5 *Adapt to changing global needs by constantly updating their knowledge through continued acquisition lifelong.*

Student Activities

Students at the Mahindra University formed student chapters with technical committees such as the American Society of Civil Engineers (ASCE) and the Indian Geotechnical Society (IGS). Being a member of such prestigious chapters, students organize and participate in technical events such as poster competitions, invited talks, and technical competitions regularly.

These events are certified by ASCE and IGS. Further, a techno-cultural event by the name “Aether” is organized every year by the institute where some of the technical competitions are arranged.

Welcome! With the dawn of a new academic year, we proudly introduce our newest additions to the department of civil engineering:

Dr. Visalakshi Talakokula

Professor, Dept. of Civil Engineering

Dr. Visalakshi Talakokula completed her BE from Osmania University and PhD from IIT Delhi. She has over 18 years of academic experience and 5 years of industry experience. She is honorary secretary of Indian Association of Structural Engineers (IAStrucE), honorary treasurer of Indian concrete institute (ICI), and the Governing council member of Women in Science and Engineering (WISE) India. Her research interests include development of sustainable construction materials, green concrete, structural health monitoring using piezo sensors. She has co-authored a book "Piezoelectric Materials, Application in SHM, Energy harvesting and Bio Mechanics" (Wiley publication).

Dr. Jyoti Kainthola

Assistant Professor, Dept. of Civil Engineering

Dr. Jyoti Kainthola completed her Ph.D in Civil Engineering from Indian Institute of Technology Guwahati, India. During her PhD, she completed a project on "Fungal pretreatment rice straw accelerate methane yield from anaerobic digestion" under the funding of IUUSTF. Her research interests are pretreatment of lignocellulosic waste, anaerobic digestion, organic waste utilization, biological treatment and anammox process (landfill leachate). Dr. Kainthola is a member of ISWA, and a reviewer of leading journals such Waste Management, Bioresource Technology, Biomass conversion and Biorefinery, and Journal of Cleaner Production.

New CONTROLS Laboratory

The Civil Engineering Department procured a highly sophisticated instrument from **CONTROLS®** which has the capability to test the compression and flexural characteristics of materials and structures. This equipment is highly sought-after, particularly to establish the serviceability and mechanical performance characteristics of advanced cementitious composites and is also used to understand the ultimate failure characteristics of materials and post-yield behaviour of structures. The instrument can be used for undergraduate student projects and Ph.D. student projects along with the other research activities.

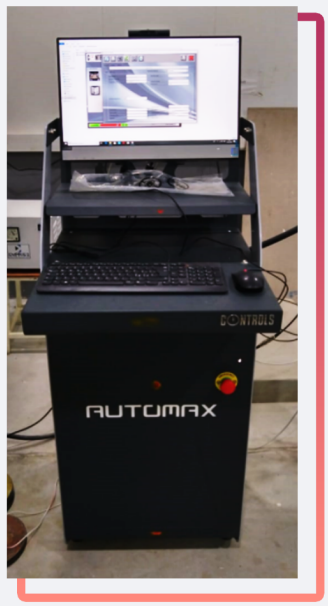


Fig. 1. AutoMax Console

The CONTROLS® equipment for the civil/structural engineering laboratory, consists of a flexural testing machine and a compression testing machine. The FTM has a capacity of 200kN and the CTM has a capacity of 3000kN with capability to test with both load and displacement control. The high-stiffness flexural frame combined with AUTOMAX® Multi-test computerized control console accompanied with high precision LVDTs provide accurate readings for tests conducted on concrete beams. A high-end software namely DATA-MANAGER® for simultaneous display of load, load rate and load/time graph, accompanies the equipment.

The machine is equipped with modules to evaluate the Young's modulus and crack mouth opening displacements (CMOD).

A few images of the equipment are shown here.

Fig. 2. Flexural Testing Machine (200kN)

Fig. 3. Compression Testing Machine (3000kN)

New Geotechnical Research Laboratory

A large-scale testing facility (compression and tension loads) was recently developed by Prof.Hari Prasad at the Department of Civil Engineering, Mahindra University.

The facility has a test chamber of size equal to 0.9 m x 0.9 m x 0.9 m will be used to study the behavior of circular footing (to simulate the wheel load) resting on pavement layers. The reaction frame consists of four columns and two horizontal beam to resists the applied loads. The diameter and thickness of the circular plate are equal to 150 mm and 30 mm, respectively. The static load tests will be conducted on the loading plate through an actuator.

The load applied on a circular plate in displacement-controlled mode with a rate of 1 mm/min. Displacement sensors linear variable displacement transducers (LVDT) are connected to measure the surface deformation. All sensors (load cell, strain gauges, and LVDT) will connect to the Data Acquisition system (DAQ) and the customized software records the data at every 30 seconds interval.

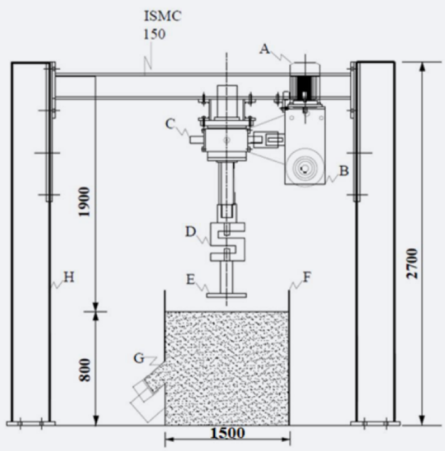


Fig. 4. Cross-sectional view of the loading frame.

Fig. 5. Photograph of the loading frame.

The figures above show the details of the facility. The following are the notations:

A, B and C: Linear actuator with gear box set up, D: Load cell, E: Loading plate, F: Test chamber, G: Sand outlet, H: Reaction frame (all dimensions given in the Figure are in mm)

World Water Day

22ND MARCH, 2021

On the occasion of World Water Day, the Department of Civil Engineering and the ASCE Student Chapter organised technical talks and events on 22nd March 2021. World Water Day is about focusing on the importance of water. This year's theme, “Valuing Water”, adapts the central promise of the 2030 Agenda for Sustainable Development Goals of the United Nations, ‘To increase awareness about the importance of water’.

Technical Talks

Dr. Lai Sai Hin
Dept. of Civil Engineering, University of Malaya

Talk 1 Challenges on water resources & integrated river basin management in Malaysia.

Dr. Gajanan K. Khadse
WTMD Division, NEERI

Talk 2 Surveillance of drinking water quality for safe water supply

Slogan Writing Competition

> *Every drop of water MISSPENT eventually will lead us to nothing but to LAMENT!!!!*

—
Shashi Kanth Koppala (SE20UARI140)
WINNER

Poster Making Competition

1st Place
B Rishi Visweswar, Poojhanavi Chenchu

2 Day Workshop

"Civil Engineering and its Practical Applications" - 7 & 8 JANUARY, 2021

A two-day workshop on "Civil Engineering and its Practical Applications" was organized by the Department of Civil Engineering in association with ASCE - MEC Student Chapter on 7th & 8th of January, 2021. On both days of the workshop, we had eminent speakers delivering talks on remarkably interesting topics.

Day 1

Er. Surya Prakash
CEO, Satavani Consultants

Discussed about pre-engineered Buildings and their Design to Implementation, and highlighted the various applications of prefabricated components of buildings in the modern construction. He also mentioned the difference between preengineered steel buildings and conventional steel buildings, with emphasis about sustainability and recyclability of the structures.

Er. Ravi Kanth
CEO, Satavani Consultants

Presented a talk on Entrepreneurship in Civil Engineering, with discussion on various training programs, tools and ideas for entrepreneurship. As a self-made entrepreneur for IIIT Hyderabad and MD of VYUHA group, he spoke about working as an entrepreneur, the prerequisites to starting a firm, capitalization for business, and hurdles that can be expected by entrepreneurs.

Dr. Prateek Negi
GBPant University

Presented a talk on condition monitoring of concrete and rocks using smart piezo-based sensors. The application of sensors was discussed for live structural health monitoring, along with detailed studies on Quasi Static and cyclic Damage monitoring, Acoustic emissions techniques and PZT patch orientation studies.

Dr. Gaurav Goel
South Bank University

Presented a wonderful insight on the topic 'Waste to Wealth Conversion: Engineering Measures'. The speaker presented his research study, where he transformed waste into construction materials. He used agriculture waste and municipal waste to produce bricks.

CONTINUE NEXT PAGE ▶

Day 2

Er. Joshua Richard
EDA, Paris

Gave an exciting interactive presentation on Applications of Excel programming in Structural Engineering. He discussed how excel plays a role in structural design. He presented examples showing cross validation, programing using macros and high-quality graphs plotting using excel.

Er. Suraj Vedpathak
STRATA Group India

Presented real life field studies on use of geosynthetics in pavement and reinforced soil structures. Glimpse through case studies, various applications of geosynthetics were presented by the speaker.

Dr. K Ganesh Babu
Mahindra University

Presented a comprehensive talk on Advanced Cementations Composites and their applications. The talk discussed the advances in cementations materials and their environmental impacts. Dr. Ganeshbabu also spoke about results from different studies conducted on geopolymer concrete and discussed key concepts such as void spaces in concrete, ITZ, effect on strength due to cement replacement etc.

Mahindra University's **IGS Student Chapter**

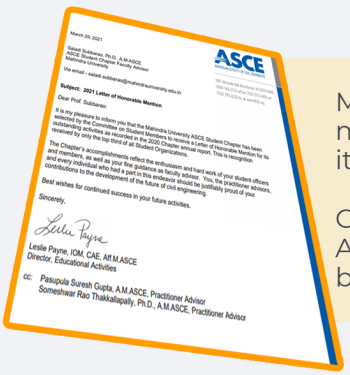
On 30th January, 2021, the IGS Student Chapter at Mahindra University conducted a webinar hosted by **Dr. Bhaskar Chittoori** (Boise State University, USA), titled, ***"Application of Bio-stimulated Calcite Precipitation to Stabilize Expansive Soils: Laboratory and Field Trials".*** Dr.Bhaskar presented an interesting talk with detailed lab and field results from his research on expansive soils and presented future prospects for stabilizing such soils. The event was organized by **Dr. Hariprasad Chennarapu.**

Symposium on Geopractices 2020

IGS Hyderabad Chapter's Geotechnical Engineers symposium (Geo Practices) was held on 28th November, 2020. It provided a platform for researchers, practitioners and post-graduate students working in the area of Geotechnical Engineering and Geo-environmental Engineering, to share their knowledge, highlight their research findings and exchange information with fellow geotechnical engineers.

The event was jointly organised by IGS chapters from Mahindra University, IIT Hyderabad, JNTU Hyderabad and VNR-VJIT.

Student Achievements


March 29, 2021

Saladi Subbarao, Ph.D., A.M.ASCE
ASCE Student Chapter Faculty Advisor
Mahindra University

Via email – saladi.subbarao@mahindrauniversity.edu.in

Subject: 2021 Letter of Honorable Mention

Dear Prof. Subbarao:

It is my pleasure to inform you that the Mahindra University ASCE Student Chapter has been selected by the Committee on Student Members to receive a Letter of Honorable Mention for its outstanding activities as recorded in the 2020 Chapter annual report. This is recognition received by only the top third of all Student Organizations.

The Chapter's accomplishments reflect the enthusiasm and hard work of your student officers and members, as well as your fine guidance as faculty advisor. You, the practitioner advisors, and every individual who had a part in this endeavor should be justifiably proud of your contributions to the development of the future of civil engineering.

Best wishes for continued success in your future activities.

Sincerely,

Leslie Payne, IOM, CAE, AFM.ASCE
Director, Educational Activities

cc: Pasupula Suresh Gupta, A.M.ASCE, Practitioner Advisor
Someshwar Rao Thakkallapally, Ph.D., A.M.ASCE, Practitioner Advisor

Mahindra University ASCE Student Chapter has been selected by the Committee on Student Members to receive a **Letter of Honorable Mention** for its outstanding activities as recorded in the 2020 Chapter annual report.

Congrats to **Dr. Saladi Subbarao** (Faculty Advisor, ASCE MU Chapter), the ASCE Student Officers **Kolla Abhinav** and **Laxmi Manisha**, and other members of the ASCE Student team.

Two final year civil engineering students, Sushmita Kadarla and Beeram Sreekeerthe, published a paper recently (in January 2021) with their project advisor, Dr.Venkata Dilip Kumar. The paper was published by Springer in Volume 127 of their Book Series **"Lecture Notes in Civil Engineering"**. The paper presents results from their research on **Concrete Crack Detection from Video Footage for Structural Health Monitoring**.

Four final year civil engineering students, Abhinav Kolla, Ravi Naga Sai, Madhu Dinesh and Sree Satya published a paper recently (in January 2021) with their project advisor, Dr.Venkata Dilip Kumar. The paper was published by Springer in Volume 127 of their Book Series "**Lecture Notes in Civil Engineering**". The paper presents results from their research on **Health Assessment and Modal Analysis of a Historical Masonry Arch Bridge.**

Ms.Sahithi

Civil Engg 3rd Year student

Won the best presentation award for a paper she co-authored with Dr.Jayaprakash Vemuri. The paper titled "**Time Frequency Analysis of Strong Ground Motions from the 1988 Ms 7.2 Indo-Burma Earthquake**" was presented at the AICTE sponsored conference, EPIC-2020.

Ms.Laxmi Manisha

Civil Engg 4th Year student

Has published a paper in the Journal "Ground Improvement" of the Institution of Civil Engineers, under the guidance of Dr.Hari Prasad:.

Hariprasad C, Laxmi Manisha, Hima shankari, Mrudula, and Raval Ratnam (2021) "Stiffness Based Approach of Pullout Resistance Factors of Reinforcements Embedded in Soil" Ground Improvement, ICE Publishing

Two students, **Swaroop SNV** and **Somasekhar Reddy** (Class of 2020) published a journal paper under the guidance of Dr.Saladi Subbarao.

Subbarao, SSV., Swaroop and Somasekhar (2020). "Interrelationships between mode choice and trip chain choice decisions in the context of developing countries". Transportation Research Procedia, Vol. 48, pp. 3049-3061, Elsevier

Research Spotlight

COVID'19 and it's effect on Travel Behaviour

Dr. Saladi S.V. Subbarao
Assistant Professor, Dept. of Civil Engineering

The transportation and business sectors are a few among the other primary victims of the COVID-19 pandemic. As the COVID-19 cases rise again, it is necessary to understand the individual behavioural inhibitions towards using Public Transportation (PT) and challenges for making safe and secured shopping activities. Our Department faculty, Prof. Saladi S.V. Subbarao has been leading few projects with these timely topics with the final year undergraduate students. One of the studies deals with the COVID-19 impact on PT. The study analyzes the public perception and reservations towards using PT and the conditions which attract them to use PT again. Another study attempts to analyze the impact of COVID-19 on shopping behaviour. Since many studies have reported that a majority of consumers are now moving from offline to online mode of shopping, the study analyzes the individual preferences for e-commerce and the factors which influence them to change their shopping behaviour.

Project Funding

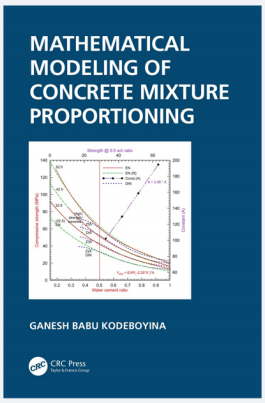
The proposal on ***Structural Health Assessment and Monitoring of Structures using Wireless Sensors and Artificial Intelligence (Bridges)*** has been funded for an amount of **Rs.25 Lakhs.**

The PI and co-PI are **Dr. Venkata Dilip Kumar Pasupuleti** and Prof. Prafulla Kalapatapu, respectively. The Funding Agency is KDM Engineers India Pvt Ltd., Hyderabad.

Congrats!

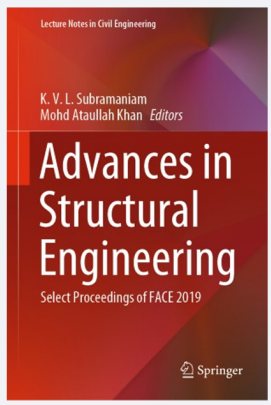
Published!

A quick section highlighting the recent book publications that MU's professors have been involved as an author/editor in:



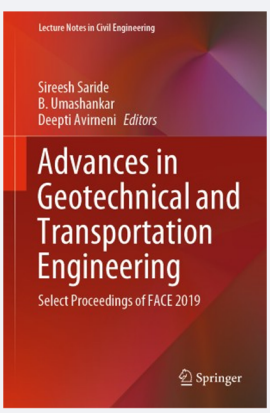
*By **Ganesh Babu Kodeboyina***

The primary aim of this book is to put together an understanding of the appropriate principles of ensuring performance and sustainability of concrete. Broadly subdivided into three parts, first part contains the fundamental aspects introducing the constituent materials, the concepts of concrete mixture designs and the mathematical formulations of the various parameters involved in these designs. The second part is dedicated to discussing approaches and recommendations of American, British and European bodies related to mathematical modelling. Lastly, it discusses perceptions and prescriptions towards both the performance assessment



*By **K.V.L. Subramaniam, Mohd. Ataullah Khan***

This book contains selected papers in the area of structural engineering from the proceedings of the conference, Futuristic Approaches in Civil Engineering (FACE) 2019. In the area of construction materials, the book covers high quality research papers on raw materials and manufacture of cement, mixing, rheology and hydration, admixtures, characterization techniques and modeling, fiber-reinforced concrete, repair and retrofitting of concrete structures, novel testing techniques such as digital image correlation (DIC). Research on sustainable building materials like Geopolymer concrete and recycled aggregates are covered. In the area of earthquake engineering, papers related to the seismic response of load-bearing unreinforced masonry walls, reinforced concrete frame and buildings with dampers are covered. Additionally, there are chapters on structures subjected to vehicular impact and fire.



*By **Sireesh Saride, B. Umashankar, Deepti Avirneni***

This book presents the selected peer-reviewed papers from the national conference Futuristic Approaches in Civil Engineering (FACE) 2019. This volume focuses on latest research and challenges in the field of geotechnical, transportation, environmental and water resources engineering. The first part focuses on alternative and sustainable pavement materials, maintenance and rehabilitation of roads, transportation planning, traffic engineering, hybrid vehicles, safety management, and intelligent transport systems. In the second part of the book, basic and advanced research in geotechnical engineering which can provide sustainable solutions to practical problems in foundations, retaining structures, soil dynamics, site characterization, slope stability, dams, rock engineering, environmental geotechnics, and geosynthetics are covered. The third part of the book includes current research in environment, and water resources engineering.

celebrating the class of 2021.

After all the hard work, this is the start of your next great adventure. We are so proud!

Sahithi Reddy
got into
National Institute of Construction Management and Research, Hyderabad

for PGP in Advanced Construction Management.

Mohammed Ayub Ifan
got into
National Institute of Construction Management and Research, Pune

for Advanced Construction Management.

Swetha
got into
Columbia University, USA

for Masters in Construction Management.

Hardik
got into
Columbia University, USA

for Masters in Construction Management.

Shalin
got into
Columbia University, USA

for Masters in Construction Management.

Ranjetha Bommareddy
got into
New York School of Interior Design

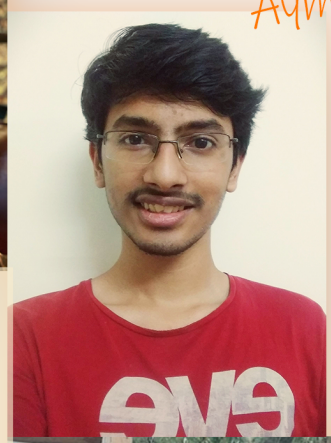
CONGRATULATIONS AND WISH YOU THE ALL THE BEST IN ALL OF YOUR FUTURE ENDEAVOURS!

Faculty Advisor
Dr. Jayaprakash Vemuri

Ranjetha Bommareddy

Pooja Reddy

Ayman Saquib



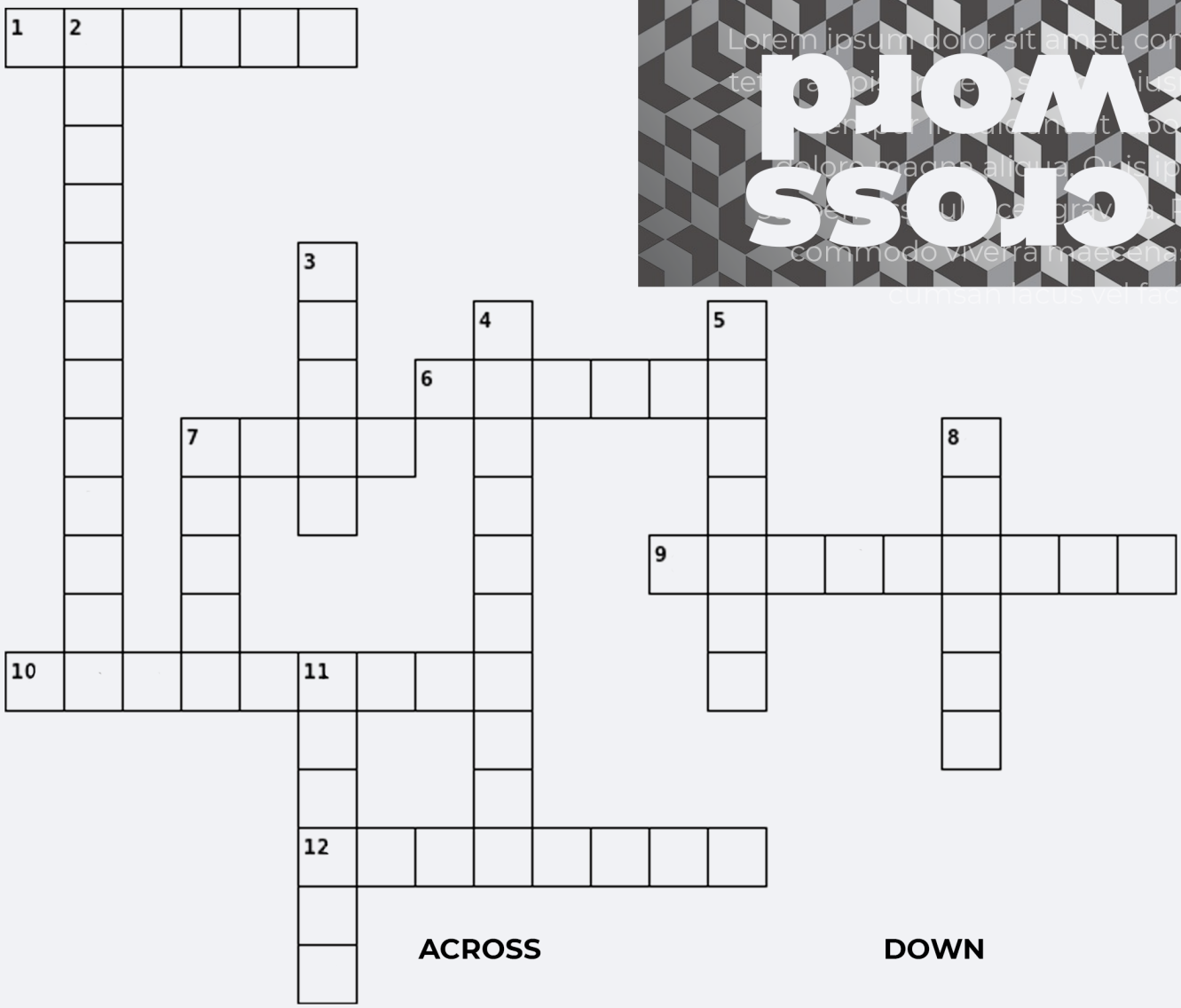
Our Team.

Siri Reddy

Sreeja Reddy

Maiyukhi Kotamraju

cross word



ACROSS

1. An overhanging architectural element that works well to counteract the specific climate of the region.

6. Impure earthly stone rich in concretions and nodules of calcium carbonate

7. A small barrier built across a stream or a river to raise the water level slightly on the upstream side

9. A structural steel used in construction

10. Inert material; a component of concrete

12. Marble chips in a matrix of cement, pigmented or not

DOWN

2. Local voids or roughness of the face of a concrete structure, caused by the concrete having segregated so badly that there is very little sand to fill the gaps between the stones at this point.

3. An external corner in brickwork

4. Supported at one end, free at the other

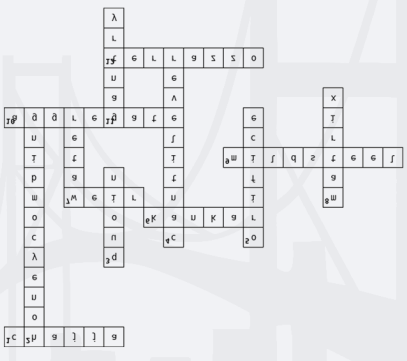
5. An opening in pipe

7. Gallons of ____ per bags of cement

8. Binding constituent of the top layer of the soil

11. Overhead crane with legs

|| Key :



The greatest use of life is to spend it on something that will outlast it.

- William James

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SCHOOL OF ENGINEERING