ACS College of Engineering
Approved by AICTE New Delhi, Affiliated to VTU, Belagavi
(A Unit of RajaRajeswari Group of Institutions)
CET Code : E186 COMED-K : E003 PGCET : T918

Department of Civil Engineering

ABSTRACT BOOK

National Conference

on

RECENT ADVANCEMENTS IN CIVIL ENGINEERING - 2021

24 & 25 November, 2021

Organizing Committee

CHIEF PATRON

Sri. Dr. A.C. Shanmugam, Chairman, RRGI

Sri. A.C.S. Arunkumar, Vice-Chairman, RRGI

PATRONS

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Dr.Theerthamalai, Dean, ACSCE

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Dr. Govardhanswamy H S, Professor and HOD

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Mrs. Gayathri G. Assistant Professor

COORDINATORS

Dr. Y. Stalin Jose, Professor

Dr.R. Subash Chandra Bose, Associate Professor

Mr. Shiva Shankar K. M., Assistant Professor

CO-COORDINATORS

Mrs. Pallavi H J, Assistant Professor

Ms. Sahana M B, Assistant Professor

Ms. Soubhagya S, Assistant Professor

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- **Dr. Manjunatha,** Hon Chairman,ICI-Benagaluru centre.
- **Dr. Ramesh R L**, Hon Secretary, ICI-Benagaluru centre. Prof & HOD, Don Bosco institute of technology, Bangalore.
- **Rajesh Kannan R**, Chairman – ACCE(I) Bangalore Centre Association of Consulting Civil Engineers (India)
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- **Dr.P.S. Ramesh**, Prof.-PG Studies, Dept. of Civil Engg, SJBIT. □
- **Dr. Malleshaih**, Prof & HOD, Dept. of Civil Engg, Oxford College Of Engineering, Bangalore.
- **Dr. Ramesh Monali,** Professor-PG Stuides, Dept. of Civil Engg, Global Academy Of Technology, Bangalore.
- **Dr. Visalakshi Talakokula**, Professor, Dept. of Civil Engg., Mahindra Ecole Centrale School of Engineering, Mahindra university, India
- **Dr. Daasarathy**, Professor, Dept. of Civil Engg, Jain university, Bangalore.
- **Dr. Chandramouli S.V,** Professor, Dept. of Civil Engg., PES University, Bangalore.
- **Dr. Beaulah.M,** Professor, Dept. of Civil Engg., Christ university, Bangalore.
- **Dr. M. Narmadha**, Professor,Dept. of Civil Engg, Dr.M.G.R. Educational Research Institute, Chennai.

ABOUT THE CONFERENCE

OBJECTIVE OF THE CONFERENCE

RACE-2021 focuses on recent advancements in different fields of civil engineering. The two day National Conference RACE-21 is organized to integrate and pool the ideas, innovation/research and advancements in the area of Civil engineering. The conference will provide a necessary platform to share and exchange the knowledge in different areas of civil engineering. Conference features key note/invited lecture by experts, technical paper presentation by research scholars, PG students and undergraduate students.

Brochure

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CALL FOR PAPERS

Post graduate students, Research Scholars, and Professionals from educational institutions, R&D centers, Government and Professional organization and industries are invited to contribute papers and participate in the conference.

SUBMISSION AND AUTHOR GUIDELINES

Full length research papers on the mentioned themes/topics are invited in softcopy for the presentation as well as for publishing in the conference proceedings / International Journal indexed in Google scholar with DOI. The maximum number of pages per paper should not exceed 14 with portrait page orientation in A4 size. Softcopy of the paper should be compulsorily sent to acsrace2021@gmail.com.

Acceptance of the paper will be intimated after the review and at least one of the authors of the accepted paper must register by sending the DD or by paying before the last date

REGISTRATION FEES

- Registration from Authors/Delegates : Rs. 500/-
- Registration from for PG students : Rs. 300/-
- Registration from for UG students : Rs. 200/-

Registration Payment can be through G Pay
9840453574 / 8722511956

REGISTRATION FORM

Name : ______________________

Designation : ______________________

Qualification : ______________________

Institution : ______________________

Address for comm. : ______________________

____

____

Email ID : ______________________

Contact no : ______________________

DD / Cheque No : ____________ Dt: ____________

Bank : ______________________

Place : ____________

Date : ____________

Signature of the applicant

Signature of the Principal/HOD

**(Photocopy of this Registration form can be used)*

ADDRESS FOR CORRESPONDENCE

CONVENOR, RACE-2021,
Dept. of Civil Engineering, ACS College Of Engineering,
Kambipura, Mysore Road, Bangalore - 560 074, Karnataka.
Email: acsrace2021@gmail.com **Website:** www.acsce.edu.in

FOR FURTHER CLARIFICATION

Mrs. Gayathri G Ph:-+91-9980114184
Mr. Shiva Shankar K M Ph: +91-7899637117

ACS COLLEGE OF ENGINEERING

#207, Kambipura, Mysore Road, Bengaluru-74

RACE - 2021

Two Days National Conference on

RECENT ADVANCEMENTS IN CIVIL ENGINEERING - 2021

24th & 25th November, 2021

In Association With

Supporting organizations

Organized by

DEPARTMENT OF CIVIL ENGG.
ACS College of Engineering
Kambipura, Mysore Road,
Bangalore – 560 074, Karnataka

ABOUT ACSCE, BANGALORE

Under the banner of Moogambigai Educational and Charitable Trust founded by Dr. A. C. Shanmugam, ACS College of Engineering (ACSCE) was established in year 2009. AICTE approved and affliated to VTU. NAAC accredited with A grade and NBA accredited with UG programme (AE, BME, CSE, CV, , EC, ME). The campus is spread over an area of 26 acres. A competent and professional team of 134 faculty members are backing up the steady growth and development of the institute. ACS College of Engineering is easily accessible from all part of country. The institute is located 18km southwest of Bengaluru city along Mysuru-Bengaluru National Highway 275. The Bengaluru International airport is 60km and 20km from Bengaluru City Railway Station.

ABOUT DEPARTMENT OF CIVIL ENGINEERING

Civil Engineering department was started in the year 2009. The institution is affiliated to Visvesvaraya Technological University, Belgaum and is striving to grow as one of the finest centers. Department of Civil Engineering is one of the oldest branch, at ACSCE was started in the year 2009 the department has been imparting quality education to meet the technological advancement and industrial requirements. This has been made possible due to qualified and dedicated faculty, state of the art laboratories and infrastructure facilities. The total student intake at present for BE is 60. The Postgraduate program in Structural Engineering has been started in the year 2013-2014 with an intake of 18 students & current intake is 30. The department is recognized as R&D Centre.

VISION OF THE DEPARTMENT

"To achieve excellence in Technology, Innovation and Research in ethical way to lead and serve the nation"

MISSION OF THE DEPARTMENT

Create and develop sustained environment of learning, to produce high caliber and dynamic Civil Engineers with due consideration of Economy, Ecology and Ethical issues of nation and to provide services to society and construction industry to assist in developing capabilities globally with respect to Science, Technology and Research.

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THEMES OF CONFERENCE

Theme 1: New generation Sustainable Materials

- Sustainable materials
- Geopolymer concrete
- Special concretes and its applications
- Construction chemicals and admixtures
- Alternate building materials
- Recycled materials for construction
- Composite construction

Theme 2: Structural evaluation, Restoration and Rehabilitation

- Repair, rehabilitation and retrofitting
- Analysis and design of Reinforced Concrete
- Structural optimization techniques
- Software applications in Civil Engineering
- Precast building products
- Structural health monitoring of structures
- Green building concept/Energy efficient structures
- Construction management techniques
- Construction safety

Theme 3: Geotechnical Aspects

- Soil structure interaction studies
- Soil stabilization methods
- Soil dynamics and earthquake engineering
- Ground improvement techniques

Theme 4: Transportation Engineering

- Modern techniques for pavement construction
- Road constructions in problematic soils
- Advances in Pavement evaluation
- Smart Traffic management systems

Theme 5: Environmental and water resource management

- Conjunctive use of surface and ground water
- Solid waste management
- Recycle and reuse of municipal wastewater
- Industrial waste management
- Integrated water management
- Rain water harvesting structures
- Applications of GIS & RS

IMPORTANT DATES

Submission of abstract	: 20th Oct 2021
Notification of acceptance of abstract	: 30th Oct 2021
Submission of full text	: 05th Nov 2021
Last date for registration	: 20th Nov 2021
Conference dates	: 24th & 25th Nov, 2021

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- **Dr. T. R.Gopalakrishna Nair.,** Rector RRGI
- **Dr. M.S Murali,** Principal, ACSCE
- **Dr.Theerthamalai,** Dean, ACSCE

CONVENOR

- **Mrs. Gayathri G.,** HOD(In-Charge), Civil Engg, ACSCE.

COORDINATORS

- **Dr. Y. Stalin Jose, Professor**
- **Dr.R. Subash Chandra Bose,** Associate Professor
- **Mr. Shiva Shankar K. M.,** Assistant Professor

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- **Ms. Soubhagya S,** Assistant Professor
- **Ms. Bhanu Suresh,** Assistant Professor
- **Mrs. Navya KS,** Assistant Professor

CHIEF GUEST & INVITED SPEAKERS

Dr. T. V. RAMACHANDRA
Co-ordinator, Energy & Wetlands Research Group,
Center for Ecological Sciences [CES]
Convenor, Environmental Information System [ENVIS],
CES TE 15, Indian Institute of Science
Associate Faculty, Centre for Sustainable Technologies (astra)
Centre for infrastructure,
Sustainable Transportation and Urban Planning [CiSTUP]
Indian Institute of Science, Bangalore, Karnataka, India

Er. SUNIL R K
Chief Executive Officer
3E-Services, Bangalore

Welcome Message

Dr.M.S.Murali BE,ME,Ph.D
Principal, ACS College of Engineering, Bengaluru

Warm and Happy greeting to all. I am immensely happy that Civil department of our college is organizing a National conference On **RECENT ADVANCEMENTS IN CIVIL ENGINEERING - 2021** and is going present a collection of various technical papers in the proceedings.

ACSCE continues to march confidently down the path to success under the capable leadership of our management. Our management's acute, clear-sighted vision and exact decision-making abilities have helped our college to be competitive.

ACSCE's new features include specialised HODs and staff members, as well as disciplined students. The importance of students in the development of a country cannot be overstated, and students at ACSCE are prepared in every way to be excellent engineers and decent citizens. On this occasion, I'd like to send my best wishes to the students.

I also congratulate HOD, staff members, students engineering , Participants from our colleges and other colleges for their efforts in organizing and participating in this conference and wish the conference all the success.

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Dr.M.S.Murali

(Principal)

Welcome Message

Dr. H S Govardhanswamy,BE,ME,Ph.D
HOD, Department of Civil Engineering,
ACS College of Engineering

This national conference is an endeavour to focus the attention of all concerned experts on Emerging Trends in Engineering and Technology, to seek answers wherever possible, and to identify areas where more research is needed. The proceedings include invited presentations from specialists on a variety of issues with discrete sections in Civil engineering.

Engineering is becoming more and more exciting by the day. New materials with fascinating possibilities are being explored.

.Engineers and professionals will benefit from the information offered in various papers and reprinted in the proceedings. During the conference, it is expected that the aim would be met satisfactorily through in-depth discussion and interaction among participants. I'd want to take this occasion to express my heartfelt gratitude to all of the authors, delegates, conference convener &coordinator , and everyone else who participated.

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Dr. H S Govardhanswamy
(HOD/Civil)

Convenor Message

Prof. Gayathri. G
Assistant Professor, Department of Civil Engineering,
ACS College of Engineering, Bengaluru

It is my pleasure and honor that I am a part of this National Conference on **RECENT ADVANCEMENTS IN CIVIL ENGINEERING – 2021 .**In this fast-paced Information Era, the main purpose of arranging this conference is to share and increase the knowledge of each and every individual. We have provided an excellent chance for anyone who are interested in learning about current technology breakthroughs and sharing their views. Furthermore, the attendees will be able to expose and exchange a variety of unique ideas during this conference. Through research papers and keynote lectures on current technology trends, the conference strives to bring together academic researchers and other professionals.

I would like to express my gratitude to the Management, Principal, Our HOD, my faculty colleagues, conference committee for devoting their significant time in planning the program me, as well as to all of the writers, reviewers, and other contributors for their tireless work and belief in RACE 2021's brilliance.

I sincerely thank you for your time and consideration.

Prof. Gayathri. G

(Convenor)

Prof. Gayathri. G

(Convenor)

Message

Dr.Subhash Chandra Bose
Associate Professor, Department of Civil Engineering,
ACS College of Engineering, Bengaluru

It is a great pleasure to note that the Department of Civil Engineering organised RACE-2021 on various specialization.

It is a matter of great pride that the organisers of the National Conference have been successful in creating such a huge impact on the target participants in such a short span of time. The overwhelming response received from various colleges .

It is heartening to acknowledge the fact that RACE-2021 has been sponsored by various companies.

It is a great achievement on the part of the organisers to arrange the publication in our home journal ACS journal of science & Technology (ACSJST).

On behalf of our faculty members and also on my personal behalf I would like to thank our Management and Our Principal for their untiring efforts and constant endeavour to make the National Conference scale to greater heights.

I wish RACE-2021 a grand success....

Dr. Subhash Chandra Bose

Message from Guest

Dr. T. V. RAMACHANDRA
Co-ordinator, Energy & Wetlands Research Group,
Center for Ecological Sciences [CES] Convenor,
Environmental Information System [ENVIS], CES TE 15,
Indian Institute of Science Associate Faculty,
Centre for Sustainable Technologies (astra)
Centre for infrastructure, Sustainable Transportation and Urban Planning [CiSTUP] Indian Institute of Science, Bangalore, Karnataka, India

I am very much delighted and honoured to deliver technical keynote address on the topic wetlands on the occasion for National conference recent advancement in Civil Engineering organised by Department of Civil engineering , ACS College of Engineering, Bengaluru. I am happy and wish whole heartedly all the best for the conference success. I thank organisers for giving the opportunity.

Dr. T. V. RAMACHANDRA

Message from Guest

Mrs. Sameera Nayani
CEO & Founder, SAMATH Global Food Consultants Pvt.Ltd

Innovation and Entrepreneurship in Engineering

The role of quality entrepreneurship education and training, in identifying and nurturing this entrepreneurial potential among youth is becoming apparent to students, policy makers, and educators. Now, there is an increasing trend and growing interest for becoming entrepreneurs among younger generation. Innovation and entrepreneurship are key drivers in today's engineering world, and the push for sustainable products, services and technologies is needed now more than ever. One may think that engineering is all about working with a rational and logical process with no room for creativity, when in fact engineering and innovation go hand in hand. Innovation is a great influence on the growth and survival of today's engineering world, which is why it is important higher education institutions are committed to the teaching of innovation and entrepreneurship. The development of entrepreneurial talent is important to sustaining a competitive advantage in a global economy that is catalyzed by innovation. Reports show that business venture by the educated civil engineering graduates adds more value to the economy as whole.

Mrs. Sameera Nayani

• THEMES OF CONFERENCE

Theme 1: New generation Sustainable Materials

Sustainable materials
Geopolymer concrete
Special concretes and its applications
Construction chemicals and admixtures
Alternate building materials
Recycled materials for construction
Composite construction

Theme 2: Structural evaluation, Restoration and Rehabilitation

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Structural optimization techniques
Software applications in Civil Engineering
Precast building products
Structural health monitoring of structures
Green building concept/Energy efficient structures
Construction management techniques
Construction safety

Theme 3: Geotechnical Aspects

Soil structure interaction studies
Soil stabilization methods
Soil dynamics and earthquake engineering
Ground improvement techniques

Theme 4: Transportation Engineering

Modern techniques for pavement construction
Road constructions in problematic soils
Advances in Pavement evaluation
Smart Traffic management systems

Theme 5: Environmental and water resource management

Conjunctive use of surface and ground water
Solid waste management
Recycle and reuse of municipal wastewater
Industrial waste management
Integrated water management
Rain water harvesting structures
Applications of GIS & RS

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Department of Civil Engineering

Two Days National Conference

on

RECENT ADVANCEMENTS IN CIVIL ENGINEERING - 2021

RACE-2021

24th & 25th November, 2021

PROGRAM SCHEDULE

24th November 2021 (Wednesday) **https://meet.google.com/ynb-utcc-toe?authuser=2&hs=122**	
Inaugural Session **09:30 a.m. – 12:30 p.m.**	
09:15 - 09:30 am	Login of participants on **GOOGLE MEET** platform
09:30 - 09:40 am	Welcome Speech
09:40 - 09:50 am	Addressing the gathering By **HOD**
09:50 - 10:00 am	Presenditial Address**: Dr.M.S.Murali** BE,ME,Ph.D Principal, ACS College of Engineering
10:15 - 10:30 am	**Inauguration**
10:30 - 10:45 am	Introduction to Chief Guest and Invited Speaker
10:45 - 11:15 am	Talk by Chief Guest of Honour : **Dr. T. V. Ramachandra** Indian Institute of Science, Bengaluru, Karnataka, India
11:15 - 11:30 am	Talk by **Mrs. Sameera Nayani** CEO & Founder, SAMATH Global Food Consultants Pvt.Ltd
11:30 - 11:45 am	**TEA BREAK**
11:45 - 12:15 pm	Talk by Guest of Honour: **Er. Sunil R K** 3E-Services, Bengaluru
12:15 – 12:25 pm	Talk by Sponsor **Dr. Jikku Jose** Founder, Scienrich
12:25 - 12:30 pm	Vote of Thanks
Break : 12:30 pm - 02:00 pm	

Oral Presentation Session- 1 **From 02:00 pm** **(Platform: Google Meet)**		
Session Chaired by – Dr. T Felix Kala (Joint Registrar of Dr MGR Educational research Institute, Chennai) **Session Coordinator- Dr. Subhash Chandra Bose (Professor, Civil department, ACSCE)**		
02:00 -02:15 pm	Login of Participants on Google Meet	**Google Meet Link :** **https://meet.google.com/zek-bjtk-hdk**
From 02:15 pm	Click here for Group-1 participants SESSION-1.doc - Google Docs	
Second Day, 25th November 2021 (Thursday)		
Oral Presentation Session- 2 **From 10:00 am** **(Platform: Google Meet)**		
Session Chaired by – Dr. Buela (Professor, Christ-Deemed to be University) **Session Coordinator- Dr. H S Govardhan swamy (Professor & HOD, Civil department, ACSCE)**		
10:00 - 10:15 am	Login of Participants on Google Meet	**Google Meet Link :**
From 10:15 am	Click here for Group-1 participants SESSION-2.doc - Google Docs	**https://meet.google.com/erg-yhso-fiu**
Break : 12:30 pm - 02:00 pm		
Oral Presentation Session- 3 **From 02:00 pm** **(Platform: Google Meet)**		
Session Chaired by – Dr. Naveenkumar D T (Associate professor, Civil department, SJBIT **Session Coordinator- Dr. Stalin Y Jose (Professor, Civil department, ACSCE)**		
02:00-02:15 pm	Login of Participants on Google Meet	
02:15-03:30 pm	Click here for Group-3 participants SESSION-3.doc - Google Docs	**https://meet.google.com/vbf-rpro-oco**
Valedictory Session 03:30 p.m. – 4:00 p.m.		
Google Meet link: Video call link: https://meet.google.com/udh-jvaw-pmk		
03:30-03:40 pm	Login of Participants on **GOOGLE MEET** platform	
03:40-03:50 pm	Declaration of Results of Presentation Sessions	
03:50-03:55 pm	Vote of Thanks	
03:55-04:00 pm	National Anthem	

KINDLY NOTE: The Presentation Sessions (ORAL) will be running via Google meet application on both days. Therefore, the participants are requested to join the session allotted to them carefully to avoid any confusion.

 # It is mandatory to join all the Inaugural Session to get the certificate.

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EXPERIMENTAL INVESTIGATION ON THE MECHANICAL PROPERTIES OF HIGH STRENGTH CONCRETE INCORPORATED WITH NATURAL ZEOLITE AND FLY ASH

Gowram Iswarya[1], Beulah M[2]

[1]Research Scholar, School of Engineering and Technology, Christ (Deemed to be University), Bengaluru, 560074, India. Email: gowram.iswarya@res.christuniversity.in

[2]Assistant Professor, School of Engineering and Technology, Christ (Deemed to be University), Bengaluru, 560074, India. Email: m.beulah@christuniversity.in

Abstract: The construction industry has increased significantly as a result of extreme population growth and development in the industrial sector. From many decades, concrete has been the most widely used construction material in the world's largest cities. Cement, water, fine aggregate, and coarse aggregate are the major ingredients of concrete. As the demand for these resources increases, alter them to preserve the environment from dwindling fine aggregate and coarse aggregate, as well as to limit air pollution caused by large-scale cement manufacturing. Different pozzolanic compounds can be used to improve the strength and durability of concrete. These pozzolanic materials fill up the voids, reducing the porosity of the concrete and increasing its strength and durability. Ordinary Portland cement is partially substituted with Natural Zeolite and Fly Ash in this research, with variable percentage changes by weight. An investigation on the mechanical properties of concrete specimens was carried out. The optimum mix for high strength concrete was found to be cement with 5% Natural Zeolite and 10% Fly Ash, which had the maximum compressive strength, split tensile strength, and flexural strength.

ANALYSIS OF EXISTING WATER DISTRIBUTION NETWORK USING EPANET AND WATER GEMS SOFTWARE FOR CONTINOUS WATER SUPPLY

RESHMA S STEPHEN,

Construction engineering and management, Arunachala College of engineering for women, vellichanthai

Abstract— Water is one of the primary needs of people. A community can only thrive if it can ensure the availability of safe drinking water for its members. Hence a good water distribution system is imperative for any community. As the population of any community increases, the demand for water also increases. This increased demand impose additional load to the existing water distribution system. As a result, the existing water distribution system may become unreliable to meet the demand of the increased population. Hence the reliability of the distribution system should be checked for present and future demand. One of the ways to analyze a water distribution system and check its reliability is to use a model. CUET is one of the leading engineering universities of Bangladesh and is going through major development in recent years. It is highly important to ensure sufficient water supply to its residents. In this study, the water distribution system of CUET campus has been modeled using EPANET and WATER GEMS software to check the reliability of the distribution system for present and future demand as per future master plan for cuet. The future demand as per future master plan for cuet is considered as the Engineering Department at CUET has finalized the detailed plan of the new buildings that are going to be constructed. The model shows that at existing demand, the water distribution system at CUET performs satisfactorily without any observation. However considering the future demand, the existing water distribution system may not perform satisfactorily as seen from the results. A few changes have therefore been suggested. If the diameter of the pipe, which will carry water to the three new ladies halls, is increased from 1.5 inches to 3 inches, then the water distribution system will perform satisfactorily for the future water demand as per future master plan for cuet.

Keywords: *Distribution, CUET, EPANET*

INSTITUTIONAL WASTE WATER TREATMENT BY DOUBLE FILTRATION METHOD

Manikanta v , Sushma n

***Abstract*—** Water covers 71% of Earths surface. It is vital for all known forms of life. On Earth, 96.5% of the planet's crust water is found in seas and oceans, 1.7% in groundwater, 1.7% in glaciers and the ice caps of Antarctica and Greenland, a small fraction in other large water bodies, and 0.001% in the air as vapor, clouds (formed of ice and liquid water suspended in air), and precipitation. Only 2.5% of this water is fresh water, and 98.8% of that water is in ice (excepting ice in clouds) and groundwater. Less than 0.3% of all freshwater is in rivers, lakes, and the atmosphere, and an even smaller amount of the Earth's freshwater (0.003%) is contained within biological bodies and manufactured products. Though Earth mainly consists of water, due to rapid growth in population, the need for water is increasing rapidly. Pollution and wastage of water in institutions is increasing at a high rate. By the discharge of wastewater from institutions (intentionally or through spills) into surface waters, may cause serious damage to the water bodies if not controlled, hence management and minimum treatment is necessary to prevent adverse effect on natural resources. In this report we designed a setup for treating institutional waste water (sullage) in order to decrease the intensity of parameters and decrease the load on Municipal Wastewater Treatment Plant. In our setup we have adopted filter medias like SAND, GRAVEL, PEBBLES, CORN COBS and COIR FIBRE for passing sullage by trickling method.Our setup has shown acceptable decrease in some chemical parameters of waste water. The effluent from our setup can be used for gardening and washing purposes

Keywords: Ice caps, Institutional wastewater, Trickling method

“AN EXPERIMENTAL INVESTIGATION ON BOND PROPERTIES OF SOIL BRICKS ADMIXED WITH SUGARCANE BAGASSE ASH AND COCONUT COIR”

SAHANA M B[1],KIRAN[2], PALLAVI H J [3]

1Assistant Professor, Department of Civil Engineering, ACS college of Engineering Bangalore, Karnataka,India

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***Abstract*—** Bagasse ash from sugarcane is one of the most common agricultural wastes. Recent research has shown that Bagasse ash can be used as a cementing material in concrete and for soil stabilisation. Bagasse ash has pozzolanic properties due to the presence of silica, calcium, and alumina, which when wet can bind soil particles together. A number of studies on the use of bagasse ash to enhance soil have been done. For many years, fibres have been widely used in civil engineering applications. This treatment is becoming increasingly popular due to its ease of use and lower cost. The goal of this study is to determine and quantify how coir fibre affects the performance of fibre reinforced soil bricks. In this scenario, the various percentages of sugarcane bagasse ash and coir are taken as 5%, 10%, 15%, 20%, and 0.25 percent, 0.5 percent, 0.75 percent, and 1 percent, respectively. To make soil bricks, the best sugarcane bagasse ash and coir are needed. The effect of the ideal percentage of sugarcane bagasse ash and coir used to determine the compressive strength and water absorption of admixed bricks is also considered in studies such as compaction, UCS, and CBR.When compared to conventional bricks, the results clearly show that 15% sugarcane bagasse ash and 0.75 percent coir fibre have a noticeable influence on MDD, OMC, UCS, and CBR values of soil, and that 0.75 percent coir fibre with 15% sugarcane bagasse ash plays a vital role in increasing compressive strength and reducing water absorption.

Key Words: *Red Soil, SCBA, Coconut Coir, Bricks, Water Absorption, Compressive strength.*

REPLACEMENT OF COARSE AGGREGATE BY WASTE TYRES IN CONCRETE

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Abstract— In recent decades, worldwide growth of automobile industry and increasing use of car as the main means of transport have tremendously boosted tyre production. This has generated massive stockpiles of used tyres. In the early 1990s, extensive research projects were carried out on how to use used tyres in different applications. Scrap tyre is composed of ingredients that are non degradable in nature at ambient conditions. They usually produce environmental mal-effects. One of the methods for utilization of these materials is their use in concrete and other building products. From the macro-economic perspective, the issues should be compared and evaluated when considering the application of such materials in the concrete. This report clearly explained about the replacement of coarse aggregates by waste tyre and the related tests. The test results are neatly explained and as per results obtained some technical suggestions are made with respect to the experimental project work.

Key words*: Aggregates replacement, modern concrete, waste tyres, modern construction materials*

BEHAVIORAL APPROACH OF CONCRETE MIXED WITH STEEL SCRAPS AND TIRE WASTE

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Abstract— Concrete is a composite material whose behavior depends on the behavior of its constituent materials. The major components of concrete are cement, water, and aggregates. Depending on the mix proportion of concrete 60-75% by volume and 70 to 85 % by weight is an aggregate. Aggregates are inert granular materials, essential ingredient in concrete. In Ethiopia, concrete with conventional building material are widely used. These materials are costly, which seeks an alternative material for sustainable aggregate. Critical parameters that affect concrete performance with special reference to aggregate have been extensively studied. But in this research, the coarse aggregate was replaced with waste tire aggregate from 5 to 25% in addition to that; steel scraps are added by 5 to 25% by weight of cement. The fresh and hardened properties of concrete are studied with waste tire as aggregate and steel scraps as fibers. The workability of rubberized concrete shows an increase in slump with increase of waste tire rubber content of total aggregate mass.

Keywords: *Waste rubber tire aggregate, steel scraps, coarse aggregate, fibers*

EXPERIMENTAL INVESTIGATION ON EFFECT OF USING CRUSHED GLASS AS COARSE AGGREGATE USED FOR RIGID PAVEMENTS

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***Abstract*—** This study was carried out to investigate the effect of using crushed glass as coarse aggregate on the compressive strength and workability of concrete used for rigid pavements. In the road construction process, different techniques have been proposed and used in order to reduce the financial implications involved while improving or maintaining the quality of the construction. Keeping other concrete element material constant with a design mix ratio of 1:2:4, the coarse glass content was varied by partially replacing the coarse aggregate portion with different percentages of coarse glass (8%, 9%, 10%, 11% and 12%). The results obtained from concrete compressive strength test for the samples with glass revealed an improved compressive strength at 7, 14, and 28 days. At 28 days, the compressive strength gave an optimum value of 20.6 N/mm2 at 10% replacement with coarse glass.

Keywords*: Aggregate, Crushed Glass, Slump, Compressive Strength***.**

EXPERIMENTAL INVESTIGATION ON PARTIAL REPLACEMENT OF COARSE AGGREGATE BY PUMICE

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Abstract— The aim of the present work is to compare strength characteristic of conventional concrete with partial replacement of coarse aggregate by pumice. Properties of fresh and hardened concrete have been determined and were compared with conventional concrete. The conventional mix has been designed for M20 grade concrete. Coarse aggregate was replaced with Pumice in different proportions (30%, 60%, 70%, 90% and 100%). Specimens were casted and cured for 7, 14 and 28 days.

Keywords: *Light weight concrete, Natural aggregate, synthetic light weight aggregate, coarse aggregate*

EXPERIMENTAL INVESTIGATION ON PARTIAL REPLACEMENT OF COARSE AGGREGATE BY USING BAMBOO FIBRE

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Abstract— Concrete is an extensively used construction material for its various advantages such as low cost, availability, fire resistance etc. But it cannot be used alone everywhere because of its low tensile strength. So, generally steel is used to reinforce the concrete. But considering high cost of steel, bamboo is one of the suitable replacements of reinforcing bar in concrete for low cost constructions. Bamboo is natural, cheap, widely available and most importantly strong in both tension and compression. To see the effect of bamboo fibre on compressive and flexure strength, bamboo reinforced Concrete cubes have been tested. On comparing the results with plain concrete cubes, strength becomes double in 45 days testing. Further singly and doubly reinforced beam with bamboo sticks have been cast and tested in flexure. It has been found that there is remarkably increase in the flexural strength and Modulus of elasticity of bamboo reinforced beam. First of all cubes, beams and cylinders are casted with traditional methods and later same casted by replacing coarse aggregates with 4%, 5%, 6% and 7% bamboo fibres. The behavior of specimens has to be studied and compared with conventional specimens.

Key words: *Bamboo Fibre, Aggregate Replacement, Flexural Test, Workability, Compressive Strength, Low Cost Construction*

EXPERIMENTAL INVESTIGATION ON PARTIAL REPLACEMENT OF COARSE AGGREGATE BY USING COCONUT SHELL AND RUBBER LATEX

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***Abstract*—** The use of waste materials as construction materials has several benefits such as decrease in cost, saving in energy, and protection of environment. Coconut shell is one of the main contributors of pollution problem as an agricultural waste. Coconut shell used as coarse aggregate in concrete encouraged sustainable and environmentally helpful material in the construction field. Also rubber latex is used for increasing strength of concrete. Coconut shell and rubber latex used as admixture in concrete gives different strength and results. If we combine coconut shell and rubber latex together the concrete of higher strength and economical as well as eco-friendly concrete can be obtained. In this project the aggregates will be replaced by coconut shell and rubber latex as admixture to change the properties of concrete as well as to achieve maximum strength than normal concrete. The tests conducted on fresh concrete are Slump cone, Compaction factor test and Vee-bee test. Also tests conducted on hard concrete are Compressive strength, Flexural strength and Split tensile test**.**

IndexTerms– *Coconut Shell, Concrete, Rubber Latex*

EXPERIMENTAL STUDY OF CARBON STEEL FIBER BRICKS

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Abstract— Fibre reinforced brick has so far been successfully used in slabs on grade, architectural panels, precast products, offshore structures, structures in seismic regions, thin and thick repairs, crash barriers, footings, hydraulic structures and many other applications. Carbon Steel fibres can be defined as discrete, short length of steel having ratio of its length to diameter (i.e., aspect ratio) in the range of 20 to 100 with any of the several cross-sections, and that are sufficiently small to be easily and randomly dispersed in fresh mix using conventional mixing or machine mixing. Fibre Reinforced brick (FRC) is gaining attention as an effective way to improve the performance of brick. Fibres are currently being specified in tunnelling, bridge decks, pavements, loading docks, thin unbounded overlays, concrete pads, and concretes slabs. These applications of fibre reinforced brick are becoming increasingly popular and are exhibiting excellent performance. Carbon Steel fibre-reinforced brick is brick containing fibrous material which increases its structural integrity. It contains short crimped steel fibres that are uniformly distributed and randomly oriented. Fibres include steel fibres, glass fibres, synthetic fibres and natural fibres. This study presents understanding strength of fibre reinforced brick and about its mechanical properties.

Keywords*: Carbon Steel Fibres, Aspect ratio, Reinforced Bricks.*

EXPERIMENTAL STUDY OF PHOTOCATALYST CEMENTANEOUS MATRIX'

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Abstract— Air pollution is an environmental problem that has significant negative health implications for humans as well as other living organisms. Major primary pollutants that are produced by human activity include nitrogen oxide (NOx), sulphuroxides (SOx) and volatile organic compounds (VOCs) which are emitted from combustion at high temperatures. The photo catalyst, titanium dioxide (TiO2), is a naturally occurring compound that can decompose gaseous pollutants with the presence of sunlight. Photo catalytic air cleaning has the potential for removing nitrogen oxides (NOx), and volatile organic compounds (VOCs) from polluted urban air. This project illustrates the self-cleaning

Performance of titanium dioxide (Size range 130nm) incorporated in cement mortar.The experimentation is done by applying different dosages of TiO2 on cement mortar showed good photo catalytic efficiency as well as its potential applications in prevention of building facades doe to urban environmental

pollution. After curing the samples were coated with RhB (Rhodamine dye) solution and observations of reduce the dye is measured between different time intervals. Titanium dioxide (TiO2) Nano particles absorb the ultraviolet component of sunlight, acting as a catalyst to form reactive hydroxyl (OH) radicals in the presence of atmospheric moisture. These radicals can oxidize and destroy most pollutant molecules.

Keywords: *Photo catalyst, Titanium dioxide, RhB (Rhodamine dye), Sunlight, Self- cleaning, mortar, Environmental applications*

ASSESSMENT OF ENGINEERED CEMENTITIOUS COMPOSITES USING PVA FIBRE - AN EXPERIMENTAL STUDY

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***Abstract*—** Plain Concrete is brittle material which possess low strain capacity of 0.1% and that does not play a vital role in ductility during seismic responses. In order to improve the ductility characteristics in cement mortar and enhance the strain capacity of the concrete member the engineered cementious composites (ductile concrete) is the vital solution.

The present study investigates the effect of Polyvinyl Alcohol (PVA) fibre on strength and strain measurement of ductile concrete was done. The use of super plasticizer for achieving good workability is done. The mechanical properties of concrete are compared with control specimen to predict the properties of ductile concrete. The trial mix design was arrived based on literature survey and the test results are validated .It was found that ECC possess enhanced strain hardening capacity of 3% with improved crack resistance on par with conventional concrete.

Keywords*: Plain concrete, Polyvinyl Alcohol, Superplasticizer*

EVALUATION OF FATIGUE BEHAVIOUR AND CO-EFFICIENT OF THERMAL EXPANSION OF CONCRETE CONTAINING RECLAIMED ASPHALT PAVEMENT AGGREGATE (RAP)

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Abstract— In this project, unpolished RAP aggregate is tested in the form of RAP concrete to use it in rigid pavement application. Accordingly mix proportions are designed by varying the percentage of RAP aggregate in RAP concrete. For rigid pavement application, concrete must satisfy required flexural resistance along with stability and durability for its entire design period. So, strength requirement of RAP concrete containing various percentage of RAP aggregate is determined by casting and conducting tests on cubes, beams and cylinders. It has been found that up to 30% of virgin aggregates can be replaced by unpolished RAP aggregate without compromising on strength requirements. Durability aspect of RAP concrete is found out by conducting co- efficient of thermal expansion and fatigue behaviour (subjected to various stress ratios) tests. Results of co- efficient of thermal expansion are 15-20% higher compared to the values of conventional concrete (10*10^ (- 6)). Thermal expansion of concrete containing RAP is little on higher side yet it satisfies the code requirements. The reason for the higher value owes the inclusion of bitumen in the form of RAP. These values are still below the threshold values because of the high stiffness of the concrete matrix relative to that of the RAP aggregate. Results of Flexural fatigue test showed that there is a decrease (20-25%) in the values of elastic modulus of RAP concrete subjected to various stress ratios. Reason for decrease in the elastic modulus of concrete owes to the addition of unpolished RAP aggregate. Overall fatigue behaviour is satisfactory up to 30% aggregate replacement in conventional concrete by RAP aggregate.

Keywords: *Unpolished RAP aggregate, Stability and Durability, Co-efficient of thermal expansion, Fatigue test.*

“EXPERIMENTAL STUDY OF MECHANICAL BEHAVIOUR OF SELF CURING CONCRETE BY USING QUARRY DUST”

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***Abstract*—** Self-curing concrete is one of the special concretes in mitigating insufficient curing due to human negligence paucity of water in arid areas, inaccessibility of structures in difficult terrains and in areas where the presence of fluorides in water will badly affect the characteristics of concrete.The aim of the investigation is to evaluate the use of water-soluble polyethylene glycol as self-curing agent with partial replacement of conventional fine aggregate with light weight fine aggregate and to optimise the quantity of polyethylene glycol. Flexural Behaviour of Self-curing concrete of M30 grade is casted by replacing optimum % of natural fine aggregate with lightweight fine aggregate & optimum % of Polyethylene Glycol by weight of cement.

The fine aggregate partially replaced by the of 25% Quarry dust. From the optimum % of light weight fine aggregate replacement, Optimum % of polyethylene glycol -400 was found out by varying the percentage of PEG 0%, 0.5%, 1% and 1.5% by weight of cement for M30 grade of concrete. In this study, compressive strength, split tensile strength, and flexural strength of self-curing concrete with varying quantity of polyethylene glycol is evaluated and compared with the conventional concrete specimen.

Keywords*—Self Curing, Super Absorbents Polymer (SAP), Special Concrete, Quarry Dust, Poly Ethylene Glycol.*

COMPARISON OF ULTRAFINE SUPPLEMENTARY CEMENTITIOUS MATERIAL'S IMPACT'S IN CONCRETE (ALCCOFINE 1203 OR MICRO SILICA)

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***Abstract*—** Concrete is the unavoidable construction material discovered by humans. The impact due to the production of the raw material involved in concrete production is toxic to nature and all living creatures. Concrete is the prime construction material. Global warming is greatly affected due to the effect of raw materials of cement and concrete itself. The usage of green materials in concrete production is the remedial replacement to take immediate control of its damage. This helps us to have sustainable development. The increase in demand for concrete and its raw materials is at its peak due to global urbanization and economic development. The approach we have taken is to use the best-optimized mix design with the use of modern advance green cement (Chettinad Composite) and ultrafine supplementary cementitious materials i.e. Ultrafine Ground granulated blast furnace slag or Micro silica. The challenge of Blended cement is to achieve fresh concrete properties. The ultra-fine supplementary cementitious material changes the dynamics of the fresh concrete. It contributes to its hardened concrete properties and durability too. We have identified the standardization green cement reinforced with ultrafine material ensuring the below advantage.Improved better workability and retention..Optimum cement content ensures less usage of cement, thereby resulting in reducing the environmental impact by reduced binder quantity of usage.Optimized content gives financial saving to its user along with much durable performance.

Keywords: *Composite cement,Hybrid Cement, Triple bend, Durable Binder, ternary concrete mix*

ANALYZING THE QUALITY OF WATER USED FOR CONSTRUCTION BY COMPARING DIFFERENT MAN MADE FILTERS USING MATLAB

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Abstract - Water quality management is the essential part The study is focused to be considered in the construction site. on the filtration of grey water. This filtration is done by preparing a filter made of powdered cactus, pine bark, sand and coarse aggregate. The use of pine bark enhances the purification by preventing microbial action and reduces turbidity. But the application of the pine bark increases the concentration of acidity. In order to reduce the acidity, coarse aggregate is used as another layer. Cactus is used for reducing the chemical oxygen demand of the grey water. Finally, a sandy layer is provided as a supporting layer for powdered cactus. Thickness and flow rate of each layer was fixed by column study method. As per the column study, we fixed a 3cm layer thickness and a 10cm layer thickness for cactus and pine bark respectively. The percentage reduction for turbidity and chemical oxygen demand for combined filter were obtained as 72% and 30% respectively. Thus, the filter was constructed by considering the experimental results. Matlab is used to simulate the water quality in construction. The results show that the simulation is well with the observation.

Key Words: *Cactus, E Coli, Flow Rate, Pine Bark, Turbidity*

ARTIFICIAL INTELLIGENCE IN CONSTRUCTION INDUSTRY

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***Abstract*—** Building construction projects usually are once in a lifetime designs with little imitation in the structure, pattern and configuration. The ability to re-design and configure the project and network optimization performance helps smart manufacturing system. This problem can be addressed by Artificial Intelligence (AI). This paper reviews AI methodologies and the application of technology in automated construction manufacturing systems. Beginning with introduction to AI followed by review of AI applications in Construction Industry and a case study and finally, the future scope of AI in construction manufacturing is discussed.

Keywords—*Artificial Intelligence, Machine Learning*

CONSTRUCTION PROJECT SCHEDULING WITH TIMEOPTIMISATION BY USING MSP

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Abstract— The construction industry today has bloomed by leaps and bounds. Every construction industry face a stiff competition in every section of project, be it technique, equipment, methodology or management. The goals are been created and the benchmark is getting higher. Construction Industries involve themselves in numerous projects and also aim for higher turnover as financial benefit is the ground reality. The task becomes tougher when one indulges to maintain customer satisfaction i.e. quality and duration at the same time. Seldom have the companies failed to attend the promise. Hence, the solution is “better project management”. Companies in the past have faced a lot of problems especially when it comes to “multiple projects”. The data are overloaded, the cost has been overrun, the duration is extended and the resources have been over-allocated. Thus resulting in improper project management. Hence this study of mine would like to serve as a reference while managing such kind of multiple projects. There are three sites considered and the work is been done simultaneously. The software used is Oracle Primavera P6.

Keywords: *Planning, Scheduling, Resource optimization, Multiple Projects, Oracle Primavera P6*

REPLACEMENT OF COARSE AGGREGATE BY WASTE TYRES IN CONCRETE

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***Abstract*—** In recent decades, worldwide growth of automobile industry and increasing use of car as the main means of transport have tremendously boosted tyre production. This has generated massive stockpiles of used tyres. In the early 1990s, extensive research projects were carried out on how to use used tyres in different applications. Scrap tyre is composed of ingredients that are non degradable in nature at ambient conditions. They usually produce environmental mal-effects. One of the methods for utilization of these materials is their use in concrete and other building products. From the macro-economic perspective, the issues should be compared and evaluated when considering the application of such materials in the concrete. This report clearly explained about the replacement of coarse aggregates by waste tyre and the related tests. The test results are neatly explained and as per results obtained some technical suggestions are made with respect to the experimental project work.

***Key words**: Aggregates replacement, modern concrete, waste tyres, modern construction materials*

TENSILE BEHAVIOR OF CONCRETE CYLINDERS CONFINED WITH FRP COMPOSITES UNDER VARIOUS ENVIRONMENTAL CONDITIONS

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***Abstract*—** The present paper investigates the mechanical durability of FRP confined concrete cylinders after conditioning to natural outdoor weather and water immersion by performing split tensile tests. The variation of split tensile properties was considered for natural exposure and water immersion periods ranging from of 1 to 3 months. The parameters varied in this investigation were wrapping materials (which include glass, carbon, basalt and aramid fibre reinforced polymers), orientation of fibres (along the length of the specimens and circumference of the specimens) and exposure conditions (natural outdoor weather and tap water immersion). The experimental result shows that the specimens wrapped with carbon fibre reinforced polymers have higher split tensile strength than the specimens wrapped with other types of fibre reinforced polymers. A significant increasing trend of split tensile strength from 1 to 3 months for both the exposure conditions (natural outdoor weather and water immersion) was noted. This was attributed mainly to the post curing effects of concrete epoxy polymer.

Key words*: CFRP, GFRP, BFRP, AFRP, epoxy, split tensile.*

EFFECTIVE CONSTRUCTION PROJECT CASH FLOW MANAGEMENT AND ANALYSIS THROUGH BIM AND SIMULATION

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Abstract— Analyzing cash flows and undertaking project financing are important for contractors in managing construction projects. Cash flow analysis is a major aspect of managing construction projects to improve project success metrics and to prevent liquidity. Traditional methods for cash flow analysis are based on the manual integration of time and cost information. However, cash flow analysis is rarely performed on multiple planning alternatives to evaluate financial metrics in an integrated way. Integrating cash flow models with building information models (BIM) and simulation will allow easier analysis and more accurate forecasts of project cash flow. This paper develops parametric definitions of cash inflows and outflows to model paper cash flow elements in construction. Parameters for cash outflows cover construction costs related to labour, equipment, materials and subcontractor payments, while for cash inflow, they relate completed work to progress payments. These parameters within a BIM-based simulation system to allow for automated cash flowcalculation for simulation alternatives and relate to common practices including cost estimation and Earned Value Analysis. The proposed approach provides ability to evaluate organizational and financial alternatives with respect to cash flow. This will give stakeholders ways to avoid the financial deficits and provide a better understanding on their financial plan options before and during construction stage to come out with better financial performance and less monetary risks. Results show that the framework can help contractors analyze the cash flow and make appropriate decisions for different design and payment scheme alternatives in construction projects.

Keywords*: Cash Flow, BIM Simulation, Financial Alternatives.*

COST ANALYSIS AND PROJECT PLANNING USING ERP IN CONSTRUCTION INDUSTRY

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Abstract— The Study aims at studying effectiveness of ERP implementation in construction industry. The Study was performed on HIT-OFFICE which is an ERP software developed by EDSS Pvt. Ltd. The effectiveness of implementation of ERP was studied by estimating, scheduling, material planning, contractor management and billing in HIT-OFFICE using Quotation, Purchasing, Inventory, Study and Accountancy module of the software. A list of questionnaire was prepared to collect reviews from Study Managers and Engineers of various organizations to evaluate the changes occurred after the application of ERP. The companies which are ready for huge investment provided they are adaptive to change in working system, ERP is the best solution for them as it would result in optimization of Resources, savings of Time, Money and most importantly Energy.

Keywords *– ERP, HIT-OFFICE, EDSS Pvt. Ltd., Primavera, MRP*

IMPROVING CONSTRUCTION MANAGEMENT OF A WEIGH BRIDGE BY APPLYING EARNED VALUE MANAGEMENT [EVM] TECHNIQUE

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Abstract— In construction industry it is very necessary to control and monitor the progress at every stage of the construction work to avoid the cost and time overruns of the project. This can be achieved by proper project management process. Construction industries are facing challenges day by day. Amidst all these challenges it is very crucial to improve the performance of a project with respect to Schedule and Cost. Earned Value Analysis is an important tool in analyzing the performance of any construction project. It measures the project progress and helps in identifying the critical activities thereby bringing the project on schedule. Primavera software is used for Planning and scheduling of the bridge. Project tracking is done by considering the earned value management technique to check the cost and time overrun if exists. Project management increases the productivity of human resource and materials. Earned value management (EVM) is adapted for the project management application assessment techniques. This technology helps in comparing the actual cost and budgeted cost of work. This study relates to scheduling and the project monitoring process, also discussed along with the important parameters involved in calculation of EV analysis in the cost management of civil construction projects. Primavera software is used in the present study to plan and schedule the project activities and to carry out the Earned value management analysis. The results are represented in the form of graphs to explain the schedule performance index, schedule variance, cost performance index and cost variance. The present study concludes that the case study considered is ahead of schedule and within the budget.

Keywords*: EVM, scheduling, Primavera, Project management, bridge construction*

INVENTIVE APPROACHES FOR FACTORS AFFECTING MANAGEMENT OF CRISIS IN CONSTRUCTION PROJECTS

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Abstract— Crisis management is a process that includes catching and evaluating crisis signals and needs to take and implement necessary precautions in order to overcome a crisis with a minimal damage. Detecting the early warning signals of a crisis contributes firms to hinder the occurrence of the crisis and to survive without huge financial losses. Other factors that contribute construction firms to survive with zero defect can be listed as follows: (i) catching indirect signals before a crisis, (ii) developing proactive methods to defend themselves against the crisis by means of these signals, (iii) taking the crisis under control, (iv) taking required measures after the crisis for the recovery of the firm, and lastly (v) recording the lessons learned from the crisis. Construction firms that can successfully manage a crisis can quit it with a minimum loss and can expand their market shares after the crisis. In other words, firms that can escape from a crisis with zero or minimum damage may strategically have competitive advantages over existing rivals. Considering all these issues, this study describes the concept of crisis management in terms of the construction industry and introduces related objectives and characteristics. In addition, both innovative crisis management approaches and the corresponding process were discussed in detail from the perspective of construction companies. Consequently, this study attempts to reveal how construction firms can manage crises better and turn to their former positions in the short term through innovation-based means.

DETECTION OF CRACKED CONCRETE STRUCTURES USING IMAGE PROCESSING

J.Susmitha,ME Construction Engineering and Management

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Abstract— The detection of cracks is a crucial task in monitoring structural health and ensuring structural safety. The manual process of crack detection is painstakingly time-consuming and suffers from subjective judgments of inspectors. This study establishes an intelligent model based on image processing techniques for automatic crack recognition and analyses. In the new model, a gray intensity adjustment method, called Min-Max Gray Level Discrimination (M2GLD), is proposed to preprocess the image thresholded by the Otsu method. The goal of this gray intensity adjustment method is to meliorate the accuracy of the crack detection results. Experimental results point out that the integration of M2GLD and the Otsu method, followed by other shape analysis algorithms, can successfully detect crack defects in digital images. Therefore, the constructed model can be a useful tool for building management agencies and construction engineers in the task of structure maintenance.

EFFECT OF MICROWAVE PRETREATMENTS ON YIELD AND QUALITY OF CHIA OIL

Sameera Nayani*, Subba Rao Dakinedi

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*Corresponding author: nayani.sameera@gmail.com

***Abstract* :**Due to the increasing awareness about the various health benefits of food, consumers are more inclined to buy products with high nutritional content. High content of omega3 and omega6 fatty acids makes chia oil a nutritional powerhouse. A simple extraction process is necessary to recover oil from chia seed and further with intact oil quality . The high content of polyunsaturated fatty acids found in chia (Salvia hispanica L.) oil has been known to have detrimental effects on the shelf life and nutritional value of the oil. The objective of the current study is to evaluate the effect of microwave (60, 90, 120 s, 6 W/gm) pretreatments on extraction yield, physicochemical properties chia oil in comparison with untreated sample . In conclusion, MW pretreatment is found to be a feasible method to improve the oil extraction yield and obtain the oil with longer shelf life and better flavor.

Keywords: Chia, oil extraction, microwave pre treatment, shelf life.

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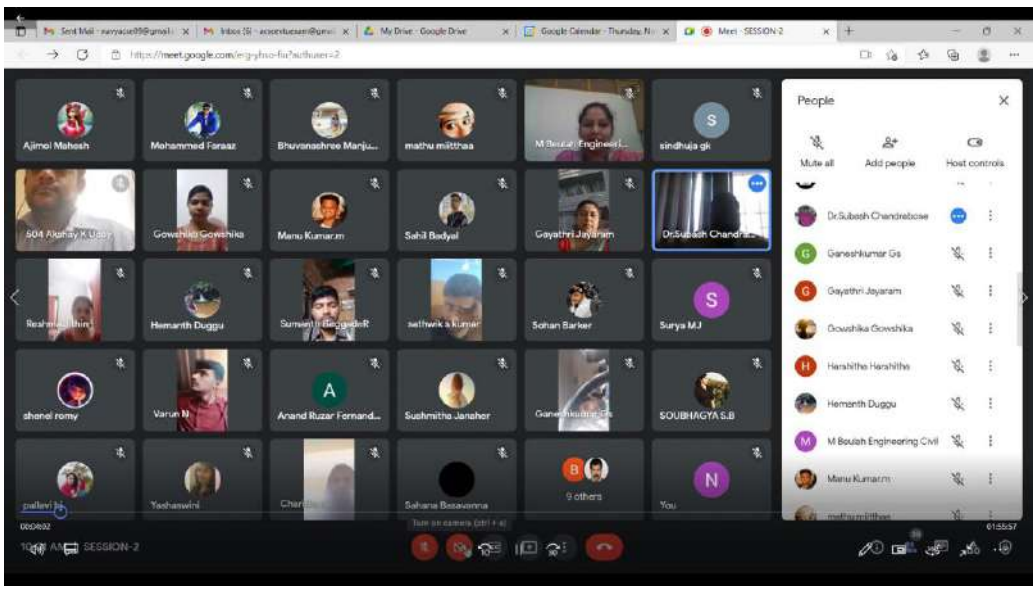
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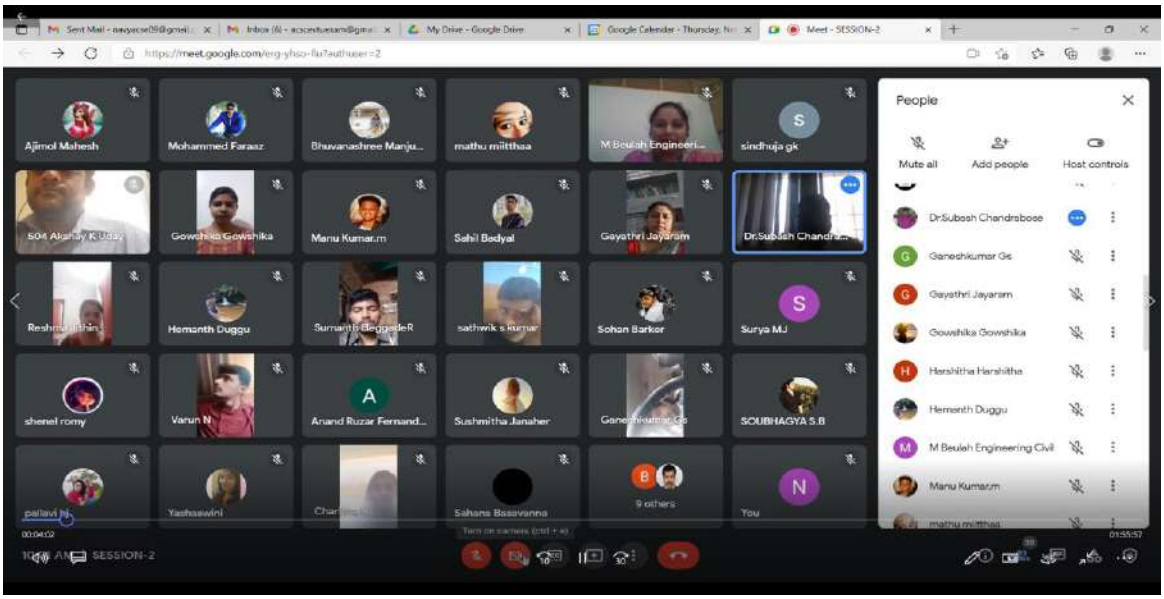
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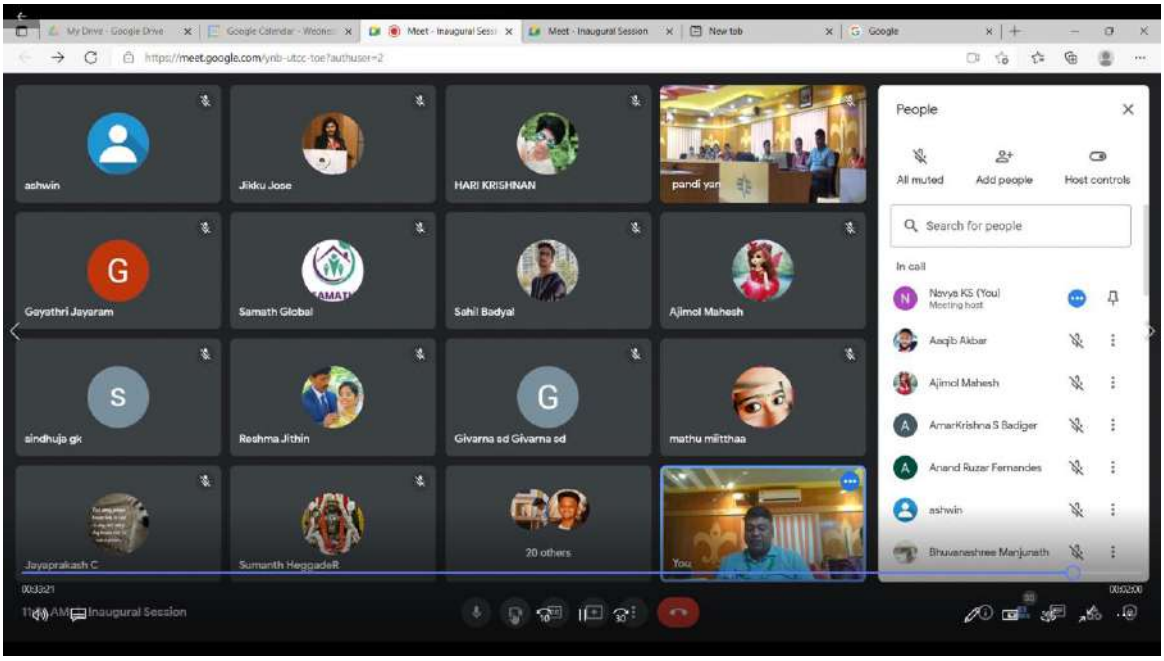
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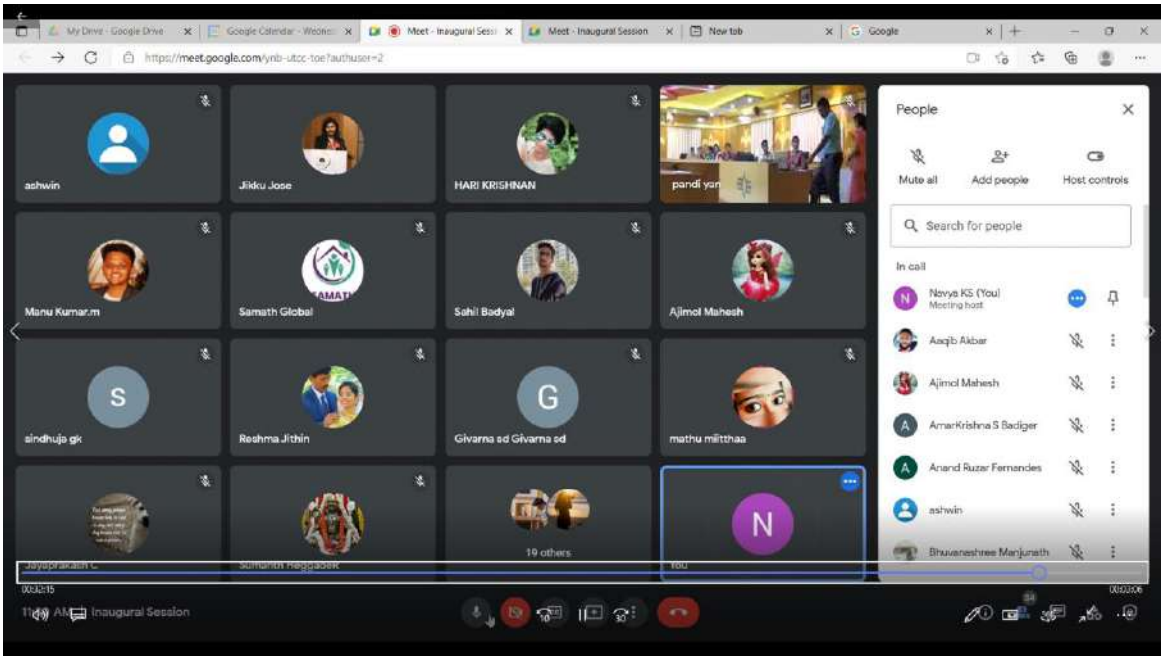
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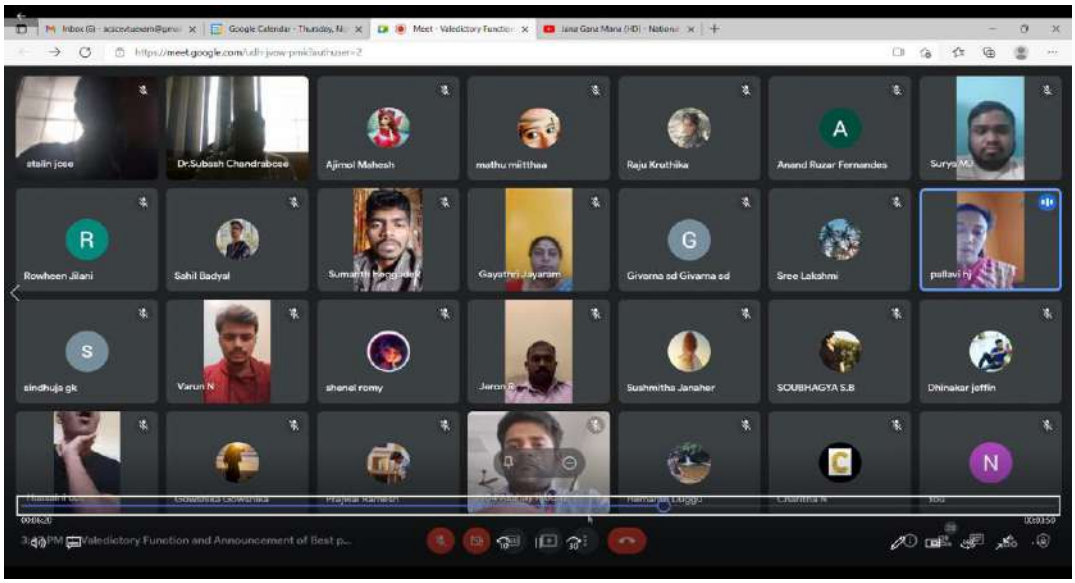
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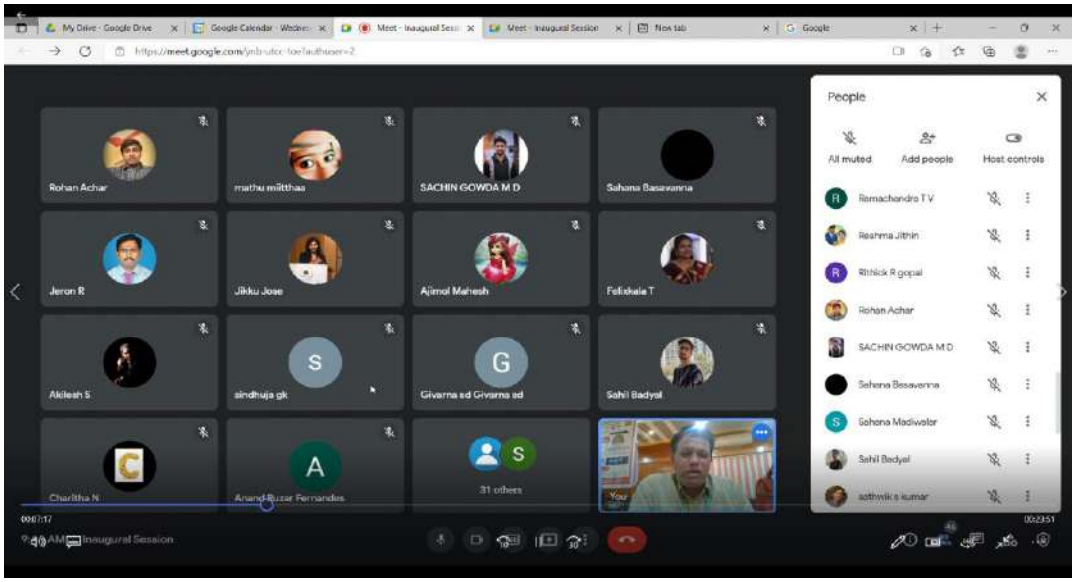
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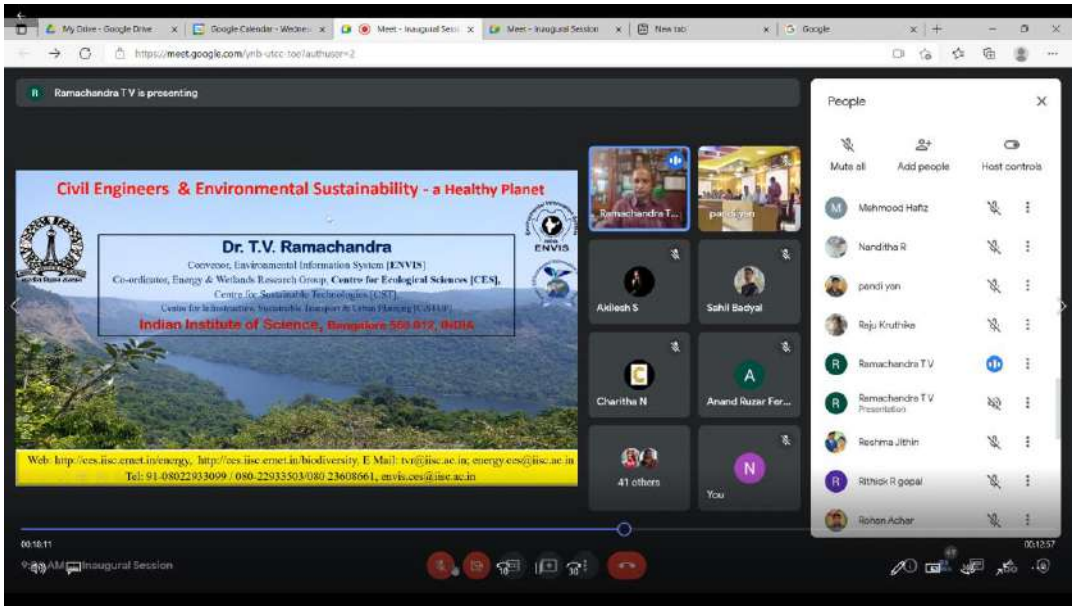
Ramachandra T V is presenting
Civil Engineers & Environmental Sustainability - a Healthy Planet
Dr. T.V. Ramachandra
Coordinator, Environmental Information System [ENVIS]
Co-ordinator, Energy & Wetlands Research Group, Centre for Ecological Sciences [CES],
Centre for Sustainable Technologies [CST],
Indian Institute of Science, Bangalore 560 012, INDIA
Web: http://ces.iisc.ernet.in/energy, http://ces.iisc.ernet.in/biodiversity, E Mail: tvr@iisc.ac.in; energy.ces@iisc.ac.in
Tel: 91-080-22933099 / 080-22933503/080 23608661, envis.ces@iisc.ac.in
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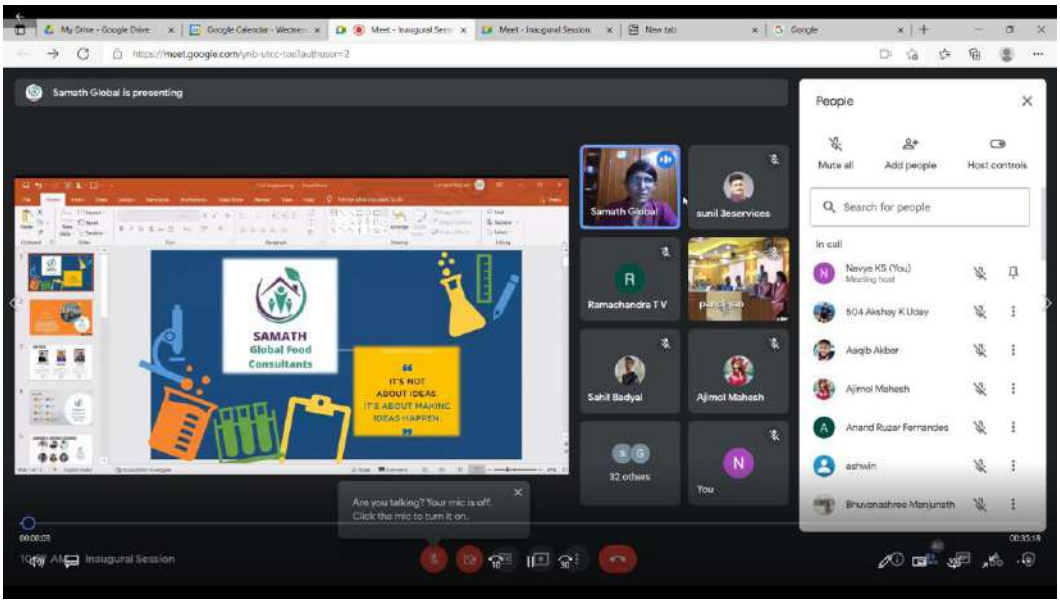
Samath Global is presenting
SAMATH
Global Food Consultants
IT'S NOT ABOUT IDEAS IT'S ABOUT MAKING IDEAS HAPPEN
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Ajimol Mahesh
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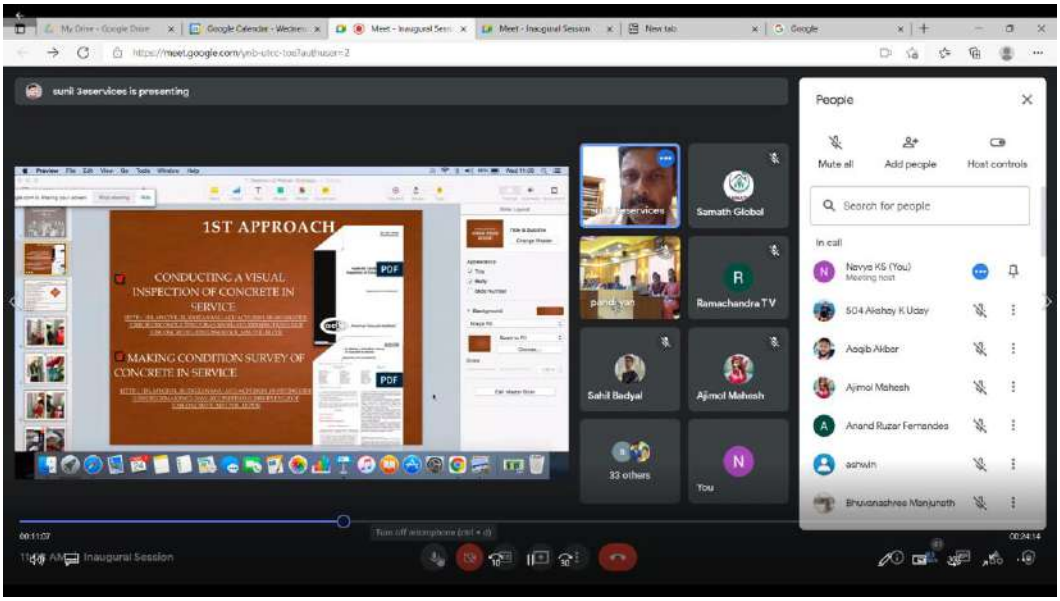
sunil Jeservices is presenting
1ST APPROACH
CONDUCTING A VISUAL INSPECTION OF CONCRETE IN SERVICE
MAKING CONDITION SURVEY OF CONCRETE IN SERVICE
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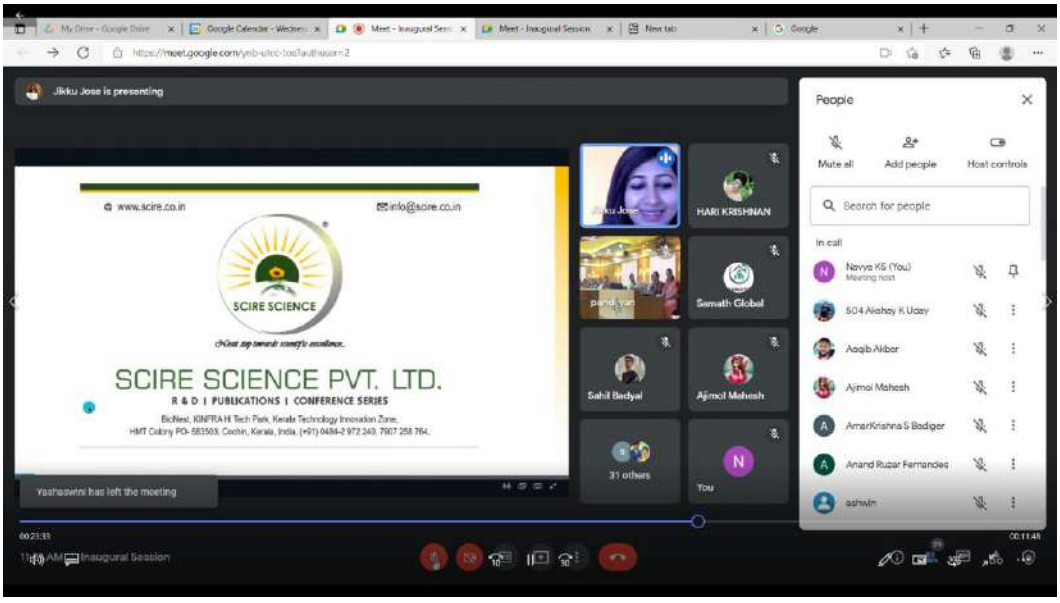
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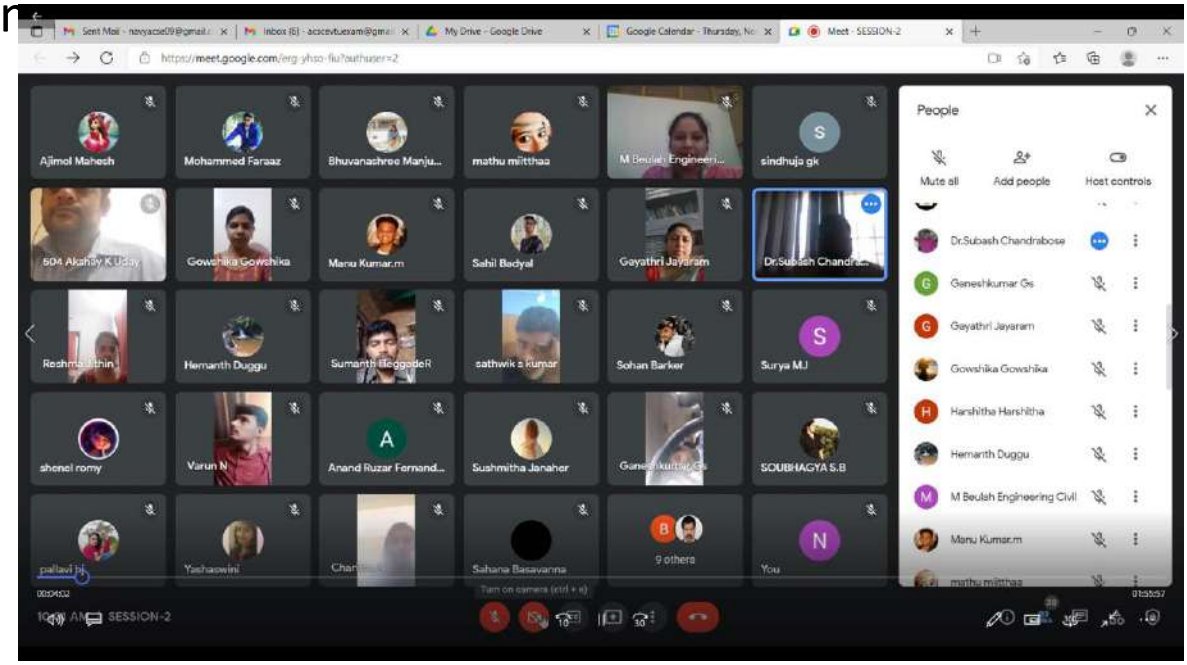
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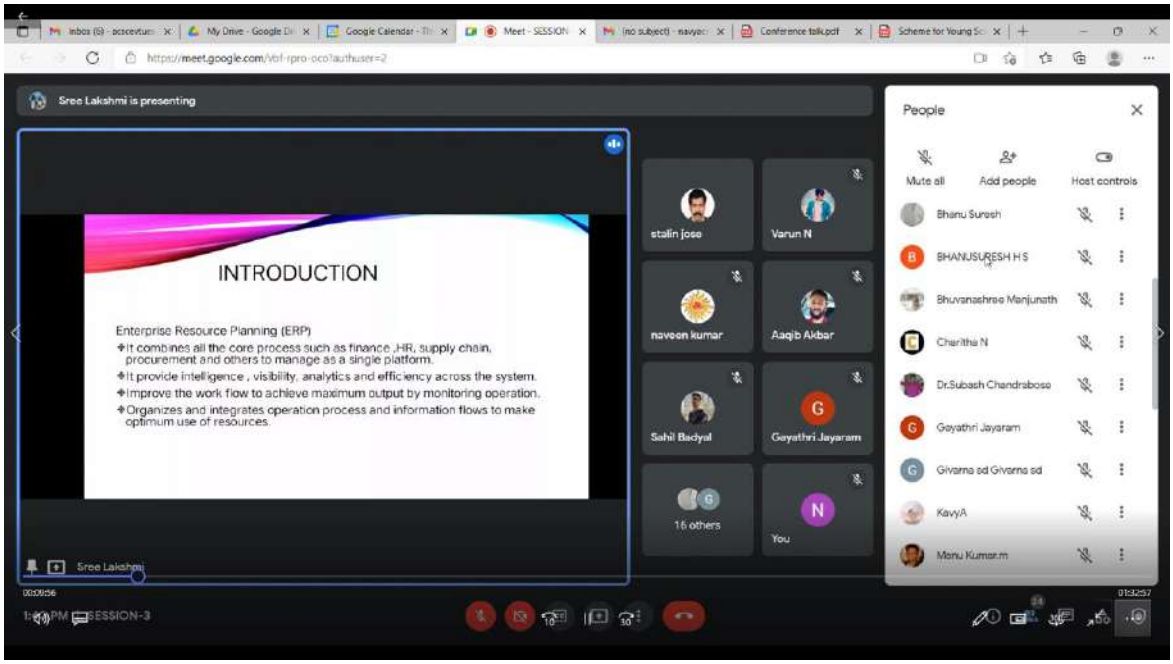
Sree Lakshmi is presenting
INTRODUCTION
Enterprise Resource Planning (ERP)
It combines all the core process such as finance ,HR, supply chain, procurement and others to manage as a single platform.
It provide intelligence , visibility, analytics and efficiency across the system.
Improve the work flow to achieve maximum output by monitoring operation.
Organizes and integrates operation process and information flows to make optimum use of resources.
Sree Lakshmi
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Varun N
naveen kumar
Aaqib Akbar
Sahil Badyal
Gayathri Jayaram
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SESSION-3