SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
(AN AUTONOMOUS INSTITUTION)
(APPROVED BY AICTE, NEW DELHI AND AFFILIATED TO PONDICHERRY UNIVERSITY)
(ACCREDITED BY NBA-AICTE, NEW DELHI, ACCREDITED BY NAAC WITH "A" GRADE)
MADAGADIPET, PUDUCHERRY - 605 107

DEPARTMENT OF CIVIL ENGINEERING

In Association with

NAAC NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

Internal Quality Assurance Cell (IQAC)

The Institution of Engineers (India)
(Established 1920, Incorporated by Royal Chapter 1935)
PUDUCHERRY STATE CENTRE
(Ground Floor, PWD Compus, No:63, N.S.C.Bose Salai, Puducherry-605001)
www.ieipse.org, Email: puducherrysc@ieindia.org, Mobile: 9489766701

Organizes

A Seminar on

"PREFABRICATED STRUCTURES – AN OVERVIEW"

14.02.2025

By

Dr.V.Prabakaran,

Professor, Department of Civil Engineering

Puducherry Technological University, Puducherry

Academic Year 2024-2025

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Department of Civil Engineering

Circular

SMVEC / CIVIL /EVEN/ 2024-2025 / EVENT / 01 Date: 10.02.2025

The Department of Civil Engineering and SMVEC of Institution of Engineers (India) IEI has planned to conduct a Seminar on **"Prefabricated Structures – An Overview"** for the benefit of Final year Civil Engineering students on 14.02.2025 by **Dr.V.Prabakaran,** Professor, Department of Civil Engineering, Puducherry Technological University, Puducherry. The seminar is planned to be conducted in our Engineering Block Seminar Hall in 3rd floor from 1.30 pm and students are instructed to attend the session without fail.

(Mr.V.Murugappan)
Assistant Professor

(Dr.S.Sundararaman)
Head of the Department

Copy to:

1) All Faculties
2) 4th Year Class Representative
3) Department Notice Board

Poster for the Seminar

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25 YEARS

SILVER JUBILEE CELEBRATION

DEPARTMENT OF CIVIL ENGINEERING

In Association with

The Institution of Engineers (India)
Puducherry State Centre

Organizes

Seminar on

"Prefabricated Structures- An Overview"

Time: 01:30 PM
Date: 14/02/2025

Venue: Seminar Hall, SMVEC

Dr.V.PRABAKARAN, Ph.D
Professor, Department of Civil Engineering,
Puducherry Technological University, Puducherry

RESOURCE PERSON PROFILE

Dr. V. Prabakaran is a distinguished academic with extensive experience in the field of Strucutral Engineering, currently serving as Professor in the Department of Civil Engineering at Puducherry Technological University. His educational background includes a Ph.D. in Civil Engineering, Tamil Nadu, India, from Annamalai University.

Academic and Professional Experience:

Professor (2025): Before his current role, he served as Professor at the same university, contributing significantly to the academic growth of the department and the university

Research and Specialization:

Dr. V. Prabakaran research primarily revolves around Utilization of industrial by products, Self curing concrete, Recycled mortar/concrete and High strength mortar/ High strength fiber reinforced concrete.

Research Projects and Contributions:

1. Experimental studies on self-curing concrete using M sand- 2017

2. Studies on the utilization of bottom ash in mortar and concrete -2001

3. Study on strength properties of graphene oxide and bottom ash based cement mortar- 2018.

4. Durability studies on graphene oxide and bottom ash cement concrete- 2018.

5. Studies on the effect of bottom ash on cement mortar - 2009

6. Studies on strength properties of graphene oxide and bottom ash based cement mortar- 2019

7. Studies on effect of polypropylene fibre with bottom ash based cement mortar- 2022.

8. Studies on durability of bottom ash based cement mortar-2022.

9. Study on mechanical properties of bottom ash based cement mortar using industrial by products- 2022

10.Experimental study on strength and durability properties of bottom ash based self-curing concrete-2022

11.Study on mechanical properties of bottom ash based cement mortar using industrial by products-2022

Current Research

1.Utilization of industrial by products 2. Self-curing concrete 3. Recycled mortar/concrete 4. High strength mortar/ High strength fiber reinforced concrete

Journals

[1]. R Perumal, V Prabakaran, (2020), Estimating the compressive strength of HPFRC containing metallic fibers using statistical methods and ANN. Advances in concrete construction 10 (6), 479-488.
[2]. P Ramadoss, V Prabakaran, K Nagamani, (2009), Toughness of steel fiber reinforced silica fume concrete under compression. International Journal of Applied Engineering Research 4 (2), 295-309,
[3]. P Ramadoss, V Prabakaran, K Nagamani, (2007), Dynamic mechanical performance of high-performance fiber reinforced concrete. International conference on recent developments in structural Engineering.
[4]. P Ramadoss, V Prabakaran, K Nagamani Investigations on the Splitting Tensile Strength of High-Strength Steel Fiber Reinforced Silica Fume Concrete.
[5] V. Prabakaran, P. Ramadoss, "Exploring the Feasibility of Unprocessed Lignite Bottom Ash as A Fine Aggregate in Cement Mortar," SSRG International Journal of Civil Engineering,vol. 10, no. 12, pp. 40-49, 2023.
[6] Prabakaran V, Dr. Ramadoss P, Studies om The Interaction of Polypropylene Fiber With Mortar Made of Cement And Bottom Ash, Eur. Chem. Bull. 2023, 12(Special Issue 13), 01 –09

Conferences

V. Prabakaran, P. Ramadoss, Evaluation of rheological and mechanical properties of bottom ash based masonry mortar with graphene oxide, NIT, Calicut- 2022

Books

1. “AI STATICS AND MECHANICS OF MATERIALS" ISBN 978-93-6096-242- 5 – COSMAS SCIENTIFIC PUBLICATIONS-, DOI:https://doi.org/10.5281/zenodo.10596558 .

2.“AI AND ML RESEARCH METHODOLOGY" ISBN 978-93-6096-486-3 COSMAS SCIENTIFIC PUBLICATIONS - DOI:https://doi.org/10.5281/zenodo.10649121

Prefabricated Structures – An Overview

IEI Students Chapter of CIVIL Department, Sri Manakula Vinayagar Engineering College and The Institution of Engineers (India), Puducherry State Centre organized a Seminar on Prefabricated Structures - An Overview. The distinguished Chief Guest for the event was Dr.V.Prabakaran, Professor, Puducherry Technological University, Puducherry and India. The seminar was conducted to create awareness among students about the types of prefabricated structures, their benefits, challenges, and their growing applications in today's construction industry. It will also provide insights into the trends shaping the future of prefabricated construction, highlighting how these methods are contributing to more efficient and sustainable development.

1. Introduction

Prefabricated structures, also known as modular or pre-engineered buildings, are buildings or parts of buildings manufactured in a factory and assembled on-site. These structures are becoming increasingly popular in the construction industry due to their time-saving, cost-effective, and quality-controlled nature. Prefabrication involves manufacturing building components in advance, which are then transported and assembled at the final construction site. The report explores various types, benefits, challenges, and trends associated with prefabricated structures in modern construction.

2. Types of Prefabricated Structures

- **Modular Construction**: This method involves assembling pre-made modules or units at the construction site. These modules can include walls, windows, doors, and flooring. This method is particularly common for residential buildings, schools, and offices.
- **Panelized Systems**: These are pre-manufactured panels (walls, floors, roofs) that are transported to the site and then assembled into the final structure. It offers flexibility in design and allows for a higher degree of customization compared to modular construction.

- **Precast Concrete Structures**: Precast concrete elements, such as beams, columns, and slabs, are fabricated in controlled factory environments and transported to the construction site for quick assembly. These structures are commonly used in large commercial buildings and infrastructure projects.
- **Hybrid Prefabrication**: This method combines various forms of prefabrication techniques to take advantage of the benefits of each. For example, a building may have modular units for its interiors but precast concrete for its external structure.

3. Benefits of Prefabricated Structures

- **Time Efficiency**: Prefabricated structures are produced in a factory setting, often while site preparation (like foundation work) is being done simultaneously. This parallel process significantly reduces the overall construction time.
- **Cost-Effectiveness**: The controlled manufacturing environment reduces material waste and minimizes errors, which in turn reduces overall construction costs. Additionally, faster project completion means lower labor and financing costs.
- **Quality Control**: Since the components are made in factories under controlled conditions, there is a higher level of precision and quality assurance compared to traditional construction methods.
- **Sustainability**: Prefabrication can result in reduced environmental impact due to efficient use of materials, energy, and reduced waste. Additionally, many prefabricated structures are designed for energy efficiency and easy disassembly, contributing to sustainability in construction.
- **Flexibility and Customization**: Many prefabricated systems allow for customization in terms of size, shape, and design, offering greater flexibility compared to traditional construction methods.

4. Challenges in Prefabricated Construction

- **Transportation and Logistics**: Transporting large prefabricated units to the site can be challenging, especially in areas with poor infrastructure or remote locations. There may be limitations on the size and weight of components that can be transported.
- **Initial Capital Investment**: While prefabricated structures can save money in the long run, the initial cost of manufacturing the prefabricated components and the investment in the necessary logistics can be high.

- **Design Limitations**: Despite the growing flexibility in prefabrication, there are still some constraints in terms of design customization when compared to traditional construction methods, particularly when considering complex architectural forms.
- **Skilled Labor**: Although prefabricated construction requires less on-site labor, specialized knowledge and skills are required for the assembly of the structures. Training labor forces to handle this new construction approach can be challenging.

5. Applications of Prefabricated Structures

- **Residential Buildings**: Prefabricated homes have gained popularity due to their speed of construction, affordability, and modern aesthetics. Many companies offer customizable designs for residential buildings made from modular or panelized systems.
- **Commercial Buildings**: Offices, schools, hospitals, and other commercial buildings are increasingly utilizing prefabricated components to minimize disruption, reduce construction time, and cut down on costs.
- **Infrastructure Projects**: Bridges, tunnels, and other infrastructure projects benefit from prefabricated components like precast concrete elements that allow for faster construction and improved safety.
- **Disaster Relief**: Prefabricated structures are often used in emergency situations, such as after natural disasters, to quickly provide temporary or permanent housing, medical centers, and schools.

6. Conclusion

Prefabricated structures offer numerous advantages, such as faster construction, cost savings, high-quality output, and environmental sustainability. With the ongoing advancements in technology and the growing focus on sustainable construction, prefabrication is expected to play an increasingly important role in the building industry. While challenges such as logistics, design limitations, and the need for skilled labour remain, the future of prefabricated structures looks promising, especially in rapidly developing urban areas and infrastructure projects.

Photo Gallery

Welcome Address by Ms. S.B Varsha II Year Civil Engineering Student

Dr.S.Sundararaman HOD / CIVIL felicitates the function

Introduction of Chief Guest by Ms. S Pradheepa, II Year Civil Engineering Student

Mr.V.Murugappan, Asst. Professor, Civil Department Honoring the Chief Guest Dr. V. Prabakaran, Professor, Puducherry Technological University, Puducherry

Chief Guest Addressing to the Students

Interaction of Chief Guests with Students

Students Participants List

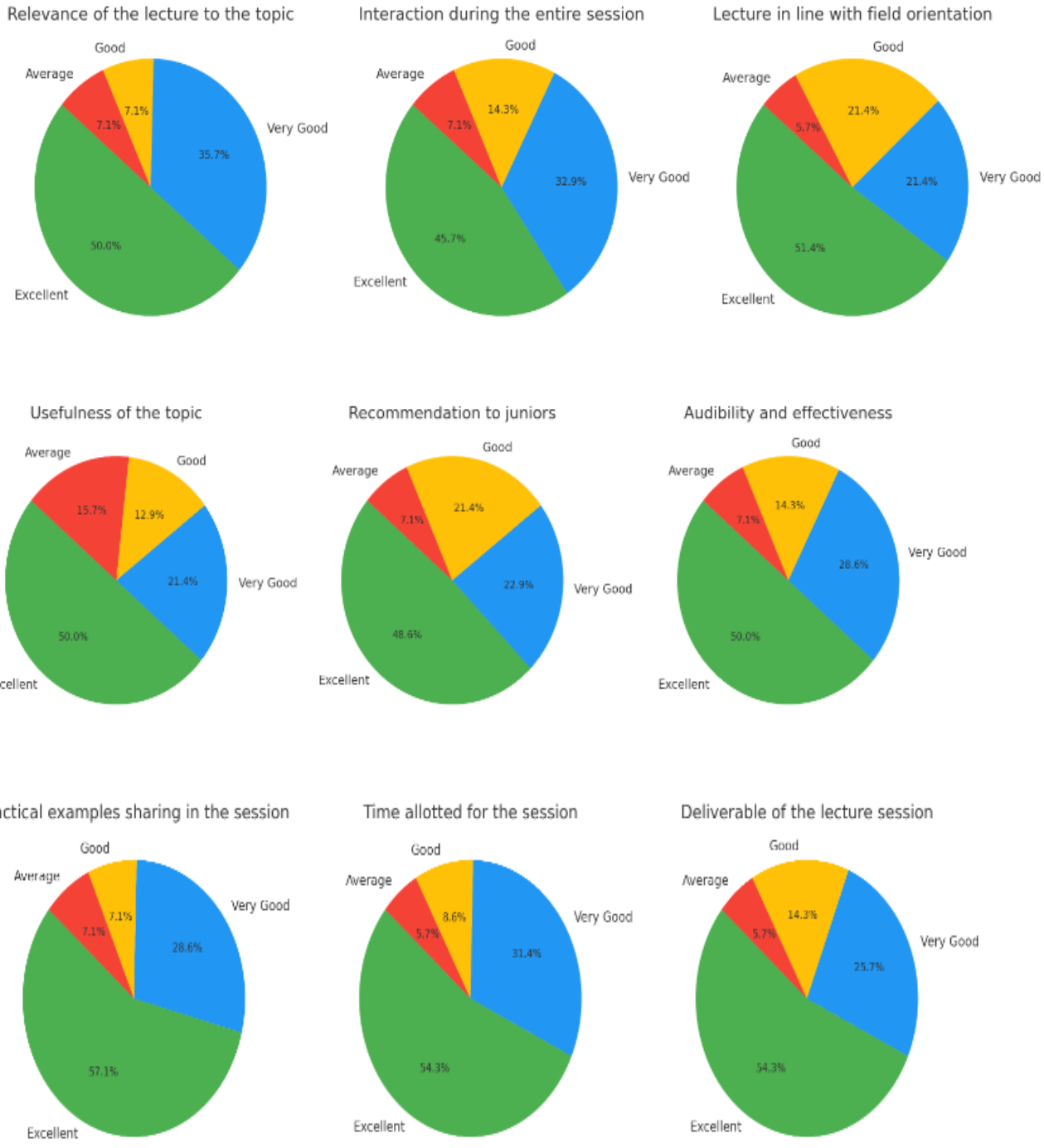
SL.No	Enroll. No	Name of the Students
1.	211710	ABHIN SURESH M C
2.	211030	ABTHULLA SIRAJ M
3.	210821	AKASH S
4.	211485	CHANDRAJAYA N
5.	210706	GOKUL K
6.	211725	GURUPRASSAT R
7.	211024	HARIGANESH VE
8.	210258	JAYASREE C
9.	210664	KEERTHIVASAN S
10.	210536	KEERTHIVASAN V
11.	210626	KOWTHAM R
12.	210758	LEKASHREE E
13.	211596	LOGESH S
14.	211009	LOKESHWARAN V
15.	211867	MANEEKSHAA G
16.	201649	MONICA K
17.	210678	MUGESH G
18.	211124	MUTHUKUMARAN M
19.	201986	NISHAA K
20.	210830	RAJESH KUMAR G

SL.No	Enroll. No	Name of the Students
21.	210942	RAKESH C
22.	210682	SANJAY J
23.	210841	SANJAY R
24.	211838	SATHISH KUMAR I
25.	215689	SAYED FARID.S
26.	220184	SURIYAKUMAR M
27.	215689	SWETHA ANIL
28.	210704	THARUN A
29.	220142	UTHAYAPRAGASH G
30.	211204	VASANTH P M
31.	211159	VASANTHA KUMAR S
32.	210759	YOGESH S
33.	211948	YUKENDRAN P
34.	221896	DEGALA VIJAY VENKATA KUMAR
35.	221545	DOHU YAKAP
36.	221911	KANAKALA SAI VENKATESH
37.	221497	KANDREGULA DINESH KUMAR
38.	221482	MELLIMI SATHISH KUMAR
39.	220675	NIRESH B
40.	221087	THAUFEEQ RAHMAN H

FEEDBACK FROM STUDENTS:

Consolidated Feedback Report

Sl.No.	Description	Excellent	Very Good	Good	Average	Total
1	Relevance of the lecture to the topic	30	5	2	3	40
2	Interaction during the entire session	32	7	2	1	40
3	Lecture in line with field orientation	30	5	3	2	40
4	Practical examples sharing in the session	29	5	3	3	40
5	Time allotted for the session	28	5	6	4	40
6	Deliverable of the lecture session	28	6	3	3	40
7	Usefulness of the topic for the programme of study	30	6	4	2	40
8	Recommendation of similar kind to your juniors in future	28	7	3	2	40
9	Audibility of the lecture and its effectiveness	29	7	2	2	40



Professional bodies Activity Incharge

(Mr.V.Murugappan)

Head of the Department

(Dr.S.Sundararaman)