SCHEDULE				
RACER'21				
National Conference on Recent Advancements in Civil Engineering				
Research - 2021				
Department of Civ	vil Engineering, MEA Engineering College Perinthalmanna -			
	679325 Day 1 : 25 08 2021 Wednesday			
Day 1 : 25 - 08 - 2021 Wednesday				
	Inaugural Session · 2 30 PM to 3 00 PM			
Praver	Mohammed Rashid K (S6 CF1)			
Welcome Address	: Dr. Hema Nalini A.V. Dean Research & HoD. Department of			
	Civil Engineering, MEAEC			
Presidential				
Address	Prof. Haneesh Babu K T, Vice Principal MEAEC			
Inaugural Address	: Dr. G Ramesh, Principal MEAEC			
Vote of Thanks	Mr. Anees K, Assistant Professor, Department of Civil			
	Engineering, MEAEC			
	Invited Lectures			
	Day 1 : 25 - 08 - 2021 Wednesday			
	Invited Lecture - 1 (3.00 PM to 4.30 PM)			
Speaker : Dr. Rajiv	Chauhan, Professor, Head of the Civil Egineering Department, IK			
Gu	Ijral Technilogical University, Jalandhar, Punjab			
Speaker · Dr. N. Co	Invited Lecture - 2 (4.50 PWI to 0.00 PWI)			
Speaker . Dr. N. Ga	Calicut			
	Day 2 : 26 - 08 - 2021 Thursday			
	Invited Lecture - 3 (2.30 PM to 3.30 PM)			
Speaker : Dr. T Palar	nisamy, Assistant Professor, Department of Civil Engineering, NIT			
	Karnataka.			
Paper Presentation (4.00 PM to 6.00PM)				
Day 3 : 27 - 08 - 2021 Friday				
Paper Presentation (2.30 PM to 6.00PM)				
Vote of Thanks (6.00 PM)				

		TECHNICAL SESSIONS		
RACER'21 National Conference on Recent Advancements in Civil Engineering Research - 2021 Department of Civil Engineering , MEA Engineering College Perinthalmanna - 679325				
Platfo	rm fo	or conference : Google Meet (ID:- https://meet.google.com/ztd-qvom-rns)		
		Technical Session - 1		
Review Panel Chairman Members		Dr. N. Sudharsan, Professor, Department of Civil Engineering, Vidya Jyothi Institute of Technology, Hyderabad Mr. Anees K , Assistant Professor, Department of Civil Engineering, MEAEC Perinthalmanna Dr. Ajmal Muhammed , Assistant Professor, Department of Civil Engineering, MEAEC Perinthalmanna		
Time	Sl No	Paper Tittle		
PM	P1	An Experimental Investigation on Self-Curing Light Weight Concrete with Coconut Shell as Coarse Aggregate Replacement		
- 5.00	P2	An Experimental Investigation to enhance the properties of Dredged Offshore Sand using River Sand in Concrete		
4.00	Р3	Evaluation of physio-mechanical properties of glass fiber reinforced concrete incorporating discarded paper waste		
		Technical Session - 2		
Review Panel Chairman Members		Dr. Prabhuranganathan S, Associate Professor, Department of Civil Engineering, Reva University, Bangalore. Mr. Noushad K, Assistant Professor, Department of Civil Engineering, MEAEC Perinthalmanna Dr. Ajmal Muhammed , Assistant Professor, Department of Civil Engineering, MEAEC Perinthalmanna		
Time	Sl No	Paper Details		
5.00 - 5.40 PM	P4 P5	Parametric study on Ultra High Strength Concrete with Agro Waste Performance study of High Strength Concrete WithFiber Reinforcement & Silica Fume		
		**** Day 2 Ends****		
Day 3:27-08-2021 Friday Platform for conference : Coogle Most (ID: https://mast.google.com/gtd.gvom.ms)				
Technical Session - 3				
Review	Panel			
Chairman Members		Dr. Jeeja Menon , Assistant Professor, Department of Civil Engineering, MEAEC Perinthalmanna Mr. Nikhil B, Assistant Professor, Department of Civil Engineering, MEAEC Perinthalmanna		

		Mrs. Aseema Jemshy V.K, Department of Civil Engineering, MEAEC Perinthalmanna		
Time	Sl No	Paper Details		
30 -) PM.	P6	Study On Concrete with Partial Replacement of Coarse Aggregate by Over burnt Brick Bats and Cement by Micro Silica		
2. 3.1(P7	Utilisation of Red Mud in Mud Brick		
Technical Session - 4				
Review	Pane	1		
Chairman		Dr. Suresh P S, Professor, Department of Civil Engineering, MEAEC		
Marchar		Perinthalmanna		
Members		Mrs. Abdullah Abdul Salam, Assistant Professor, Department of Civil Engineering MEAEC Perinthalmanna		
		Mr Jazeel Shah Assistant Professor Department of Civil Engineering		
		MEAEC Perinthalmanna		
Time	Sl No	Paper Details		
1.10	P8	Assessment of Ground water quality in Bagru Industrial Area, Jaipur		
0 - 4 PM	P9	Drought Assessment of Banas River Basin Rajasthan		
3.1(P10	Building information modeling (BIM) to improve safety at construction sites		
		Technical Session - 5		
Review	Panel			
Chairman		Mrs. Yasmin N, Associate Professor, Department of Civil Engineering,		
		MEAEC Perinthalmanna		
Members		Mr. Muhammed Anees K, Department of Civil Engineering, MEAEC		
		Perinthalmanna		
		Engineering, MEAEC Perinthalmanna		
Time	Sl	Paper Details		
0	N0	Land Use and Land Cover Change Detection Using Demote Sensing and CIS		
-5.1 M	P11 D12	Land Use and Land Cover Change Detection Using Kentote Sensing and OIS		
- 10 - PI	P12	Landslide Warning System Using Arduino		
4	P13	Scrutinization and collation of Kerala Flood and developing a flood alert system		
		**** Day 3 Ends****		

LIST OF PAPERS		
RACER'21 National Conference on Recent Advancements in Civil Engineering Research - 2021		
Department of Civil Engineering , MEA Engineering College Perinthalmanna - 679325		
Paper No	Title	
P1	An Experimental Investigation on Self-Curing Light Weight Concrete with Coconut Shell as Coarse Aggregate Replacement	
P2	An Experimental Investigation to enhance the properties of Dredged Offshore Sand using River Sand in Concrete	
Р3	Evaluation of physio-mechanical properties of glass fiber reinforced concrete incorporating discarded paper waste	
P4	Parametric study on Ultra High Strength Concrete with Agro Waste	
P5	Performance study of High Strength Concrete WithFiber Reinforcement & Silica Fume	
P6	Study On Concrete with Partial Replacement of Coarse Aggregate by Over burnt Brick Bats and Cement by Micro Silica	
P7	Utilisation of Red Mud in Mud Brick	
P8	Assessment of Ground water quality in Bagru Industrial Area, Jaipur	
P9	Drought Assessment of Banas River Basin Rajasthan	
P10	Building information modeling (BIM) to improve safety at construction sites	
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P12	Landslide Warning System Using Arduino	
P13	Scrutinization and collation of Kerala Flood and developing a flood alert system	

An Experimental Investigation on Self-Curing Light Weight Concrete with Coconut Shell as Coarse Aggregate Replacement

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ABSTRACT

In this experiment, agricultural waste material coconut shells are collected and used as lightweight aggregate in concrete and the admixture called MASTER CURE-WB-3 which is a self-curing agent is used for curing. MASTER CURE-WB-3 is a single element low viscosity wax emulsion which incorporates a special alkali reactive emulsion braking system. This system confirms that the emulsion breaks down to form a non- penetrating continuous film immediately upon contact with a cement surface. This impervious film prevents excessive water evaporation which in turn permits more efficient cement hydration and reduce the early water loss from concrete and increasing durability. Trial method is adopted to determine the suitability of coconut shell as partial replacement for coarse aggregate in concrete work. The properties of coconut shell and concrete with coconut shell as replacement are studied. The water absorption of the coconut shell is 24% and the value is more compared to conventional aggregate. Concrete cubes are produced using various replacement levels of 0, 15 and 20 % of coarse aggregate with coconut shell aggregate. A total of 18 cubes and 18 cylinders are produced and cured by self-curing admixture for 7 and 28 days, respectively. The properties such as compressive and split tensile strength, water absorption are investigated in the laboratory. The result shows that the density of the concrete decreases with increase in coconut shell percentage. Compressive and split tensile strengths of coconut shell concretes are lower than that of control concrete.

Keywords: Agricultural waste, Coconut Shell, water absorption, density, compressive strength, split tensile strength.

An Experimental Investigation to enhance the properties of Dredged Offshore Sand using River Sand in Concrete

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ABSTRACT

The main aim of the study is to determine the degree to which dredged offshore sand can be used as a partial substitute for river sand by testing its physical, chemical, and structural characteristics. Experiments such as grading, determination of chlorides, shell quality, and organic matters were carried out to measure the physical and chemical properties. Various experiments such as sieve analysis, gap grading, determinations of compressive and flexural strength, rapid chloride penetration test (RCPT), water absorption test, and alkalinity test were performed to analyse the structural properties of concrete. The levels of chloride, shell material, and organic content were all within acceptable limits. Concrete made with graded sand had compressive and flexural strengths that were equivalent to concrete made with River sand. The average current passing through the off-shore sand was within the ASTM range for traditional concrete, according to the RCPT results. Water absorption of concrete specimens cast with offshore sand was less, compared to specimens cast with graded offshore sand was less, the average offshore sand showed alkalinity levels that are within the acceptable limits. By partially combined with river sand, offshore sand may be used to make concrete.

Keywords: Alkalinity, Chloride content, Offshore sand, Durability, Gap grading, Shell content, Water absorption.

Evaluation of physio-mechanical properties of glass fiber reinforced concrete incorporating discarded paper waste

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ABSTRACT

This study examines the feasibility of engaging the discarded paper wastes in concrete with and without incorporating glass fibers by varying the volume proportions from 0% - 20% with 5 % replacement of weight of cement. The Physio-mechanical study was conducted and the results were presented. With this analysis, it is evaluated that the optimum percentage of discarded papers to the replacement of cement is 5%. Through the analysis, it can be found that the compressive strength at the age of 28 days was improved by 30% for the optimum replacement. Based on the outcomes of investigation, it can be inferred that the compressive strength gets progressively educed if the volume of the discarded paper gets increased. The incorporation of glass fibers improves the split tensile and flexural strength values considerably. The development of the new type of concrete incorporating the waste papers is the new trend in ensuring the sustainability of construction materials.

Keywords: discarded paper, glass fiber, mechanical property

Parametric study on Ultra High Strength Concrete with Agro Waste

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ABSTRACT

Wide variety of research is being done on concrete to improve characteristics. Waste materials as a partial replacement would bring out favorable results and at the same time would also reduce CO2 emission from cement industries by reducing the consumption of cement and other artificial admixtures. One such attempt is to use Bagasse Ash (BA) in Ultra High Strength Concrete(UHSC). Utilizing BA as a partial replacement to cement has found to increase the basic characteristics such as Workability, abrasion resistance, surface permeability, resistance against chemical attacks of Ultra high strength concrete which is currently existing in a setback zone. Apart from all the above BA has also proved to enhance the compressive strength of UHSC. India being a large agricultural sector and sugar cane is a major product of the farmers to an extent of 300 million tons/year, out of which 10 million tons of BA are obtained as waste from industries and hence they can be collected and utilized in the construction industry. BA replacement helps in saving a huge amount of money which in turn improves our economy. This paper explains the fresh concrete characteristics utilizing BA in various proportions to that of concrete.

Performance study of High Strength Concrete With Fiber Reinforcement & Silica Fume

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ABSTRACT

The construction industry is facing with increasing demand for the construction of special structures like high-rise buildings, nuclear power plant structures, long-span bridges, offshore drilling platforms, missile launching pads, very deep underground structures etc. For these structures, advanced concrete composites which possess superior performance like high compressive strength, tensile strength, impact resistance, heat resistance and superior durability properties have to be used. With the development of high grade cement and availability of proper mineral admixtures and chemical admixtures it has been made possible to manufacture concrete with compressive strength of 60MPa and this concept has given rise to high-strength concrete [HSC].

In the present study the addition of silica fume and super plasticizers such as Steel fibers and Polyester fibers are used to make M60 Grade concrete and the properties are tested with different test procedures as per IS recommendations.

Study on Concrete with Partial Replacement of Coarse Aggregate by Over burnt Brick Bats and Cement by Micro Silica

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ABSTRACT

The solid materials required for concrete production are all non-renewable resources. To have sustainable construction and development, it is necessary to reduce the use of natural non-renewable resources by construction industries. The solid waste generated in some material manufacturing industries can be used for the partial replacement of the raw materials in concrete. The advantage gained through this process is waste management and resource conservation leading to sustainable construction and development.

Brick-making units generate a large amount of rejected bricks due to the uneven temperature control in the kiln and these rejected bricks can be used as a material for coarse aggregate. Micro silica is a waste material available from Ferro silicon industry. It is added to cement in order to increase its compressive strength, bond strength, and abrasion resistance.

This paper focuses on the study of the effect of partial replacement of coarse aggregate with over-burnt brick bats and cement with micro silica in M40 concrete production at different water cement ratio. Design of experiments technique by Taguchi method was used to investigate the effect of significant factors and to obtain the optimum condition. The software Minitab Version 17 is used to design the number of experiments to be performed. To study the effect of partially replaced materials on concrete, cubes were casted with the replacement of coarse aggregate by over-burnt brick bats and cement by micro silica for 5%, 10%, 15%, and 20% each. The influence of water cement ratio was also studied for 0.40, 0.45, 0.50, and 0.55 ratios. The casted cubes were cured and tested for 28 days compressive strength. The optimum quantity of over burnt brick and micro silica for the partial replacement of coarse aggregate and cement respectively are 15% each, and the optimum water cement ratio is 0.45 for yielding maximum compressive strength for M40 concrete. It was found that the factor micro silica is the most influencing parameter and water cement ratio is the least influencing parameter on the compressive strength of M40 concrete.

Keywords: over burnt brick, micro silica, preliminary test, compression test, design of experimental technique

Utilisation of Red Mud in Mud Brick

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ABSTRACT

Red mud is a by-product from Bayer's process during the extraction of alumina from bauxite ore. An average of 1-2 tonnes of red mud is generated from extraction of 1 ton of alumina. Annually, 4 million tons of red mud is generated in India whereas approximately 80 million tons in the world. Red mud is considered hazardous material according to Environment Protection Agency (EPA). Hence, effective utilization is necessary to reduce its impact on environment. This paper aims to discuss the characteristic properties of red mud for its possible utilization in construction processes. The paper mainly focuses on the brick manufacturing utilizing the red mud.

Keywords: Red mud, Bayer's process, Bauxite.

Assessment of Ground water quality in Bagru Industrial Area, Jaipur

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ABSTRACT

Ground water is one the major source of drinking water in suburban or rural area in Rajasthan and scarcity of quality drinking water is becoming a concerned major issue day by day.Steps are needed to be taken to deal with such problems. The main focus of present study is to assess the quality of ground water in Bagru Industrial Area, Jaipur. Various parameters are prescribed by World health Organization and different central and state government agencies to measure concentration of the various constituents in quantity to characterize the water for different usage. Water quality can be determined using various water quality parameters prescribed by BIS, WHO or pollution control boards. The study analyses ground water to be utilized for drinking purpose and collected from various regions near Bagru Industrial area on the basis of water quality parameters. The results reveal that most of the parameters were not found satisfactory as per prescribed limits for drinking water.& hence, appropriate precautionary measures would be required improve the quality of ground water in Bagru Industrial area Jaipur.

Keywords: Drinking water, Water quality, Ground water.

Drought Assessment of Banas River Basin, Rajasthan

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ABSTRACT

In the present study drought situation are assessed for Banas Basin in central Rajasthan. High percentage of cultivated land and low percentage of forest area are the major characteristics of this basin. Hence most of the agricultural activities and economic growth depends on the monsoon rainfall. Daily rainfall of the 9 district headquarters is used in the present study to analysis mean rainfall and number of rainy days. The mean annual rainfall of the Banas basin is estimated as 623 mm. The analysis results show that there is a large variation in the deviation from mean for each district. However, in last 30 years, the year 2000, 2002, 2009 and 2015 were most severely affected drought years in the basin as most of the area of the basin was under drought. It is also observed that most of the districts observed a drought year once in 2-3 years. The mean number of rainy days in basin is 30 days. Detailed studies of the rainfall data are required for the proper management of water resources and to minimize the adverse impact of droughts on agriculture and economic activities.

Keywords: Rainfall trend analysis, Banas basin, Integrated Water Resources Management (IWRS), Dry spell.

Building Information Modeling (BIM) to Improve Safety at Construction Sites

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ABSTRACT

Construction site safety is an important aspect in a construction industry. Fatalities and injuries occur on construction site every day. The risk of fatality or injury at work in construction sector is significantly greater than in other industries. The application of BIM in construction is growing rapidly. It explores the use of BIM-based modeling and 4D simulation as a central technology for construction site safety. This study is to create a safety environment in the construction site by incorporating BIM with time dimension and BIM 360 cloud based system. The utilization of BIM and visualization tools can enhance site safety performance by allowing design team members to visually assess work environment situations and detect hazardous situations. A questionnaire survey is conducted to identify the safety risks at construction site. Then, by the application of BIM (Building Information Modeling) to Construction Safety Management, the onsite safety risks and hazards can be resolved. Construction site hazards are then eliminated with appropriate measures at planning stage of the project. Also provides Cloud connected system for ensuring construction safety at sites using BIM 360-Cloud based safety management. In conclusion, the health and safety in a construction site is increased by the application of BIM by including time dimension at the planning stage. It also attempts to prevent accidents before happening to decrease rate of fatalities and injuries in the construction sector.

Keywords: construction industry, site safety, building information modelling (BIM), risks.

Land Use and Land Cover Change Detection Using Remote Sensing and GIS

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ABSTRACT

Land is one of the most important natural resources, as life and various development activities are based on it. Mapping land use land cover (LULC) changes at regional scale is essential for a wide range of application, including landslide detection, erosion control, land planning etc. Land use land cover alterations (based especially on human activities), negatively affecting the patterns of climate, the patterns of natural hazard and socio economic dynamics in global and local scale. It is urgently needed to monitor Land use land cover (LULC) changes and to analyse the consequences of these changes in order to provide information for policy makers to support sustainable development. Remote sensing (RS) and geographic information system (GIS) make it possible to study change in Land use and land cover (LULC). It provides efficient method for analysis of LULC changes in less time, at low cost and with better accuracy. LULC changes of Perinthalmanna municipality from the year 2012-2019 are determined in this paper.

Keywords: Land Use Land Cover, Remote Sensing, GIS, Supervised classification

Landslide Warning System Using Arduino

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ABSTRACT

Arduino based sensors perform wide range of applications in the present era. The drastic changes in the climatic conditions lead to an imbalanced atmospheric conditions lead to heavy rainfall causes excess flooding. The natural ecological balance has been interrupted due to many of the activities and hence the disasters are occurring frequently. The research focuses on detection of the landslide using an Arduino sensor which depends on the slope of the area to be analysed. The Arduino Uno board is a microcontroller based on ATmega328. A low cost warning system is developed for better evacuation process.

Keywords: Arduino, detection technique, soil piping, landslide, heavy rainfall.

Scrutinization and collation of Kerala Flood and developing a flood alert system

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ABSTRACT

The flood of 2018 & 2019 were two of the biggest disaster that Kerala have ever faced. Many lost lives; lost their homes, lands and properties due to this disaster. A prognosis is impossible in the case of flash flood and landslides. Why did the flood happen in Kerala? We need to scrutinization happen due to flood. They are lot of problems in our planet, which changes our land pattern. It can't find out a proper solution to solve this situation, it is uncontrollable, only if had a warning before the flood came that will minimize the damages cost and death rate. The flood has left many questions in our mind, some of which are Information is available to us through the media but are these communication systems permanent for us even in heavy rain and wind? The new invention is being introduced in this project flood alert system.

Keywords: Flood Alert, Rain Water, Forecasting, Monitoring, Flood alert system