SONA CREA

Sixteenth Issue | May 2021

Indian Concrete Institute

ICI STUDENT CHAPTER

SONA COLLEGE OF TECHNOLOGY

Learning is a Celebration!

Convenor : Dr. R. Malathy, Ph.D.
Dean(R&D), HoD/Civil

Co-ordinator: Prof. M. Arivoli

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PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

To enable the students,

PEO 1: To perform their/duties efficiently, effectively and ethically at individual level and also at group level in a multidisciplinary team, contributing to the welfare of the society.

PEO 2: To analyze data and technical concepts pertaining to the development of infrastructure, design, sustainability, construction management and any other related field of civil engineering.

PEO 3: To adopt new innovative technology by continuously updating their knowledge through life-long learning achieving personal and organizational growth.

DEPARTMENT OF CIVIL ENGINEERING

PRINCIPAL'S MESSAGE

I am gratified to know that the Department of Civil Engineering is bringing out the sixteenth issue of their technical magazine "SONA CREA" of this academic year (2020 - 2021). This is a productive technical material and subsidiary skill-developing tool for the students. I wish the Civil Engineering Department a very big success in all their ventures. I also applaud the coordination and efforts behind the team to bring out this issue. I wish them all success.

Dr. S.R.R. SENTHIL KUMAR
Principal

HOD'S MESSAGE

I am exhilarated in establishing the sixteenth issue of the magazine "SONA CREA" of our Civil Engineering Department, which is a reference of the most recent trends and activities in construction field. This magazine should be a good source of guidance for faculty and coming batches of students in choosing activities of their choice in their future for building their careers.

I appreciate the efforts of the Editorial team who have done an excellent job in compiling activities over the year and disseminate them through this Magazine as well as on the website.

I am glad to welcome students with more interest in bringing the article with more bright concepts and innovative ideas in the next issue. I wish them to experience victory in all of their future endeavours.

Dr. R. MALATHY
HoD / Civil
Convenor/ ICI Student Chapter

ICI STUDENTS CHAPTER COORDINATOR MESSAGE

This issue marks the sixteenth issue of our Newsletter SONA CREA, that aims to keep our students past and present updated about the happenings at our Civil Engineering Department.

This newsletter will feature updates about our programs, articles, success stories from our students and faculty members, event information as well as research activities. We have particularly designed the newsletter also as a platform for the students to update their knowledge in civil engineering and to expose their talents with us. Therefore, I humbly encourage all of you to make use of this platform to remain active and vibrant. Let me reiterate that we welcome all contributions from faculty members and students so that we can make this newsletter a place for our collective voices.

M. ARIVOLI
AP/ CIVIL | ICI Students Chapter Coordinator

VISION & MISSION OF THE DEPARTMENT

To become a school of excellence that brings out civil engineers with high technical competencies and promotes high-end research to meet the current and future challenges in civil engineering.

MD1 : To offer Under-Graduate, and Post-Graduate programmes in civil engineering and other skill development courses that adds value to student competencies
MD2 : To promote quality education, research and consultancy for industrial and societal needs
MD3 : To inculcate moral and ethical values among the students
MD4 : To impart knowledge with emphasis on the development of leadership qualities in students
MD5 : To provide state-of-the-art resources that contribute to a congenial learning environment
MD6 : To encourage students to pursue higher education and take competitive exams and various career enhancing courses.
MD7 : To establish centres of excellence in emerging areas of research
MD8 : To have regular interaction with industry and offer solutions to their problems.

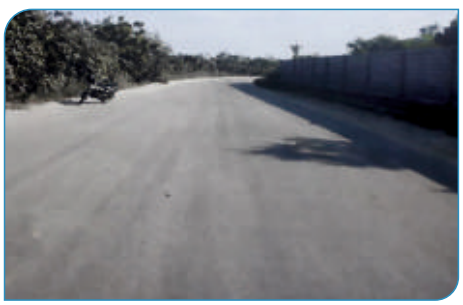
GLIMPSE OF SOIL INVESTIGATION: UPGRADING PAVEMENT

Mr. K. Prakash
Assistant Professor/CIVIL

Soil investigation is most important objective for infrastructure development. To explore the sub soil for determining the properties with various methods. But unfortunately some of the Engineers are not aware about soil investigations; even they ignore the investigation work. As a Geotechnical consultant, we make an aware about the importance of sub soil investigations. Because no one can visualise the failure of foundation rest on soil or rock. Actually foundation is buried under the soil. If ignore, we take responsible for losses.

As a professor who do the consultancy works, able to deliver more practical knowledge to students in soil investigation and involve them in consultancy activities. In our department we undertake a lot of consultancy works from various government and private organisations. Recently we got a consultancy work from Tamilnadu Highways Department of worth Rs. 11.50 Lakhs. The consultancy works is "To upgrade the Flexible Pavement from village roads to major district roads". We explore the undisturbed sub soil from Coimbatore district, nearly 50 km distance of road.

This consultancy works do with involvement of students, they find out the properties of soil and determine the CBR value. CBR is California bearing ratio test, which is most important test for design the pavement safely and economically. In this consultancy work faced lot of challenges in design the pavement as per IRC-37. Design the pavement based on CBR and msa (Million Standard axles) which is taken by field survey. There is a software name IIT PAVE-version 5.0 which is useful for analysing the CBR value and msa to adopt a suitable flexible pavement cross section. Once the Test results are approved, they do to improve the shoulders of highway and widening the road based on their requirement.



CONSTRUCTION 4.0

"Bringing everything and everyone together for better decisions"

Ms. A. Meenachi
Assistant Professor/CIVIL

As civil engineering is an inevitable part played in everybody life directly or indirectly as the society attempts to civilize day by day in every aspect of their choices for a better world. Transforming from villages to towns, towns to cities, and cities to metro cities and now it's from cities to smart cities and the sage will go on definitely. Now talking about smart cities, it's not only developing the basic infrastructure and also collecting, communicating and analyzing the big data around us but also to provide solutions quickly and save mankind. A country infrastructure has been always the epic identification to show its solidarity and power right from the ancient time to modern world. There are several wonders created by our ancestor which is even challenge for us to rethink for creating one like that with so many advances in tools in any form. In the era of construction, the values this modern world can add are to add value to the time and life of people. The baseline for all advancements is creating values to time and to minimize errors and waste. When applying these ideas in construction field the evolution of construction 4.0 has begun.

Fourth industrial revolution in construction is termed as construction 4.0 which has lot of verticals clubbed into it. The AEC (Architecture, Engineering and Construction) industry has now has construction 4.0 as their vision which makes the multi-national companies to totally rethink the existing process with the developments in research and inventions to increase their profits and branding. Construction 4.0 encompasses the imaginary to reality through prefabrication, automation, virtual reality, drones, building information modelling, sensors, Internet of things (IoT), 3D printing, cyber security, smart materials, site logistics and robots and so on to shape the decisions of the organizations for a better tomorrow.

Prefabricated structures are the latest innovation as a result of extensive research in precast industry has made it possible to build multistory buildings overnight. The drones are used to reach places where its difficult to survey the construction activities, map preparation, detect the causes of failed structures and monitoring too. 3D printing has become possible in such a way that to propose to build houses in space. Virtual reality is one of the best tools to foresee the construction activities and the constructed one so as to satisfy the client's requirements and help the construction industry to build better. Building information modelling has become an inevitable part in all big projects. It is a generic tool to manage the activities of the construction right from conceptualization, analysis, designing, energy efficiency, planning, procurement, and logistics in an efficient way.

The IT sectors foresee lots of scope and opportunities in the digitalization of the construction field and develop products and services to fulfill it. So as young fresh graduates with core construction competency and programming competency is the expected proficiency from industries to cater the new need of construction 4.0.

5 INCREDIBLE IoT APPLICATIONS IN THE CIVIL ENGINEERING FIELD

Allows a Transformation From Reactionary to Preventative Maintenance.

Ms. D.S.Sarika
III yr/CIVIL

Most maintenance programs are corrective or reactionary. When something breaks down or fails, a team acts to fix the problem. In reality, this practice is nothing more than slapping a bandage on a gaping wound. With development projects, once things start to break down, they generally continue on that path. Problems grow much more prominent, no matter what fixes you apply. It makes more sense, then, to monitor a subject's performance and status and apply fixes long before things break down. In other words, using a preventative maintenance routine is much more practical, efficient and reliable.

IoT devices and sensors deliver all the necessary data to make such a process possible. They collect information about a subject in real-time and then report it to an external system or analytics program. That program then identifies potential errors and communicates the necessary information to a maintenance crew. In any field of construction, preventative maintenance considerably improves the project in question as well as the entire management process. Maintenance management typically comprises about 40% to 50% of a business's operational budget. Companies spend much of their time reacting to maintenance issues rather than preventing them. IoT can turn that around.

2. Presents a Real-Time Construction Management Solution

A proper construction management strategy is necessary for any civil engineering project. Many nuanced tasks need to be completed, whether they involve tracking and measuring building supplies or tagging field equipment and dividing it up properly.

IoT technology can reduce tension by collecting relevant information in real time and delivering it to the necessary parties. Real-time solutions also provide faster time-to-action. Management and decision-makers can see almost immediately how situations are playing out and take action to either improve or correct a project's course.

For example, imagine the following scenario. During a project that's underway, workers hit a snag that forced them to use more supplies than expected. Rather than waiting until supplies run out, the technology has already ordered more. That way, the supplies are already on their way and will arrive at the project site before the existing supply is exhausted. The result is a seamless operation that continually moves forward, despite any potential errors. IoT can measure the number of supplies and report it to a remote system, which then makes the necessary purchase order.

3. Creates Automated and Reliable Documentation

One of the minor responsibilities of development and civil engineering projects is related to paperwork. Documentation records a great deal about a project before, during and after it wraps up.

IoT technologies can improve the entire process, if not completely automate many of the tedious elements. Reports are especially useful to have during inspections, insurance and liability events, and much more. The data that IoT collects can be parsed and added to any report to fill out much-needed details. Because the process happens automatically, the reports can generate with little to no external input.

4. Provides a Seamless Project Safety Platform

Worksites can be dangerous, which is why supervisors and project managers must remain informed about their workers at all times. If an accident occurs, they must be able to locate and evacuate any nearby personnel. IoT can provide real-time tracking for all workers on a site — and even those off-site.

More importantly, IoT technology can connect all those disparate parties, allowing for direct communication with near-instant delivery. The result is a much safer operation for all involved, especially the workers who spend most of their time in the trenches.

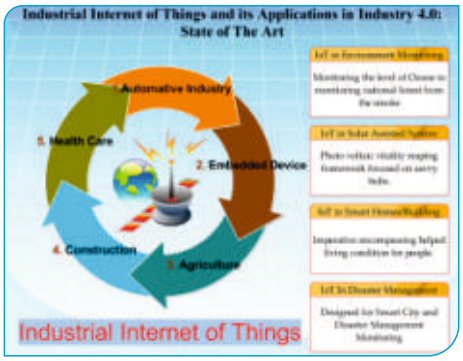
5. Enhances Operational Intelligence Support

By putting IoT and data collection devices in place with no clear guidance, an operation can suffer from data overload — an overabundance and complete saturation of intelligence with no clear way to analyze and use it.

Instead, once IoT technology is implemented, organizations are forced to focus on an improved operational intelligence program to make sure the data coming in is adequately vetted, categorized and put to use. It's cyclical because IoT empowers the intelligence program by offering real-time collection and analysis opportunities. So, even though more data is coming in and the process of extracting insights is more complex, the reaction times are much faster and more accurate as a result.

Here's a quick example. With bridge and tunnel construction, it's necessary to monitor the surrounding area for environmental changes. Soil and ground movement, earthquakes, changes in water levels and similar events can impact the project. Sensors embedded within the surrounding area can collect pertinent information, which passes to a remote analytics tool.

During a seismic event, the entire system would instantly discern if work must be postponed or if it can continue safely. A support program can distribute alerts to all necessary parties automatically, helping to ensure everyone knows the current status of the project — especially those in the field.



AUTOMATIC DOOR LOCK FOR HOME SECURITY APPLICATION

The aim of this project is to create a lock system which is completely different from other existing systems.

Mr. V. Sundarrajan
III yr/CIVIL

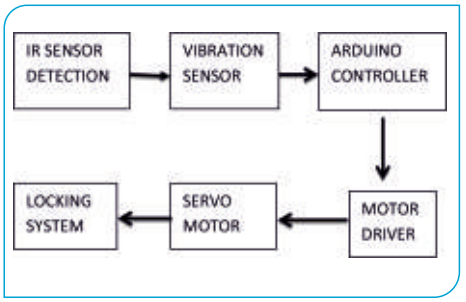
This system consists of components like Infrared sensor, vibration sensor, Arduino board, motor driver, servo motor and the lock. A security system is a method by which our valuable things can be protected.

Methods

This is achieved by using interworking components and devices. Lock system is a kind of security system which is completely

different from other existing security systems. It is based on the principle that the door can be opened only by applying a predefined password.

Block Diagram

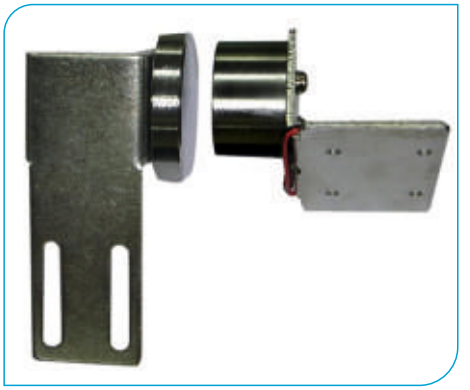


Experiment

The whole set up consists of components like infrared sensor, vibration sensor, Arduino board, motor driver, servo motor and the lock. The Infrared sensor is connected to the vibration sensor.IR sensor detects the authorized person's finger and passes the command to the vibration sensor. Whenever an authorized person presses the switch button, mechanical stress is developed on the Vibration sensor which is placed under the switch button. So it gives the output electrical signal to the corresponding mechanical stress. The vibration sensor is connected to the Arduino board which matches the applied password with the reference password. The password given here is in the form of digital input i.e. for instance (00110100). Arduino takes the password as high when the switch is pressed i.e. (1) and low when the switch is not pressed i.e. (0). If the applied password matches with the reference password the motor driver starts to drive the servo motor which will open or closed the lock according to the commands given. The lock will be closed if the locking button is pressed and it will be opened if the unlock switch is pressed.

Conclusion & Future Works

This novel idea provides a better locking system which is different from other existing systems. It is also less expensive than other leading products. It gives accurate output where an unauthorized person cannot be open or close the door illegally.



ACHIEVEMENTS

MOU SIGNED

Mou signed with Edifice placement solutions on 12.03.2021.

AICTE-VISVESVARAYA BEST TEACHERS AWARD

Dr.R.Malathy/ Professor & Head received AICTE Visvesvaraya Best Teacher Award 2020 as on 15.09.2020.

NATIONAL LEVEL SMART INDIA HACKATHON 2020

National Level Smart India Hackathon 2020 received by our Department Head, Hackathon Co- Ordinator and Final Year Students on 05.08.2020

AICTE- LILAVATI AWARD 2020

Received AICTE-New Delhi, LILAVATI Award 2020 in the Sub-Theme Women Entrepreneurship under the overall theme "Women Empowerment"

TNSI 2019

Our Students got cash prize award for TNSI 2019.

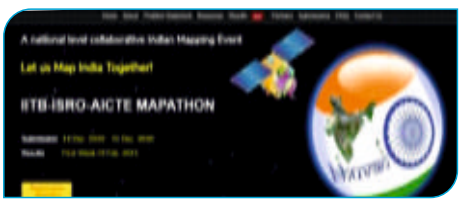
LAUNCHING OF AIR QULAITY MOINTORING STATION

Launching of Air Quality Mointoring Station at Sona College of Technology, Salem

MoU SIGNED

MoU signed and received by our vice chairman, principal and head of the Civil Engineering department between Sona College of Technology and NHAI (National Authority of India) as on 04.08.2020

WINNER OF AICTE-IITB-ISRO MAPATHON 2021.



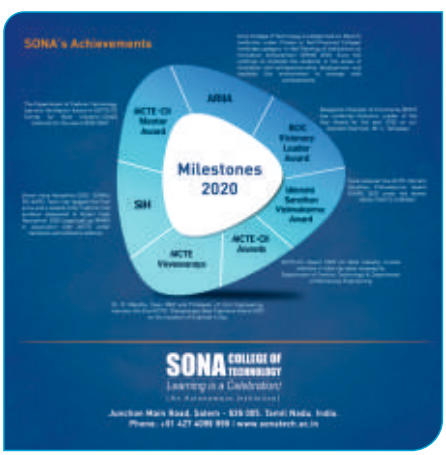
Principal and Management congratulate the winners !!!

LAUNCHING OF SONA HOMES

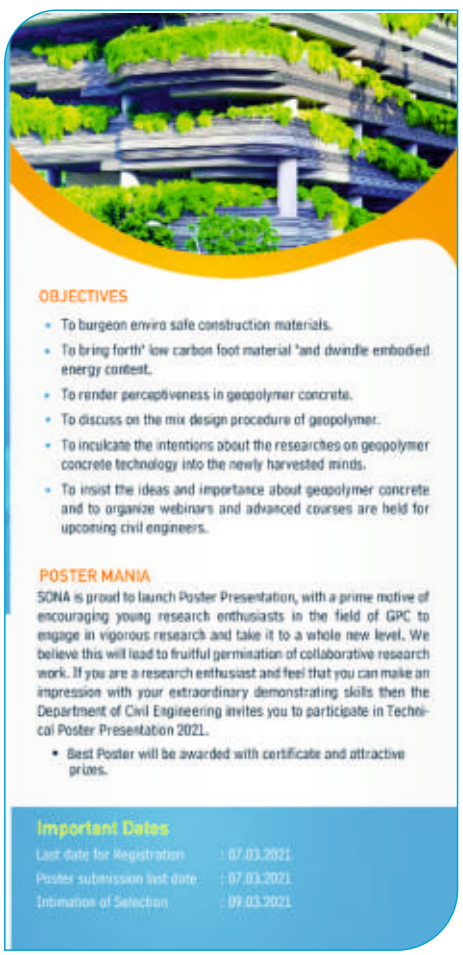
Launching of Sona Homes
Application as on 16.02.2021

WEBINARS AND PROGRAMMES ORGANISED

Graduation Day 2021

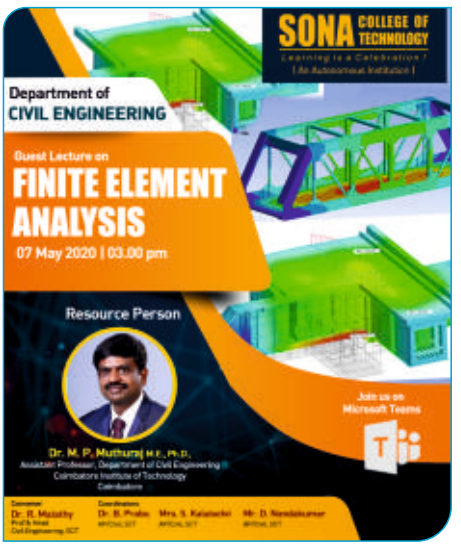



15th - 19th March 2021
SONA COLLEGE OF TECHNOLOGY
Learning is a Celebration!
DEPARTMENT OF CIVIL ENGINEERING
FACULTY DEVELOPMENT CELL
in association with
INDIAN SOCIETY FOR TECHNICAL EDUCATION (ISTE CHAPTER)
Organises
Virtual Five Days Faculty Development Programme on
APPLICATION OF TOOLS & TECHNIQUES IN RESEARCH METHODOLOGY


OBJECTIVES
To burgeon enviro safe construction materials.
To bring forth' low carbon foot material 'and dwindle embodied energy content.
To render perceptiveness in geopolymer concrete.
To discuss on the mix design procedure of geopolymer.
To inculcate the intentions about the researches on geopolymer concrete technology into the newly harvested minds.
To insist the ideas and importance about geopolymer concrete and to organize webinars and advanced courses are held for upcoming civil engineers.
POSTER MANIA
SONA is proud to launch Poster Presentation, with a prime motive of encouraging young research enthusiasts in the field of GPC to engage in vigorous research and take it to a whole new level. We believe this will lead to fruitful germination of collaborative research work. If you are a research enthusiast and feel that you can make an impression with your extraordinary demonstrating skills then the Department of Civil Engineering invites you to participate in Technical Poster Presentation 2021.
Best Poster will be awarded with certificate and attractive prizes.
Important Dates
Last date for Registration : 07.03.2021
Poster submission last date : 07.03.2021
Intimation of Selection : 09.03.2021


SONA COLLEGE OF TECHNOLOGY
Learning is a Celebration!
(An Autonomous Institution)
Department of Civil Engineering
Continuing Education Centre offers
Job Oriented One Year
DIPLOMA PROGRAMME
Land Surveying
Quantity Surveying and Valuation
ABOUT SONA
ABOUT DEPARTMENT

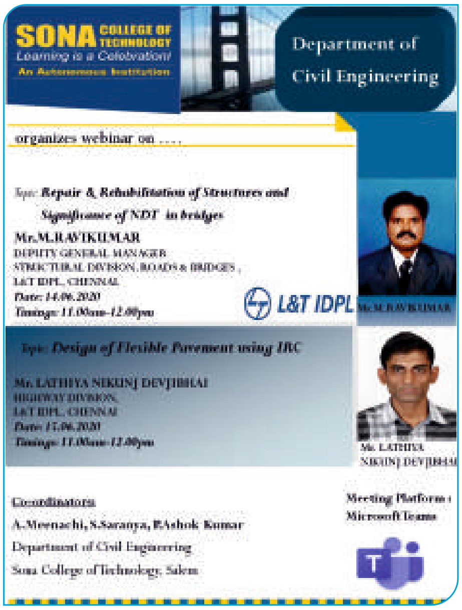

An Overview of
CIVIL ENGINEERING
DIPLOMA COURSES
DIPLOMA IN
LAND SURVERYING
DIPLOMA IN
QUANTITY SURVEYING & VALUATION
FEES STRUCTURE for Module I & II
Rs 15,000
(excluding GST & Exam fees for Module I & II)
* Eligible candidates are supported for better placement in reputed companies
SONA COLLEGE OF TECHNOLOGY
Dr. R. Malathy
Professor & Head/Civil
Dean - R & D


SONA COLLEGE OF TECHNOLOGY
Department of CIVIL ENGINEERING
Guest Lecture on
FINITE ELEMENT ANALYSIS
07 May 2020 | 03.00 pm
Resource Person
Dr. M. P. Muthuraj M.E., Ph.D.,
Assistant Professor, Department of Civil Engineering
Coimbatore Institute of Technology
Coimbatore
Join us on Microsoft Teams


SONA COLLEGE OF TECHNOLOGY
Department of Civil Engineering
Who can attend
Final Year of Diploma Students (All the Dept.)
For Polytechnic Students
ONLINE WEBINAR
DIGITAL CONSTRUCTION
Date & Time will be intimated
Resource Person
Dr. R. MALATHY
Professor & Head
Dept. of Civil Engineering
Sona College of Technology, Salem
Convenor
Dr. S.R.R. Senthil Kumar
Principal
Organising Secretary
Dr. R. Malathy


Department of CIVIL ENGINEERING
SONA COLLEGE OF TECHNOLOGY
Webinar on
DIGITAL ESTIMATION USING COSTX
Final year students
12th August 2020
3 to 4 pm
Resource Person
Ms. JANANI B
Manager
Professional Services
Infinity PMC Solutions Pvt. Ltd.
Chennai
webcast on Microsoft Teams
Convenor
Dr. R. MALATHY
Professor & Head/Civil
Staff Co-ordinator
Dr. P. Manikandan
Ms. S.Saranya
Ms. R. Renuka


SONA COLLEGE OF TECHNOLOGY
Department of CIVIL ENGINEERING
In association with
ICI Students Chapter and IIC
Webinar on
PREPARING AND PROSECUTING PATENTS FROM STUDENT'S PERSPECTIVE
11.09.2020 @ 4 pm
Resource Persons
Mr. Gowtham Shanmugam
Ms. Elakkiya Thirumoorthi
Convenor
Dr. R. MALATHY
Professor & Head/CIVIL
webcast on Google Meet
E-certificate will be provided for all the participants


SONA COLLEGE OF TECHNOLOGY
Learning is a Celebration!
An Autonomous Institution
Department of Civil Engineering
organizes webinar on ....
Topic: Repair & Rehabilitation of Structures and Significance of NDT in bridges
Mr.M.RAVIKUMAR
DEPUTY GENERAL MANAGER
STRUCTURAL DIVISION, ROADS & BRIDGES,
L&T IDPL, CHENNAI
Date: 14.06.2020
Timings: 11.00am-12.00pm
L&T IDPL
Topic: Design of Flexible Pavement using IRC
Mr. LATHIYA NIKUNJ DEVJIBHAI
HIGHWAY DIVISION,
L&T IDPL, CHENNAI
Date: 17.06.2020
Timings: 11.00am-12.00pm
Coordinators
A.Meenachi, S.Saranya, P.Ashok Kumar
Department of Civil Engineering
Sona College of Technology, Salem
Meeting Platform : Microsoft Teams


SONA COLLEGE OF TECHNOLOGY
DEPARTMENT OF CIVIL ENGINEERING
In association with ISTE STUDENTS CHAPTER
Cordially invites you all for the
Alumni webinar series on
Careers in Civil Engineering
29th May - 2nd June , 3 - 6:30 Pm
Day 3 (31.05.2020, Sunday)
Mr.T.Madhan Kumar
Mr.S.Arivukarasu
Mr.s.Bharath Kumar
Mr.S.Shanmuga Prabu
Ms.A.Shabia
Dr.S.R.R.Senthil Kumar
Dr.R.Malathy
E-Certificate will be Provided to all the participants
MEETING ID WILL BE SENT TO YOUR REGISTERED MAIL ID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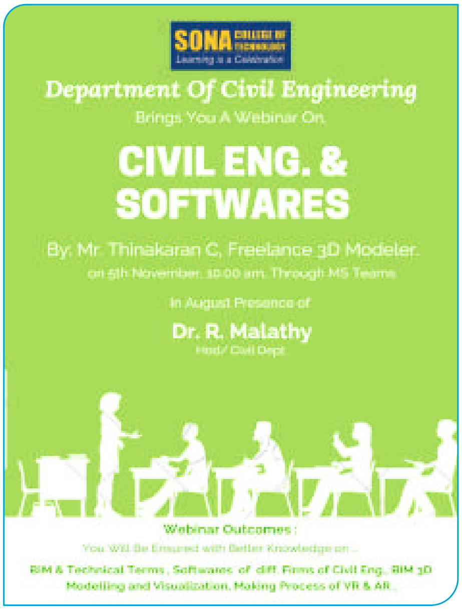
Careers in Civil Engineering
29th May - 2nd June , 3 - 6:30 Pm
Day 1 (29.05.2020, Friday)
Mr.M.Vibindas
Mr.R.Murali
Mrs.P.Priyadarshini
Dr.Deepak Muniraj
Mr.S.Kaviyaraj
Dr.S.R.R.Senthil Kumar
Dr.R.Malathy
E-Certificate will be Provided to all the participants
MEETING ID WILL BE SENT TO YOUR REGISTERED MAIL ID


SONA COLLEGE OF TECHNOLOGY
Learning is a Celebration
Department Of Civil Engineering
Brings You A Webinar On
CIVIL ENG. & SOFTWARES
By: Mr. Thinakaran C, Freelance 3D Modeler
on 5th November, 10.00 am, Through MS Teams
In August Presence of
Dr. R. Malathy
Hod/ Civil Dept
Webinar Outcomes :
You Will Be Ensured with Better Knowledge on ...
BIM & Technical Terms, Softwares of diff. Firms of Civil Eng., BIM 3D Modelling and Visualization, Making Process of VR & AR.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Careers in Civil Engineering
29th May - 2nd June , 3 - 6:30 Pm
Day 2 (30.05.2020, Saturday)
Mr.S.Vishnukanth
Mr.D.Arunkumar
Mr.M.Inbarasa
Mr.A.K.Praneeth
Mr.Bala prasanth
Dr.S.R.R.Senthil Kumar
Dr.R.Malathy
E-Certificate will be Provided to all the participants
MEETING ID WILL BE SENT TO YOUR REGISTERED MAIL ID


SONA COLLEGE OF TECHNOLOGY
Department of CIVIL ENGINEERING
Organises
A Webinar on
Career OPPORTUNITIES IN CIVIL ENGINEERING
18 May 2021 | 11 am to 1 pm
JOIN US
Google Meet
Resource Person
Er. P. KARTHIKEYAN


SONA COLLEGE OF TECHNOLOGY
Department of CIVIL ENGINEERING
Organises
A Webinar on
CAREER OPTIONS: CIVIL ENGINEERS
17.05.2021@ 10.30 am to 12 pm
Resource Person
Er. S.B. Ashok Kumar
JOIN US
Google Meet


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DEPARTMENT OF CIVIL ENGINEERING
In association with ISTE STUDENTS CHAPTER
Cordially invites you all for the
Alumni webinar series on
Careers in Civil Engineering
29th May - 2nd June , 3 - 6:30 Pm
Day 4 (1.06.2020, Monday)
Mr.A.Parthiban
Mr.C.Ravi Shankar
Mrs.S.Karthika
Mr.K.S.Harikrishnan
Ms.V.Ponmani
Dr.S.R.R.Senthil Kumar
Dr.R.Malathy
E-Certificate will be Provided to all the participants
MEETING ID WILL BE SENT TO YOUR REGISTERED MAIL ID


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In association with ISTE STUDENTS CHAPTER
Cordially invites you all for the
Alumni webinar series on
Careers in Civil Engineering
29th May - 2nd June , 3 - 6:30 Pm
Day 5 (02.06.2020, Tuesday)
Mr.K.Manoj Kumar
Mr.S.Arul
Mr.Mohankumar.N.S
Ms.P.Suganya
Mr.E.Arun Kumar
Mr.M.Balasubramaniam
Dr.S.R.R.Senthil Kumar
Dr.R.Malathy
E-Certificate will be Provided to all the participants
MEETING ID WILL BE SENT TO YOUR REGISTERED MAIL ID