
REFLECTIONS
DEPARTMENT OF CIVIL ENGINEERING
KMEA
ESTD - 1957
C.H. MOHAMMED KOYA
KMEA ENGINEERING COLLEGE
APPROVED BY AICTE
AFFILIATED TO KTU
REFLECTIONS
DEPARTMENT OF CIVIL ENGINEERING
KMEA FITNESS CENTRE
MAGAZINE 2022-23
"PIONEERING INNOVATION,
CONSTRUCTING A BETTER TOMORROW."

KMEA ENGINEERING COLLEGE

" The Kerala Muslim Educational Association was established in 1957 with the lofty aim of setting up quality educational institutions on a par with global standards. Promoting education among minority communities and providing financial aid to the economically weak and deserving students.

Late Sri. Poker Sahib, an eminent Parliamentarian and Philanthropist and late Sri. K. M. Seethi Sahib, former speaker of the Kerala Legislative Assembly, was the key forces behind the formation of KMEA. Former Chief Minister Sri. C. H. Muhammed Koya has also actively participated in the formation of the association.

KMEA Engineering College (KEC) was established in 2002 under the management of Kerala Muslim Educational Association, a charitable trust. It is approved by All India Council for Technical Education (AICTE) and affiliated to APJ Abdul Kalam Technological University. The college is accredited by National Assessment and Accreditation Council (NAAC). "

VISION

To mould students to excel in academics and research in the field of civil engineering and committed to the upliftment of underdeveloped sections of the society through effective teaching learning process

MISSION

- To impart quality education to meet the upcoming challenges in the field of civil engineering.
- To inculcate social responsibilities ethical values and motivate the students for lifelong learning and excel in professional life.
- To nurture students to become competent civil engineers with creative thinking, innovations and research through effective mentoring and academic ambience

DEPARTMENT OF CIVIL ENGINEERING

The Department of Civil Engineering was established in 2008 and has been continuing its glorious journey ever since, being the most dynamic and broadest department. The department. delivers highly professionally skilled and responsible engineers to the society.

The department offers an undergraduate program, B. Tech. in Civil Engineering with an intake of 90 students. The teaching learning process within the department aims at moulding the students into professionals capable of meeting the challenges in the field while upholding the professional ethics. M. Tech in Computer Aided Structural Engineering with an intake of 18 students has been offered since 2012. The master program focuses on imparting advanced knowledge in the field of Structural Engineering. Our department has a full fledged infrastructure system with well equipped laboratories for UG and PG students. The department has highly qualified and experienced faculty members specialized in various disciplines of civil engineering.

Department has a very active Students Association, "Association of Civil Engineers" whose basic objective is to conduct programs which will enhance technical knowledge and social commitment of students. The department has collaborated with various governmental and non-governmental agencies in their projects providing the students with excellent industrial exposure working in real time projects. The Department has signed MOU's with different industries providing our students with internship opportunities and industrial exposure to our students. The department is in close association with Indian Concrete Institute (ICI) and Indian Green Building Council (IGBC) which helps students to gain practical knowledge by the interaction and association with various industrialists, entrepreneurs, researchers, academicians etc.

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PRINCIPAL'S MESSAGE

It is my pleasure to welcome you all to KMEA Engineering College. The institution run and managed by the Kerala Muslim Educational Trust (KMEA). The college has very eco-friendly campus and is equipped with state of the art infrastructure. We have well equipped laboratories, workshops, central library, central computing facility, and other added facilities to help students in attaining the highest standards in Academics and Professional skills.

The campus has adequate sports infrastructure to take care of Sports and recreational activities of students

The college has grown over the years and crossed many milestones on its journey to become a centre of excellence in the field of technical Education in the State of Kerala. This has become possible only due to the continued patronage of the visionary management, tireless efforts of the well experienced, dedicated faculty and staff members, and worthy contribution of the smart, well focused and ambitious students.

-DR.AMAR NISHAD T.M

(DIRECTOR/PRINCIPAL)

VICE PRINCIPAL'S MESSAGE

"Heartiest greetings"

I am glad to know that Civil Department of Our College is bringing out the magazine "REFELECTIONS " specially meant for the latent writing s along with the precious moments of college life. First of all I like to congratulate all the editorial board members and the contributors of this magazine.

We have the plans and dreams in the years to come I am sure we make an strong foundation to walk ahead to make a dreamy and brightful college . An intelligent ambitious students in you should know that sky is your limit I am inviting you to be an integral part of this colourful and thrilling travelling to grab the endless opportunities with out leaving the social responsibility to society.wishing you very best scaling bigger success and achievements in the coming days...once again congratulating all the faculty members and students those who worked behind this magazine..

Dr. Rekha Lakshmanan
(VICE PRINCIPAL)

HOD'S MESSAGE

It is with great pleasure that I address you through our department magazine again, highlighting the latest developments, accomplishments, and prospects within our department. First and foremost, I would like to express my gratitude and admiration for the unwavering dedication and hard work displayed by each one of you. The past year has brought its unique set of challenges, but it is in facing these challenges that we have indeed demonstrated our resilience and adaptability as a team. Your commitment to excellence has been nothing short of remarkable

Let's take a moment to celebrate our recent achievements in research excellence, teaching excellence, community engagement, collaborations, and student success. Looking ahead, I encourage all of us to maintain this momentum and continue striving for excellence in all that we do. I would like to take this opportunity to extend my appreciation to the newsletter team for their diligent work in keeping our community informed and connected. Your efforts in showcasing the achievements and stories within our department are invaluable. As we move forward, I invite all of you to share your ideas, initiatives, and updates for inclusion in our future newsletters. Let's ensure that our department newsletter remains a vibrant platform for celebrating our successes and sharing our collective wisdom.
Thank you once again for your hard work and dedication. I am excited about what the future holds for our department, and I am confident that we will continue to achieve remarkable milestones together.
I wish you all the best in your endeavors.

Dr.Sija Arun
(HOD-CE)

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

PEO1: Graduates will be equipped with knowledge, skills, and abilities to perform various functions as competent civil engineers.
PEO2: Graduates will be oriented towards creative thinking and research to tackle problems in civil engineering with social commitment and ethical values.
PEO3: Graduates will have successful careers in different fields of civil engineering and adapt to modern trends by engaging in life-long learning.

PROGRAM SPECIFIC OUTCOMES (PSO)

PSO1: Apply knowledge of mathematics, science and engineering to investigate, identify, formulate, analyze, design and solve problems in various disciplines of civil engineering with professional and ethical responsibility.
PSO2: To develop innovative, sustainable and modern infrastructure to meet societal needs and environmental challenges.
PSO3: Utilize the latest technologies and managerial skills for professional development and gain sufficient competence compatible with the industry demands.

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REFLECTIONS

"Reflections" it captures the essence of looking back on our amazing memories, celebrating our achievements, and contemplating our journey of growth and learning. It symbolizes the introspective nature of the magazine, giving us a platform to reflect on the diverse experiences and perspectives within our college community.

INTRODUCTION TO CIVIL ENGINEERING

“Civil engineering is all about designing, constructing, and maintaining structures like buildings, bridges, roads, and dams. It's a field that combines creativity and problem-solving skills to create safe and functional infrastructure. Civil engineers play a crucial role in shaping the world we live in, making sure our communities are built to withstand the test of time. It's an exciting and rewarding field to be a part of!”

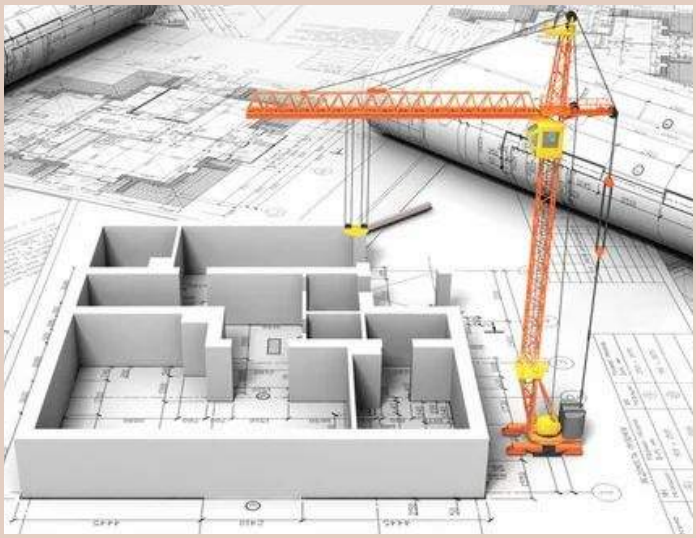
THE EVOLUTION OF CIVIL ENGINEERING

Civil engineering has evolved significantly over time, adapting to new technologies and societal needs. From ancient civilizations constructing impressive structures like the pyramids, to the modern era of sustainable design and smart infrastructure, civil engineering has come a long way. Engineers now utilize advanced software, materials, and construction techniques to create safer, more efficient, and environmentally friendly structures. The field continues to evolve, incorporating concepts like green infrastructure, resilience, and digital modeling to meet the challenges of the future. It's an exciting time to be a part of the ever-evolving world of civil engineering!

KEY CONCEPTS IN CIVIL ENGINEERING

STRUCTURAL ANALYSIS

It involves assessing the behavior and strength of structures under different loads and conditions. Engineers use mathematical models and simulations to ensure the safety and stability of buildings, bridges, and other structures.

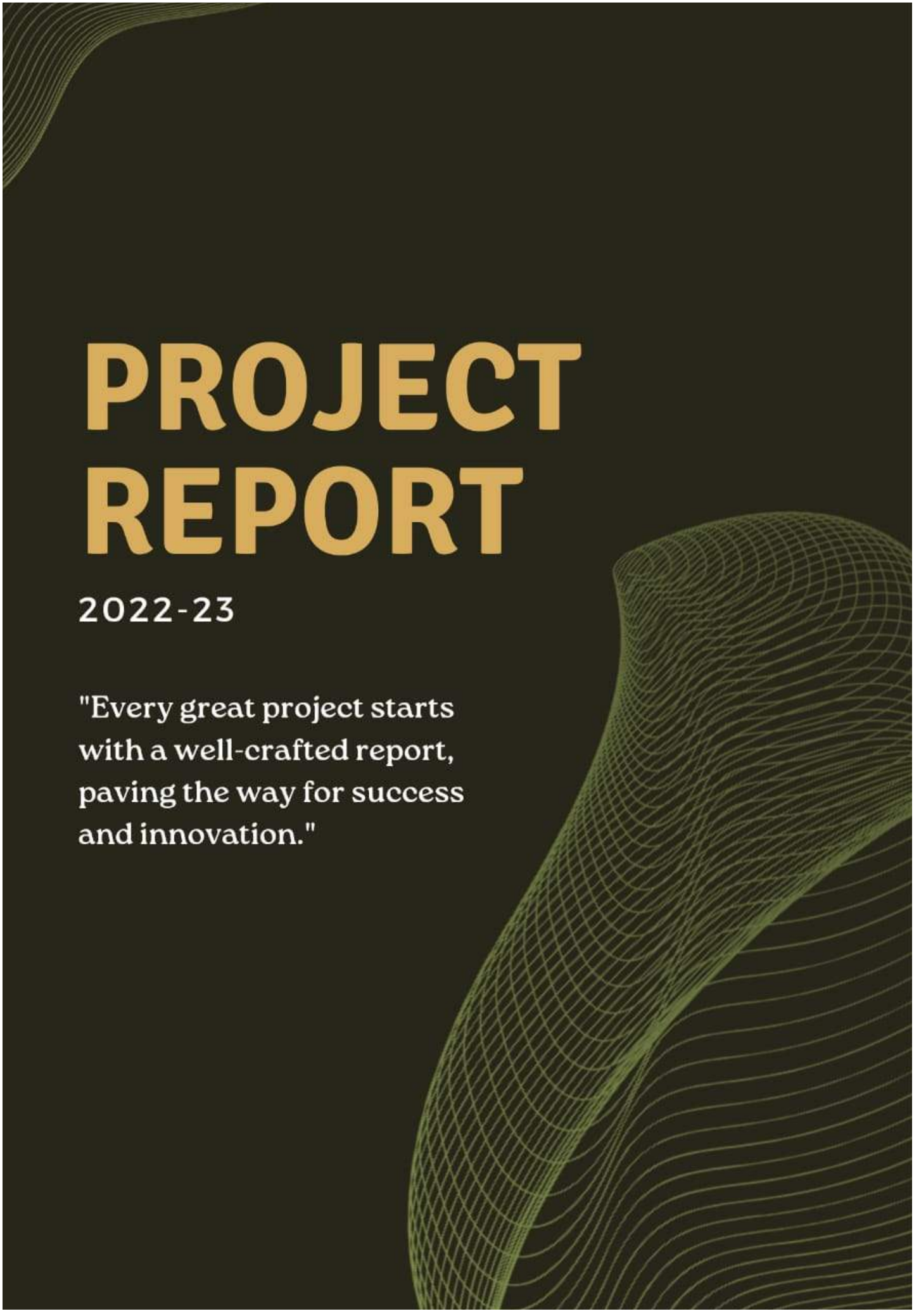


GEOTECHNICAL ENGINEERING

This field focuses on the behavior of soil and rock materials and their interaction with structures. Geotechnical engineers study soil properties, conduct site investigations, and design foundations to ensure stability and prevent soil-related failures.

CONSTRUCTION MANAGEMENT

It involves overseeing the planning, coordination, and execution of construction projects. Civil engineers in this field manage resources, schedules, and budgets to ensure projects are completed efficiently and within specified guidelines.


PROJECT
REPORT
2022-23
"Every great project starts with a well-crafted report, paving the way for success and innovation."

THERMOELECTRIC GENERATORS FOR EXTRACTING ELECTRICITY FROM WASTE HEAT

Ms. Bindu Sebastian, Akila M S, Fazna Nazeer, Riyas K S, Shahinsha T S
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THERMOELECTRICITY

Thermoelectricity refers to a phenomena in which a temperature difference creates an electric potential. The pioneer In thermoelectric was a German scientist Thomas Johann Seebeck(1770-1831). Later, in 1831, French scientist, Peltier and in 1851, Thomson described the thermal effects on conductor. A thermoelectric power converter has no moving parts, and is compact, quiet, highly reliable and environmentally friendly. It can utilize both the high- and low-quality heat to generate electricity. They are extremely reliable and silent in operation since they have no mechanical moving parts and require

METHODOLOGY

- TEGs consists of a thermocouple, comprising a p-type and n-type material connected electrically in series and thermally in parallel.
- Whenever a temperature difference is applied between two different materials in a couple, electrons and holes diffuse across the junction, thus creating a potential across it.
- The resulting potential difference leads to the flow of an electric current in the circuit which is proportional to the temperature gradient between the hot and cold

AIR PURIFICATION TOWER

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KMEA Engineering College

INTRODUCTION

Air pollution has been a major concern throughout the recent years and has proved to be fatal.The major air pollutants are from industries, dense traffics etc.Some of most common and dangerous pollutants are CO, CO2, NO, NO2, PM, groun-level-ozone etc. It is of immense importance to control and take measures for the safety of our future.

OBJECTIVE

Objectives of the proposed work are :-
To design the air purification tower.
To prepare a mini prototype.

MATERIALS USED:-

Activated Carbon Air Filters:-
Activated carbon air filters are effective at removing gaseous pollutants, fumes, vapors, and odors present in the air and to improve air quality.
Aluminum Air Filter:-
Aluminum air filters are made of multiple alternating layers of aluminum screens or mesh to maximize their filtering and particle retention capabilities and are supported in a rigid carrier frame made of aluminum.

CRITICAL SUMMARY:

As we studied the pollution in our state kerala throughout, we realised that the highest pollution is among three cities, which is Ernakulam , Trivandrum and Kollam . The pollutant index in these three places is found to be PM10 therefore to improve the air quality of these places we developed a mini prototype inspired by Air purifying tower in Xian China.

ELECTRICITY GENERATION FROM LIVING PLANTS

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INTRODUCTION

Energy crisis is a great challenge in our world. The usage of non-renewable resources cause pollution and hazardous effects on public health. To solve this problem an alternate source of renewable energy can be used. Plant microbial fuel cell (PMFC) is such a renewable energy source. A PMFC converts organic matter into electricity using living plants and bacteria via photosynthesis. They also helps to remove the harmful pollutants from soil.

Fig1. Green energy

OBJECTIVES

- To generate electricity from MFC using spider plant (Chlorophytum comosum).
- To study the effect of various electrode materials on energy production using MFC.
- To develop a suitable series-parallel combination for maximum power output.
- To develop a prototype for low power consumption devices.

Fig 2. Spider plant

METHODOLOGY

- The concept of PMFC is used to generate and store the electricity for small power usages, like lighting a bulb.
- In this configuration an anode is placed at the bottom and cathode at the top of the chamber.
- Microbes present at the roots of the plant simplifies the root exudates and releases electrons and protons.
- Anode will receive the electrons and cathode will receive the protons.
- Generated electricity can be stored using a battery.

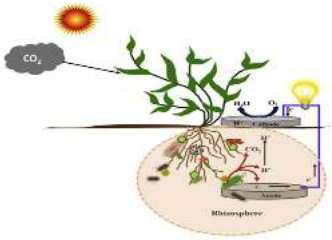

Fig 3. Plant microbial fuel cell

CRITICAL SUMMARY

- Main principle used here is PMFC.
- Flat plate electrodes are more efficient than tubular electrodes.
- Grass species are mostly used.
- Potting mix is preferred rather than sandy loam soil.
- Carbon-graphite and copper-zinc electrodes are used.

Fig 4. 3D Model

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PAVEMENT BLOCK CONSTRUCTION USING CRUSHED MOSAIC AND PLASTIC WASTE

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KMEA Engineering College

INTRODUCTION

Plastic waste disposal has become a serious threat. Construction of pavement block using plastic waste and crushed mosaic mitigate the problem of waste disposal.Here,recycled plastic waste in shredded form is combined with crushed mosaic to manufacture pavement blocks.Also mosaic powder is a cheap waste material that has been mainly formed during the demolition of a building.So partially or fully replacing the aggregate with mosaic powder will reduce the cost in a great manner without compensating the properties of aggregates.

OBJECTIVES

Objectives of the proposed work are:

- To manufacture cost effective pavement blocks using recycled plastic waste and crushed mosaic powder.
- To reduce the threaten of plastic waste in our surroundings to an extend.
- To compare the properties of manufactured pavement blocks with properties of ordinary pavement blocks.

Fig. 1. Mosaic powder

Fig. 2. Shredded plastic

MATERIALS USED

(a) Cement

- Cement is a binder, a substance used for construction that sets, hardens, and adheres to other materials to bind them together.

(b) Aggregate

~ Coarse aggregate

- The coarse aggregate has a major effect on concrete properties such as abrasion resistance, hardness, elastic modulus, and another characteristic like durability, strong, and cheaper.

~ M Sand

- The locally available river natural sand has been used as fine aggregate. To get the most dense concrete, the existing sand was separated by sieve analysis and remixed by the desired amount for having well-graded fine aggregate according to ASTM-C33 (2003)

(c) Water

- Water is an important component of concrete since it works in the chemical reaction with cement and it aids to from the strength giving cement gel. In the investigation tap water is used for mixing and curing.

(d) Shredded plastic

- Plastic have to be shredded into small pieces by appropriate technique, and have to be effectively used along with the conventional ingredients.

(e) Crushed mosaic

- Mosaic can be reused as a partial replacement of cement for economical purpose.

(f) Fly ash

- Fly ash can be used as prime material in many cement based products. In order to enhance the strength property and sustainability point of view, fly ash is used as a mineral admixture and partially replaced with cement in various proportions.

METHODOLOGY

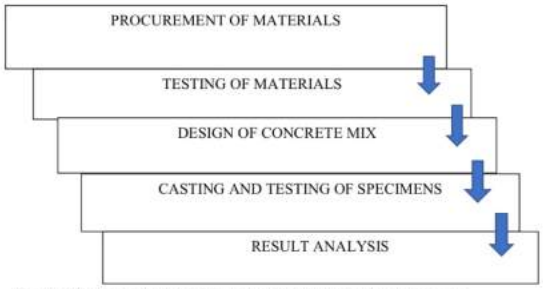

Fig. 3.Schematic representation of methodology

CRITICAL SUMMARY

- The increased demand of aggregate will result in depletion of the source.
- Materials such as hazardous plastic waste as well as demolition waste such as mosaic contribute various enhancement of mechanical properties , without effecting their base properties.
- So here we are adopting crushed mosaic powder and shredded plastic for replacing conventional materials, especially fine aggregate like sand.
- This replacement techniques which will provide an appropriate solution for consumption of such hazardous things in better way.

REFERENCE

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REMOVAL OF OIL AND GREASE FROM COMMERCIAL KITCHEN WASTE WATER USING ENZYMES

Fazna Nazim, Akhila V Ajithan, Aneesha V R, Thasni Kareem
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Removal of oil and grease

Wastewater discharged from restaurants, hotels etc, contain high amount of biodegradable organic substances like oil and grease. Organic toxic waste (oil and grease) cause ecology damages for aquatic organisms, plants, animals and equally, mutagenic and carcinogenic for human being.

The enzymatic method is a biological treatment that aims to improve the water effluent, through the supply of enzymes to reduce or eliminate the toxicity of the water through the transformation of pollutants. Protease, amylase, lipase, cellulase, urease, and xylanases work specifically on organic pollutants.

Figure 1. Restaurant oil

Objectives

- To remove oil and grease from commercial kitchen wastewater using enzymes.
- To check the suitability for reuse or irrigation or disposal to public sewerage.

Materials used

1) Samples

Vegetarian and non vegetarian waste water sample collected from commercial kitchens.

2) Enzymes

a) Lipases

Lipases, which have been commercially used, are the most employed enzymes in oil and grease containing wastewater treatment since they could decompose oil and grease into simpler free fatty acids and glycerol.

b) Protease

Proteolytic enzymes (proteases) are enzymes that break down protein.

c) Amylase

Amylases are one of the main enzymes used in industry. Such enzymes hydrolyze the starch molecules into polymers composed of glucose units.

Figure 2. Enzymes in four different concentrations

Methodology

- Commercial kitchen wastewater sample including both vegetarian and non vegetarian sample is collected.
- Oil and grease content is determined before and after treatment using seperatory funnel.
- Commercial enzymes (lipase, protease, amylase) in powdered form was used to treating the sample.

Figure 3. Seperatory funnel

Critical summary

- Finding enzymes that give better results in removal of oil and grease.
- Suitability for reuse, irrigation, or disposal into public sewers is determined according to general standards for wastewater discharge.
- In wastewater treatment, enzymes can be utilized to develop remediation processes that are environmentally less aggressive than conventional techniques

Reference

[1] Anamika, D. P., Suresh, G. M., Das, L. G., & Dhanyalekshmi, C. S. (2019). Organic wastewater treatment using enzyme immobilization..

[2] Yau, Y. H., Rudolph, V., Lo, C. C. M., & Wu, K. C. (2021). Restaurant oil and grease management in Hong Kong. Environmental Science and Pollution Research, 28(30), 40735-40745

ORGANIC WASTE TREATMENT USING BLACK SOLDIER FLY LARVAE

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KMEA Engineering College

INTRODUCTION

- The current waste treatment techniques in developing countries do not meet the standards of appropriate waste management systems.
- Poor waste management leads to serious environmental issues at the local and global levels, for which an effective and sustainable waste disposal system is in urgent need.
- Due to its proven waste degradation and biotransformation capabilities, the Black Soldier Fly [BSF] provides a potential and economical alternative to recycling biological waste.

Fig 1. Life cycle of BSF

Objectives

Objectives of the proposed work are:

- To use frass derived from black soldier fly larvae treatment of biodegradable wastes as an organic fertilizer in agriculture.
- To convert organic waste into high-quality nutrients for pet foods, fish poultry feeds.

Methodology

- The treatment process takes place in plastic boxes of 40*60*15 cm and last for 13 days.
- On day one, boxes are filled with 10000 5-day old larvae and 5kg of kitchen waste.
- Subsequently, on day five and eight, another 5 kg of kitchen waste is added to the boxes, thus obtaining an overall treatment capacity of 15 kg per box.
- The kitchen waste fed to the larvae mainly consist of fruit and vegetable raw peeing as well as cooked food remain such as rice and vegetable

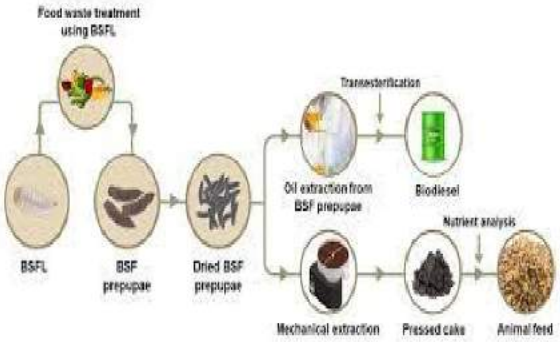

Fig 2. Food waste treatment using BSFL

Critical summary

- The bio conversion process using BSF in organic waste treatment has become a leading innovation due to their benefits such as their high production rate with low cost and shorter period of production.
- This species has the ability to consume multiple waste types to achieve excellent product performance in artificial environments.
- They convert low value inputs that cannot be utilized directly for livestock and aquaculture diets into high-value feed ingredients.
- BSF larvae can convert around 30 metric tons of organic substrate (food waste) to approximately 10 metric tons and produce 930 kg of dry biomass in one day

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[1] Mertenat, A., Diener, S., & Zurbrügg, C. (2019). Black Soldier Fly biowaste treatment – Assessment of global warming potential. *Waste management*, *84*, 173-181.

[2] Siddiqui, S. A., Ristow, B., Rahayu, T., Putra, N. S., Yuwono, N. W., Mategeko, B., ... & Nagdalian, A. (2022). Black soldier fly larvae (BSFL) and their affinity for organic waste processing. *Waste Management*, *140*, 1-13.

[3] Liu, T., Klammsteiner, T., Dregulo, A. M., Kumar, V., Zhou, Y., Zhang, Z., & Awasthi, M. K. (2022). Black soldier fly larvae for organic manure recycling and its potential for a circular bioeconomy: A review. *Science of the Total Environment*, 155122.

SUSTAINABLE DEVELOPMENT OF BRICK USING WASTES

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LIYANA SIDDIQUE
DEPARTMENT OF CIVIL ENGINEERING
KMEA ENGINEERING COLLEGE

SUSTAINABILITY OF BRICK DEVELOPED BY WASTES

Brick is a pretty sustainable option when it comes to building materials.Here we are going to use the wastes such as Rice husk,Plastic and GGBS.By using these type of wastes we can lessen the consumption of clay material and reduce the environmental burden due to accumulation of waste materials.Here we are replacing aggregates and lime as Rice husk,plastic fibre and GGBS.

OBJECTIVES

Objectives of the proposed work are:

- To study the physical properties of the newly composed brick.
- To study the chemical properties
- To compare the cost difference,because rice husk,PET and GGBS are very cheap than lime and sand.

MATERIALS USED

1)CLAY

The properties of clay minerals include capacity of the surface to take decoration, plasticity, colour after firing, fineness of grain, cohesion, hardness etc are the reason to include clay in manufacturing process of brick.Normally composition of clay used in brick is 20-30%.In this project we are going to use the composition of 15%.Because in this brick we are using GGBS,which is also a binding material[1].

Figure 1. Clay

Figure 2. GGBS

2)GGBS

Granulated blast-furnace slag being waste material obtained from iron slag.Brick production using GGBS as the main stabilising agent will reduce the energy and cost of the firing process.In this project we are going to use 15% of GGBS mixed with clay and the mixture of both ia act as the binding material for the brick development[2].

3)RICE HUSK

In normal brick,By adding 10% of rice husk ash by weight is the best brick properties which 6.80 MPa of compressive strength and 16.30% of water absorption.In our project we are replacing the aggregates as rice husk.It is a cheap material when compared to sand.In this project we are using a composition of 50%.The density of rice husk is less,but it wil maintain by the GGBS and PET .It is also a insulating material,will provide a cooling effect.

Figure 3.Rice husk

Figure 4.PET bottles

4) PET

Polyethylene terephthalate(PET) can be use to replace the sand.PET plastic bottle that has been cut into small flakes and grind using a granulator machine to produce PET waste granules whose size is not more than 5 mm, similar to the sand size.which will help to increase the strength and also improve the insulation.In this project we are going to use 20% of composition of PET.

METHODOLOGY

- Casting of brick with these materials.
- Determination of compressive strength.
- Determination of Thermal properties
- Determination of water absorption
- Determination of frost resistance
- Determination of efflorescence
- Comparison of shape,colour,size and cost to standard brick.

CRITICAL SUMMARY

- The generation of different by-products from different industries will cause environmental pollution.
- We have to reuse these types of by-products in an efficient manner
- This brick is such type,in which wastes are used as the main components instead of using natural resources.
- If this brick become a success, it will reduce all plastic wastes and also decreases environmental pollution.

ACKNOWLEDGMENT

We express our sincere thanks to all the faculty members of the Civil Engineering Department for their co-operation.Above all we thank almighty for all blessings.

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Study on mechanical properties of self curing concrete using Sodium lignosulphonate

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Guide: Fathima S Thaikudiyil
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KMEA Engineering College

Self curing concrete

Curing is the process of maintaining satisfactory temperature and moisture conditions in concrete long enough for hydration to develop the desired concrete properties. Proper curing provides the desired properties for concrete Self curing admixtures play a compelling role where water is not available. The mechanism of self curing is holding the preserved water content of concrete structure within it. So concrete structure doesn't require any additional water for curing purpose.

Figure 1. Self curing concrete

Objective

- To study the effect of sodium lignosulphonate on mechanical properties of concrete.
- To compare the results of M30 mix with conventional mix.

Figure 2. Sodium lignosulphonate

Critical summary

- Here sodium lignosulphonate is used as self curing agent.
- Sodium lignosulphonates are used in varying percentages and shown different compressive strength according to their percentages.
- Self curing using sodium lignosulphonate is done in M25 and M60 mixes as of now.
- Compared to conventional curing, self curing using sodium lignosulphonate have shown improved physical and mechanical properties.

Acknowledgements

We take this opportunity to express our gratitude and sincere thanks to everyone who helped to complete this project idea Successfully.

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TREATMENT OF FOOD PROCESSING WASTEWATER USING SPENT TEA LEAVES

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KMEA Engineering College

Spent Tea Leaves as an adsorbent

- Spent tea leaves(STL) are generated after the extraction of liquor from processed tea leaves.
- Spent tea leaves are abundantly available and can be disposed as a solid waste.
- Adsorption method is effective than other methods because it has high affinity for organic pollutants.

Objectives

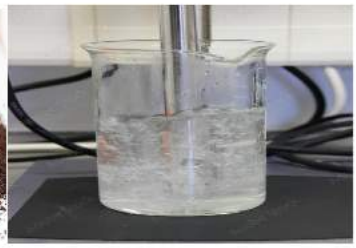
- To treat the synthetic food processing wastewater using spent tea leaves .
- To check adsorbent dosage and contact time suitable for treating wastewater.
- To check the feasibility for the recycled wastewater for the purpose (irrigation, disposal to public sewer or recycling).

Collecting Spent Tea Leaves

Spent Tea Leaves

Cleaning with distilled water

Dried, Crushed and Sieved STL



Treated water Mixing STL with agitator

Importance

- To keep the surroundings free from pollutions and contaminants due to wastewater.
- To produce filtered quality water which has the potential for the recycle and other purposes.
- Prevents several water borne diseases like diarrhoea, dysentery, hepatitis A, typhoid.
- Also conserve water resources so that water stress is reduced.

Materials used

- Wastewater sample
- Spent tea leaves

- Distilled water

Critical summary

- Wastewater is the waterborne waste material which include all normal waste.
- Adsorption is the adopted method and can reduce higher contaminants from the wastewater.
- Can Implement this method in food industries.

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LITERATURE CORNER

"Where words come alive and stories unfold, welcome to the literature heaven of our magazine."

POEMS

BOUNDLESS BONDS

In a world of dreams and endless skies,
Where laughter echoes and spirits rise.
We dance through life, hand in hand,
Creating memories, oh so grand.

With every step, a new adventure unfolds,
In stories untold, our hearts are bold.
Together we'll explore, with joy and glee,
In this beautiful journey, you and me.

So let's embrace the unknown, my friend,
With open hearts, our spirits will ascend.
In this poem unwritten, we'll find our way,
Creating magic, day by day.

- FARZIN MUHAMMED P.I (S6CE A)

Falling In LOVE

Falling in love, a magical dance,
Hearts entwined in a blissful trance.
Eyes meet, a spark ignites the fire,
Emotions soar higher and higher.

Whispers of love, like a gentle breeze,
Captivating souls with effortless ease.
Every touch, a sweet symphony,
A love story written for eternity.

In love's embrace, we find solace,
A bond that time cannot erase.
Together we journey, hand in hand,
Creating a love that will forever stand.

So let love guide us, like a guiding star,
Through life's twists and turns, near and far.
For in the realm of love, we truly find,
A love that's boundless, pure, and kind.

- ASMA HAFEEM (S6CE A)

SHORT STORY

THE JOURNEY WITHIN!

Once upon a time, in a small town, there lived a young girl named Lily. Lily was a dreamer, always seeking adventure and meaning in life. One day, while exploring an old bookstore, she stumbled upon a worn-out journal with the words "The Journey Within" etched on its cover.

Intrigued, Lily opened the journal and discovered a collection of stories and wisdom from people who had embarked on their own personal journeys. Each story carried a deep meaning, teaching her valuable lessons about love, resilience, and self-discovery.

Inspired by the journal, Lily decided to embark on her own journey within. She left behind her familiar surroundings and set off to explore the world, eager to discover her true purpose and find inner peace.

Throughout her travels, Lily encountered various challenges and met people from different walks of life. She learned that true happiness lies not in external achievements, but in embracing one's authentic self and finding joy in the present moment.

As Lily continued her journey within, she discovered the power of gratitude, forgiveness, and self-love. She realized that by letting go of past regrets and embracing her own uniqueness, she could create a life filled with purpose and fulfillment.

In the end, Lily returned to her hometown, forever changed by her transformative journey. She shared her experiences with others, inspiring them to embark on their own journeys within and discover the profound meaning that lies within each of us.

This story reminds us that life is a journey of self-discovery, and the true meaning of our existence can be found within ourselves. It encourages us to embrace our unique paths, overcome obstacles, and seek the beauty and wisdom that lie within.

- HAZEENA .R.L (S6CE A)

FAMOUS QUOTES

"DREAM BIG AND DARE TO FAIL."
- NORMAN VAUGHAN

. "THE ONLY LIMIT TO OUR REALIZATION OF TOMORROW WILL BE OUR DOUBTS OF TODAY."
- FRANKLIN D. ROOSEVELT

"SUCCESS IS NOT FINAL, FAILURE IS NOT FATAL: IT IS THE COURAGE TO CONTINUE THAT COUNTS."
- WINSTON CHURCHILL

"BELIEVE YOU CAN AND YOU'RE HALFWAY THERE."

- THEODORE ROOSEVELT

"THE ONLY WAY TO DO GREAT WORK IS TO LOVE WHAT YOU DO."
- STEVE JOBS

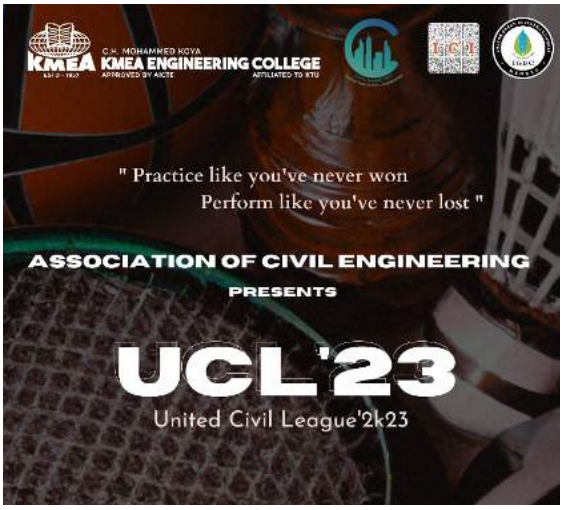
"THE FUTURE BELONGS TO THOSE WHO BELIEVE IN THE BEAUTY OF THEIR DREAMS."
- ELEANOR ROOSEVELT

2022-23

Department events & Activities

DEPARTMENT OF CIVIL ENGINEERING

UCL’23



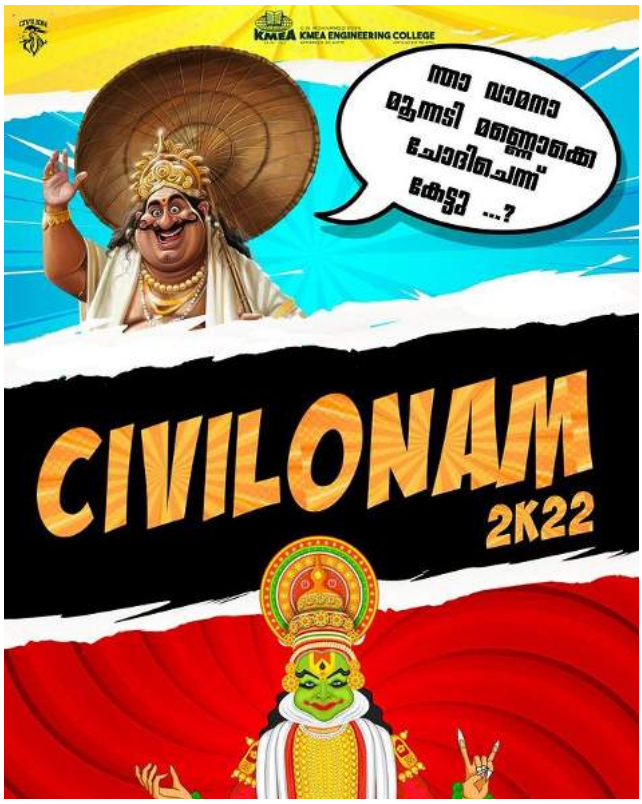
UNITED CIVIL LEAGUE’23

The UCL '23 sports event organized by the Department of Civil Engineering was epic! Our department showed off our athletic prowess and had a fantastic time competing. It was a great opportunity to bond and have fun together. Can't wait for the next event!

CIVILONAM 2K22

CIVILONAM 2K23

“CIVILONAM 2K22, organized by our Civil Engineering department as part of the Onam festival, was an incredible celebration of our culture and traditions. We had vibrant performances, mouthwatering food, and a joyful atmosphere. It was a memorable event that brought our college community together.”



AL-WIDHA’23

AL-WIDHA’23

The Al-widha'23 sent-off party organized by our Civil Engineering department was a fantastic event! We bid farewell to our graduating seniors with heartfelt speeches, fun activities, and lots of laughter. It was a memorable evening filled with nostalgia and well wishes for their future endeavors. Best of luck to the Class of '23!

വിരുന്ന് 23

വിരുന്ന് 23

“The Civil Department's Ifthar meetup was a delightful gathering, celebrating unity and fostering bonds among students and faculty. It was a memorable event that brought our college community together.”

Achievements OF OUR DEPARTMENT

"Let's celebrate our students accomplishments and inspire others to reach for the stars. Together, we can make a difference! "

DEPARTMENT OF CIVIL ENGINEERING

Ajmal .V.M

Mr. Ernakulam 3rd Prize

Rifaz Muhammed

2nd Prize Kabbadi D'Zone

Muhammed Ashkar

2nd Prize Kabbadi D'Zone

Viveeth Krishnan

2nd Prize Kabbadi D'Zone

Mariath .E.A

Achieved Title In "INTERNATIONAL BOOK OF RECORDS"

Akila .M.S

University Best NSS Volunteer

In loving memory of

Thoufeeque Astam

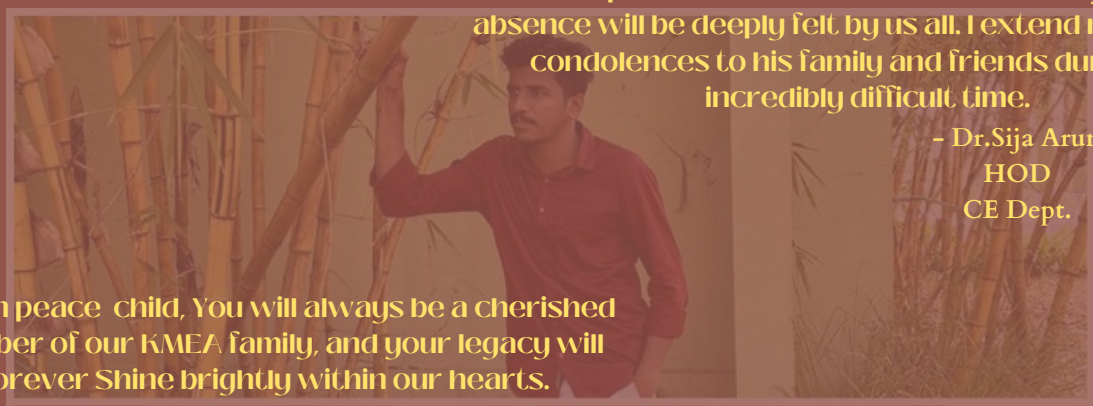
08/06/2023

"Though gone from sight, your spirit remains eternally in our hearts. Forever cherished, forever missed."

"You were the best, brother "
We'll miss you forever

Thaufeeque Aslam was not just a student but a cherished member of our family. His presence and contributions to our department touched the lives of many, and his absence will be deeply felt by us all. I extend my heartfelt condolences to his family and friends during this incredibly difficult time.

- Dr.Sija Arun
HOD
CE Dept.



Rest in peace child, You will always be a cherished member of our KMEA family, and your legacy will forever Shine brightly within our hearts.

- Ms.Jinu .V.R
Asst.Professor
CE Dept.

Rest in peace Thoufee, what we once enjoyed and deeply loved, we Can never lose for all that we love deeply becomes part of us

-Sumayya N
S6 CEB

Rest in peace thoufee, we bid goodbye to one so loved and never to be forgotten

-Farhana .C.U
S6 CEB

Your presence will be greatly missed, my friend. Your impact on our lives will never be forgotten. Rest in peace, and may your soul find eternal peace.

"FOREVER IN OUR HEART, FOR EVER IN OUR MEMORIES."

Hey there! Are you ready to dive into the world of puzzles? Get ready to sharpen your brain and have a blast with some mind-boggling challenges!

Civil engineering

R W S P L Q W R Z O H C S B J W I H N Z D M I R
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C A H N G T G P N R L D V H G Z S N F Z D E F C
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Phase
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sector
structure
Survey
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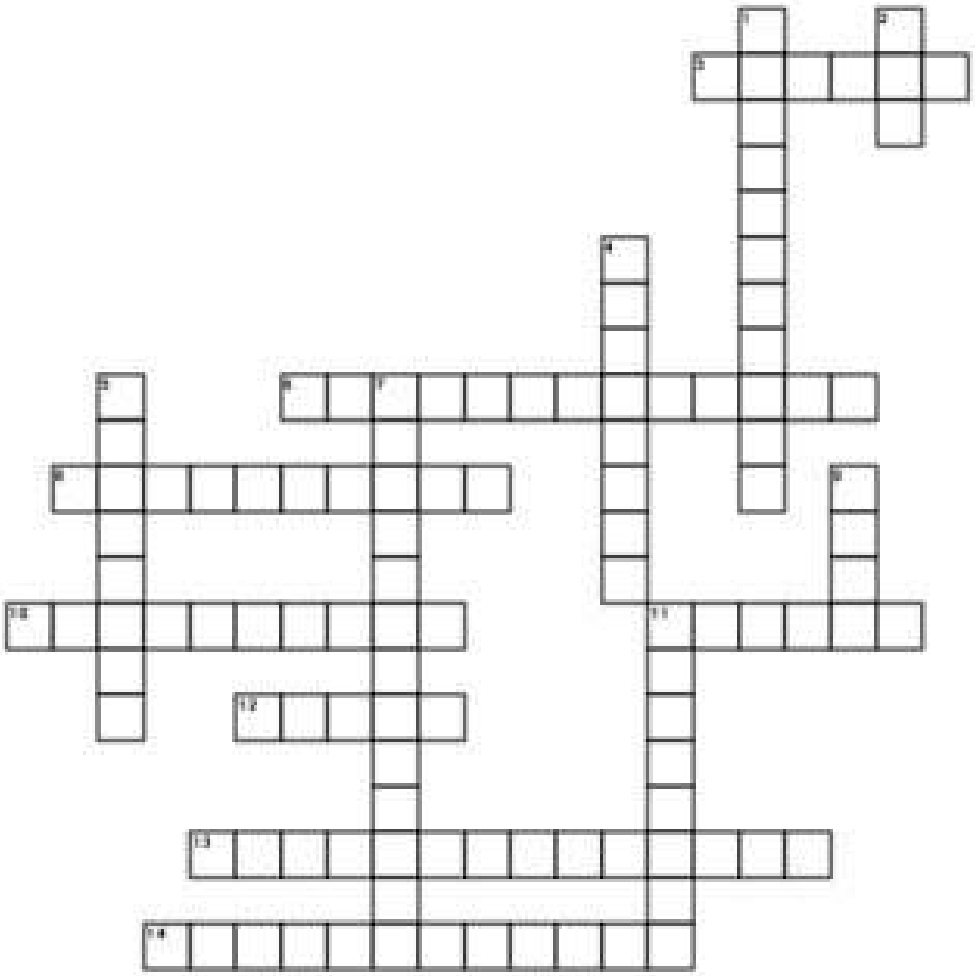

Across

[3] A type of material used in construction that is made by mixing cement, sand, and water.

[6] The measurement of the strength of a material.

[8] A type of bridge that is supported by cables anchored at both ends.

[10] The base upon which a structure is built; it distributes the load of the structure to the soil below.

[11] This structural element is used to support vertical loads in buildings.

[12] A type of construction material that is made from heated clay.

[13] A device used to measure the distance between two points.

[14] The science of designing and constructing buildings and other structures.

Down

[1] The force that squeezes a material together.

[2] The software used in creating a computer generated model.

[4] A system that is used to collect and remove wastewater from buildings.

[5] A structure that is built to carry water over an obstacle.

[7] Steel bars or mesh added to concrete to increase its strength and durability.

[9] A structural member that is used to support weight, typically in a building or bridge.

[11] Road construction material that is made from a mixture of gravel, sand, and cement.

ACKNOWLEDGMENT

We extend our heartfelt gratitude to the individuals who made this magazine a reality.

To our dedicated contributors, your expertise and passion have illuminated the pages with valuable insights and captivating content. Your commitment to the world of computer science is truly commendable.

To our readers, thank you for your unwavering support and curiosity. Your

engagement with our magazine drives us to continually explore the frontiers of technology.

To the editorial team, your tireless efforts, creativity, and attention to detail have brought this magazine to life. Your commitment to excellence is evident in every article, illustration, and design element.

Together, we form a community bound by a shared passion for computer elence. We look forward to the continued growth and exploration that the future holds.

Warm regards,

Department of Civil Engineering

KMEA Engineering College

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THE END

"Uniting passion, shaping the world. Let's build a brighter future together!"