P.S.R.ENGINEERING COLLEGE
An Autonomous Institution (Approved by AICTE & Affiliated to Anna University, Chennai)
Accredited by NAAC and listed under 12(B) of the UGC Act,1956.
An ISO 9001:2008 Certified Institution
Sivakasi - 626140, Tamilnadu, India.

CIVIL ENGINEERING

NEWS LETTER

May 2019

VOLUME 8 ISSUE 2

DEPARTMENT OF CIVIL ENGINEERING

CONTENT

FACULTY ACTIVITIES

JOURNALS

1. **Mr.K. Mahendran, Dr.M. Shahul Hameed,** "Comparative Study of Stabilization of Black Cotton Soil and Clay Soil using Bagasse Ash and Tyre Cord "*International Research Journal of Engineering and Technology*, volume 06, issue-01, jan 2019, Issn-2395-0056.

CONFERENCES

1. **Mr.K. Mahendran, Dr.M. Shahul Hameed,** "A study on the flexural behavior of RCC Beam using Geotextiles and steel fibre" *International Conference on Recent Trends in Engineering science and Technology*, March 2019.

2. **Mr.K. Mahendran, Dr.M. Shahul Hameed,** "Non-destructive test study on high strength reactive powder concrete" *International Conference on Recent Trends in Engineering science and Technology*, March 2019.

3. **Ms.K.Priyanka, Mr.L.Arunraja,** "Ductile Behaviour Of Fiber Reinforced Self Compacting Concrete Beam With Alternative Detailing" *International Conference On Emerging Trends In Engineering And Technology*, March 2019.

4. **Mr.M.Gokulakrishnan, Mrs.A.Dhanalakshmi,** "Analytical Study on Flexural Behaviour of Reinforced Geopolymer Concrete Beams" *International Conference on Emerging Trends in Engineering Science and Sustainable Technology(ICETESS-2018).*

5. **Ms.S.Shanmuga Sundari, Mrs.A.Dhanalakshmi,** "Strngth and Durability study on self compacting concrete by using Flyash and baslt fibres" National Conference on Innovative Practices, Recyclable Materials and Energy Efficient Methods in Civil Engineering(IPRME'18).

FACULTY ACHIEVMENTS

NPTEL COURSE

S.No.	Name of the Students	Name of the Course	Date of Completion
1.	Mr.M.Venkada subramanian	Soil mechanics/Geo technical Engineering	12 week
2.	Mr.M.Venkada subramanian	Electronic waste Management Issues and Challenges	4 week
3.	Ms.A. Dhanalakshmi	Introduction to Remote sensing	4 week
4.	Ms.A. Dhanalakshmi	Advanced Topics in the Science and Technology of Concrete	4 week

EVENTS

1. The Department of Civil Engineering has organized an Inter Collegiate Technical Symposium on **"VYUHA 2K19" on 08.02.2019**. The Speaker for this function is **Mr.S.Rajagopalan**, Rtd, Assistant Executive Engineer, Tamilnadu Highways Department.

2. One day workshop on **"Technical Challenges in Social IOT"** by DCE in association with R&D cell **Dr. Anand Paul**, Professor & Director, School of computer science and Engineering, Kyungpook National Universit,Deagu,South Korea.

3. A three days **Entreprenurship Awareness Camp** by CEA in association with EDC on **06.02.2019 to 08.02.2019**. **Mr.R. Chandra Prabhu**, Assistant Director. MSME Development Institute, **Mr.S.Viswanathan**, IOB lead Bank Manager, Virudhunagar

4. **Mr.Marimuthu**, General Managar, District Job Center, Collector Office Virudhunagar **Mr.A.Rajkumar**, MSME Trainer, and Virudhunagar.

STUDENT

NPTEL COURSE

S. No.	Name of the Students	Name of the Course	Date of Completion
1.	M. Varalakshmi	Soil mechanics/Geo technical Engineering	12 week
2.	P. Shalini	Soil mechanics/Geo technical Engineering	12 week
3.	A. Priyanka	Applied Environmental Microbiology	12 week
4.	R. Jeevitha	Electronic waste Management Issues and Challenges	4 week
5.	M. Jebamalar	Electronic waste Management Issues and Challenges	4 week

CENTER OF EXCELLENCE PROGRAMS

The Department of Electrical and Electronics Engineering has organized following value added course to our students as follows

S. No	COURSE NAME	PARTICIPANTS	TOTAL NO OF PARTICIPANTS	DATE
1.	STADD PRO	III Year Civil Students	86	29.01.19 to 04.02.19
2.	STADD PRO	IV Year Civil Students	110	03.12.18 to 07.12.18; 31.12.18 to 07.01.19
3.	Advanced Skills In AUTOCAD	II Year Civil Students	87	10.12.18 to 14.12.18

WORKSHOP

PG II Year

S.No	Name of The Student	Title	Place	Date
1.	A.T.Hema Nandini	Entrepreneurship Development Programme	31.12.2018	P.S.R.Engineering college,Sivakasi
2.	K.Priyanka			
3.	G.Mithra			
4.	G.Vijayasudha			
5.	P.Katthappan			
6.	S.Murugeswari			
7.	S.Sowmya			

III Year

1.	P.Shalini	Entrepreneurship Development Programme	8.01.2019 to 10.01.2019	P.S.R.Engineering college, Sivakasi
2.	M.K Suveka			
3.	S.Niranjana	5G and software defined network (Workshop)	21.02.2019	IT Association National Engg College, kovilpatti
4.	N.Kowsika			
5.	M.K.Suveka	Entrepreneurship Quiz	21.02.2019	Minstry of skill development & Entrepreneurship Government of india
6.	S.Karthick kumar	MAPSREC(Department of Management studies)	15.02.2019	MBA P.S.R. Engineering college,Sivakasi.
7.	P.Jaisingh	Workshop	16.3.2019	University VOC College of Engineering, Thoothukudi.
8.	R.Guru packiyam			

II YEAR

1.	B.Yogash	Entrepreneurship Training Program	27.12.2018 to 29.12.2018	P.S.R. Engineering College, Sivakasi.
2.	P.Uthayakumar			
3.	R.Pravin			
4.	A.Ramesh Kanna			
5.	S.Parama Sundar			
6.	J.Palaninathan			
7.	V.Thiagarajan			
8.	K.Rajesh			
9.	V.Ramesh Kumar			
10.	S.Sureka			
11.	P.Shalini			
12.	M.K.Suveka			
13.	Varalakshmi.M			
14.	Thenmozhi.R			
15.	Vipurajan.E			
16.	S.Sivachandran			
17.	S.Divya Lakshmi			
18.	N.Kowsika			
19.	V.Murugaveni			

SYMPOSIUM

III YEAR

Sl.No	Name Of The Student	Title	Date	Place
1.	S.Kaliswara Karuppasamy	(Technical Symposium) Connection &Quiz	15.02.2019	Department of management studies, P.S.R. Engineering college.
2.	R.Dhanapal			
3.	S.Aravind Raj			
4.	G.Selva Ganesh			

II YEAR

Sl.No	Name Of The Student	Title	Date	Place
1.	Kingslin Christopher.J	Technical Symposium	08.02.2019	P.S.R Engineering College, Sivakasi
2.	Jagatheeswaran.S			
3.	Sushanth.R			
4.	Dhivakar.T			
5.	Saravana Kumar.S			
6.	Prathiraj.N			
7.	Harini.J			
8.	Anitha.P			
9.	Rahmath Fathima.M			
10	Naveen Sudhir Kumar.S			
11	Sowmiya.B			
12	Santhosh.A			
13	Muppudathi.G			
14	C.Kesavan	(Technical Symposium) Connextion &Quiz	15.02.2019	Department of management studies, P.S.R. Engineering college.
15	Jegatheeshkumar.S			
16	N.Mani kandan			
17	M.Bharath kumar			
18	T.Sathya bama			
19	K.Jegan			
20	R.Guru Packiyam			
21	S.Manthra Moorthy			
22	A.Joseph reffin			
23	M.Dinesh			

I YEAR

Sl.No	Name Of The Student	Title	Date	Place
1.	S.Om Prakash	(Technical Symposium) Connection &Quiz	15.02.2019	Department of management studies, P.S.R. Engineering college.
2.	T.Sathya bama			
3.	R.Naveen kumar			
4.	Mugesh			
5.	Naveen Sudhir kumar			
6.	A.Rajan			
7.	G.Muppudathi			
8.	T.Dinesh			
9.	D.Vinodh			
10.	V.Jeevitha			
11.	J.Kingslin Christoper			
12.	S.Jegatheeswaran			
13.	S.Selva Bharathi			
14.	B.Gopinath			
15.	A.Rajan			
16.	A.Palani ram			
17.	V.Ashok			
18.	G.Jeya ganesh			
19.	R.Saravana			
20.	G.Sritharan			
21.	S.Saravana kumar			
22.	N.Prathip raj			
23.	M.Ram Magesh kumar			
24.	V.Surya			

PLACEMENT

SI.No	Student Name	Name of the Employer
1.	Ajay Kumar B	IDBI Federal Insurance
2.	Ajith Kumar K	IDBI Federal Insurance
3.	Anand Kumar K	IDBI Federal Insurance
4.	Aravinthan A	Presto Land Survey Institute
5.	Banupriya P	Presto Land Survey Institute
6.	Buvaneshwaran G	Presto Land Survey Institute
7.	Gajendrakumar S	Presto Land Survey Institute
8.	Giri Raja Kumaran M	M/S. Justdial
9.	Gokul T	IDBI Federal Insurance
10.	Jeyajothiramachandriga P	M/S ILM, Bangalore
11.	Kannan N	Presto Land Survey Institute
12.	Raja Nivetha S	M/S ILM, Bangalore
13.	Rajesh Kannan	IDBI Federal Insurance
14.	Rama Subramaniyan A	IDBI Federal Insurance
15.	Shanmuga Raj S	Presto Land Survey Institute
16.	Shyluck M	IDBI Federal Insurance
17.	Siva Sankar B	M/S. Ethnus
18.	Soundarya P	Eureka Forbes
19.	Surya Abisek S R	IDBI Federal Insurance
20.	Suryasiva V	IDBI Federal Insurance
21.	Uthaya Kumar M	Presto Land Survey Institute.
22.	Veera Ashok B	IDBI Federal Insurance
23.	Vignesh S	IDBI Federal Insurance
24.	Vigneshkumar S	Presto Land Survey Institute
25.	Vijaya Murali Sankar S	M/S. Ethnus
26.	Vinoth S	Presto Land Survey Institute
27.	Ariramakannan N	Eureka Forbes
28.	Gopinath R	M/S ILM, Bangalore
29.	Karthick M	Presto Land Survey Institute
30.	Manikandaprabhu T	Eureka Forbes
31.	Venkateshan J	M/S.Eureka Forbes&
32.	Vinayagamoorthy K	M/S.Eureka Forbes

EXPERIMENTAL STUDY IN ACID ATTACK ON HIGH STRENGTH OF SELF COMPACTING CONCRETE

Concrete is a very strong and versatile moldable construction material. It consists of cement, sand and aggregate mixed with water. when the cement had chemically reacted with the water, it hardens and binds the whole mix together. The initial hardening strength attains within the hours and some weeks to achieve concrete gets hardened and strength. concrete can attains continue hardened and gain strength throughout the years. Self compacting concrete(M_{70}) produces resistance to segregation by using mineral fillers or lines and using special admixtures. It is required to flow and fill special form under its own weight.it can be flow through the highly reinforced areas and must able to avoid aggregate segregation.

As per IS code provision, we have followed the some codes for using the concrete.IS 1489(part 1)-1991,the Portland pozzolona concrete of grade 53 and the properties of ppc utilized is introduced, coarse aggregate under the zone II(As per IS 456:2000).We have to use the filler materials are Quartz sand and Marble sludge powder ratio of 0,7.5%,15%,32.5%,40%.The cube of 150x150x150mm and cylinder of 150x300mm size is casted with Self compacting concrete(M_{70}) with replaced materials (Quartz sand and Marble sludge powder).We have to calculate the material test for cement(Fineness test and specific gravity test)and Fine aggregate(Sieve analysis and specific gravity test)and coarse aggregate(Bulk density and sieve analysis).The physical properties of material test result of Marble sludge powder is 2.91 for specific gravity(IS 1122:1974) and 3.5% of Fineness(IS 516:1959) and result for Quartz sand is 2.52 for Specific gravity and 5.52 for Fineness modulus.

Sulphuric acid interaction with concrete surface leads to serious adverse to concrete as it combines an acid assault and sulfate attack. Consider Sulfuric acid with different concentrations and mixing separately into water and treating cubes which contain acid mixed water. we have to add the sulphuric acid is increased by 0%,2%,4%,6%. After treating for 7,28 and 60 days we use to take cubes out for the interval of times and test the cube. The high compressive strength achieves the ratio for M-Sand (60%),Marble Sludge Powder(15%),Quartz Sand(25%).

Sridhar,

Final Yr, CIVIL

Internet of Things is a Revolutionary Approach for Future technology Enhancement

Internet of Things (IOT) is a new paradigm that has changed the traditional way of living into a high tech life style. Smart city, smart homes, pollution control, energy saving, smart transportation, smart industries are such transformations due to IOT. A lot of crucial research studies and investigations have been done in order to enhance the technology through IOT. However, there are still a lot of challenges and issues that need to be addressed to achieve the full potential of IOT. These challenges and issues must be considered from various aspects of IOT such as applications, challenges, enabling technologies, social and environmental impacts etc. The main goal of this review article is to provide a detailed discussion from both technological and social perspective. The article discusses different challenges and key issues of IOT, architecture and important application domains. Also, the article bring into light the existing literature and illustrated their contribution in different aspects of IOT. Moreover, the importance of big data and its analysis with respect to IOT has been discussed. This article would help the readers and researcher to understand the IOT and its applicability to the real world.

The Internet of Things (IOT) is an emerging paradigm that enables the communication between electronic devices and sensors through the internet in order to facilitate our lives. IOT use smart devices and internet to provide innovative solutions to various challenges and issues related to various business, governmental and public/private industries across the world. IOT is progressively becoming an important aspect of our life that can be sensed everywhere around us. In whole, IOT is an innovation that puts together extensive variety of smart systems, frameworks and intelligent devices and sensors. It could be utilized as a preparatory work before making novel innovative business plans while considering the security, assurance and interoperability.

IOT applications promise to bring immense value into our lives. With newer wireless networks, superior sensors and revolutionary computing capabilities, the **Internet of Things** could be the next frontier in the race for its share of the wallet. IOT applications are expected to equip billions of everyday objects with connectivity and intelligence. IOT is essentially a platform where embedded devices are connected to the internet, so they can collect

and exchange data with each other. It enables devices to interact, collaborate and, learn from each other's experiences just like humans do.

Wearables

Wearable technology is a hallmark of IOT applications and probably is one of the earliest industries to have deployed the IOT at its service. We happen to see Fit Bits, heart rate monitors and smartwatches everywhere these days. One of the lesser-known wearables includes the Guardian glucose monitoring device. The device is developed to aid people suffering from diabetes. It detects glucose levels in the body, using a tiny electrode called glucose sensor placed under the skin and relays the information via Radio Frequency to a monitoring device.

Agriculture

Statistics estimate the ever-growing world population to reach nearly 10 billion by the year 2050. To feed such a massive population one needs to marry agriculture to technology and obtain best results. There are numerous possibilities in this field. One of them is the **Smart Greenhouse**. A greenhouse farming technique enhances the yield of crops by *controlling environmental parameters*. However, manual handling results in production loss, energy loss, and labor cost, making the process less effective.

Industrial Automation

This is one of the fields where both faster developments, as well as the quality of products, are the critical factors for a higher Return on Investment. With IOT Applications, one could even re-engineer products and their packaging to deliver better performance in both cost and customer experience. IOT here can prove to be game changing with solutions for all the following domains in its arsenal.

- **Factory Digitalization**
- **Product flow Monitoring**
- **Inventory Management**
- **Safety and Security**
- **Quality Control**
- **Packaging optimization**
- **Logistics and Supply Chain Optimization**

- B.Yogash

II/Civil

Self-Compacting Concrete Using Ultrafine Natural Steatite Powder as Replacement to Cement

INTRODUCTION:

The self-compacting concrete (SCC), also known as self-consolidating concrete, is in the limelight for the last two decades in construction industry. Self-compacting concrete (SCC) is a concrete which can be placed and compacted into every corner of formwork purely by means of its self-weight by eliminating the need of external energy. So it does not require compaction at site or concrete plants. It has been developed in Japan to improve the durability and uniformity of concrete. The mix composition is chosen to satisfy all performance criteria for the concrete in both the fresh and hardened states. To achieve this, fly ash and silica fume were used as mineral admixtures, and super plasticizers were used in mix as chemical admixtures for design of concrete. In this regard, mass of fine aggregate is typically equal or greater when compared to coarse aggregate. Selection of coarse aggregate size also has an impact on requirement of self-compacting concrete. The development of SCC and its results on theoretical and experimental aspects were reviewed in various studies.

Materials, Mix Proportions, and Experimental Investigation:

Ordinary Portland cement of grade 43 conforming to Indian Standard (IS) 12269-1987 was used and the properties were listed in Table 1. The UFNSP of less than 5 microns similar to that of earlier studies [11–14] is used and the physical and chemical properties were presented in Table 1. UFNSP was used as pozzolanic replacement in this study. The river sand procured from Tamil Nadu Minerals Limited (TAMIN) with the specific gravity of 2.65 and passing through 2.36 mm sieve was used. Crushed granite was used as coarse aggregate with a maximum nominal size of 12 mm and bulk density of 1640 kg/m^3. The normal potable water

was used for mixing and curing process. Polycarboxylic ether based superplasticizer sky 8233 and viscosity modifier, Mastermatrix VMA 362, were used in this study as admixtures to maintain the workability.

Results and Discussion:

The results were observed on the fresh and hardened state of concrete. The tests were carried out to ascertain the flow properties of fresh concrete, compressive strength on hardened concrete, and its respective microstructural behavior. From the present study it can be concluded that the replacement of UFNSP in self-compacting concrete system can have an influence on the workability, flow of fresh concrete, compressive strength of hardened concrete, and microstructural properties. There was decrease in flow properties of SCC with increase in addition of UFNSP. The entire replacement percentage exhibits safer limit for the SCC, but the specimens with 25% of UFNSP replacement reach the limit where the typical limit ends, which confirms that further replacement is not possible in terms of flow properties. The early age strength attainment is seen in samples SCC5, SCC10, SCC15, and SCC20 even on 7 days' test where more than the target strength is achieved. The maximum strength is achieved in SCC15 specimens. The strength enhancement is seen on all replacement specimens, wherein the strength of SCC25 specimens is almost equal to that of SCCCS. The microstructures of SCC10, SCC15, and SCC20 are denser and show denser magnesium hydroxide which has an effect on strength improvement. Further magnesium and silicate are mapped, which shows the dispersion over the surface and forms denser structures. The reduced strength of SCC25 is due to the higher magnesium content. From the investigation and discussion it is concluded that the replacement of UFNSP should be maintained below 20% and the UFNSP will enhance the strength parameters of the SCC.

- Vipurajan.E
II/Civil

Lightweight Concrete

INTRODUCTION:

The first modern use of lightweight concrete (LWC) was recorded in 1917, when the American Emergency Fleet Corporation started building ships with this mixture due to its high strength and performance. Since then, LWC has become a common building material for constructing sturdy load-bearing walls, bridges, and sewer systems.

DIFFERENCE BETWEEN NORMAL AND LIGHTWEIGHT CONCRETE:

In contrast to traditional concrete, lightweight concrete has higher water content. The use of porous aggregates increases the time it takes to dry; hence, to offset this problem, aggregates are pre-soaked in water before being added into the cement.

As mentioned earlier, normal concrete can weigh between 140 to 150 Lbs/ft^3 due to the presence of denser aggregates in their natural state. As a result, many believe normal concrete to be cheaper compared to LWC. However, projects made with normal concrete require additional material for framing, cladding, and steel reinforcements – ultimately increasing the overall cost. Hence, LWC remains a cost effective construction material, especially for larger projects.

PRACTICAL APPLICATIONS:

One of the most popular structures built with lightweight concrete is the Bank of America Building in Charlotte, N.C. This shows how LWC can be used to build formidable structures, especially since the possibility of dead load being transferred from one floor to the next is greatly reduced.

LWC is thus ideal for constructing additional flooring on top of older or even newer structures, as it reduces the risk of collapse. As such, it can be used to successfully build bridges, decks, girders, piers, precast constructions, and high rise buildings with reduced density. For example, utilizing LWC in the Wabash

River Bridge allowed builders to reduce project density by 17%, and save 18% in terms of cost – amounting to a whopping $1.7 million**.**

Due to LWC's low thermal conductivity and higher heat resistance, it is now commonly used to insulate water pipes, walls, rooftops, etc. It guards against steel corrosion by forming a protective layer, which also works to insulate steel structures against rot. LWC is also commonly used to construct interstate and traffic lanes, without adding dead load to existing structures.

FOAMED CONCRETE:

This type of lightweight concrete is also known as gas concrete or foamed concrete, since it is developed by introducing large voids into the mortar mass or concrete. Voids are typically injected through a chemical reaction, or with the use of an air entraining agent.

Aerated or foamed concrete does not require flattening, exhibits appropriate thermal insulation, and is self-compacting. This makes it ideal for use in hard to reach spaces and sewer systems.

PROS & CONS OF LIGHTWEIGHT CONCRETE:

Lightweight concrete is a flexible and easily transportable building material, and requires little support from materials such as steel or additional concrete. This makes it cost effective, especially for larger building projects.

Additionally, due to its low thermal conductivity and fire resistance, LWC is an ideal material for insulating against heat damage.

Despite its reduced density, structures built with LWC are unlikely to collapse. In fact, LWC is less likely to shrink compared to normal concrete and also shows increased resistance to rot and termite infestations.

However, LWC also has a few limitations. Since it has higher water content, it takes longer to dry out. Moreover, adding too much water can result in the formation of laitance layers, while compromising on water to offset this limitation may result in a weaker mixture.

Since LWC is also highly porous, it is difficult to place the mixture correctly. Another issue with LWC is that the cement tends to separate from aggregates if mixed incorrectly.

Results and Discussion:

Lightweight concrete is a cost effective alternative to normal concrete, especially since it does not compromise on the structure's strength. The higher porosity of LWC also influences its thermal conductivity, making it suitable for projects that require insulation from heat damage.

- **J.N.Puvaneshwaran**
II/Civil

Know Your Alumni

Project Manager

LETS America Inc.

Mexico, America

Civil (2011-2015)

It's a great pleasure to share the good old memories of college life. I did my graduation in Civil Engineering from PSREC. I am in debated to PSREC for making me a better qualified professional. PSREC provides quality education in every aspect which enable us to thrive and achieve goals without a decimal Pont. In particular, all faculty members are friendly and they maintain good mental harmony between each student for the perfect outcome. I would like to express my sincere gratitude for everything. I can assure that the campus delivers conducive environment for all new aspirants Thank you so much.

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