AUTONOMOUS (NAAC & NBA)

EGS PILLAY ENGINEERING COLLEGE

NAGAPATTINAM | AFFILIATED TO ANNA UNIVERSITY | APPROVED BY AICTE |

DEPARTMENT OF CIVIL ENGINEERING

MAGAZINE 22

SRISHTI 22

PEACE ASSOCIATION OF CIVIL ENGINEERING

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SHRI G. SHANKAR GANESH

JOINT SECERATARY

MESSAGE FROM SECRETARY'S DESK

I FEEL PROUD TO HEAR THAT OUR CIVIL DEPARTMENT IS ORGANIZING A LOT OF TECHNICAL EVENTS LIKE SYMPOSIUM, WORKSHOP, SEMINAR, AND WEBINAR INNOVATIVE PROJECTS, FACULTY ACHIEVEMENTS AND STUDENT ACHIEVEMENTS ARE COMING UP WITH A MAGAZINE ON THE OCCASION OF THE EVENT. THIS TYPE OF TECHNICAL EVENTS WILL GIVE THE BUDDING ENGINEERS, A PLATFORM TO SHOW CASE THEIR TALENTS AND LEADERSHIP QUALITIES. I WISH THE FACULTIES AND STUDENTS OF CIVIL DEPARTMENT. A WONDERFUL TECHNICAL EVENTS AND A GOOD LEARNING EXPERIENCE. I WISH YOU ALL FOR THE SUCCESS.

Dr.S. RAMABALAN., M.E., PhD.,

MESSAGE FROM PRINCIPAL

WARM AND HAPPY GREETINGS TO ALL. IT'S MY IMMENSE PLEASURE THAT **DEPARTMENT OF CIVIL ENGINEERING** IS ORGANIZING THE LOT OF TECHNICAL EVENTS.

UNDER THE ABLE GUIDANCE OF OUR SECRETARY SHRI. S. SNTHILKUMAR, Jt.SECRETARY SHRI. S. SANKAR GANESH CONTINUES TO MARCH ON THE WAY OF SUCCESS WITH CONFIDENCE, SHARP, CLEAR TO STAY COMPETITIVE , SIGHTED VISION AND PRECISE AND DECISION MAKING OF HIM HAS BENEFITED OUR COLLEGE.

THIS TECHNICAL EVENTS ARE EFFORT ON IN THE DIRECTION TO GIVE AN EXPOSURE TO THE STUDENTS ON THE RECENT DEVELOPMENT IN CIVIL ENGINEERING FIELD. IT ALSO PROVIDES A PLATFORM TO OUR STUDENTS TO EXHIBIT THEIR INHERENT WITH APPRECIATION THE HARD WORK, INVOLVEMENT AND EFFORT TAKEN BY THE TEAM OF FACULTY AND STUDENTS IN ORGANIZING THE EVENTS.

I CONGRATULATE ALL THE CONCERNED WITH GRATITUDE AND WISH THEM.

Dr.S.ANAND KUMAR VARMA., PhD.,

MESSAGE FROM HOD

I AM GLAD THAT OUR DEPARTMENT WAS QRRGANIZED THE LEVEL OF TECHNICAL EVENTS AND A GREAT NUMBER OF YOUNG BUDDING TECHIES FROM DIFFERENT PARTS OF THE WORLD ARE GOING TO MEET UNDER ONE UMBRELLA AND INDULGE IN DISCUSSING AND DELIBERATING ON VARIOUS TOP-NOTCH CONCEPTS IN HUMANIZING TECHNOLOGY. SCIENCE IS EXPONENTIALLY GROWING BY LEAPS AND BOUNDS AND WE HAVE TO KEEP OURSELVES ABREAST OF THE LATEST TECHNOLOGIES AND EMBRACE INTERDISCIPLINARY APPROACH. STUDENTS NEED TO PURSUE INTERDISCIPLINARY, MULTI-SKILLED AND APPLICATION-ORIENTED EDUCATION AFTER GRADUATION IN ORDER TO ENHANCE NOT ONLY THEIR EMPLOYABILITY OPPORTUNITIES BUT ALSO THE PROSPERITY OF THEIR FUTURE. THINKING OUT-OF-THE-BOX IS THE BASIC ROOT FOR ALL INNOVATIONS AND INVENTIONS. I STRONGLY BELIEVE THAT THE TECHNICAL EVENTS ARE PROVIDED THE WONDERFUL OPPORTUNITY FOR THE YOUNG MINDS TO VOICE THEIR OWN IDEAS AND VIEWS SO THAT THE FUTURE GENERATION WOULD BE BENEFITED. I WOULD SUGGEST THE SLOGAN “THINK AND LINK; LINK AND THINK” SHOULD DEVELOP INTERDISCIPLINARY RESEARCH WHICH IS THE MOST SOUGHT-AFTER ACTIVITY FOR THE BETTERMENT OF THE HUMAN KIND. I LIKE TO CONGRATULATE OUR DEPARTMENT STUDENTS, AND FACULTY MEMBERS AND ALL THOSE WHO HAVE CONTRIBUTED FOR THE SUCCESSFUL EVENTS.

MY SINCERE AND HEARTY WISHES FOR THE GRAND SUCCESS OF CIVIL DEPARTMENT..

VISION & MISSION OF THE INSTITUTE

Vision of the Institute

Envisioned to transform our institution into a "Global Centre of AcademicExcellence"

Mission of theInstitute

- To provide world class education to the students and to bring out their inherent talents
- To establish state-of- the-art facilities and resources required to achieve excellence in teaching-learning, and supplementary processes
- To recruit competent faculty and staff and to provide opportunity to upgrade their knowledge and skills
- To have regular interaction with the industries in the area of R&D, and offer consultancy, training and testing services
- To establish centers of excellence inthe emerging areas of research
- To offer continuing education, and non-formal vocational education
- programmes that are beneficial to thesociety

VISION & MISSION OF THE DEPARTMENT

VISION

To evolve a centre of excellence by imparting quality technical education and promote research to meet the emerging challenges in the field of civil Engineering.

MISSION

- **M1:** Provide quality education through innovative teaching and learning practices.
- **M2:** Encourage faculty and students to pursue higher education and carry out socially relevant innovative research thereby establishing centre of excellence in emerging areas of research.
- **M3:** Offer consultancy services using state of the art facilities fulfilling the needs of the industry and society.
- **M4:** Enable of students and faculty to play leadership roles in a sustainable manner by adopting of professional ethics, entrepreneurship activities, interpersonal skills and lifelong learning attitude.

OBJECTIVES & OUTCOMES

Program Educational Objectives

After successful completion of the programme, students will be able to

PEO1: Become as a successful Civil Engineer to meet the demand driven needs in the field of Civil Engineering and related profession or pursue higher study and research or become an entrepreneur.

PEO2: Develop core competence by analyzing ad design of Civil engineering systems with social awareness and responsibilities.

PEO3: Build professionalism, ethical approach, communication skills, and team work in their profession and adapt to modern trends by engaging in lifelong learning.

Program Outcomes

PO1	Application knowledge of mathematics, science, engineering fundamentals
PO2	Problem Analysis.
PO3	Design and Development of Solutions
PO4	Conduct investigations by designing experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions
PO5	Modern Tool Usage
PO6	Assessing societal, health, safety, legal and cultural issues
PO7	Examining Environmental impact and Sustainability
PO8	Commitment to professional ethics.
PO9	Function effectively as an individual, and as a member or leader in diverse teams and in multi disciplinary settings
P10	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	Examine Project Management and Financial aspects
PO12	Instil Life-long Learning

Program Specific Outcomes (PSOs)

Graduates will able to

1. Analyze the effects of natural calamities like Tsunami, storms, earthquakes, landslides etc. in design of stable structures.

2. Use co-friendly materials and mechanism for sustainable and life-line infrastructures

CHIEF EDITOR'S CORNER

Dr.ASHWINI.B.,M.E.,Ph.D.,

Assistant Professor/CIVIL

Department of Civil Engineering,

E.G.S. Pillay Engineering College,Nagapattinam.

It is an occasion of immense pleasure for the Department of CIVIL Engineering to publish the magazine "**NIRMAN 22**". The Editorial board of department of **NIRMAN 22** wants to thanks all the faculty members and students who have made this issue a success by providing an article. This magazine focuses on the recent trends evolved in the field of CIVIL engineering & wants to provide advanced knowledge and awareness among the students about the same. The Editorial board also wants to thanks the Management of the Institute and Head of the department for inspiring us to go forward in publishing this magazine.

Civil engineering is an important profession because it helps us make our world a better place. Engineers work to improve our transportation systems, our buildings, our water supplies – anything that has an impact on human life

Engineers are responsible for creating solutions that make life easier for everyone involved – from the builders who erect the buildings, to the motorists who use the roads, to the people who live in them.

In our department faculties and students are creating the success to the core of environment and we are establishing the signature of the branch in our district. Our Sincere thanks to all

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ASSOCIATE EDITOR MESSAGE

Greetings, fellow CIVIL enthusiasts!

I'm ARISH, a Final year student and Associate Editor for our departmental magazine. This issue wouldn't be possible without the unwavering dedication of my fellow editors and the invaluable guidance of our Chief Editor, Dr. ASHWINI B. We're also incredibly grateful to the entire department faculty, led by our esteemed Head of the Department for their constant support throughout this journey.

A special thank you goes to EGSPEC management and our department fraternity for recognizing the vitality of student publications and providing us with this exciting opportunity.

Within these pages, you'll discover a diverse and captivating collection of articles and projects showcasing the remarkable talent and innovation brewing within our department. Dive into the world of groundbreaking discoveries in Civil Department, and be inspired by ideas that push the boundaries of our field.

Whether you're a seasoned professional or just embarking on your CIVIL journey, this magazine offers something for everyone. As you explore its content, I encourage you to be inspired, gain new knowledge, and perhaps even contribute your own voice in future editions.

Happy reading!
Sincerely,
ARISH.K
IV-YEAR
*Associate Editor – **NIRMAN 24***

Determination of air quality index and its impacts on human health in Chennai City

Dr.S.ANAND KUMAR VARMA. Professor

Department of Civil Engineering

E.G.S. Pillay engineering college

Air pollution in India particularly in metropolitan cities is a serious issue mainly due to vehicular emission, traffic congestion, burning of coal, fuelwood process. The objective of this project is to provide insightful details about the current situation of air quality across five locations in Chennai city and its impacts using an air quality detector meter. The concentration of pollutants namely Carbon dioxide (CO2), Formaldehyde (HCHO), Suspended Particulate Matter (SPM), Total Volatile Organic Compounds (TVOC) and, meteorological conditions like Temperature and Humidity are measured at five polluted areas in Chennai metropolitan city and Air Quality Index values are calculated. From the above Air Quality Index values, it is found that Marina Beach bus stop, Velachery bus stop, Mount Road government estate metro station, Koyambedu bus station, Alandur metro station are identified as problematic zones and health impacts are Published.

Utilisation Of Sea Sand As Partial Replacement Of Fines In Resin Bonded Cement Concrete

Dr.N.SAKTHESWARAN. Professor
Department of Civil Engineering
E.G.S. Pillay engineering college
saktheshwaran@egspec.org

The usage of aggregates has caused serious ecological problems leading to the requirement of an alternative material to meet the demand. The alternative construction material for the upcoming graduates thus chosen for replacing cement and aggregates should not only meet the design and strength requirements but also the ecological criteria. The present research work tries to improve the service life of sea sand concrete by using them in combination with epoxy resin. The scope of the work revolves around the extended to earlier assessment of the properties of concrete manufactured using sea sand as replacement for natural river sand upto 50% and 12% epoxy resin as partial substitute for cement.

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Dr.R.SIVAKUAMR. Professor

Department of Civil Engineering

E.G.S. Pillay engineering college

Effect Of Tungsten Carbide Addition On The Microstructure And Mechanical Behavior Of Titanium Matrix Developed By Powder Metallurgy Route

The ambition of this research work is to evaluate the hardness and wear behavior of titanium alloy reinforced with tungsten carbide particle (WC) composite prepared by powder metallurgy route. Titanium alloy with 5 and 10 wt% tungsten carbide reinforced particle (WC) composites was manufactured through powder metallurgy technique. The hardness and wear properties of the composite are measured in hardness and wear tests. The microstructures of the composite are evaluated by utilized optical microscopy. The fabricated titanium composites exhibit improved hardness and wear resistance. The hardness and wear specimens were prepared and tested by used Vickers hardness tester and a pin-on-disk wear test apparatus machine at room temperature. The hardness, wear rate, and CoF of TMCs are 476.79 VHN, 13.158 mg/m ($\times 10^{-3}$), and 0.955420243, respectively. The results elucidated the microstructure, hardness, wear rate, coefficient of friction, and SEM images of wear for the effects of added reinforcement tungsten carbide.

Mechanical Property Of Recycled Aggregate Concrete Incorporating Alccofine With River Sand And M-Sand

Mr. S.Santhosh Kumar, A.P.
Department of Civil Engineering
E.G.S. Pillay engineering college

Across the globe, aggregate recycling from existing concrete is becoming a trend in construction industry these days, owing to scarcity of naturally available raw materials. This paper provides information about the mechanical property of 100% recycled aggregate in concrete, while alccofine 1203 has been used as a partial replacement for cement. A comparison was also made with river sand, m-sand, and superplasticizer for recycled aggregate concrete on their effect of various mixing methods. The study tested different mixing methods such as Surface Coated Aggregate (SCA), Two-Stage Mixing Approach (TSMA) followed by Double Mixing Methods (DMM). These methods help in improving the strength and further incremented the recycled-aggregate's microstructure in ITZ (Interfacial Transition Zone). The results attained from TSMA method were promising in terms of high compression with flexural strength, in comparison with conventional mixing method.

FLEXURAL PERFORMANCE OF REINFORCED CONCRETE BEAMS MADE WITH RECYCLED COARSE AGGREGATE INCORPORATING ALCCOFINE

Mr. S.Santhosh Kumar, A.P.
Department of Civil Engineering
E.G.S. Pillay engineering college

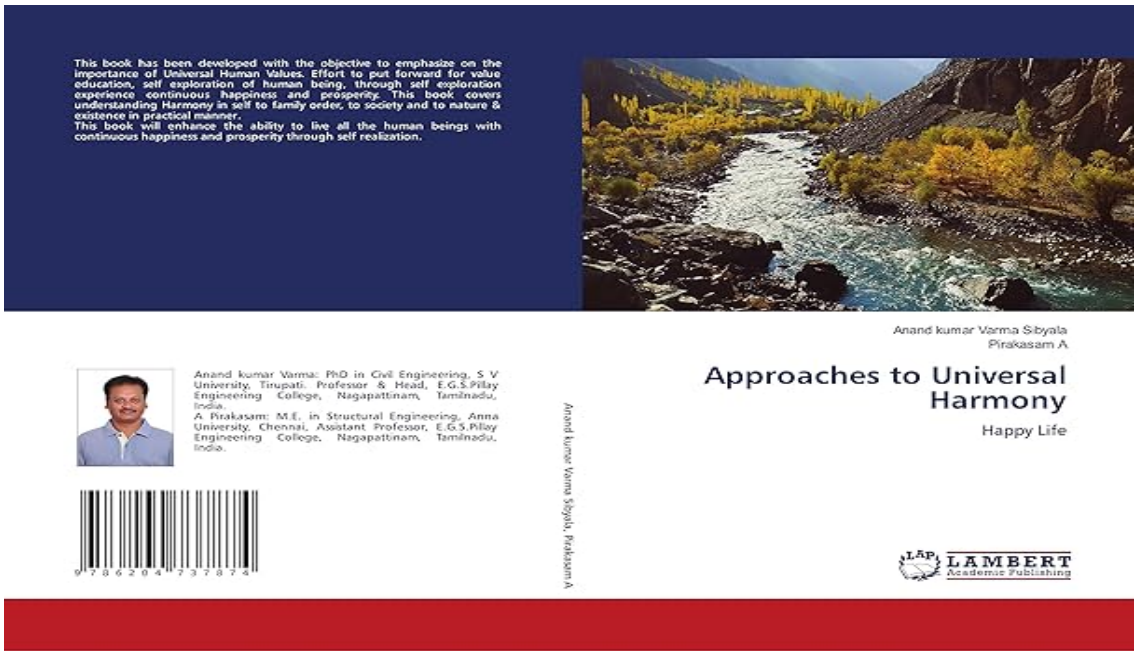
The flexure behaviour of 100% recycled coarse aggregate (RCA) concrete beams was studied using alccofine as cement replacement materials. 36 beams were tested in which twelve beams are made of recycled coarse aggregate, twelve beams made with alccofine and natural aggregate; and twelve control beams were made of natural coarse aggregate (NCA) tested in four point loading condition. The parameters used for the study are 100% NCA with and without alccofine mix compared with 100% RCA with alccofine and tensile rebar ratio of 0.68 and 1.03%. The crack patterns, ductility and flexural strength of RCA concrete beams are affected by 100% RCA content significantly and alccofine helps in improving the strength.

Experimental Assessment over Theoretical Prediction & Analytical Studies on Flexure Behaviour of RC Beams with Recycled Coarse Aggregate

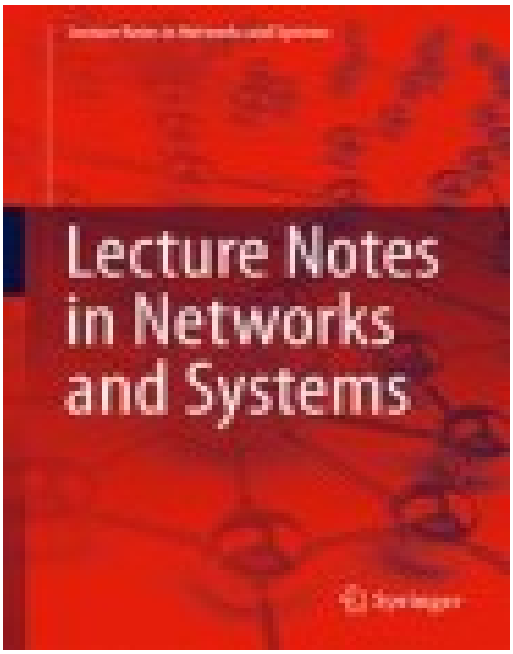
Mr. S.Santhosh Kumar, A.P.
Department of Civil Engineering
E.G.S. Pillay engineering college

The rapid urbanization in Indian cities and the increasing fade of fresh aggregate in different locations generate enormous volumes of demolition and construction waste. Recycling the construction waste will reduce land pollution and economize in natural resources. This paper describes an experimental test program, theoretical and analytical analysis that examines the reinforced beams with recycled coarse aggregate using alccofine. A test result of four-point flexure bending on parameters of flexural capacity and flexural stiffness, theoretical predictions using IS 456:2000, ACI 318-11, ACI 318-14, and EC2; and analytical analysis using ANSYS workbench. The study outcomes and theoretical prediction calculations of IS 456:2000, ACI 318-11, ACI 318-14, and EC2 were compared and the results underestimate the flexural strength whereas analytical results overestimate the flexural strength for the reinforced concrete (RC) beams

BOOKS PUBLICATIONS



Dr.Anand Kumar Varma &A.Pirakasam	Approchers to universal Hormony	2022



Dr.Anand Kumar Varma &A.Pirakasam	Real-Time Video Tracking Framework With Moving Object Segmentation in Stream Data	2021

Dr.S. Anand Kumar Varma Environmental and Social impact Assesment 2021

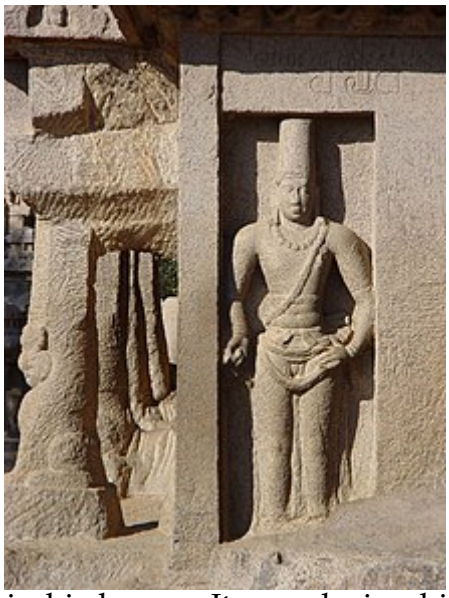
CONSULTANCY (FROM INDUSTRY)

A Major Project for consultancy was done by the ' Construction of Sidhar Kovil School Building' for client concern named Salya Construction by Mr.Arjunan Dr.Sivakumar for the total project estimate of Rs 1,66,00000.

MINOR PROJECTS

Name of the project	Customer Detail	Co-ordinator	Amount in Rs
Construction Material Testing	AE/Agriculture /Nagai	Mr.Arjunan Dr.Sivakumar	8,500
Construction Material Testing	T.Sundaravadivelu	Mr.Arjunan Dr.Sivakumar	6500
Construction Material Testing	Abirami Hospital PVT Lt	Mr.Arjunan Dr.Sivakumar	1200
Construction Material Testing	Athiya Solar Pvt ltd	Mr.Arjunan Dr.Sivakumar	1200

FOOD FOR THOUGHT



Narasimhavarman I was a Pallava emperor who reigned from 630 CE to 668 CE.[1] He shared his father Mahendravarman I's love of art and completed the works started by Mahendravarman in Mamallapuram. During his reign, the famous Pancha Rathas, a monolithic rock-cut temple complex and a UNESCO World Heritage Site was constructed. He avenged his father's defeat at the hands of the Chalukya monarch, Pulakeshin II in the year 642 CE. Narasimhavarman I was also known as Mamallan (great wrestler), and Mamallapuram (Mahabalipuram) was named in his honour.It was during his reign, in 640 CE, that the Chinese traveller Hiuen Tsang visited Kanchipuram.

Mamallapuram (also known as Mahabalipuram]), is a town in Chengalpattu district in the southeastern Indian state of Tamil Nadu, best known for the UNESCO World Heritage Site of 7th- and 8th-century Hindu of Monuments at Mahabalipuram. It is one of the famous tourist sites in India. The ancient name of the place is Thirukadalmallai. It is a part of Chennai Metropolitan Area. It is a satellite town of Chennai. Mamallapuram was one of two major port cities in the Pallava kingdom. The town was named after Pallava king Narasimhavarman I, who was also known as Mamalla. Along with economic prosperity, it became the site of a group of royal monuments, many carved out of the living rock. These are dated to the 7th and 8th centuries: rathas (temples in the form of chariots), mandapas (cave sanctuaries), the giant open-air rock relief the Descent of the Ganges, and the Shore Temple dedicated to Shiva. The contemporary town plan was established by the British Raj in 1827

EVENTS ORGANIZED

STUDENTS ATTENDED THE WORKSHOP ON BUILDING CODE

STUDENTS ATTENDED THE "STADD PRO" TRAINING

STUDENTS ACHIEVEMENTS
COURSES COMPLETED

Our students have attended various knowledge enhancement course which were conducted by the leading civil engineering oriented companies and various technical institutions. The firms like l&T Edutech have conducted courses on Basic Construction materials and Concrete Technology. NPTEL courses on topics Concrete Technology by IIT Kanpur and IIT Madras have also successfully completed by our students.

Name	Title	Conducted by
Aravind R	Basic Construction Materials	IIT - Kanpur
Prasanth V	Concrete Technology	IIT - Madras
Devasri C	Concrete Technology	IIT - Madras
Priyadharshine S	Concrete Technology	**IIT - Madras**
Vinoth S	Concrete Technology	**IIT - Madras**
Akash R	Concrete Technology	**IIT - Madras**
Arasath Ahamed Malimar J	Concrete Technology	**L & T, Chennai**
Priyadharshine S	Concrete Technology	**L & T, Chennai**
Nivas M	Concrete Technology	**L & T, Chennai**
Shahil Mohamed M	Concrete Technology	**L & T, Chennai**
Prasanth V	Concrete Technology	**L & T, Chennai**
Nithesh N	Concrete Technology	**L & T, Chennai**
Krithik Bothra R	Concrete Technology	**L & T, Chennai**
Bavadharani S P	Concrete Technology	**L & T, Chennai**
Mohamed Abdul Basith M	Concrete Technology	**L & T, Chennai**
Hariharan E	Concrete Technology	**L & T, Chennai**
Abi S	Concrete Technology	**L & T, Chennai**
Vinoth S	Concrete Technology	**L & T, Chennai**
Devasri C	Concrete Technology	**L & T, Chennai**
Sudharsan S	Concrete Technology	**L & T, Chennai**
Varatharajan R	Concrete Technology	**L & T, Chennai**
Muguesh M	Concrete Technology	**L & T, Chennai**

CAMPUS REQUIRTMENT

In our Civil Department more than 120 students are recruited in the various companies and also more than 30 students were placed in reputed companies. Their recruitment and made a proud moment to our department. We are effectively encouraging our students to expose their knowledge and integrate their ideas to various companies. Moreover, it will create a bright future for them through our institution.

S.NO.	NAME	COMPANY
1	Hariharan.E	L & T Edutech
2	Mohamed adbulbasith	Pinnacle Infotech Solutions
3	R.krithikbothra	Pinnacle Infotech Solutions
4	Sudharasan.S	CIEL
5	M. Nivas	Practically
6	Alex pandiyan s	Balaji Builders
7	Karthikeyan A	Balaji Builders
8	Manju G	Balaji Builders
9	Muniswaran V	Balaji Builders
10	Subittavarshini S	Balaji Builders
21	Balaguru b	CAD Point
22	Mohamed faheem	CAD Point
23	Varatharajan. R	CAD Point
24	Arthi M	CADD leader
25	Priyadharshine S	CADD leader