Dr. M.G.R

EDUCATIONAL AND RESEARCH INSTITUTE

(Deemed to be University with Special Autonomy Status)

(Accredited by NAAC with 'A' Grade & An ISO 22001 : 2018 Certified Institution)

An ISO Certified Institution

A+ NAAC

NBA NATIONAL BOARD of ACCREDITATION

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

CIVIL CONTOUR

2023 - 2024

INNOVATE | CONSTRUCT | SUCCEED | SUSTAIN

Dr. M.G.R.
EDUCATIONAL AND RESEARCH INSTITUTE
UNIVERSITY
STRIVE TO EXCEL

ABOUT THE UNIVERSITY

Aiming to bring about change and progress through education, the Tmt. Kannammal Educational Trust was constituted in 1985 and started Thai Moogambigai Polytechnic College. Within three years of its inception, **Dr.M.G.R** Engineering college was founded in1988, and the Thai Moogambigai Dental College inception, Dr.M.G.R Engineering college was founded in1988, and the Thai Moogambigai Dental College was started in the year 1991. Both the colleges acquired **Deemed university status in 2003** as Dr. M.G.R. Educational and Research Institute as per the orders of the **University Grants Commission, New Delhi** and the **Union Ministry of Human Resources and Development, Government of India, New Delhi.**

The 21st century poses a lot of challenges that could be overcome with the help of Education and Technology, Keeping this in mind **Dr. M.G.R. Educational and Research Institute University** was started with a vision of providing a better foothold for the students of today to face the challenges. To succeed in the world today you more than just Academics. The modern adults is expected to have a combination of technical Know-how and ambitious confidence. Being aware of the demand that is placed on the youth today, Dr. M.G.R. Educational and Research Institute University has preserved to nurture and groom young men and women through **Engineering, Medical, Dental and Humanities and Sciences.**

The adoption of sustainable practices not only **reduces construction costs** in the long term but also improves the **quality of life** for future generations.

Dr. M.G.R.
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FROM THE PRESIDENT'S DESK

THIRU A.C.S ARUN KUMAR

B.TECH (HONS.), LMISTE, MIET (UK), LMCSI

I am delighted to know that the Department of Civil Engineering of Dr. M.G.R Educational and Research Institute University is publishing a Technical Magazine **"CONTOUR 2023 - 2024"**

I hope that this magazine will emerge out well and help people know more about the times.

I wish all the success for the magazine.

ER. A.C.S. ARUN KUMAR

EDUCATION | RESEARCH | INNOVATION | EXCELLENCE

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FROM THE
VICE CHANCELLOR'S DESK

PROF. Dr. S. GEETHALAKSHMI
VICE-CHANCELLOR

It is indeed a matter of great happiness to and that the Department of Civil Engineering at Dr. M.G.R. Educational & Research Institute University proposed to publish its Technical Magazine
CONTOUR 2023 - 2024

A Technical Magazine such as this is required for growth and progress of departmental activities, including publishing articles, papers, research activities etc. I am sure that this type of publishing technical magazine will prove its mettle by providing an opportunity for bringing out the writing talent which bears immense potentiality of sharpening Students' communication skill as part of their over all personality development and also will direct their creativity to new dimensions of mature expression.

I congratulate all the contributors and the editorial board for bringing out such a technical magazine.

PROF. Dr. S. GEETHALAKSHMI

EDUCATION | RESEARCH | INNOVATION | EXCELLENCE

BUILDING TODAY • SUSTAINING TOMORROW

Dr. M.G.R.
UNIVERSITY
STRIVE TO EXCEL

FROM THE
RECTOR'S DESK

PROF DR. D.VISWANATHAN
RECTOR

It gives me great pleasure and so I extended my hearty congratulations to the Department of Civil Engineering for publishing Technical Magazine, **"CONTOUR 2023 - 2024"**.

An Expression of ideas and opinions through **"CONTOUR"** article shows our student's level of thinking and their high ability to learn from their surroundings.

My best wishes to the Department and editorial team for their dedication in making this magazine a reality. I hope this magazine continues to grow and represent the achievements of Dr. M.G.R Educational and Research Institute University and Civil Engineering Department.

PROF Dr.D.VISWANATHAN

EDUCATION | RESEARCH | INNOVATION | EXCELLENCE

Dr. M.G.R.
EDUCATIONAL AND RESEARCH INSTITUTE
UNIVERSITY
STRIVE TO EXCEL

FROM THE REGISTRAR'S DESK

Dr. C.B. PALANIVELU

REGISTRAR

Civil Engineering , one of the oldest Engineering, is a profession which has several related disciplines that deals with the design, construction, and maintenance of the built environment, including works like roads, bridges, canals, dams, and buildings.

It gives me great pleasure that Department of Civil Engineering is bringing out the Technical Magazine, **"CONTOUR 2023-2024"** to serve the Students, Faculties and Research scholars of our university and other institutions by giving their latest and technical matters related to Civil Engineering.

I am sure that this will create awareness and bring out innovative ideas about the enormous applications of Civil in the field of Engineering and other related disciplines.

At this juncture I congratulate every one for their team work to bring out this
Magazine .

Dr. C.B. PALANIVELU

Dr. M.G.R.
EDUCATIONAL AND RESEARCH INSTITUTE
UNIVERSITY
STRIVE TO EXCEL

FROM THE
JOINT REGISTRAR'S DESK \ SENIOR PROFESSOR - CIVIL

Dr. T. FELIX KALA
JOINT REGISTRAR STUDENT AFFAIRS

I wish you all a safe and successful year 2024. This magazine is our symbol of enthusiasm and urge of knowledge in all fields of learning and blend of creativity and talents of our flourishing students. It is also very momentous way of projecting the inexhaustible quench of knowledge of our department.

And also portrays the latest advancements to the blend perfection of knowledge. At the juncture, I hereby take this opportunity to pass my good wishes to one and all of the staff members, Editorial board and student volunteers for their untiring effort to release this sound magazine very successful.

The word "THANKS" is not enough to convey our Department gratitude to our President Er.A.C.S. ArunKumar for his constant encouragement and support to achieve the goals of our department in a successful way.

Dr. T. FELIX KALA

Dr. M.G.R.
EDUCATIONAL AND RESEARCH INSTITUTE
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STRIVE TO EXCEL

FROM THE
JOINT REGISTRAR'S INFRASTRUCTURE SENIOR PROFESSOR - CIVIL

Dr. S. ARIVAZHAGAN

JOINT REGISTRAR'S INFRASTRUCTURE
SENIOR PROFESSOR - CIVIL

It gives me great pleasure that Department of Civil Engineering is bringing out the Technical Magazine, **"CONTOUR 2023-2024"** to serve the Students, Faculties and Research scholars of our university and other institutions by giving them latest and technical matters related to Civil Engineering.

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At this juncture I congratulate every one for their team work to bring out this magazine a reality.

Dr. S. ARIVAZHAGAN

Dr. M.G.R.
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UNIVERSITY
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FROM THE
HOD'S DESK

Dr.T.KAVITHA

HEAD OF THE DEPARTMENT - CIVIL ENGINEERING

I am pleased to know that our Civil Engineering Department is once again successful in bringing their second issue of magazine **"CONTOUR"** for the academic year **2023-2024.**

The most important aspect we could derive from this stupendous effort is that it brings out the various technical and analytical skills of the budding engineers.

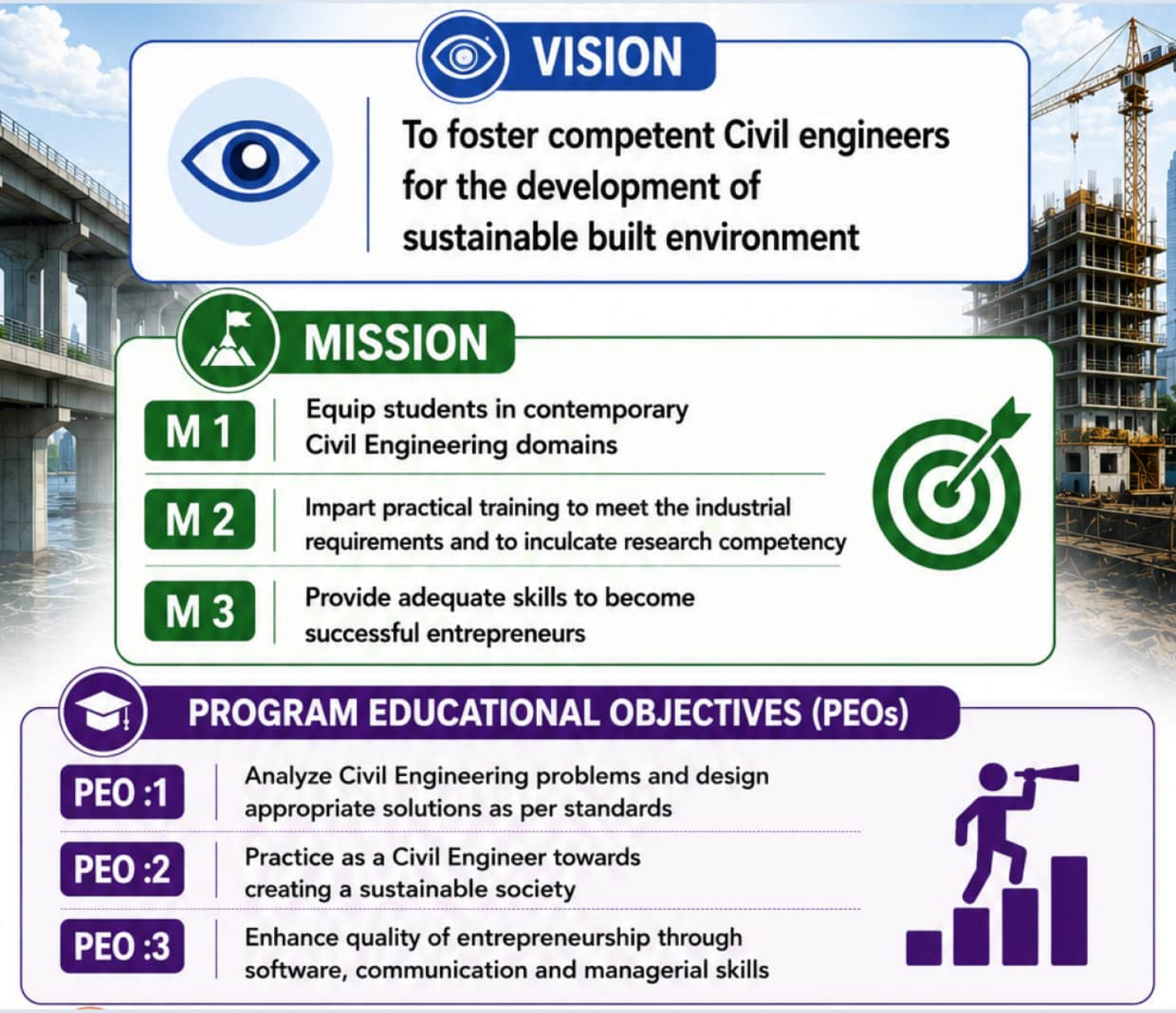
I also applaud the coordination and efforts behind the team to bring out this issue.

I wish them all success. Further 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.T.KAVITHA

EDUCATION | RESEARCH | INNOVATION | EXCELLENCE



VISION

To foster competent Civil engineers for the development of sustainable built environment

MISSION

M 1	Equip students in contemporary Civil Engineering domains
M 2	Impart practical training to meet the industrial requirements and to inculcate research competency
M 3	Provide adequate skills to become successful entrepreneurs

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO :1	Analyze Civil Engineering problems and design appropriate solutions as per standards
PEO :2	Practice as a Civil Engineer towards creating a sustainable society
PEO :3	Enhance quality of entrepreneurship through software, communication and managerial skills

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO 1 Capacity to manage civil engineering projects with technical knowledge and professional skills

PSO 2 Graduates will be able to work effectively as an individual or in a team with good leadership skills in multidisciplinary environments to meet sustainability goals

PO1 **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4 **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5 **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6 **The Engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7 **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8 **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11 **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12 **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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An ISO Certified Institution

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF CIVIL ENGINEERING

FACULTY MEMBERS LIST

S.No	Name of the Faculty	Designation
1	Dr. Kavitha T	Associate Professor and HoD
2	Dr. Depaa RA. B.	Associate Professor and Deputy HoD
3	Mr. Mallikarjuna Reddy K	Professor
4	Dr. Edwin D Thangam	Associate Professor
6	Dr. Sethuraman V.S	Professor
6	Dr. Arivalagan S	Professor
7	Dr. T Felix Kala	Professor
8	Dr. Arivumangai A	Professor
9	Dr. Manikandan M	Associate Professor
10	Dr. Narmatha M	Professor
11	Dr. Narayanan RM.	Professor
12	Dr. Sudhakar R	Professor
13	Mr. A Suresh	Assistant Professor
14	Dr. Priyadarshini V	Assistant Professor
15	Ms. A. Hemamalinie	Assistant Professor
16	Mr. Ramakrishna D	Assistant Professor
17	Dr. E. Rani	Assistant Professor
18	Dr. Gomathi Nagajothy	Associate Professor
19	Mrs. S. Kalpana	Assistant Professor
20	Dr. M.K. Thangamani Bindu	Professor
21	Dr. M Vanathi	Professor
22	Mr. Jayavelu K.R	Assistant Professor
23	Ms. Sreeji V.S	Assistant Professor
24	Mrs. V Saranya	Assistant Professor
25	Dr. V Manjula	Assisttant Professor
26	Mrs. A Mahalakshmi	Assistant Professor
27	Dr. B Vijaya	Assisttate Professor
28	Mrs. T Siva Ranjani	Assistant Professor
29	Dr. S Laxmi Priya	Assistant Professor

ISR EVENT REPORT

ROOFTOP RAINWATER HARVESTING

ON THE OCCASION OF WORLD WATER DAY

WORLD WATER DAY
22 MARCH

DATE 22.03.23 | **TIME** 10.30 AM | **VENUE** MOGAPPAIR

Organized by
DEPARTMENT OF CIVIL ENGINEERING
for the General Public


INAUGURATION BY

- **Dr. C. B. Palanivelu** – Registrar
- **Dr. Kalidoss** – Senior Additional Registrar
- **Dr. G. Gopalakrishnan** – Provost
- **Dr. P. S. Rajakumar** – Dean Activities
- **Dr. T. Kavitha** – HOD – Civil Engineering
- **Dr. RA. B. Depaa** – Deputy HOD – Civil Engineering










ABOUT THE EVENT

Mr. D. Ramakrishna, Assistant Professor and Event Organizer along with **Dr. M. Narmatha,** Professor and students of Civil Engineering visited various houses and areas in Mogappair and explained the importance of rooftop rainwater harvesting to the residents, police officers, traffic police, and general public with the help of pamphlets and flyers.

HIGHLIGHTS OF THE EVENT

- Created Awareness on the importance of Rainwater Harvesting
- Visited Houses, Shops, Institutions and Public Places in Mogappair
- Interacted with Residents, Police Officers, Traffic Police & Public
- Distributed Pamphlets and Flyers
- Promoted Water Conservation for a Sustainable Future

"Harvest Today... Secure Tomorrow!"

SAVE WATER • SAVE LIFE • BUILD A BETTER TOMORROW

METROPOLITAN CIVIL ENGINEERS ASSOCIATION

MEETING

Uniting Professionals • Sharing Knowledge • Building Tomorrow

29TH APRIL 2023

7.00 PM

VIJAY PARK, ARUMBAKKAM

The Metropolitan Civil Engineers Association conducted its periodic meeting on 29th April 2023 at 7.00 PM, held at Vijay Park, Arumbakkam. The meeting served as a platform for civil engineering professionals to discuss current developments, share knowledge, and strengthen professional networking within the metropolitan region.

FROM OUR DEPARTMENT OF CIVIL ENGINEERING

Mr. Arivalagan Sir | **Myself** | **Mr. Kumaran Sir**

attended the meeting and **actively participated** in the discussions and deliberations held during the session.

At the conclusion of the meeting, our department **brochures** highlighting the academic programs, research activities, and achievements of the Department of Civil Engineering **were distributed to all the participants.**

This initiative helped in **promoting the department's visibility** among practicing civil engineers and fostering stronger industry-academia connections.

UNITING PROFESSIONALS • SHARING KNOWLEDGE • BUILDING TOMORROW

Together We Engineer Better Communities

AWARENESS PROGRAM ON
UN SUSTAINABLE DEVELOPMENT GOALS
AT CSI PRIMARY SCHOOL, REDHILLS

DATE : 03.04.2023 | **VENUE : CSI PRIMARY SCHOOL, REDHILLS** | **BENEFICIARIES : SCHOOL STUDENTS**

An awareness program on UN Sustainable Development Goals (SDGs) was conducted at CSI Primary School, Redhills, on 03.04.2023. Dr. L. Ramesh and Dr. V. Priyadarshini, Assistant Professors, Department of Civil Engineering (one of the Ensav Club Coordinators) educated students on the importance of SDGs and environmental sustainability.

PROGRAM HIGHLIGHTS

- Introduced the concept of UN Sustainable Development Goals (SDGs) to school students.
- Explained the significance of environmental sustainability and responsible living.
- Encouraged students to contribute towards a better and sustainable future.

RESOURCE PERSONS

Dr. L. Ramesh
Dean EPA
Department of EEE

Department of EEE

Dr. V. Priyadarshini
Assistant Professor
Department of Civil Engineering
(Ensav Club Coordinator)

KEY TAKEAWAYS FOR STUDENTS

- The world is facing many challenges that require collective action.
- Small actions today can lead to a sustainable tomorrow.
- Every individual has a role to play in achieving the SDGs.

Let's join hands to achieve the Sustainable Development Goals and build a better future for all!

ENSAV CLUB
Department of Civil Engineering

Guest Lecture on “Project Management”

Guest Lecture on “Project Management” on 20th January 2023 between 11:00AM to 12:30 PM for the Civil Engineering students.

The Speaker of this session Ms. T. Aruna Team Leader and Urban Management Expert, Puducherry gave a very commendable lecture on the different stages of project management and Town Planning.

The students were encouraged to enter into the field of town planning and to take up Government opportunities in these sectors.

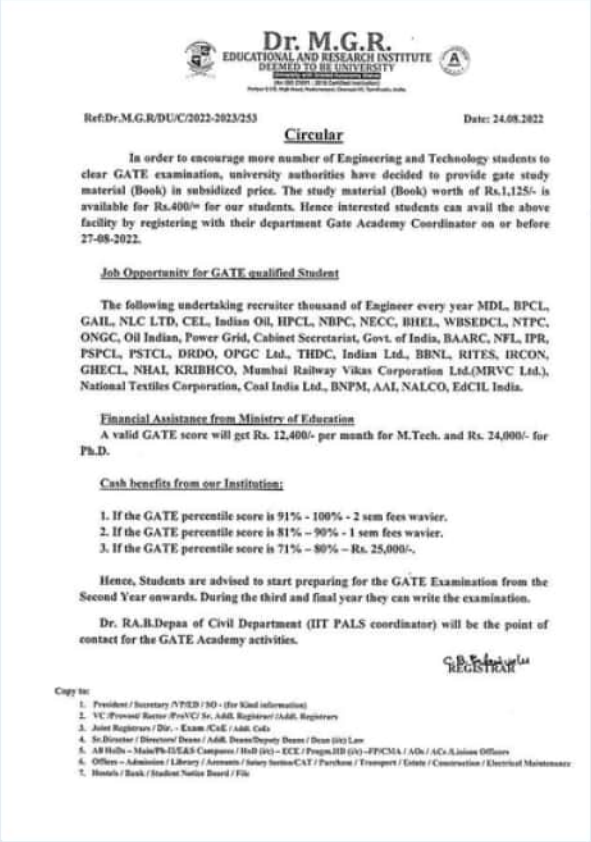
The students actively participated in this program with lot of interaction and involvement.

EVENTS


Dr. M.G.R.
EDUCATIONAL AND RESEARCH INSTITUTE
DEEMED TO BE UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
(ASSOCIATION OF CIVIL ENGINEERS)
PROUDLY PRESENTS
TECHNICAL EVENTS
PITCH PRESENTATION
CADD CONTEST
QUIZ CONTEST
DRAWING - GREEN BUILDING
AAKRITI '23'
A NATIONAL LEVEL TECHNICAL SYMPOSIUM
"Green Energy"
On
SEPTEMBER 22nd 2023
NON-TECHNICAL EVENTS
MUSICAL CHAIR
BALLOON FUN
DUMB CHARADES
TREASURE HUNT
PS4 (FIFA)
Nooruz Zoha - 7546872974
Siranjeevee S - 9790749600
Dhanush Raj N - 8778570858
MD Fahimuddin - 7079988156
For Registration
Dr.M.NARMATHA-7708425196
Er.A. HEMAMALINIE-7845573601
aakriti.civildepartment@gmail.com
MGRCIVILDEPT
AAKRITI_CIVIL
MGRCIVILDEPT
AAKRITI_CIVIL
DRMGR CIVIL DEPT
AAKRITI CIVIL
DRMGRERI CIVIL DEPARTMENT


Dr. M.G.R.
EDUCATIONAL AND RESEARCH INSTITUTE
DEEMED TO BE UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
(ASSOCIATION OF CIVIL ENGINEERS)
Organized
September 22nd 2023
AAKRITI '23'
A NATIONAL LEVEL TECHNICAL SYMPOSIUM
On
'Green Energy'
Mr. PABBA RAMESH
Sr.Faculty - ACE Engineering Academy
STUDENT CO-ORDINATORS
Nooruz Zoha
Siranjeevee S
Dhanush Raj N
MD Fahimuddin
STAFF CO-ORDINATORS
Dr.M.NARMATHA-7708425196
Er.A. HEMAMALINIE-7845573601
civil2events@gmail.com
MGRCivilDept
aakriti civil
mgrcivildept
aakriti civil
DrMgr Civil Dept
Aakriti civil
DrMGRERI Civil Department

CAREER GUIDANCE FOR GATE



Dr. M.G.R.
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Ref:Dr.M.G.R/DU/C/2022-2023/253 Date: 24.08.2022

Circular

In order to encourage more number of Engineering and Technology students to clear GATE examination, university authorities have decided to provide gate study material (Book) in subsidized price. The study material (Book) worth of Rs.1,125/- is available for Rs.400/= for our students. Hence interested students can avail the above facility by registering with their department Gate Academy Coordinator on or before 27-08-2022.

Job Opportunity for GATE qualified Student

The following undertaking recruiter thousand of Engineer every year MDL, BPCL, GAIL, NLC LTD, CEL, Indian Oil, HPCL, NBPC, NECC, BHEL, WBSEDCL, NTPC, ONGC, Oil Indian, Power Grid, Cabinet Secretariat, Govt. of India, BAARC, NFL, IPR, PSPCL, PSTCL, DRDO, OPGC Ltd., THDC, Indian Ltd., BBNL, RITES, IRCON, GHECL, NHAI, KRIBHCO, Mumbai Railway Vikas Corporation Ltd.(MRVC Ltd.), National Textiles Corporation, Coal India Ltd., BNPM, AAI, NALCO, EdCIL India.

Financial Assistance from Ministry of Education

A valid GATE score will get Rs. 12,400/- per month for M.Tech. and Rs. 24,000/- for Ph.D.

Cash benefits from our Institution:

1. If the GATE percentile score is 91% - 100% - 2 sem fees wavier.
2. If the GATE percentile score is 81% – 90% – 1 sem fees wavier.
3. If the GATE percentile score is 71% – 80% – Rs. 25,000/-.

Hence, Students are advised to start preparing for the GATE Examination from the Second Year onwards. During the third and final year they can write the examination.

Dr. RA.B.Depaa of Civil Department (IIT PALS coordinator) will be the point of contact for the GATE Academy activities.

REGISTRAR

Copy to:
1. President / Secretary /VP/ED / SO - (for kind information)
2. VC /Provost/ Rector /Pro VC/ Sr. Addl. Registrar/ Addl. Registrars
3. Joint Registrars / Dir. – Exam /CoE / Addl. CoEs
4. Sr.Director / Directors/ Deans / Addl. Deans/Deputy Deans / Dean (i/c) Law
5. All Hods – Main/Ph-II/E&S Campuses / HoD (i/c) – ECE / Progm.HD (i/c) –FP/CMA / AOs / ACs /Liaison Officers
6. Offices – Admission / Library / Accounts / Salary Section/CAT / Purchase / Transport / Estate / Construction / Electrical Maintenance
7. Hostels / Bank / Student Notice Board / File

Career Guidance for cracking GATE Exam held on 26th August 2022 (2:00-3:30 PM).

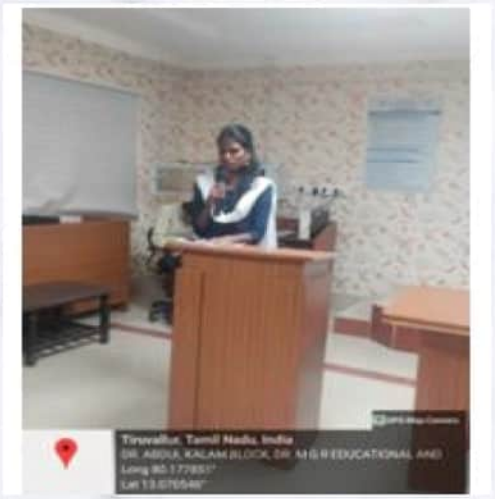
Speaker: Mr. Pabba Ramesh, M.Tech, PhD, Sr. Faculty - ACE Engineering Academy.

Topics: GATE preparation steps, exam strategies, and Public Sector opportunities.

B.Tech Civil Engineering students actively participated.

EVENTS


GPS Map Camera
Chennai, Tamil Nadu, India
Dr.M.G.R. Educational and Research Institute (Smart Room),
Poonamallee High Rd, Sathiyamoorthy Nagar, Maduravoyal, Chennai,
Tamil Nadu 600107, India
Lat 13.066944 N
Long 80.174777 E
06/09/22 02:50 PM GMT +05:30

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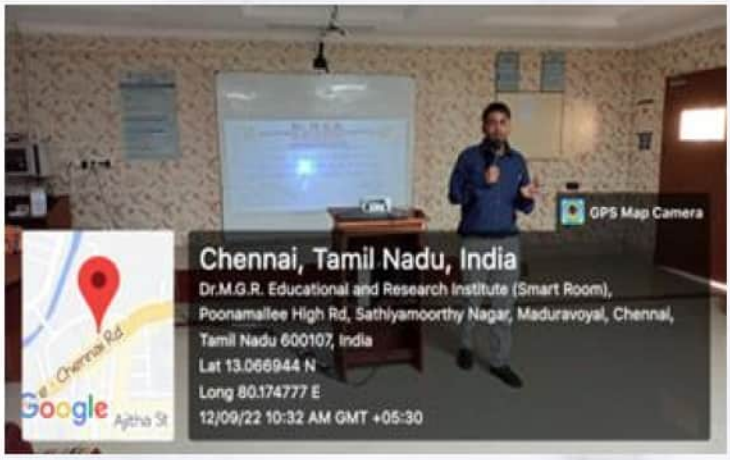
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12/09/22 10:32 AM GMT +05:30


Chennai, Tamil Nadu, India
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Lat 13.066944 N
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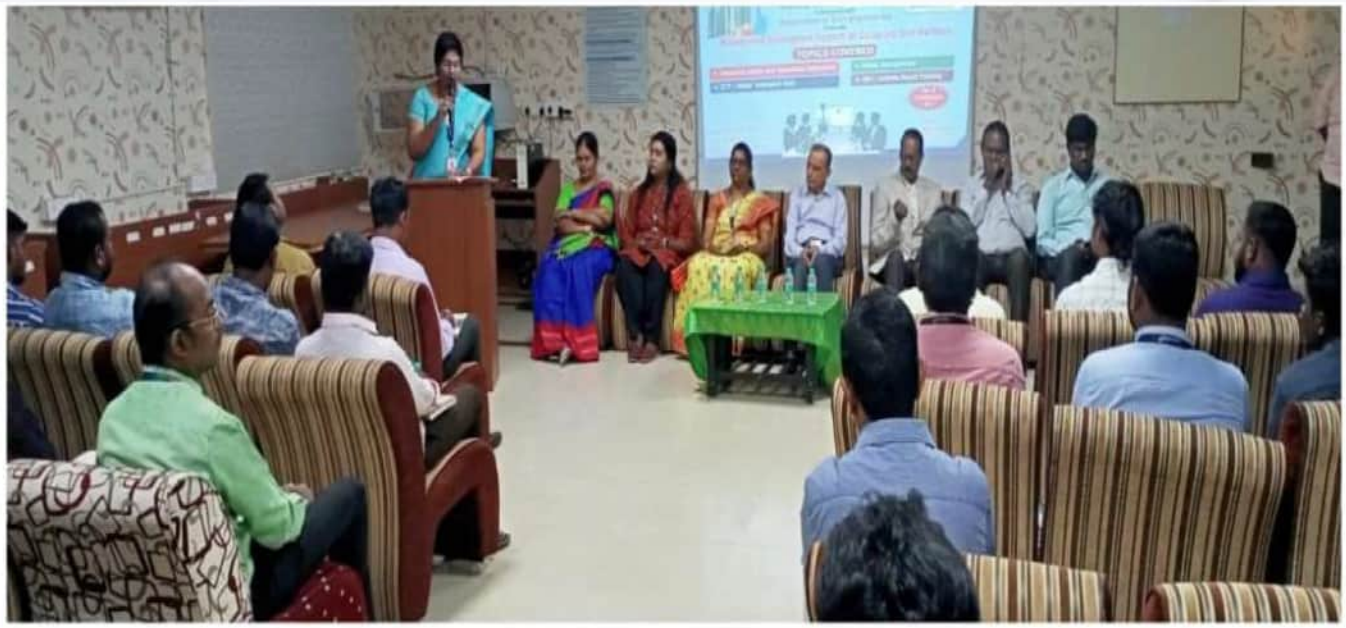
Chennai,TN,India


A.C.S.MEDICAL COLLEGE & HOSPITAL


Chennai,TN,India


Chennai



FDP ON
WOMEN EMPOWERMENT 2.0

DAY 2.: FDP ON WOMEN EMPOWERMENT 2.0

FDP on Women Empowerment 2.0 was conducted by the Dept. of Civil Engineering.

Chief Guest: Vice Chancellor Dr. S. Geetha Lakshmi, who was felicitated with the "VEERAMANGAI" award.

Key Highlights: Professional life experiences, planning, time management, courage & health consciousness among women.

Other Speakers: Dr. Maline Pande (Addl. Registrar), Dr. T. Felix Kala (Joint Registrar), Dr. Suchitra (Dean - Events).

DAY 2

- The session commenced with a welcome address by Dr. T. Kavitha, Head of Civil Engineering.
- Dr. V. Priyadarshini introduced the guest speaker, Mrs. S. Padma Priya, Managing Trustee of Vidhai Vidaipom.
- She was honored with the "VEERAMANGAI" Award for her outstanding contributions to environmental conservation, presented by Dr. S. Kalidoss, Senior Additional Registrar.

DAY 3

- The third day began with a welcome note by Dr. T. Kavitha.
- Dr. P. Gomathi Nagajothi introduced the chief guest, Mrs. T. Aruna, Urban Planning Management Expert, Government of Puducherry.
- In recognition of her excellence in urban planning, she was presented with the "VEERAMANGAI" Award by Dr. Felix Kala.

"Empowered women build empowered communities and create a better tomorrow."

FIELD TRIP

EXPLORING NATURE, LEARNING BEYOND CLASSROOM

21.09.2022 to 23.09.2022

A three-day curriculum-based field trip was organized to Salem, Namakkal, Sithampoondi, Kanjamalai, and Yercaud from 21.09.2022 to 23.09.2022.

During the visit, students gained practical exposure to mineral exploration, groundwater potential assessment through geophysical resistivity surveys, iron ore mineralization studies, and mining operations.

They learned field techniques such as measuring strike and dip using a Brunton compass, identified source rocks, and collected various mineral specimens including limonite, laterite, magnetite, chromite, and bauxite.

The students also visited TANMAG and TAMIN mining sites to understand open-cast and semi-mechanized mining methods.

collected 25 varieties of rock and mineral specimens and acquired valuable hands-on geological knowledge through field investigations.

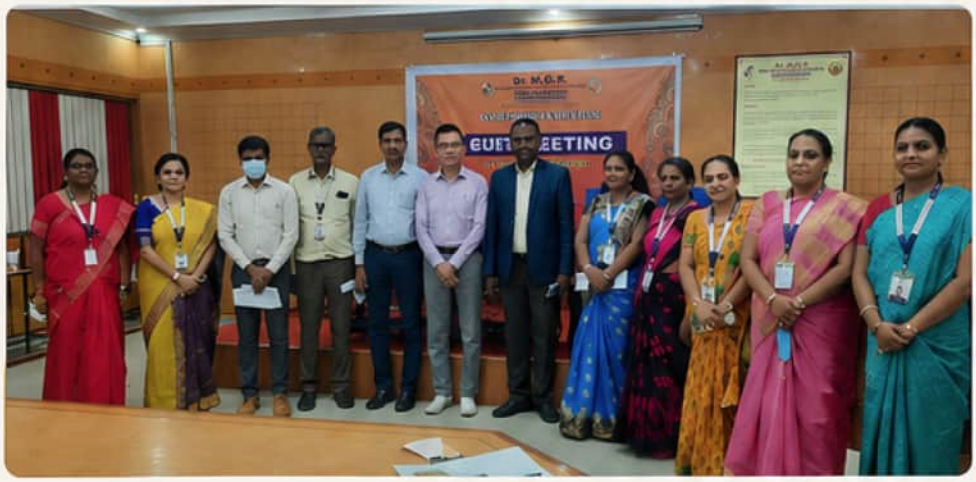

Field study and observation


Measuring strike and dip using Brunton compass


Open-cast and semi-mechanized mining


Learning, Exploring & Growing Together

GUEST LECTURE



JAPANESE ENDOWED COURSE (JEC):

In October 2022, a meeting was held with **Mr. Ko Shunkei** of **Hiyoshi Corporation**, Japan, to discuss the Japanese Endowed Course (JEC) program and opportunities for joint research collaborations.

Organized by the **International Relations & Collaboration Cell** and **ISO Cell**, the initiative was designed to benefit students and faculty members from five departments by promoting international learning and academic cooperation.

The Institution of Engineers (India)

37th INDIAN ENGINEERING CONGRESS

37TH INDIAN ENGINEERING CONGRESS

The 37th Indian Engineering Congress, organized by **The Institution of Engineers**, was held at Le Meridien, Chennai.

On the second day **(16.12.2022)**, the memorial lecture focused on **Sustainable Development and Energy Conservation.**

Distinguished speakers, including **Dr. R. Velraj,** Vice-Chancellor of Anna University, **Vikas Kumar,** Chairman of Delhi Metro, and **R.S. Sodhi,** Managing Director of Amul, shared valuable insights on the crucial role of engineers in promoting energy efficiency and sustainable development.

DISTINGUISHED SPEAKERS

Dr. R. Velraj
Vice-Chancellor
Anna University

Sustainable Development and Energy Conservation

Vikas Kumar
Chairman
Delhi Metro

Innovations and Sustainable Urban Transport

R.S. Sodhi
Managing Director
Amul

Sustainability, Innovation and Nation Building

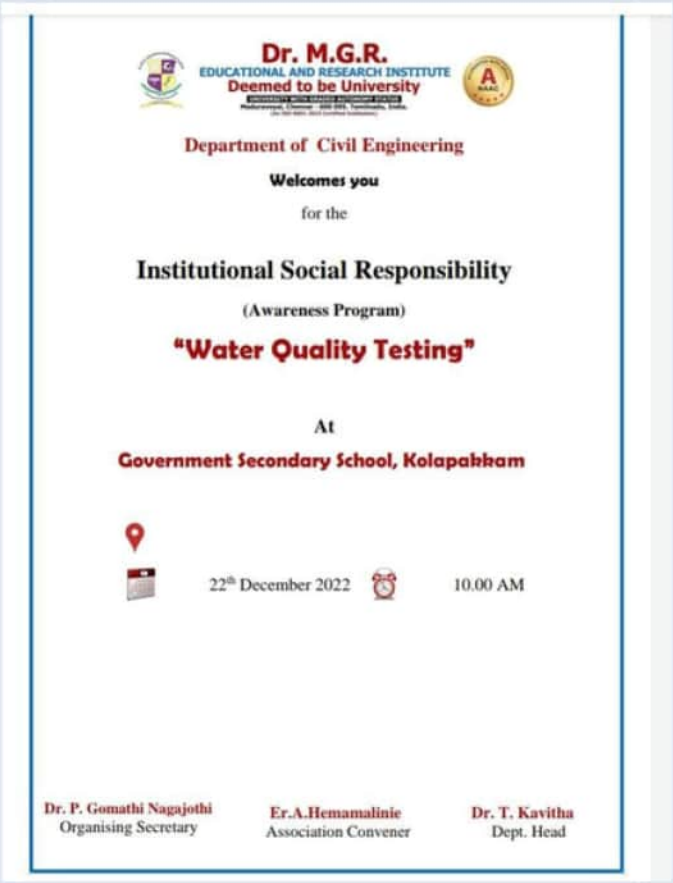
INAGURAL CEREMONY / ISR EVENT

INAGURAL CEREMONY OF INDIAN PLUMBING ASSOCIATION STUDENT CHAPTER I – 071

7th Sept 2022, Seminar Hall, Main Campus.

ISR EVENT - School Program – Online Quiz Competition on AI and Machine Learning

DATE: 3rd Jul 2022 till 15th Jul 2022


Dr. M.G.R.
EDUCATIONAL AND RESEARCH INSTITUTE
Deemed to be University

Department of Civil Engineering

Welcomes you

for the

Institutional Social Responsibility

(Awareness Program)

"Water Quality Testing"

At

Government Secondary School, Kolapakkam

22th December 2022 10.00 AM

Dr. P. Gomathi Nagajothi
Organising Secretary

Er.A.Hemamalinie
Association Convener

Dr. T. Kavitha
Dept. Head

An ISR activity on Water Quality Testing Awareness was conducted on 22.12.2022 for students of Government Higher Secondary School, Kolapakkam. Dr. R.M. Narayanan educated students on the importance of water quality testing and demonstrated the measurement of pH, TDS, DO, residual chlorine, and iron content using testing kits. Final-year and third-year students actively participated and distributed awareness pamphlets to the local community.

STUDENT ARTICLE

EMERGING TRENDS IN SUSTAINABLE INFRASTRUCTURE DEVELOPMENT

Civil Engineering is a profession that directly contributes to the development of society through the planning, design, construction, and maintenance of infrastructure. As a Civil Engineering student, I am fascinated by how engineering solutions improve transportation, water resources, housing, and environmental sustainability.

Today, the construction industry is rapidly evolving with the adoption of modern technologies such as **Building Information Modeling (BIM), Geographic Information Systems (GIS), Artificial Intelligence (AI), and smart construction techniques**. These innovations help engineers enhance project efficiency, reduce costs, and improve the quality of infrastructure projects.

One of the most important areas of focus in modern Civil Engineering is **sustainability**. Sustainable infrastructure aims to minimize environmental impacts while ensuring long-term economic and social benefits. **Green buildings, energy-efficient structures, recycled construction materials, and rainwater harvesting systems** are becoming essential components of contemporary engineering practice.

Civil engineers also play a crucial role in addressing global challenges such as **climate change, urbanization, and water scarcity**. Through innovative solutions in transportation planning, environmental engineering, and disaster-resistant construction, engineers contribute significantly to creating safer and more resilient communities.

As a student of the Department of Civil Engineering, I continuously strive to enhance my technical knowledge and practical skills through academic learning, laboratory work, technical events, and project activities. The exposure to emerging technologies and industry practices prepares me to become a **competent professional** capable of contributing to the development of sustainable infrastructure.

I believe that the future of Civil Engineering lies in integrating **technology, innovation, and environmental responsibility**. By embracing these principles, we can create infrastructure that not only serves present needs but also preserves resources for future generations.

KEY EMERGING TRENDS

- Building Information Modeling (BIM)
- Geographic Information Systems (GIS)
- Artificial Intelligence in Construction
- Smart Infrastructure Systems
- Green Building Technologies
- Recycled Construction Materials
- Rainwater Harvesting Systems
- Climate-Resilient Infrastructure

STUDENT REFLECTION

> *"The future of infrastructure development depends on sustainable engineering practices that balance economic growth, environmental protection, and social well-being."*

> ***"Civil Engineers build more than structures—they build the foundation for a sustainable future."***

By **RANAE RODERICK J**
Reg. No.: 201051101602
Department of Civil Engineering

Department of Civil Engineering

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DEPARTMENT OF
CIVIL
ENGINEERING

TECHNICAL NEWSLETTER | STUDENT CORNER

ARTICLE 1

SUSTAINABLE CONSTRUCTION PRACTICES

Building a Better Tomorrow

Sustainable construction focuses on designing and constructing infrastructive by minimizing environmental impacts and using resources efficiently throughout the life cycle of a project. It aims to create structures that are economically viable, environmentally responsible, and socially beneficial.

By adopting green materials, energy-efficient technologies, and innovative construction methods, civil engineers can contribute to a resilient and sustainable future.

TECHNICAL HIGHLIGHTS

- Fly ash replacement in concrete reduces CO_2 emissions by up to 30%.
- Green buildings can save 20–30% of energy and 30–50% of water.
- Use of recycled aggregates can reduce natural resource depletion by up to 40%.
- Sustainable practices reduce life cycle cost by 8–12%.

KEY SUSTAINABLE PRACTICES

Use of Eco-friendly Materials
Utilizing fly ash bricks, recycled aggregates, bamboo, and low-VOC materials.

Energy Efficiency
Optimized building orientation, natural lighting, insulation, and efficient HVAC systems.

Water Conservation
Rainwater harvesting, low flow fixtures, and water recycling systems.

Waste Management
Segregation, recycling of construction waste, and proper disposal methods.

Green Building Certification
Adoption of standards like IGBC, GRIHA, LEED to ensure environmental sustainability.

BENEFITS

- Reduced Carbon Footprint
- Lower Operating Cost
- Healthier Living Environment
- Improved Resource Conservation
- Enhanced Durability and Value

APPLICATIONS

- Green residential and commercial buildings
- Sustainable infrastructure projects
- Eco-friendly roads and pavements
- Water-efficient landscaping and urban development

THE WAY FORWARD

Sustainable construction is not just an alternative, it is a necessity for the future. As civil engineering students and future professionals, it is our responsibility to adopt sustainable solutions and build infrastructure that meets today's needs without compromising the ability of future generations.

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"Sustainability is not an option; it is the foundation of future construction."

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ARTICLE 2

ARTIFICIAL INTELLIGENCE IN CIVIL ENGINEERING

Smart Technology for Smarter Infrastructure

Artificial Intelligence (AI) is revolutionizing the civil engineering industry by enhancing productivity, improving accuracy and enabling data-driven decision making throughout the life cycle of a project.

AI tools and algorithms help engineers analyze large datasets, predict outcomes, automate repetitive tasks, and optimize infrastructure performance for a smarter and more sustainable future.

APPLICATIONS OF AI IN CIVIL ENGINEERING

- Project Planning & Scheduling
- Structural Health Monitoring
- Risk Assessment & Prediction
- Construction Automation
- Smart Traffic Management

TECHNICAL INSIGHTS

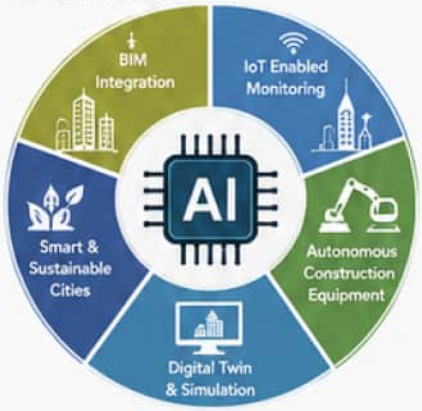
- Machine learning algorithms analyze historical project data to predict cost overruns with up to 90% accuracy.
- AI-based image recognition improves defect detection in structures by 70%.
- Drones with AI can monitor large sites and generate 3D models within hours.
- AI optimizes resource allocation, reducing delays by 20–25%.
- Natural Language Processing (NLP) assists in automatic report generation and documentation.

BENEFITS

- Improved Decision Making
- Enhanced Safety
- Time & Cost Savings
- Predictive Maintenance
- Better Risk Management

FUTURE SCOPE

AI, when combined with BIM, IoT and GIS, will lead to autonomous construction sites, smart infrastructure and resilient cities of the future.



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> *AI empowers engineers to build smarter, safer and more efficient infrastructure.*

AI is not replacing engineers, but empowering them to engineer a better future.

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ARTICLE 3

RAINWATER HARVESTING:
A SUSTAINABLE WATER SOLUTION

Conserve Water, Secure Future

Rainwater harvesting is the simple technique of collecting and storing rainwater for future use. It helps in recharging groundwater, reducing flooding and conserving water resources.

HOW IT WORKS

TYPES OF RAINWATER HARVESTING

Rooftop Rainwater Harvesting
Collecting rainwater from rooftops and storing it for direct use or groundwater recharge.

Surface Runoff Harvesting
Collecting rainwater from open areas such as roads, parks and playgrounds and directing it to storage or recharge structures.

TECHNICAL BENEFITS

- Increases groundwater level
- Reduces urban flooding
- Provides supplementary water supply
- Low maintenance and cost effective
- Promotes water conservation and sustainability

DESIGN CONSIDERATIONS

- **Annual rainfall** – Higher rainfall increases the potential yield.
- **Roof area** – Larger roof area provides more collection.
- **Runoff coefficient** – Depends on roof material and slope.
- **Storage capacity** – Size depends on requirement and rainfall.
- **Quality of water** – Proper filtration ensures clean water.
- **Maintenance** – Regular cleaning of roof, gutters and filters.

EXAMPLE OF RAINWATER HARVESTING SYSTEM

ESTIMATED IMPACT

- Up to 50% reduction in demand for municipal water
- Groundwater recharge increase by 20–40%
- Reduces urban flooding significantly
- Long-term savings on water bills

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Every drop collected today is a step towards a water-secure tomorrow.

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ARTICLE 4

SMART CITIES AND URBAN DEVELOPMENT

Building Intelligent and Sustaianble Cities

Smart cities integrate physical infrastructure with digital technologies to improve the quality of life, ensure efficient services and promote sustainable urban development.

By leveraging data, connectivity and innovation, smart cities create a future-ready urban ecosystem.

KEY COMPONENTS OF SMART CITIES

- Smart Transport
- Smart Energy
- Smart Buildings
- Smart Waste Management
- Smart Water Management
- E-Governance & Citizen Services

TECHNOLOGIES INVOLVED

- Internet of Things (IoT)
- Geographic Information Systems (GIS)
- Building Information Modeling (BIM)
- Big Data Analytics
- Cloud Computing

BENEFITS

- Efficient use of resources
- Reduced environmental impact
- Improved mobility and safety
- Better public services
- Enhanced economic growth

CHALLENGES

- High initial investment
- Data security and privacy
- Interdepartmental coordination
- Continuous maintenance and monitoring

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APPLICATIONS OF SMART CITIES

Intelligent Traffic Systems
Real-time traffic monitoring and signal optimization reduce congestion.

Smart Street Lighting
Sensor-based lighting saves energy and enhances safety.

Waste Management
Smart bins and route optimization improve collection efficiency.

Water Management
Leak detection and real-time monitoring ensure efficient water distribution.

Disaster Management
Early warning systems and data analytics help minimize risks.

Public Services
Digital platforms enhance citizen engagement and service delivery.

THE FUTURE OF SMART CITIES

The future lies in creating resilient, inclusive and sustainable cities that leverage technology for the betterment of communities and the environment.

Sustainable Environment → Better Quality of Life → Technological Advancement → Economic Prosperity

Smart infrastructure creates smarter communities.

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ARTICLE 5

INNOVATIONS IN TRANSPORTATION ENGINEERING

Driving the Future of Mobility

Innovations in transportation engineering aim to develop safe, efficient, sustainable and intelligent transportation systems to meet the growing demands of urbanization and mobility.

KEY INNOVATIONS

Intelligent Transportation Systems (ITS)
Real-time traffic monitoring, adaptive signals and smart parking.

Sustainable Pavement Technologies
Use of recycled materials, warm mix asphalt and permeable pavements.

Electric and Green Mobility
EV infrastructure, charging stations and promotion of public transport.

Automated and Connected Vehicles
Enhances safety, reduces human error and improves traffic flow.

Advanced Construction Techniques
Use of BIM, drones, prefabrication and 3D printing for faster construction.

TECHNICAL INSIGHTS

- ITS can reduce traffic congestion by 20–30% through real-time data.
- Permeable pavements reduce surface runoff by 40–60%.
- EV adoption can cut greenhouse gas emissions by up to 50%.
- Automated systems improve road safety and reduce accidents.

FUTURE TRENDS

- **Hyperloop Technology**
- **Smart Highways**
- **Drone Based Monitoring**
- **Integrated Multi-modal Transport**

IMPACT ON SOCIETY

- Improved road safety and reduced accidents
- Reduced travel time and improved connectivity
- Lower environmental impact and sustainable development
- Cost savings in construction and maintenance
- Enhanced quality of life and economic growth

APPLICATION AREAS

- Urban transportation planning
- Highway and expressway projects
- Public transportation systems
- Traffic management and control
- Airport, metro and rail infrastructure
- Smart parking and logistics

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SUSTAINABLE GOALS SUPPORTED

THE WAY FORWARD

The future of transportation lies in innovation, integration and sustainability. By embracing advanced technologies and sustainable practices, transportation engineers can build smarter, safer and more efficient mobility systems for a better tomorrow.

"Efficient transportation networks drive the progress of a nation."


23
AAKRITI


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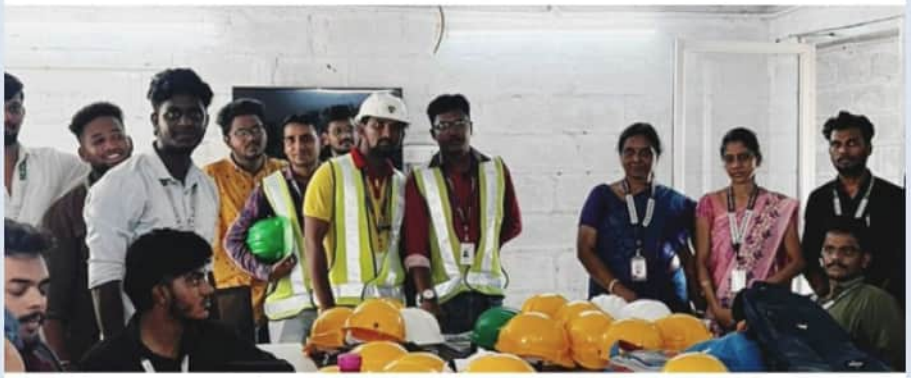
GUEST LECTURE

Department of Civil Engineering organized an Inter-Disciplinary Lecture Titled "How to Develop App for Entrepreneurs" on 23rd February 2023 @ 10.00 am

GUEST LECTURE



Industry Institute Planning Cell in association with department of Civil Engineering organised an Industrial Visit in Casagrande construction site at Manapakam on 19.4.23 for Civil Engineering students.

Students gained practical knowledge of reinforcement detailing of column, beams and slabs. They also learnt the new plastering techniques with gypsum.

The engineers from the site explained in detail about foundation of the that four-storey structure and the execution patterns and planning schedule of the project.

STUDENT ARTICLE

SUSTAINABLE CONSTRUCTION PRACTICES

Sustainable construction has become an essential aspect of modern **Civil Engineering.** It focuses on designing and constructing infrastructure while minimizing environmental impacts and maximizing resource efficiency.

Green buildings, energy-efficient materials, rainwater harvesting systems, and waste management techniques are widely adopted to promote sustainable development.

RAINWATER HARVESTING

Civil engineers play a crucial role in creating environmentally responsible infrastructure that supports economic growth while preserving natural resources.

ECO-FRIENDLY MATERIALS

WASTE MANAGEMENT

The adoption of sustainable practices not only **reduces construction costs** in the long term but also improves the **quality of life** for future generations.

" Building sustainably today ensures a greener tomorrow."

JETILO KEZUN
201051101620

CIVIL

NEWSLETTER

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