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CIVIL ENGINEERS MEDIA

DEPARTMENT OF CIVIL ENGINEERING

(Accredited by NBA)



NANDHA ENGINEERING COLLEGE (Autonomous)



IN ASSOCIATION WITH...



STRUCTURAL CONDITION ASSESSMENT

USING NDT TECHNIQUES

The Department of Civil Engineering Consultancy Team carried out a comprehensive Structural Condition Assessment of an existing reinforced concrete building using Non-Destructive Testing (NDT) techniques, including the Rebound Hammer Test and Ultrasonic Pulse Velocity (UPV) Test. These tests were performed to evaluate the in-situ quality, strength, and integrity of concrete without causing any damage to the structure.

The Rebound Hammer Test was conducted on selected reinforced concrete columns to determine the surface hardness and estimate the compressive strength of concrete. Simultaneously, the Ultrasonic Pulse Velocity (UPV) Test was performed to assess the internal quality, uniformity, and continuity of the concrete by measuring the travel time of ultrasonic waves. The combined results provide a reliable evaluation of the structural condition, enabling engineers to identify potential defects, assess durability, and recommend suitable maintenance or rehabilitation measures for ensuring long-term structural safety and serviceability.



DIGITAL TWIN TECHNOLOGY IN CIVIL ENGINEERING

BUILDING THE FUTURE. VIRTUALLY. INTELLIGENTLY.

Digital Twin technology is revolutionizing the planning, construction, and maintenance of civil infrastructure. A digital twin is a virtual replica of a physical asset that continuously receives real-time data from sensors and monitoring systems.

Engineers use this technology to analyze structural performance, predict maintenance requirements, and improve operational efficiency throughout the life cycle of bridges, buildings, and transportation systems.

KEY APPLICATIONS



Real-time structural health monitoring

Continuous data collection helps in early detection of distress.



Predictive maintenance using AI models

AI algorithms predict failures and optimize maintenance schedules.



AI-assisted BIM coordination

Improves collaboration, clash detection, and project accuracy.



Smart material selection

AI suggests sustainable and cost-effective materials for better performance.



Infrastructure performance optimization

Enhances safety, efficiency, and life span of infrastructure assets.



Digital Twin Technology in Civil Engineering

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Key Applications

- Real-time structural health monitoring
- Predictive maintenance of bridges and buildings
- Construction progress tracking
- Infrastructure performance optimization

Conclusion

Digital Twin technology enables engineers to make informed decisions, reduce maintenance costs, and improve the safety and sustainability of modern infrastructure

GREEN CONCRETE: A SUSTAINABLE CONSTRUCTION MATERIAL

Green concrete is an eco-friendly construction material produced using industrial by-products such as fly ash, GGBS, silica fume, and recycled aggregates. It minimizes the consumption of natural resources while reducing carbon emissions associated with conventional concrete production.

BENEFITS



Lower
carbon
footprint



Better
durability
and strength



Reduced
construction
waste



Conservation
of natural
resources

CONCLUSION

The adoption of green concrete supports sustainable construction practices and contributes to environmentally responsible infrastructure development.



Green Concrete: A Sustainable Construction Material

Green concrete is an eco-friendly construction material produced using industrial by-products such as fly ash, ground granulated blast furnace slag (GGBS), silica fume, and recycled aggregates. It minimizes the consumption of natural resources while reducing carbon emissions associated with conventional concrete production.

Benefits

- Lower carbon footprint
- Better durability and strength
- Reduced construction waste
- Conservation of natural resources

Conclusion

The adoption of green concrete supports sustainable construction practices and contributes to environmentally responsible infrastructure development.

Industrial Visit Highlights



II Year Civil Engineering students, accompanied by Mrs. K. Selvi & Mr. K.L.Ravisankar, visited @ SK Ready Mix, SIPCOT, Perundurai.



Plant engineers explained the complete Ready Mix Concrete manufacturing process to the students.

ALL INDIA STUDENTS' CONCRETE CUBE TEST COMPETITION 2025

The Principal witnessed the cube test competition and encouraged the team



Ar. Vidhusha Moorthi from the Management Team witnessed the cube test competition and encouraged the team.

A group photograph was taken with the participants, faculty coordinators, and organizers following the successful completion of the competition.



DRONE TECHNOLOGY FOR CONSTRUCTION SITE MONITORING

FLY HIGH. MONITOR SMART. BUILD BETTER.

Drone technology is transforming the way construction sites are monitored, managed and executed with accuracy and efficiency.



REAL-TIME MONITORING

Track site progress instantly with high-resolution aerial imagery and live updates.



AERIAL MAPPING & SURVEYS

Create accurate site maps, 3D models and terrain data for better planning.



ENHANCED SAFETY

Inspect hazardous areas remotely and reduce risk to workers.



TIME & COST EFFICIENCY

Save time on inspections and reporting while optimizing resources.



Better Visibility.



Smarter Decisions.



Stronger Structures.

DRONES CAPTURE. DATA EMPOWERS.

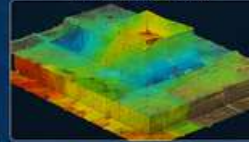
AERIAL IMAGERY



3D SITE MODEL



VOLUME CALCULATION



PROGRESS TRACKING



TRANSFORMING
CONSTRUCTION,
ONE FLIGHT AT A TIME.



FASTER INSPECTIONS
Cover large areas quickly
and capture detailed data.



HIGHER ACCURACY
Precise measurements and
reduced human error.



BETTER DOCUMENTATION
Automated reports and visual
records for every stage.



IMPROVED COLLABORATION
Share real-time insights with
teams and stakeholders.



SUSTAINABLE CONSTRUCTION
Optimize materials and reduce
waste for a greener future.

“ From Site to Sky – Drones Drive Progress ”

Drone Technology for Construction Site Monitoring

Unmanned Aerial Vehicles (UAVs), commonly known as drones, are becoming valuable tools in construction management. They provide high-resolution aerial images, monitor project progress, perform land surveys, and improve safety inspections with minimal human intervention.

Advantages

- Faster site surveying
- Accurate topographical mapping
- Progress monitoring
- Enhanced worker safety
- Reduced project cost and time

Conclusion

Drone technology is improving project efficiency by enabling faster data collection, better decision-making, and safer construction practices.

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Design Created by Our Students



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NANDHA Engineering College

(Autonomous)

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Erode, Tamil Nadu



NAAC
A+
GRADE



25
NEC
RISING HIGHER
EVERYDAY



DEPARTMENT OF

**CIVIL
ENGINEERING**

(Accredited by NBA)

Hearty Congratulations **2025 OUTSTANDING** STUDENT CHAPTER AWARD



6TH TIME 2019, 2020, 2022,
2023, 2024 & **2025**

Department of Civil Engineering has received
Outstanding Student Chapter Award 2025 for the
6th Consecutive time from
American Concrete Institute (ACI)

aci 2019
Outstanding
University

aci 2020
Outstanding
University

aci 2022
Excellent
University

aci 2023
Outstanding
Student Chapter

aci 2024
Outstanding
Student Chapter

aci 2025
Outstanding
Student Chapter

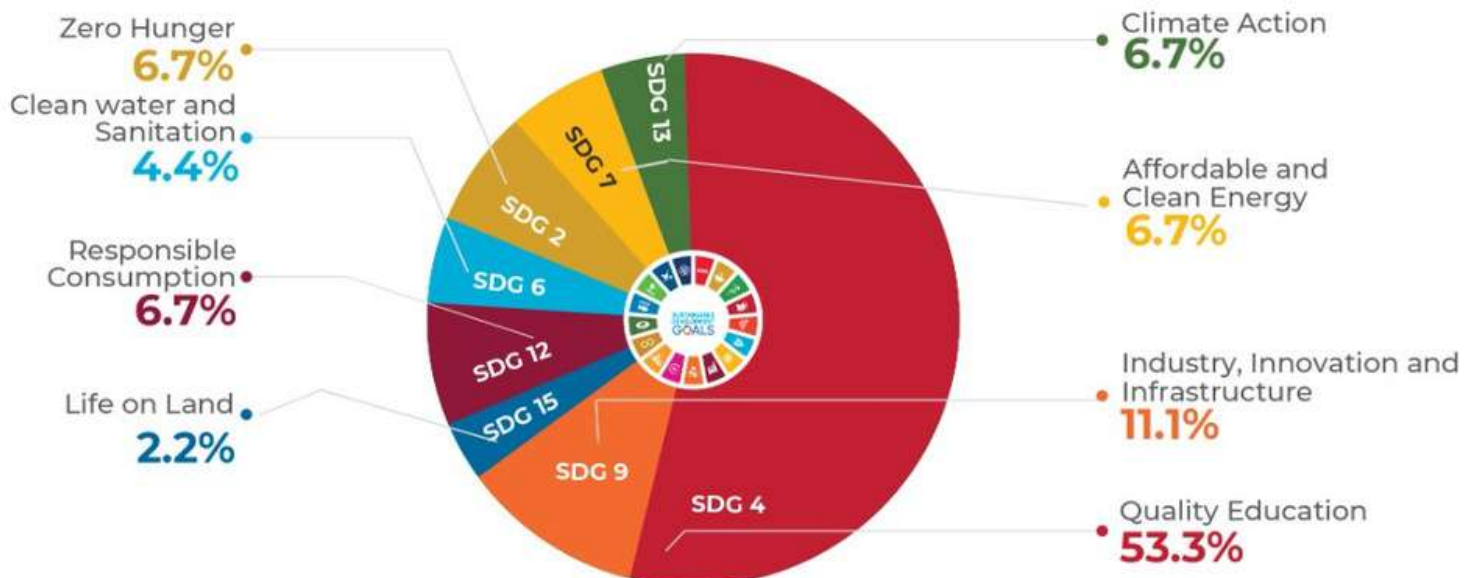


**A moment to be cherished
NEC has Achieved**



1 among the
top 200
Institutions
out of 8100+
Local Chapters

Percentage of Courses under SDGs (Sustainable Development Goals)





21ST GRADUATION DAY

For
BATCH 2025



Civil Engineering - Verticals (TAG)



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