SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institution)

CIVIL

ENGINEERING

ANNUAL MAGAZINE

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Volume - 8

INSTITUTE VISION AND MISSION

Vision

To be globally recognized for excellence in quality education, innovation and research for the t ransformation of lives to serve the society.

Mission

•M1: Quality Education: To provide comprehensive academic system that amalgamates the cutting edge technologies with best practices.
•M2: Research and Innovation: To foster value-based research and innovation in collaboration with industries and institutions globally for creating intellectuals with new avenues.
•M3: Employability and Entrepreneurship: To inculcate the employability and entrepreneurial skills through value and skill based training.
•M4: Ethical Values: To instill deep sense of human values by blending societal righteousness with academic professionalism for the growth of society

DEPARTMENT VISION AND MISSION

Vision

We envision a world where the civil engineering department will be a home to an intellectual community with good quality education embedded with practical knowledge by inculcating research, strong social commitment and ethical values from its students, staffs and alumni.

Mission

•M1: Quality Education: To fulfill the requirements of construction industry, Civil Engineering profession and rural community through dissemination of technical services.
•M2: Practical Knowledge: To impart quality and real-time education to the students with the knowledge & skills needed for Civil Engineering practice
•M3: Work Efficiency: To encourage research, development and consultancy through sustained interaction with industry & research organization.
•M4: Societal issues: To develop graduates to compete at the global level to deal with modern issues.
•M5: Moral & Ethical: To insist ethical values and professionalism among the students.

How IoT Is Transforming Civil Engineering

IoT in Civil Engineering

The smarter technology gets, the more interactive and interconnected larger systems become. That's certainly the case with IoT in Civil Engineering, as sensors that monitor and transmit data are showing up everywhere in society. Utilities, manufacturers, and supply chains were early pioneers of this empowering digital technology, and now many other industries are following suit. Here's a look at how IoT is advancing civil engineering?

Civil Engineering Applications for IoT Technology

Adopting proactive steps toward preventative maintenance – The civil engineering industry is working toward reducing waste and enhancing efficiency. IoT devices give civil engineers the data they need for evaluating system strengths and vulnerabilities. Detecting and fixing technical problems early is the best path for achieving preventative maintenance. Construction management streamlining -Projectmanagementisallaboutmonitoring supplies, labor, and other factors that affect meeting deadlines on time. Decision-makers can analyze real-time data on supply chain inventory and prices to determine building strategies as the project unfolds. Agility, accuracy, and transparency of automation - Despite the steady transition to a paperless society, construction projects still involve plenty of handwritten forms and paperwork. Automation technology resolves the problem of when paperwork piles up too high, as cloud tools add data automatically to continuous reports on expenses, scheduling and progress.

Project safety improvements – Since construction sites have many dangerous elements, it's crucial for project managers to be informed immediately when an injury or property damage occurs. IoT sensors and smart cameras can collect instant data on site conditions, including security breaches.

More intelligent IT support – IT support only gets better the more relevant data it collects. Ultimately, the IoT revolution is all about putting value and trust in analytics, which can then help you refine your operation by weeding out wasteful inefficiencies. Conclusion Adoption of IoT in civil engineering has helped accelerate society's digital transformation. Integrating data sensors in construction projects help avoid costly mistakes and improve the final product. Essentially, construction companies that invest in IoT today will have significant operational advantages over competitors of the future.

PREPARED BY: **SHASIDHAR.P,** (I YEAR - A SEC) Student /Department of Civil Engineering SMVEC

Machine Learning Changing Civil Engineering

While Machine Learning is an incredibly powerful tool, in some industries it's still in a developmental stage. In other words, we are still exploring applications for its use and refining how that's done. Machine learning for engineers and civil engineering is one such field. Even now, it's clear that it's going to have a huge impact. Machine learning (ML) will change the way we plan, the way we build, and even the way we maintain everything. The specifics of how and where depend on how we deploy the actual technologies behind it. Every form of artificial intelligence, including machine learning, needs data to ingest. It will take some time to pinpoint and understand what data is most useful for these platforms, which is where we are now.

RISK MITIGATION AND SAFETY

Risk mitigation happens naturally and daily on a project site. It involves analyzing the site, the surrounding environment, external conditions like weather, hazards, worker safety, and much more. But because there's so much to consider, measure, and plan for, superintendents and project managers can make mistakes and miss details rather easily. What if it was all delegated to a machine learning system through smart technologies and contextual data.

MACHINE LEARNING FOR ENGINEERS IS A WORK IN PROGRESS

The most important thing to understand about machine learning, AI, and neural network technologies is that we are still finding and exploring new ways to leverage them. What we know for sure is that civil engineering and construction are indeed changing, thanks to generative and data-oriented design techniques, real-time asset management, and smarter risk mitigation and job site safety. New discoveries and avenues are explored every day, which shows the incredible promise of machine learning for engineers and development applications

PREPARED BY: **PRADEEP.P,** (I YEAR - A SEC) Student /Department of Civil Engineering SMVEC

20 Applications Artificial Intelligence in Civil Engineering & Construction

Artificial Intelligence in Civil Engineering works on the goal of imitating and executing functions of human brain, logically and intelligently. Artificial intelligence work based on different methods: These can be fuzzy systems, Neural networks, Knowledge based systems or genetic algorithms

The following are few applications of artificial intelligence in civil engineering

1.For estimating the percentage of soil moisture content and further classifitions.
2.In the structural engineering field machine learning can be applied to detect damages using sensory or image data, identifying it's location and extent.
3.Improving productivity by reducing idle time.
4.For predicting maximum dry density and optimum moisture content in concrete.
5.Using image recognition for proper site monitoring, including aspects of safety and dangerous working conditions.
6.Identifying gaps and requirement of materials to cover the tasks without delay.
7.For travel time prediction and sign AI optimization in transportation engineering.
8.Efficient planning, designing and managing of infrastructure using Building Information Modelling (BIM).
9.Utilizing Artificial Neural Network for predicting properties of concrete mix designs.
10.To monitor activity in the construction site and predicting changes in the costing based on raw material market rates.
11.To analyse settlement of foundation and slope stability.
12.For monitor real time structural health of the building, giving warnings on when and where repair is required.
13.Helping in tidal forecasting to aid construction in marine environment.
14.Reducing errors in the project by automatic analysis of data.
15.To develop site layouts and predict risks as part of project management.
16.Finding a solution for damage related to pre-stressed concrete pile driving in foundation engineering.
17.To solve complicated problems in different stages of the project.
18.To make decisions in the design field.
19.In the construction waste management domain and handling of smart materials.
20.For expert monitoring and optimization if costs in the work system

PREPARED BY: **KRISHNA KUMAR.T,** (I YEAR - B SEC) Student /Department of Civil Engineering SMVEC

Virtual Reality (VR) and Augmented Reality (AR) Will Become Mainstream

INDIA'S FIRST 3D PRINTED HOUSE INAUGURATED AT IIT-MADRAS

Tvasta Manufacturing Solutions, a start-up founded by alumni of IIT Madras, has made what it says is India's first 3D-printed house. The team printed the structure using a specialty concrete that it had developed to print large-scale 3D structures in short periods. They say the mix is based on ordinary Portland cement, which has a lower water-cement ratio. Though concrete is the primary material typically used in construction projects, it cannot be recycled and requires a lot of energy to mix and transport. So, the team's effort to use technology to print the house using ordinary Portland cement can "overcome the pitfalls of conventional construction." On its website the company says, "We have the ability to overcome the pitfalls of conventional construction through 3D printing," adding, "This advancement will open doors for all kinds of research and development in the construction world." Its first structure, a single-storey house, is 600 square feet and it has been constructed using indigenous concrete 3D printing technology and in collaboration with Habitat for Humanity's Terwilliger Center for Innovation in Shelter. This technology can help build a house in five days, the institute said. The house was inaugurated by Finance Minister Nirmala Sithraman. Speaking at the launch via video-conferencing, she said that India definitely needs solutions that do not require much time, adding the latest "technology enables building a 3D printed house in 5 days".

"Conventional housing requires timing, material, logistics, transporting of material, and so on. But if this technology can produce houses in different locales in five days, it would not be a big challenge to build 100 million houses by 2022," the finance minister said. In a blog post on its website, Tvasta Manufacturing Solutions said that it had developed its own material mix, which is an extrudable concrete consisting of cement, sand, geopolymers, and fibres. It prepared the final material mix by mixing the raw materials in a large hopper. "While 3D printing, the structure was specifically designed hollow to allow provisions for wiring and plumbing without damaging the wall," added the blogpost.

PREPARED BY: **THAMIZSELVAN.M,**
(II YEAR - SEC) Student /Department of Civil Engineering SMVEC

Quantity Surveyor (QS) In Construction Industry

Who is a Quantity Surveyor?

A quantity surveyor (QS) is a construction industry professional with expert knowledge of construction costs management and contracts management. We are discussing here the quantity surveyor job description and salary details. If you have strong numerical and financial management skills, a practical mind, and like the idea of traveling within your role, becoming a quantity surveyor could be ideal for you. As a quantity surveyor, you'll manage all costs relating to building and civil engineering projects, from the initial calculations to the final figures. Working either for the client or the contractor, in an office, or on-site, you'll be involved in a project from the start.

Role of a Quantity Surveyor (QS) at work

Before the start of any construction project, the quantity surveyor analyzes the drawing and specifications of the new building that architects or engineers provide.

The surveyors calculate the quantity of the material used in the building. Also, they must calculate the accurate work or labor cost.

Quantity surveying relies on technical measurement tools for accurate cost results. For example, building cost historical data to analyze and give the early cost advice, budget the bench-marked projects and prepare the life-cycle plan. For this, he/she must have a thorough understanding of building regulations in order to hold on to them and make sure the building project passes.

During the whole construction of the building, surveyors keep eye on the cost.

Quantity surveying is an essential part of any new building construction and renovation project. You can hire a surveyor company if you need any kind of assistance.

Quantity surveyors play a key role in managing the finances for construction projects and make them cost-effective; hence, they have earned a lot of attention in recent times.

The primary role of a quantity surveyor includes calculating the budget based on the consumer's requirement and preparing an effective budget estimate for each stage of the construction process.

Various Responsibilities Of QS

Following are the various important responsibilities of a typical quantity surveyor;

Prepare tender and contract documents, including

Undertake cost analysis for repair and maintenance project work

Assist in establishing a client's requirements and undertake feasibility studies

Perform risk, value management, and cost control

Advise on a procurement strategy

Identify, analyze and develop responses to commercial risks

Prepare and analyze costings for tenders

Allocate work to subcontractors

Provide advice on contractual claims

Analyze outcomes and write detailed progress reports

Value completed work and arrange payments

Maintain awareness of the different building contracts in current use

Understand the implications of health and safety regulations.

Prepared by : **ROHITH . J.V.K** (II year /B sec) Student/Department of Civil Engineering / SMVEC

3 Ways Virtual Reality in Construction is Shaping the Industry

Technology is quickly changing the way construction is done. From apps on mobile devices to laser scanning and drone photogrammetry few construction sites have fully escaped the onward march of construction technology. Virtual Reality (VR) is one new technology that is changing the construction industry by solving old problems. Virtual reality in construction is the next level in 3D modeling. Like 3D modeling, it involves a detailed virtual model of the project.

1. Grow and Scale More Quickly and Efficiently

Construction has never been an easily scaled industry. VR changes that by making it easy to share data and models across teams and get new teams quickly up to date on relevant issues.

Creating a 3D model of a construction site used to be a complex physical process that required physical space, time, and materials. These miniature models were helpful in orienting the project, but by necessity contained inaccuracies and lacked detail.

3D modeling software changed the game by making it possible not only to create a detailed, accurate model more quickly and cheaply, but also by making it possible to share those models across teams. VR takes it to a new level by making it possible for people to immerse themselves in the project as though they were actually there, and interact with the environment exactly as though engaged in a walk-through.

2. Experience Better Collaboration

Because VR gives teams the ability to "see" a project site without traveling to it, it is easy for teams to collaborate in real-time, within a shared environment, where they can literally point out details and issues, ask questions, and immediately make decisions about changes.

This improves timelines by facilitating quicker feedback. It also reduces rework, by improving accuracy and the detail level of communications.

3. Improve the Overall Customer Experience and Handover

Lack of transparency has been a common frustration for building owners and other stakeholders during the construction process. It used to be that they simply had to trust that the construction company was doing their job right, and hope that an occasional site visit would clear up any problems.

Prepared by : **ANRGA.D** (II year /A sec) Student/
Department of Civil Engineering / SMVEC

Raised Pavement Marker

A raised pavement marker is a safety device used on roads. These devices are usually made with plastic, ceramic, thermoplastic paint, glass or occasionally metal, and come in a variety of shapes and colors. Raised reflective markers, such as plastic, ceramic, or metal ones, include a lens or sheeting that enhances their visibility by retroreflecting automotive headlights, while glass road studs gather automotive headlights with a dome shape and reflect the lights with a reflective layer within. Some other names for specific types of raised pavement markers include convex vibration lines, Botts' dots, delineators, cat's eyes, road studs, or road turtles. Sometimes they are simply referred to as "reflectors".

Convex Vibration Marking Line:

The surface of this type of vibrating coating line is distributed and scattered with raised bumps. Some bumps are coated with high-refractive-index glass beads. When a speeding vehicle runs over the raised road lines, it produces a strong warning vibration to remind the car driver of deviation from the lane.[1] Perpendicular to driving directions, these marking lines are used for settled mainline toll plaza, ramp entrances, mountainous areas, continuous sharp turns, downhill sections and the end of the highway (intersection of highway exit and the plane of the common roadway), gates and entrances of enterprises, institutions, and school. In the same direction of traffic driving direction, they are mainly settled in the median strip, edge lines, and dangerous sections of the road.

Reflective raised pavement markers:

In the United States, Canada, and Australia, these plastic devices commonly have two angled edges facing drivers and containing one or more corner reflector strips. The marker is generally held in place using butyl pads, epoxy glue, or bitumen.[2] In areas with little snowfall, reflective raised pavement markers are applied directly on top of the road surface. The device's retroreflective surface enables the device to be clearly visible at long distances at night and in rainy weather. The devices come in multiple colors which vary in usage depending on local traffic marking standards. In 1965 San Diego Police Motorcycle Officer Kenneth Grant Maine, improved upon, applied for a patent pending, and then submitted the white epoxy-resin reflective raised pavement markers to the California Bureau of Highways, the predecessor to the California Department of Transportation, now known as Caltrans.

Prepared by : **RAJKUMAR.R** (II year /A sec) Student/Department of Civil Engineering / SMVEC

Design of Spurs

Spur dikes (or groynes) are structures constructed projecting from a bank to protect the bank from erosion. These are widely used for the purpose of river training and serve one or more of the following functions:

- Training the river along a desired course by attracting, deflecting (or repelling) and holding the flow in a channel. An attracting spur creates deep scour near the bank; a deflecting spur shifts deep scour away from the bank, and a holding spur maintains deep scour at the head of the spur.
- Creating a zone of slack flow with the object of silting up the area in the vicinity of the spur.
- Protecting the river bank by keeping the flow away from it

These structures may either be impermeable or permeable so as to allow some flow parallel to the bank, but at a low enough velocity to prevent erosion and / or encourage sediment deposition. Care needs to be exercised in the use of spurs to ensure that they do not simply transfer erosion from one location to another, or initiate unforeseen changes in the general channel morphology.

By acting on the flow around them, spurs dikes tend to increase local velocities and turbulence levels in their vicinity. The structure of the dike itself may be liable to erosion; flow moving parallel to the bank is intercepted and accelerates along the upstream face of the dike towards the nose. The high velocities and strong curvature of flow near the nose of a spur can cause significant scouring of the adjacent channel bed. Unless the foundations of the structure are deep enough or are well protected, the end section of dike may be undermined by local scour and could lead to a

Spurs Requirements.

The requirements of a spur are:

1.Optimum alignment and angle consistent with the objective.

2.Availability of a high river bank to anchor (or tie) the spur back, by extending it into the bank a sufficient distance to avoid it being outflanked.

3.Sufficient freeboard provision (in case of non-submerged spurs).

4.Adequate protection to nose/head against anticipated scour.

5.Shank protection with stone pitching and stone apron for the length which is vulnerable to flow attack.

Depending upon the purpose, spurs can be used singly or in series. Spurs may be aligned either perpendicular to the bank line or at an angle pointing upstream or downstream. They can also be used in combination with other training measures. Their use in series is introduced if the river reach to be protected is long, or if a single spur is not efficient/strong enough to deflect the current and also not quite effective for sediment deposition upstream and downstream of itself. The structure located the farthest upstream in a series of spurs is much more susceptible to flow attack both on the river ward and landward ends. Thus it should be given special treatment to ensure its structural stability.

Prepared by : JAYASRI.M (III year /A sec) Student/
Department of Civil Engineering / SMVEC

Soil Cement

In recent years soil cement as a facing material for earthfill dams has been found economical where suitable riprap is not available near the site. A reasonably firm foundation is preferred so that deformation after placement of soil-cement is not significant; however, no unusual design features need be incorporated into the embankment.

Normal embankment construction procedures are used, with perhaps special care being taken to ensure a minimum of embankment consolidation and foundation settlement after construction. The soil-cement is generally placed and compacted in stair-step horizontal layers. This promotes maximum construction efficiency and operational effectiveness. With typical embankment slopes of 2:1 and 4:1, a horizontal layer 8 feet wide will provide minimum protective thicknesses of about 2 and 3l/2 feet respectively, measured normal to the slope. Beginning at the lowest layer of soil-cement, each succeeding layer is stepped back a distance equal to the product of the compacted layer thickness in feet times the embankment slope.

A plating method that forms a single soil-cement layer parallel to the slope is sometimes used in less critical areas for slope protection. If the soil-cement facing does not begin at natural ground level, the lower portion of the embankment should be on a flatter slope than the portion protected by the soil-cement; or a berm may be provided at the lowest elevation of the facing. It is essential that the soil-cement extend below the minimum water level and above the maximum water level. The top of the facing should have a freeboard allowance of at least 1.2 times the anticipated maximum wave height, or 5 feet, whichever is greater. The edges of the completed soil-cement layers should not be trimmed because the rounded starstep effect helps retard wave runup (fig. 6-53). Soil-cement can be made with a wide variety of soils. The principal criterion for determining soil type is gradation. Coarse sandy or gravelly soils containing about 10 to 25 percent material passing the No.200 sieve are ideal (American Society for Testing and Materials Standard Sieve Series). These soils can be adequately stabilized with from 3 to 5 sacks of cement per cubic yard of compacted soil cement

Prepared by : **MAHALAKSHMI** (III year /A sec)
Student/Department of Civil Engineering / SMVEC

Guest Lecture

Better Understanding Of Various Aspects In Civil Engineering:

CONSTRUCTION SITE VISIT

visit to sewagw treatment plant foundation

visit to culvert contruction and bridge contruction site.

visit to scaffolding process

STUDENT'S

WEEKLY

Lectures delivered by II & III years students on various topics

CLUB

ACTIVITY

AWARD DISTRIBUTION FOR

Student armitha kalayani won the first prize in bad-minton,intercollege level

Student won the first prize on FIESTA, zone level competition;

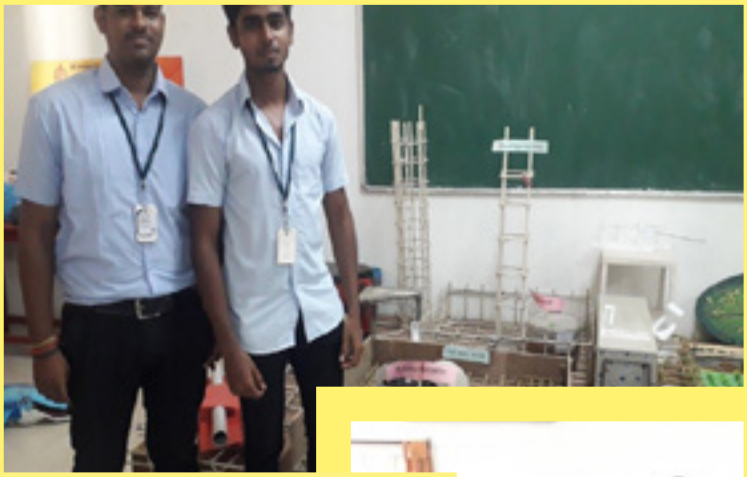
STUDENT'S PERFOMANCE

Student M.Roshini won first prize in techincal paper presentation conducted by amritha university coimbatore

Student mageshwar won the first prize for the short flim competitiion at anna univerrsity

INDUSTRIAL VISIT

STUDENT'S PROJECT EXBO



CO-CURRICULAR ACTIVITIES

Demonstration workshop on using EVM for students by election commision, puducherry.

CLUB ACTIVITY FOR THE YEAR 2020-21

S. No.	Topics	Student	Date	Year/Sem
1	Admixture Incompatibility in fresh concrete	Abbas .B Mohanasundharam. P Balaji .A	22.11.2020	III / V
2	Smart Roads	Agnus Valentina Sagayam. S Jananandhini .P Shaarumathy .M	29.11.2020	III / V
3	Composite Construction	Barathan. R Gautham.M Lokesh.K	06.12.2020	II / III
4	Bamboo as a Building Material	Magalakshmi. N Nalini. S Priyadharshini.L	20.12.2020	II / III
5	Ground Improvement Techniques	Balaji.R Ragul .S Aravind .M Sivasubramanian.K	03.01.2021	III / V
6	Pavement Evaluation and Application of Geotextiles in Pavements	Avinesh .M Ilamparithi. M Gurupharan .K	10.01.2021	III / V
7	Use of Fly Ash in Concrete	Ruthrapathi.E Selvabharathikumar .S Senghathirselvan.M	24.01.2021	II / III
8	Sustainable building technology	Bavithra.R Revathy.P Subhashini Sri.S Thean Joshna.S	07.02.2021	II / III
9	Remote Sensing GIS and its Applications	Hari Hara Soudry. M.E Balaji.P Kebin Balan.B	14.02.2021	III / V
10	Reflection Cracking of Bituminous Overlay and Controlling measures	Akkshya. M Dhaarni. S Kamalini .K	28.02.2021	III / V
11	Impact of lightning on buildings and remedial measures	Bavithra .S Rajeswari. S	05.03.2021	III / V

S. No.	Topics	Student	Date	Year/Sem
		Kiruthika.S		
		Shabana Jasmine .N		
12	Green building for a quality living	Krishna Kumar. V	21.03.2021	II / III
		Chandru. S		
		Mithun. P		
13	Integration with Autodesk Revit Structures	Jayasri.M	28.03.2021	II / IV
		Jeevalakshmi.R		
		Mary Rosily.S.Menachery		
14	Historic Structures	Rahul Kumar	08.04.2021	II / IV
		Reminjavad		
		Ashok. A		
		Ashwin Kumar.R		
		Ashwin Kumar.A.M		

STUDENTS ACHIEVEMENTS

S.NO.	Name	Event	Location	Status	Date	Year / Sem
1.	Mr Vishwa.B, Mr Tamilselvan.M Mr.K.Magheshwar	SHORT FILM MAKING	Sri Manakula Vinayagar Engineeing College	First Prize of Rs. 15,000	29.02.2020	IV/VIII, II/III
2.	Ms.R.Bavithra & Ms.Agila.P	VISVESVARAYA CONTEST	Civil Engineers Association of Kanyakumari	1st Mark with 2 Gram Gold Coin	13.09.2020	III/V, II/III
3.	Mr.Barath.M, Mr. Logesh.G, Mr.Davakumar.D	VISVESVARAYA CONTEST	Civil Engineers Association of Kanyakumari	3rd Mark	13.09.2020	II/III
4.	Ms.Roshini,Ms.Shanmugapriya.C& Ms.Sagundhala Priyadarshini	VISVESVARAYA CONTEST	Civil Engineers Association of Kanyakumari	2nd Mark with 1 Gram Gold Coin	13.09.2020	IV/VII, II/III
5.	Mr.S.Nareshkumar , Mr.K.Magheshwar	SHORT FILM MAKING	Health Department	Consolidation Prize	Dec 2020	IV/VIII
6.	Mr.Suriyakumaran.P, Ragul.S & Mr.K.Magheshwar	SHORT FILM MAKING	Puducherry Youth Helpline	Second Prize	10.10.2020	IV/VIII
7.	Mr.Deepak.S & Mr.K.Magheshwar	SHORT FILM MAKING	Transport Department	First Prize	18.01.2021 To 17.02.2021	IV/VIII
8.	Akkshaya. M Shabana Jasmine. A Nethyasri. N	SRUJAN' 19 (Measure and Treasure Event)	SRM College	1st Prize and Won the Overall Trophy	30.08.2020	III/V
9.	M.Roshini	Paper Presentation	Amritha University, Coimbatore	1st Prize	05.02.2021	IV/VIII

DEPARTMENT OF CIVIL ENGINEERING

PUBLICATION DETAILS

A.Y-2020-2021

Sl. No	Title of the Paper	Name of the Journal / Volume / ISSN / Year of Publication/Page No	Author
1	Effect of nano silica on compressive strength and durabilty in m-sand concrete	Journal of Xidian University, Vol. 14, Issue 6, 2020, ISSN: 1001-2400	Dr. S. Sundararaman
2	Studies on the effect of titanium Dioxide on mechanical properties in msand Concrete	Journal of Xidian University, Vol. 14, Issue 6, 2020, ISSN: 1001-2400	Dr. S. Sundararaman
3	Studies on the Strength and Durability Properties using Bagasse ash and M sand in concrete	Proteus journal, Vol. 11, Issue 6, 2020, ISSN: 0889-6348	Dr. S. Sundararaman
4	An Approach Towards Redesign And Modernization Of Puducherry Bus Terminus	International Journal of Disaster Recovery and Business Continuity, Vol.11, No. 1 (2020), pp. 2128-2141, ISSN: 2005-4289	K.S. Prasath
5	Tackling and reducing the vigor effect of air pollution using anti - smog tower	Alochana Chakra Journal, Vol. 9, Issue 6, 2020, ISSN: 2231-3990	K.S. Prasath
6	An experimental study on air purifiying Pavement blocks using titanium dioxide (TIO2)	Alochana Chakra Journal, Vol. 9, Issue 6, 2020, ISSN: 2231-3990	G. Yamuna
7	An assessment of parking standard for mahatma Gandhi Road, Puducherry	International Journal of Disaster Recovery and Business Continuity, Vol.11, No. 1 (2020), pp. 2128-2141, ISSN: 2005-4289	G. Yamuna
8	An Assessment Study on carbon Emission Mapped Using GIS in Puducherry Region	International Journal of Disaster Recovery and Business Continuity, Vol.11, No. 1 (2020), pp. 2128-2141, ISSN: 2005-4289	Aswini A

9	Performance of Rapid Hardening Concrete made using Controlled Permeable Formwork liner	Alochana Chakra Journal, Vol. 9, Issue 6, 2020, ISSN: 2231-3990	Aswini A
10	Critical assessment on treatment and remediation of municipal solid waste leachate	Alochana Chakra Journal, Vol. 9, Issue 6, 2020, ISSN: 2231-3990	D.Sathiyasree Dhanasekaran
11	Experimental Study on Aramid Fiber as a Retrofit material for blast performance in concrete	Alochana Chakra Journal, Vol. 9, Issue 6, 2020, ISSN: 2231-3990	S.Sivaprasath
12	Experimental research on effect of alkaline activator ratio in high strength geopolymer concrete	Journal of Critical Reviews, Vol. 7, Issue 8, 2020, ISSN: 2394-5125	KS Prasath
13	Experimental Study on Automated Indoor Air Quality Monitoring	Journal of Shanghai Jiaotong University, Vol. 16, Issue 7, 2020, ISSN: 1007-1172	Dr. Sundararaman.S
14	Critical assessment on treatment and remediation of municipal solid waste leachate	Aut Aut Research Journal, Vol. 9, Issue 6, 2020	A.Sathyapriya
15	A Review on Construction of Building by using 3D Printing Technology	International Journal of Scientific Research in Engineering and Management, Vol. 4, Issue 7, 2020	K.Srinivasan
16	Subgrade Soil Stabilization using Bagasse ash and Coir Fibre as a Reinforcing Material	Scientific Research in Engineering and Management, Vol. 4, Issue 7, 2020	K.Srinivasan
17	Utilization of Cementitious Material from Ground granulated blast furnace slag, Metakaolin and Silica Fume in Stabilized Soil Blocks	Scientific Research in Engineering and Management, Vol. 4, Issue 7, 2020	K.Srinivasan
18	Study of Light Weight Geopolymer Concrete using LECA	Scientific Research in Engineering and Management, Vol. 4, Issue 7, 2020	Kalyani A
19	A Study on the Partial Replacement of Fine Aggregate by Using Pet Bottles	Scientific Research in Engineering and Management, Vol. 4, Issue 7, 2020	Kalyani A
20	Influence of the Sea Water in the Mechanical Behaviour of the Fiber Reinforced Concrete	Scientific Research in Engineering and Management, Vol. 4, Issue 7, 2020	Kalyani A

21	A Theoretical Study on Replacement of Natural River Sand with Geo- Polymer Fly Ash Sand	Scientific Research in Engineering and Management, Vol. 4, Issue 7, 2020	S.Sivaprasath
22	Experimental Studies on the Effect of External Confinement on the Behaviour of Concrete Columns	Scientific Research in Engineering and Management, Vol. 4, Issue 7, 2020	S.Sivaprasath
23	A Literature Study on the Performance of Concrete with Geogrids	Scientific Research in Engineering and Management, Vol. 4, Issue 7, 2020	Aswini A
24	An Experimental Study on the Stabilization of Expansive Soils using Coir Fibre, Eggshell Powder and Steel Fibre	International Research Journal of Engineering and Technology, Volume: 08 Issue: 05, May 2021, e-ISSN: 2395-0056	K.Srinivasan
25	An Experimental Study on Light Weight Concrete Using Pumice and Partial Replacement of Cement Using GGBS and Metakaolin	International Journal of Innovative Research in Technology, May 2021, Volume 7, Issue 12, ISSN: 2349-6002	Senthilraj G
26	Detection of Gas Leakage using Fumes Recognizer with Alert Message and Location of Leakage	Journal of Xidian University, Volume 15, Issue 5, 2021, ISSN No:1001-2400, 424-429	Dr. S. Jayakumar
27	A 5D Approach towards Construction Management using Building Information Modeling (BIM)	International Research Journal of Modernization in Engineering Technology and Science, Volume:03/Issue:05/May-2021, e-ISSN: 2582-5208	Aswini A
28	An Experimental Study on Partial Replacement of Fine Aggregate using Agro-Waste with Steel Fibre and GGBS	International Journal of Innovative Research in Technology, May 2021, Volume 7, Issue 12, ISSN: 2349-6002	Azhagarsamy S
29	Risk Assessment in Construction of Highway Project	International Journal of Innovative Research in Technology, May 2021, Volume 7, Issue 12, ISSN: 2349-6002	Azhagarsamy S

PROGRAM OUTCOMES (POs)

POs	PROGRAM OUTCOMES	DESCRIPTION
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.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEOs	DESCRIPTION
PEO1	To gain a thorough fundamental knowledge, problem solving skills, engineering experimental abilities, and design capabilities for a civil engineering career
PEO2	To establish the knowledge and skills necessary for identifying and assessing design alternatives and the related social, economic, environmental, and public safety impacts.
PEO3	To develop the ability to deal effectively with ethical and professional issues, taking into account the broader societal implications of civil engineering.
PEO4	To create competent professionals who are trained in the design and development of Civil Engineering systems to engulf research and development activities.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSOs	PROGRAM SPECIFIC OUTCOMES	DESCRIPTION
PSO 1	Practical Knowledge	Inculcating practical knowledge in planning, analysis, design and construction management without much exploiting natural resources.
PSO2	Critical Thinking	Imparting effective communicational skills, leadership attributes towards the team work and developing critical thinking abilities to find solutions for civil engineering problems of multi-disciplinary nature.
PSO3	Challenging Employment	Ability to take up any challenging employment, entrepreneurship, research and development for sustainable civil society as a civil engineering graduate.

About Civilizers

Civilizers is a yearly magazine compoledand published among students by the sudents community in the Department of Civil Engineering,Sri Manakula Vinayagar Engineering College.

Students from all the years are involved in publishing innovative and intrested topic related to Civil Engineering.

Students can express their own innovations or any other lastest ideas for betterment of the society.

Students extracurricular and all other stuffs,that they are really intrested will be published in the magazine to showcase their talent.

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