DEPARTMENT OF CIVIL ENGINEERING

presents

CIVILIZATION

The best creator next to God are **CIVIL ENGINEERS**

SCIENTIST dream about doing great things, **ENGINEERS** do them

VISION

- To be a Department imparting knowledge in Civil Engineering Education, Research, Entrepreneurship and Industry outreach services for creating sustainable infrastructure and enhancing the quality of Life with professional and ethical values.

MISSION

- To provide an effective learning environment enabling to be a competent Civil Engineer.
- To motivate Research and Entrepreneurial initiatives in the Field of Civil Engineering.
- To inculcate ethical values to serve the society with high order Professionalism.

Programmable Cement

Scientists at Rice University have decoded the kinetic properties of cement and developed a way to "program" the microscopic, semi crystalline particles within. The process turns particles from disordered clumps into regimented cubes, spheres and other forms that combine to make the material less porous and more durable. The technique may lead to stronger structures that require less concrete—and less is better, said Rice materials scientist and lead author Rouzbeh Shahsavari.

Worldwide production of more than 3 billion tons of concrete a year now emits as much as 10 percent of the carbon dioxide, a greenhouse gas, released to the atmosphere. Through extensive experiments, Shahsavari and his colleagues decoded the nanoscale reactions—or "morphogenesis"—of the crystallization within calcium-silicate hydrate (C-S-H) cement that holds concrete together. The great advance of this work is that it's the first step in controlling the kinetics of cement to get desired shapes. We show how one can control the morphology and size of the basic building blocks of C-S-H so that they can self-assemble into microstructures with far greater packing density compared with conventional amorphous C-S-H microstructures He said the idea is akin to the self-assembly of metallic crystals and polymers. "It's a hot area, and researchers are taking advantage of it," Shahsavari said. "But when it comes to cement and concrete, it is extremely difficult to control their bottom-up assembly. Our work provides the first recipe for such advanced synthesis.

"The seed particles form first, automatically, in our reactions, and then they dominate the process as the rest of the material forms around them," he said. "That's the beauty of it. It's in situ, seed-mediated growth and does not require external addition of seed particles, as commonly done in the industry to promote crystallization and growth."

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comes to cement and concrete, it is extremely difficult to control their bottom-up assembly. Our work provides the first recipe for such advanced synthesis.

"The Rice lab created well-shaped cubes and rectangles by adding small amounts of positive or negative ionic surfactants and calcium silicate to C-S-H and exposing the mix to carbon dioxide and ultrasonic sound. The crystal seeds took shape around surfactant micelles within 25 minutes. Decreasing the calcium silicate yielded more spherical particles and smaller cubes, while increasing it formed clumped spheres and interlocking cubes.

Once the calcite "seeds" form, they trigger the molecules around them to self-assemble into cubes, spheres and other shapes that are orders of magnitude larger. These can pack more tightly together in concrete than amorphous particles, Shahsavari said. Carefully modulating the precursor concentration, temperature and duration of the reaction varies the yield, size and morphology of the final particles.

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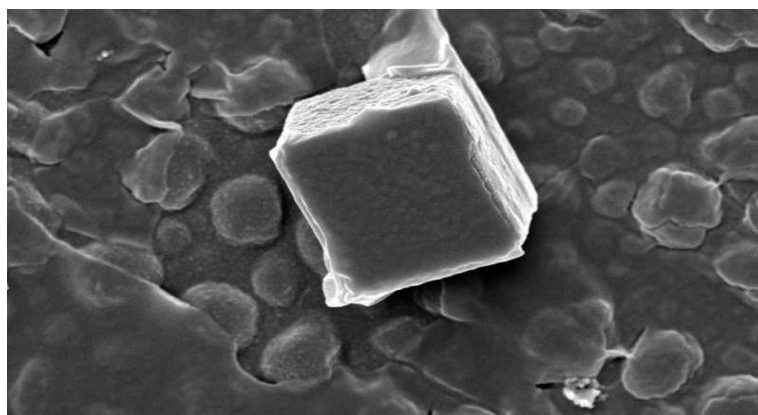
The new technique has several environmental benefits, Shahsavari said, "One is that you need less of it (the concrete) because it is stronger. This stems from better packing of the cubic particles, which leads to stronger microstructures. The other is that it will be more durable. Less porosity makes it harder for unwanted chemicals to find a path through the concrete, so it does a better job of protecting steel reinforcement in.

By B. THULASIRAM

III YEAR CIVIL B

Application of Remote Sensing and GIS in Civil Engineering

What is remote sensing?

Remote sensing is the acquisition of information about an object or phenomenon without making physical contact with the object and thus in contrast to on-site observation, especially the Earth. Remote sensing is used in numerous fields, including geography, land surveying etc.
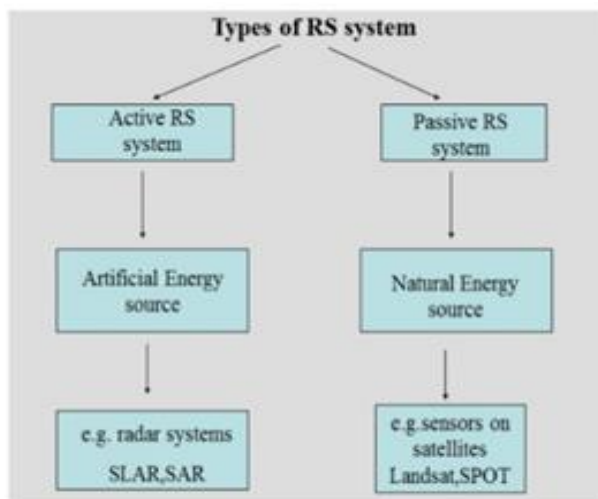
Spatial data can be efficiently handled using Geographic Information System (GIS), a tool which allows synergism of map data and tabular data. GIS also allows the integration of these data sets for deriving meaningful information and outputting the information derivatives in map format or tabular format.
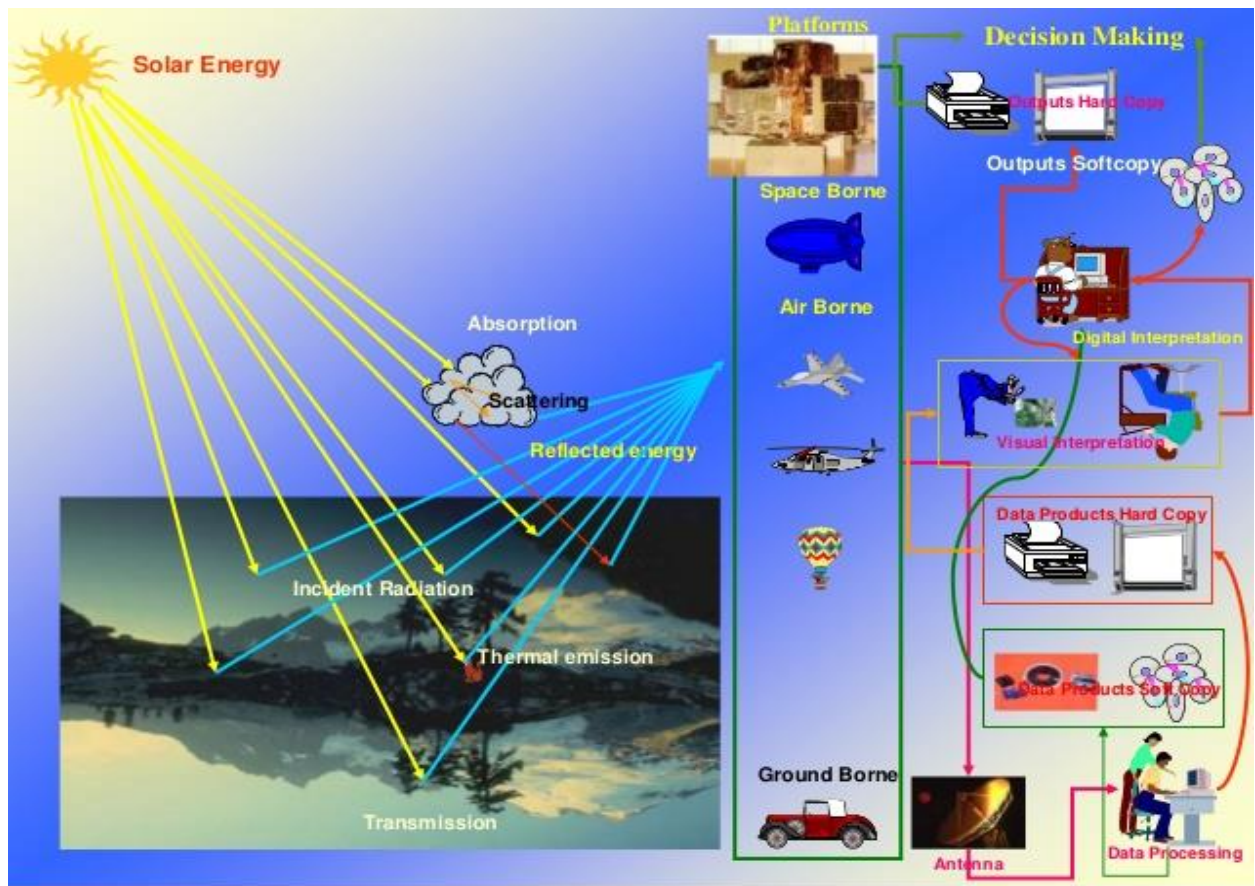
In civil engineering projects, RS and GIS techniques can become potential and indispensable tools. Various civil engineering application areas include regional planning and site investigation, terrain mapping and analysis, water resources engineering, town planning and urban infrastructure development, transportation network analysis, landslide analysis, etc.

Regional Planning and Site Investigations

Site investigations in general require topographic and geologic considerations. Remote sensing data permits such an assessment. In case of dam site investigation, information on topography is essential. Geological consideration involves the different soil and rock types and physical properties.

Terrain Mapping and Analysis

Assessment of the performance of the terrain for specific developmental activities can be made through terrain evaluation. For this, terrain information can be acquired

from RS data and by generating the Digital Terrain Model (DTM). A DTM is an ordered array of numbers representing the spatial distribution of terrain characteristics stored in a computer so as to enable the determination of any quantitative data pertaining to terrain. DTMs facilities investigation of a number of alternative horizontal and vertical alignments of canals, roads, pipelines or corridors for any such applications. In engineering construction like dam, the knowledge of material comprising the terrain is essential for proper planning, location, construction and maintenance of engineering facilities.

Town Planning and Urban Development

The unprecedented growth of urbanization in India has given rise to problems of housing, sanitation, power, water supply, disposal of effluents and environmental pollution. Systematic mapping and periodic monitoring of urban land use is therefore necessary for proper planning, management and policy making (with the help of RS and GIS optimal master plan for development and management of urban settlements can be prepared).

Transportation Network Analysis

With the help of high spatial resolution data, mapping of road and rail network can be accomplished. This facilitates in deciding optimal routing for transport of construction materials. Even, identification of village roads is possible in certain cases.

Landslide Studies

The parameters that contribute directly or indirectly include lithology and structure, landform, slope, aspect, relief, vegetation cover, climatic and human activities. Information on these aspects can be collected and integrated for preparing a landslide hazard zone map that can be done through RS and GIS.

By M. JANANISRI
II YEAR CIVIL A

IoT Applications in Construction

Introduction

The construction job site is now ripe for fundamental changes that enable productivity, safety, process improvement and new tools. The Internet of Things (IoT) is allowing for the deployment of simple low power sensors that are able to communicate cost-effectively. As IoT continues to become more ubiquitous, it's having a greater impact on how the construction industry is turning around. IoT makes it possible for every stakeholder to understand what's happening at every stage of the construction process in real-time from planning to actual construction, post-construction and how the building is operated during service.

While the construction industry is changing at a glacial pace, construction companies who are adopting technology to successfully address common workplace concerns and streamline processes are benefitting from increased efficiencies and improved responsiveness to the increasing demands of the industry. Flat productivity, decreased margins, more schedule overruns and increased competition are some of the obvious reasons. construction companies should consider the adoption of IoT technology and digitization.

Generally, productivity, maintenance, security and safety appear to be the leading drivers of IoT adoption in the construction industry.

Productivity

The construction sector is conditioned by deadlines and targets. It's mandatory to avoid backlogs because they result in budget increases. IoT can enable more readiness and efficiency thus improving productivity. IoT leaves people with less menial work, and, instead, they're allocated more time to interact with project owners and amongst themselves, generating new ideas to improve project delivery and customer satisfaction.

Construction requires an adequate supply of materials to ensure the smoothness of the project. However, the late supply of materials often occurs at the site due to poor scheduling caused by human error. Through IoT, the supply unit is fitted with a suitable

sensor it's possible to automatically determine the quantity and make automatic orders or raise alarms.

Safety and Security

Some of the biggest challenges encountered on a construction job site are theft and safety. Human security agents are not adequate to monitor a huge site properly. Using IoT enabled tags, any material or theft of items is easily resolved as these sensors will notify the current location of the materials or item. It's no longer necessary to send a human agent out to check out everything. IoT allows for the creation of a digital real-time job site map together with the updated risks associated with the works and notifies every worker when getting closer to any risk or entering a dangerous environment.

For example, monitoring the air quality in an enclosed space is critical for workplace safety. IoT technologies will not only prevent staff from being exposed to dangerous conditions but can also detect those conditions before or as they happen. With real-time IoT data, workers are empowered to be more predictive about job-site issues and prevent situations that could lead to a safety incident and lost time.

Concrete Curing

Another exciting trend shaking up the construction industry involves the application of IoT in concrete curing. Here, sensors are embedded in concrete during casting, and they follow curing of concrete in real time allowing the construction manager to monitor and plan their schedules with certainty. An accurate in-situ estimation of the compressive strength of concrete provides the opportunity to optimize critical construction operations, such as formwork removal time, opening a bridge/road to traffic, pre-stressed cable tensioning time and optimization of the concrete mix design. One of the major issues during construction is managing labour and formwork costs.

Knowing the maturity of concrete can make the difference between profitability and loss as it allows scheduling and cycling of formwork and optimization of labour.

Ready Mix suppliers, cement manufacturers, consulting engineers and concrete testing labs can also rely on this IoT technology to enhance service delivery.

Waste Management and Structural Health

Monitoring Waste management is a critical consideration on a modern construction site, especially nowadays given the increased attention on the carbon footprint of the construction process. It's also crucial to immediately clean trash on a job site to create space and reduce hazards. Trash levels have to be monitored and removed within a certain time. Proper waste disposal approaches also have to be enforced. Monitoring waste disposal bins or vehicles in a cost-effective way is now possible through IoT trackers. Failure to handle waste properly may result in penalties for the contractor from authorities. IoT is also used in structural health monitoring to detect vibrations, cracks and conditions of critical building members and civil structures during and after construction.

Conclusion

Despite the predictions of massive job losses, IoT adoption is unlikely to replace the human element in construction. Instead, it will alter business models in the industry, reduce expensive errors, reduce worksite injuries and make building operations more efficient. The best approach for construction companies to introduce technology is to prioritize investment based on areas where IoT can have the most immediate impact as informed by their unique needs.

The constant flow of real-time data from IoT sensors combined with historical data from other projects can be used not only in the monitoring of current job sites but to provide an ever-increasing dataset which can be used with machine learning to do predictive analytics that makes construction even smarter.

By M. J. SATISH ANAND
III YEAR CIVIL B

Paint that can Sense Cracks in a Structure

It's a trope you've seen in heist movies: The team's computer expert can pull up a model of any building and tell where it's been compromised… Somehow. A team from North Carolina State University and the University of Eastern Finland are actually developing a practical version of this classic cliche, using conductive paint.

In a study published in June, the researchers explained how the system works: First, electrodes are placed around the skin of the building. Then, the conductive paint is layered over them. After that, a current is run through the electrodes in different combinations, and a complicated algorithm can determine whether the electrical potential has changed — if it has, the system can work out where.

This kind of paint could be invaluable for older buildings, or those in earthquake zones. Or, as Global Construction Review points out, it could be used to monitor any structural fissures at nuclear power plants.

By Mrs. S. YUGASINI
Assistant Professor
Department of Civil Engineering

PREDICTIVE SOFTWARE

The structural integrity of any building is only as good as its individual parts. The way those parts fit together, along with the choice of materials and its specific site, all contribute to how the building will perform under normal, or extreme, conditions. Civil engineers need to integrate a vast number of pieces into building designs, while complying with increasingly demanding safety and government regulations. Predictive software can help ensure even the most innovative structures in civil engineering are safe and efficient, by simulating how they will behave. An example of this was work on the structural integrity of the arch rotation brackets at Wembley Stadium, undertaken by Bennett Associates, using ANSYS software, which simulated the stresses on the brackets that hold and move the distinctive arches above the stadium.

By Mrs. S. YUGASINI
Assistant Professor
Department of Civil Engineering

DEPARTMENTAL ACTIVITIES

STUDENT ACHIEVEMENTS

NPTEL COURSES COMPLETED BY STUDENTS

S. No	Student Name	Year / Section	Course Name	Course Duration	NPTEL Score	Certificate Type
1	B. ANJALI KUMARI SHAW	IV / A	Integrated Waste Management for Smart City	July-Oct 2019	75	Elite + Silver
2	B. ANJALI KUMARI SHAW	IV / A	Waste Water Treatment & Recycling	July-Oct 2019	60	Elite
3	T. SITHRUBI	IV / B	Glass Processing Technology	July-Oct 2019	90	Elite + Gold
4	K. SATHYASHRIYA	IV / B	Environmental Geotechnics	July-Oct 2019	59	Successfully Completed
5	V. UNISH KUMAR	IV / B	Structural Dynamics for Civil Engineers – SDOF systems	Aug-Sep 2019	63	Elite
6	P. BHUVANESHWARAN	III / A	Design of Reinforced Concrete Structures	July-Oct 2019	65	Elite
7	J. GOVINDHA KRISHNAN	III / A	Design of Reinforced Concrete Structures	July-Oct 2019	72	Elite
8	B. V. AGALIYA	III / B	Design of Reinforced Concrete Structures	July-Oct 2019	63	Elite
9	E. PRITHVI	II / B	Strength of Materials	July-Oct 2019	62	Elite

STUDENT INPLANT TRAINING

S. No.	Student Name	Year / Section	Name of the Company	Duration	
				From	To
1	M. MANICKRAJ	III / A	PWD, Chennai	17.11.19	28.11.19
2	E. LOGESH				
3	A. D. GIRISSH KHANNA				
4	P. HARIKA				
5	K. S. LAKSHMI PRIYA				
6	R. KEERTHANA				
7	V. MONISHA				
8	P. BHUVANESHWARAN	III / A	PWD, Madurai	20.11.19	29.11.19
9	S. DHANUSH	III / A	CMDA, Chennai	25.11.19	29.11.19
10	S. SHINE	III / B	Construction site of Corporation Office Building, Nagercoil	28.11.19	06.12.19
11	S. SHINE	III / B	Construction site of Commercial Building, Kanyakumari	13.11.19	19.11.19
12	B. V. AGALIYA	III / B	Construction site of integrated Rural Development and Panchayat Office Complex, Tiruvallur	20.11.19	29.11.19
13	E. P. SHANMUGHAPRIYAA	III / B	CMDA, Chennai	25.11.19	29.11.19
14	A. VIJAY SRIRAM				
15	S. SANDHIYA				
16	M. RINDHIYA				
17	T. SOWMIYA				
18	S. BALAJI				
19	S. VEDHA VARSHINI				
20	K. ARAVINTHAN				
21	R. RANJITHRAJ				
22	B. THULASIRAM	III / B	Govt. Hospital Construction Site, Chennai	26.11.19	06.12.19
23	I. VASANTH				
24	N. VISHAL KARTHIK				
25	A. NAVEEN ARAVIND			18.11.19	30.11.19

26	M. J. SATISH ANAND	III / B	L & T, Water and Effluent Treatment, Chennai		
27	C. T. SINGARAM				
28	E. SURYA				
29	S. P. SUDHARSAN	III / B	Construction Site, Sri Sudha Foundations, Alwarthirunagar	13.11.19	23.11.19
30	B. SANJAY AKASH	III / B	Construction Site, Badhri Builders, Velachery	13.9.19	14.9.19
31	B. SANJAY AKASH	III / B	Chennai Port	25.9.19	29.9.19
32	S. V. SHYAM GANESH				
33	R. YUGESH				
34	M. SRINIVASAGAN				
35	M. RANJITH KUMAR				
36	A. S. DAWN ADAIKALADASS	II /A	PWD – Water Resources Department	18.11.19	22.11.19
37	S. DEEPIKA				
38	S. KOUSIYA				
39	M. LATHIKA				
40	N. SHASHANK	II / B			
41	J. NAGARJUN				
42	J. SUDHARSHAN	II / B	PWD, Chennai	18.11.19	29.11.19
43	C. SRIMATHI				
44	S. SURYA PRABU				
45	T. SUMITHRA				
46	S. SATHYA SUDHAN	II / B	PWD, Chennai	18.11.19	23.11.19
47	D. SREE VARRUN				
48	M. SATHIYA NARAYANAN				
49	K. B. SRINIVASAN				
50	S. PRADHIKSHA	II / B	Meenambakkam Airport, Chennai	02.12.19	06.12.19
51	PRATICKSHA BUVANESWARI				

PLACEMENT DETAILS

- J. R. Akansh Gulecha of IV year Civil A has been placed in **Decathlon Sports India**.
- A. Karthick of IV year Civil A has been placed in **CUBE**, Tharamani, Chennai.
- B. Anjali Kumari Shaw of IV year Civil A has been placed in **OPPO**, Kottivakkam, Chennai.
- V. Unish Kumar, P. Sandhiya and R. Sai Krishna of IV year Civil B have been placed in **Tata Consultancy Services (TCS)**.
- K. Sathyashriya of IV year Civil B has been placed in **Tata Consultancy Services (TCS)** and also got placed in **McDermott Engineering Services**.
- G. Yamini of IV year Civil B has been placed in **CSS Corp**.

OTHER ACHIVEMENTS OF STUDENTS

- M. J. Satish Anand & A. Naveen Aravind of III year Civil B under the guidance of Mrs. S. Muthu Lakshmi presented a paper titled "Enhancement of Strength Characteristics of Clayey Sand using Flyash and Geonet" in the International Conference on Advances in Materials Research – 2019 conducted on 6th and 7th December 2019 by Bannari Amman Institute of Technology, Erode.
- M. Marikrishnan & A. Ashok Kumar presented a paper titled "Green Concrete" at CESAR 2K19 Symposium held at Alagappa Chettiar College of Engineering and also won 1st place with cash prize of Rs. 1000/- in code cracking event.
- J. Govindha Krishnan and V. Balaji of III year Civil A participated in paper presentation and won 2nd place for the paper titled "Tunnel Formwork" in Karigaala 2K19 held at Chennai Institute of Technology.
- M. Nagaraj and E. Logesh of III year Civil A presented a paper titled "Glass Fibre Reinforced Gypsum" in Karigaala 2K19 held at Chennai Institute of Technology.
- V. Balaji, J. Govindha Krishnan, M. Mukilan, K. S. Manikandan, Annavaram Sai Bharadwaj, H. Ashwin Kumaar, S. A. Kowshik Ramanujam, Rahamuthulla Riyass

and M. Barath of III year Civil A participated in Cube Casting event in Karigaala 2K19 held at Chennai Institute of Technology.

+ R. Adithyasudees of II year Civil A won gold medal in the event Lowkick conducted by Wako Tamilnadu State Amateur Kickboxing Association held on 21st and 22nd December 2019. He also won bronze medal in Boxing Tournament conducted by Paavai Engineering College.

+ K. Vasanth of IV year Civil B won 1st Prize in the sport event Kho Kho conducted at Rajalakshmi Engineering College.

+ V. Vivek of IV year Civil B won 2nd Prize in the sport Ball Badminton conducted at Rajalakshmi Engineering College.

GUEST LECTURE ARRANGED

S. No	Topic	Name of the Speaker	Organization	Student strength	Year/ Section	Date
1	Dam Construction, its Components & Types	Mr. M. A. Jose Jerald Das / Assistant Engineer	PWD (Water Resource Department)	50	IV A & B	03.10.19
2	Municipal Solid Waste Management	Dr. Kurian Joseph / Professor & Director IQAC	College of Engineering, Guindy (CES)	55	III A & B	11.10.19

FACULTY ACCOMPLISHMENTS
RESEARCH PROPOSALS

- A research project submitted by Dr. S. Geetha and Dr. M. Selvakumar to DST WMT on "Grinding waste from Automobile Industry as Sustainable Construction Material" has been approved for funding of Rs. 48,11,010/-.
- A research project proposal "Concrete admixed with Graphene Oxide for Service Life Enhancement of Structures" has been submitted by Dr. S. Geetha to DST SERB STAR for a funding of Rs. 40,00,000/-.

JOURNAL PUBLICATIONS

- Dr. S. Geetha and Dr. M. Selvakumar published a Journal Paper titled "A composite for the Future-Concrete Composite Reinforced with Shape Memory Alloy Fibres" in Materials Today: Proceedings, Vol. 18 (2019), Elsevier Publication (Scopus with Impact factor-0.694), pg. 5550–5555.

CONFERENCE PUBLICATIONS

- Dr. S. Geetha and Dr. M. Selvakumar published a paper titled "Properties of Aerated Hempcrete as a potential sustainable Building Material" in the IOP Conference series: Material science and Engineering 577 (2019), pg. 1-8, (Scopus indexed with SNIP: 0.531)
- Dr. M. Selvakumar and Dr. S. Geetha presented a paper "Alkali Activated Porous Material with Nano Graphene Oxide as Adsorbent in Wastewater Treatment" in the 2nd International Conference on Nanoscience and Nanotechnology conducted from November 29- December 1, 2019 at VIT Vellore.
- Mrs. S. Muthu Lakshmi published a paper titled "Enhancement of Strength Characteristics of Clayey Sand using Flyash and Geonet" in the International

Conference on Advances in Materials Research – 2019 conducted on 6th and 7th December 2019 by Bannari Amman Institute of Technology, Erode.

NPTEL COURSES COMPLETED
BY FACULTY MEMBERS

S. No	Name of the Faculty	Course Name	Course Duration	NPTEL Score	Certificate Type
1	Dr. M. Selvakumar	Introduction to Environmental Engineering and Science – Fundamentals and Sustainability Concepts	July-Oct 2019	84	Elite + Silver
2	Dr. M. Uma Maguesvari	Ethics in Engineering Practice	Aug-Oct 2019	80	Elite + Silver (Top 2%)
3	Mrs. P. Anuradha	Foundation Engineering	July-Oct 2019	84	Elite + Silver (Top 2%)
4	Mrs. P. Anuradha	Geotechnical Engineering Laboratory	July-Aug 2019	87	Elite + Silver
5	Mrs. S. Muthu Lakshmi	Geotechnical Engineering Laboratory	July-Aug 2019	85	Elite + Silver
6	Mrs. S. Muthu Lakshmi	Strength of Materials	July-Oct 2019	79	Elite + Silver
7	Mr. M. Ammaiappan	Design of Reinforced Concrete Structures	July-Oct 2019	87	Elite + Silver
8	Mrs. V. J. Vedhanayaghi	Structural Dynamics for Civil Engineers – SDOF systems	Aug-Sep 2019	69	Elite
9	Mr. M. Manoharan	Scheduling Techniques in Projects	Aug-Sep 2019	69	Elite
10	Mr. P. Krishna Kumar	Design of Reinforced Concrete Structures	July-Oct 2019	94	Elite + Gold (Top 5%)
11	Mr. P. Muthaiyan	Structural Dynamics for Civil Engineers – SDOF systems	Aug-Sep 2019	78	Elite + Silver
12	Mr. E. S. Karthic	Structural Dynamics for Civil Engineers – SDOF systems	Aug-Sep 2019	52	Successfully Completed
13	Mrs. S. Yugasini	Structural Dynamics for Civil Engineers – SDOF systems	Aug-Sep 2019	54	Successfully Completed
14	Mrs. C. Vidya	Wastewater treatment and Recycling	July-Oct 2019	78	Elite + Silver

SABBATICAL TRAINING UNDERGONE
BY FACULTY MEMBERS

S. No.	Name of the Faculty	Construction Company/ Builders / Consultants	Location	Duration	No. of Days
1	Dr. M. Uma Maguesvari	VRP Consultants	Chennai	25.11.19 to 27.11.19	3 days
2	Mr. P. Muthaiyan	VRP Consultants	Chennai	25.11.19 to 27.11.19	3 days
3	Mrs. C. Vidya	VRP Consultants	Chennai	25.11.19 to 27.11.19	3 days
4	Mrs. V. J. Vedhanayaghi	Aran Builders	Chennai	11.11.19 to 13.11.19	3 days
5	Mr. M. Manoharan	Aran Builders	Chennai	11.11.19 to 13.11.19	3 days
6	Mr. S. Premkumar	Aran Builders	Chennai	11.11.19 to 13.11.19	3 days
7	Mr. N. Mahamood Ul Hasan	Aran Builders	Chennai	11.11.19 to 13.11.19	3 days
8	Mr. P. Krishna Kumar	Sri Devi Builders and Promoters	Chennai	12.11.19 to 15.11.19	4 days
9	Mr. R. Madhava Perumal	Sri Devi Builders and Promoters	Chennai	12.11.19 to 15.11.19	4 days
10	Mr. J. Jasper Daniel	Sri Devi Builders and Promoters	Chennai	12.11.19 to 15.11.19	4 days

FDP's & WORKSHOP's
ATTENDED BY FACULTY MEMBERS

S. No.	Name of the Faculty	Title	Host Institution	Category	Date
1	Dr. M. Selvakumar	E-waste management: Issues and Challenges (DWIH New Delhi)	IIT Madras	Workshop	28.11.19 to 29.11.19
2	Dr. M. Selvakumar	Introduction to Environmental Engineering and Science – Fundamentals and Sustainability Concepts	-	12 week NPTEL Course	Considered as FDP of 1.5 week

3	Dr. A Rose Enid Teresa	Steel – Concrete Composite Structures	SRM Institute of Science and Technology, Kattangulathur	STTP	25.11.19 to 30.11.19
4	Dr. M. Uma Maguesvari	Advanced Structural Analysis	SSN College of Engineering	FDP	02.12.19 to 06.12.19
5	Dr. M. Uma Maguesvari	Research Methodology and IPR	Rajalakshmi Engineering College	FDP	30.11.19
6	Dr. M. Uma Maguesvari	Ethics in Engineering Practice	-	8 week NPTEL Course	Considered as FDP of 1 week
7	Mrs. P. Anuradha	Research Methodology and IPR	Rajalakshmi Engineering College	FDP	30.11.19
8	Mrs. P. Anuradha	Geotechnical Engineering Laboratory	-	4 week NPTEL Course	Considered as FDP of ½ week
9	Mrs. S. Muthu Lakshmi	Research Methodology and IPR	Rajalakshmi Engineering College	FDP	30.11.19
10	Mrs. S. Muthu Lakshmi	Geotechnical Engineering Laboratory	-	4 week NPTEL Course	Considered as FDP of ½ week
11	Mr. M. Ammaiappan	Design of Reinforced Concrete Structures	-	12 week NPTEL Course	Considered as FDP of 1.5 week
12	Mr. P. Krishna Kumar	Design of Reinforced Concrete Structures	-	12 week NPTEL Course	Considered as FDP of 1.5 week
13	Mr. M. Manoharan	Scheduling Techniques in Projects	-	4 week NPTEL Course	Considered as FDP of ½ week
14	Mr. E. S. Karthic	Advance Concepts in Construction Management	SRM Institue of Science and Technology	FDP	28.11.19 to 30.11.19
15	Mr. E. S. Karthic	Structural Dynamics for Civil Engineers – SDOF systems	-	4 week NPTEL Course	Considered as FDP of ½ week
16	Mr. P. Muthaiyan	Teaching and Learning	IIT Madras	FDP	16.10.19 to 18.10.19

17	Mr. P. Muthaiyan	Advanced Structural Analysis	SSN College of Engineering	FDP	02.12.19 to 06.12.19
18	Mr. P. Muthaiyan	Engineering Faculty Development	Rajalakshmi Engineering College	Workshop	28.11.19 to 30.11.19
19	Mr. P. Muthaiyan	Structural Dynamics for Civil Engineers – SDOF systems	-	4 week NPTEL Course	Considered as FDP of ½ week
20	Mrs. V. J. Vedhanayaghi	Engineering Mechanics	St. Joseph's Institute of Technology	FDP	18.11.19 to 23.11.19
21	Mrs. V. J. Vedhanayaghi	Structural Dynamics for Civil Engineers – SDOF systems	-	4 week NPTEL Course	Considered as FDP of ½ week
22	Mrs. S. Yugasini	Engineering Mechanics	St. Joseph's Institute of Technology	FDP	18.11.19 to 23.11.19
23	Mrs. S. Yugasini	Research Methodology and IPR	Rajalakshmi Engineering College	FDP	30.11.19
24	Mrs. S. Yugasini	Structural Dynamics for Civil Engineers – SDOF systems	-	4 week NPTEL Course	Considered as FDP of ½ week
25	Mrs. C. Vidya	Advanced Structural Analysis	SSN College of Engineering	FDP	02.12.19 to 06.12.19
26	Mrs. C. Vidya	Engineering Faculty Development	Rajalakshmi Engineering College	Workshop	28.11.19 to 30.11.19
27	Mrs. C. Vidya	Wastewater Treatment and Recycling	-	12 week NPTEL Course	Considered as FDP of 1.5 week

OTHER ACHIEVEMENTS

🞥 Consultancy work worth Rs 26,000/- was completed for Transrail Lighting Limited in construction materials testing by Dr. A. Rose Enid Teresa and Mr. E. S. Karthic.

- Consultancy work worth Rs. 18,000/- was completed for PWD - Krishna Water Project in water, soil and materials testing by Dr. M. Selvakumar, Dr. S. Geetha and Mrs. S. Muthu Lakshmi.
- Mr. E. S. Karthic, Asst. Professor, has been awarded Associate Member of Institute of Engineers (AMIE).

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