(DEEMED TO BE UNIVERSITY)

CATEGORY 1 UNIVERSITY BY MHRD, Govt. of India

KL ACCREDITED BY NAAC WITH A++ GRADE

nirf 2024 NATIONAL INSTITUTIONAL RANKING FRAMEWORK RANKED 22 AMONG ALL UNIVERSITIES

45 YEARS OF EDUCATIONAL LEADERSHIP

DEPARTMENT OF ARCHITECTURE

CLIMATOLOGY CENTER

CLIMATOLOGY CENTER

About the Research Center:

The Center offers a comprehensive platform for analysing local climate data, enabling students and researchers to assess temperature, humidity, wind speed, solar radiation, and precipitation for building design. It facilitates site analysis, helping optimize energy efficiency through understanding solar orientation, winds, and microclimates. Equipped with energy modelling software, the Center allows students to simulate energy performance and explore daylighting strategies for optimal natural light usage. Passive design techniques, such as natural ventilation and solar heating, are studied to reduce energy demands.

The Center also emphasizes sustainable and climate-responsive design, fostering interdisciplinary collaboration with engineering, environmental science, and urban planning. Moreover, it engages students in professional development and community outreach, promoting environmental stewardship and resilience through real- world applications and sustainable design practices.

Highlights of Research Center:

- Focus on climate-resilient housing and material analysis.
- Equipped with cutting-edge tools like thermal imagers and moisture meters.
- Workshops for skill development in sustainable practices.
- Contributions to global SDG initiatives.
- Publications and collaborative projects in energy efficiency.

Vision & Mission:

Vision: To become a globally recognized research Center in the cutting-edge field of sustainable housing, dedicated to creating innovative, eco-friendly architectural solutions that address global environmental challenges.

Mission:

1. To conduct high-quality research with significant social and environmental relevance in sustainable housing design and technology.
2. To establish state-of-the-art laboratories within the Center for excellence in sustainable housing, ensuring financial sustainability through industrial consultancy and collaborations by advancing green building research.
3. To foster advanced research and development, leading to impactful publications and contributions in the field of sustainable architecture and related technologies.
4. To provide specialized training for architects, researchers, and professionals, bridging the gap between academia, industry, and sustainable practices.

Research Areas:

- Energy-efficient building designs
- Use of renewable materials in construction
- Green urban planning and architecture
- Zero-energy and low-carbon housing models
- Water conservation and rainwater harvesting in buildings
- Smart housing technologies for environmental monitoring

EQUIPMENT DETAILS

Infrared Thermal Imager

Description

Infrared thermal imagers detect temperature variations using microbolometers to convert infrared radiation into visible images. They offer features like temperature measurement, image enhancement, data storage, and portability, with options ranging from handheld to drone-mounted devices.

Application

In architecture, thermal imagers are used to analyse building insulation, air leaks, and energy efficiency. They assist in improving sustainable housing designs by identifying heat loss and assessing material performance.

Users

Used by architects, researchers, students, and building inspectors for energy audits, thermal analysis, and design optimization.

EQUIPMENT DETAILS

Hot Wire Anemometer

Description

Hot wire anemometers measure airflow by detecting the cooling effect on a heated wire. They feature fast response times, temperature compensation, and offer digital or analogue data output. Sensor wires are made from materials like platinum or tungsten.

Application

In sustainable architecture, hot wire anemometers monitor air velocity in HVAC systems, aiding in optimizing energy efficiency and indoor air quali ty. They help assess airflow patterns in housing designs.

Users

Used by architecture students, researchers, and HVAC professionals for airflow analysis, energy audits, and ventilation performance testing.

EQUIPMENT DETAILS

Moisture Meter

Description

Moisture meters measure the moisture content of materials using principles like capacitance, resistance, or infrared sensing. They come with pin-type or pin-less sensors, offer a wide measurement range, and feature digital displays, data storage, and calibration options.

Application

In architecture, moisture meters help assess moisture levels in building materials such as wood, concrete, and drywall, aiding in preventing structural issues and mold growth, while optimizing construction quality.

Users

Used by architecture students, researchers, and construction professionals for moisture analysis in sustainable building materials and quality control.

EQUIPMENT DETAILS

Light Meter

Description

Light meters use sensors like silicon photodiodes to measure light intensity. They offer a wide measurement range, high accuracy, digital displays, and data logging capabilities. Regular calibration ensures accurate results.

Application

Light meters help assess natural and artificial lighting in sustainable housing designs, ensuring optimal light levels for energy efficiency, occupant comfort, and environmental considerations.

Users

Used by architecture students, lighting designers, and environmental researchers for indoor/outdoor lighting design, energy audits, and safety compliance.

EQUIPMENT DETAILS

Solar Power Meter

Description

Solar power meters measure solar irradiance using photodiodes or pyranometers. They feature wide measurement ranges, digital displays, and require regular calibration for accuracy. Measurements are provided in watts per square meter or milliwatts per square centimeter.

Application

Solar power meters are used to assess solar radiation for optimizing solar panel placement, passive solar heating strategies, and daylighting in sustainable housing designs.

Users

Used by architects, researchers, and solar technicians to evaluate solar energy potential, monitor solar systems, and integrate solar solutions into buildings.

EQUIPMENT DETAILS

Light Calibrator

Description

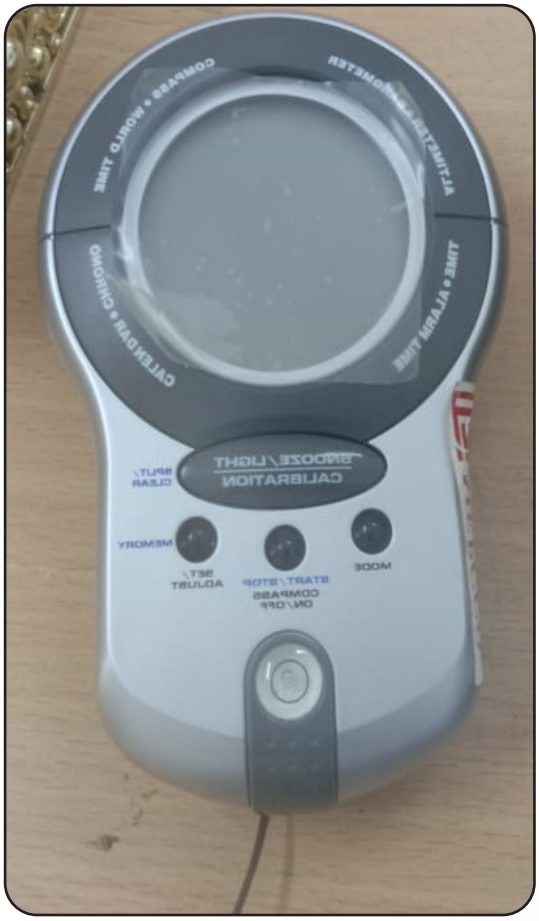
Light calibrators emit controlled illuminance for calibrating lux meters. They feature a broad calibration range, high accuracy, and adherence to recognized standards. Calibration certificates ensure traceability.

Application

Light calibrators are essential in verifying lighting system accuracy in sustainable housing. They help ensure lighting efficiency by calibrating light meters used for both indoor and outdoor environmental monitoring.

Users

Lighting designers, researchers, and engineers use light calibrators to maintain accuracy in lighting conditions and optimize energy efficiency in sustainable projects.



EQUIPMENT DETAILS

Rain Gauge

Description

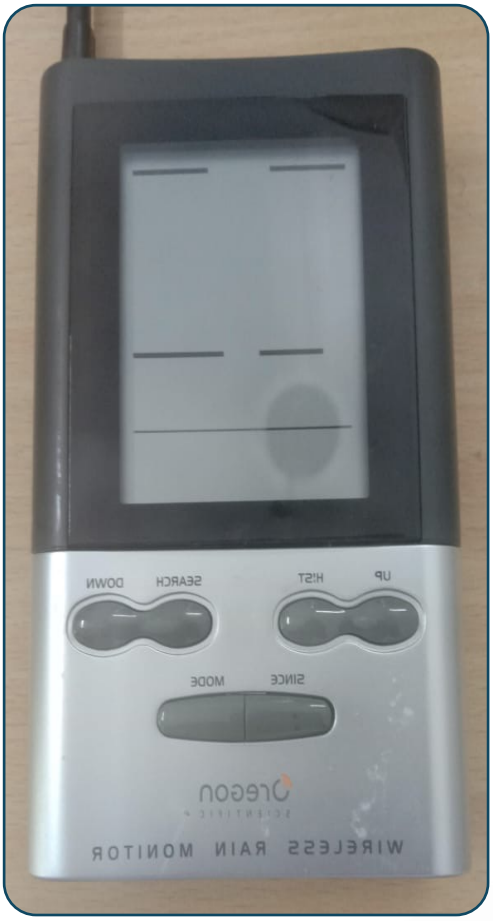
Wireless rain gauges feature a funnel for rain collection, a measuring scale for accurate data, and overflow protection. Made of durable materials, they often have options for mounting.

Application

These rain gauges are used in sustainable housing to monitor rainfall, informing irrigation systems and water conservation strategies. Real-time data supports water management practices.

Users

Farmers, environmental scientists, urban planners, and gardeners use wireless rain gauges for efficient water resource management, flood prediction, and environmental monitoring, especially in areas emphasizing sustainability.



OUR TEAM

Ar. Bonda Kiran Kumar
ASSOCIATE PROFESSOR,
RESEARCH GROUP HEAD

Ar. Priya. A
ASSOCIATE PROFESSOR,
HEAD OF THE DEPARTMENT

Ar. Senthil Kumar
ASSISTANT PROFESSOR

Ar. Harshitha
ASSISTANT PROFESSOR

SUSTAINABLE DEVELOPMENT GOALS

- An Open-Air Outdoor Environment for Children in Urban Residential Precinct
  SDG 11: Sustainable Cities and Communities
  (Focuses on inclusive and safe green spaces for urban well-being)

- Deep Learning-Based Identification of Solid Waste Management in Smart Cities through Garbage Separation and Monitoring
  SDG 12: Responsible Consumption and Production
  (Promotes efficient waste management and sustainable resource use)

- Addressing Urban Floods and Water Scarcity in Cities: The Case of Hyderabad
  SDG 6: Clean Water and Sanitation
  (Focuses on water management, scarcity, and flood mitigation)

- Construction Progress Monitoring in SMART Cities using ALEXNET
  SDG 9: Industry, Innovation, and Infrastructure
  (Supports innovation in monitoring infrastructure projects)

- A Smart Capacity Enhancement and Estimation Model for Hybrid Buildings by Using Lightweight Deep Learning
  SDG 11: Sustainable Cities and Communities
  (Improves building efficiency and urban planning)

- Analysis of Concrete Cracks and Fatigue in SMART Cities using YOLOV3
  SDG 9: Industry, Innovation, and Infrastructure
  (Focuses on resilient infrastructure through smart monitoring)

- Understanding Sustainability through the Lens of Energy Efficiency in Residential Buildings
  SDG 7: Affordable and Clean Energy
  (Focuses on improving energy efficiency in buildings)

- Smart Buildings Technologies: A Comprehensive Review of Software Advancement and Integration Strategies
  SDG 11: Sustainable Cities and Communities
  (Enhances smart living spaces and urban sustainability)

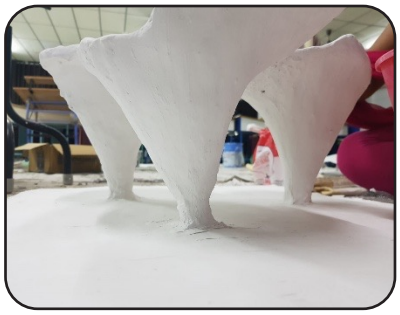
- Navigating Trends: A Comparative Analysis of Global and Indian Perspectives on Smart and Sustainable Building Concepts
  SDG 13: Climate Action
  (Analyzes global trends for climate-resilient and sustainable urban development)

- Assessing Disaster Management Governance for Flood Mitigation in Indian Cities: Lessons from Poor Governance and Recommendations for Effective Risk Reduction
  SDG 13: Climate Action
  (Focuses on disaster risk reduction and resilience against climate-induced floods)

PUBLICATIONS

S.No.	Name	Title
1	A. Priya	An Open-Air outdoor Environment for Children in Urban Residential Precinct
2	A. Priya	Deep learning-based Identification of Solid Waste Management in Smart Cities through Garbage Separation and Monitoring
3	Bonda Kiran Kumar	Addressing Urban Floods and Water Scarcity in Cities: The Case of Hyderabad
4	Senthil Kumar	Construction progress monitoring in SMART cities using ALEXNET
5	Senthil Kumar	A Smart Capacity Enhancement and Estimation Model for Hybrid Buildings by using Light Weight Deep Learning
6	Senthil Kumar	Analysis of Concrete cracks and fatigue in SMART cities using YOLOV3
7	Kuntamukkula Harshitha	Understanding Sustainability through the Lens of Energy Efficiency in Residential Buildings
8	Kuntamukkula Harshitha	Smart Buildings Technologies: a comprehensive review of software advancement and integration strategies
9	Kuntamukkula Harshitha	ASSESSING DISASTER MANAGEMENT GOVERNANCE FOR FLOOD MITIGATION IN INDIAN CITIES: LESSONS FROM POOR GOVERNANCE AND RECOMMENDATIONS FOR EFFECTIVE RISK REDUCTION
10	Kuntamukkula Harshitha	ASSESSING DISASTER MANAGEMENT GOVERNANCE FOR FLOOD MITIGATION IN INDIAN CITIES: LESSONS FROM POOR GOVERNANCE AND RECOMMENDATIONS FOR EFFECTIVE RISK REDUCTION

ACTIVITIES

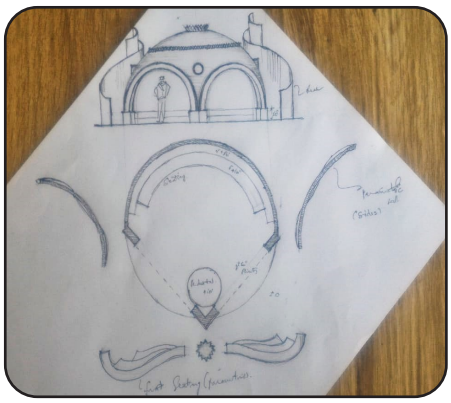

Water efficient Structure workshop



Solar path & its efficiency for Sustainability workshop


IGBC student chapter Launch

ACTIVITIES



Sustainable Housing – Mud dome construction

ACTIVITIES


WEATHER
ELEMENTS
TEMPERATURE
HUMIDITY
PRECIPITATION
WIND
CLIMATE
MD SAEID - 2300510008
P PUTHA - 2300510009
PRECIPITATION
HOT
COOLD
HUMID
SHORT TIME
LONG TIME
ALM-1
ATMOSPHERE
ACTIVITIES
LATITUDE
HUMIDITY
PRECIPITATION
RAIN
SNOW
WEATHER AND CLIMATE
FACTORS INFLUENCING CLIMATE

KL
(DEEMED TO BE UNIVERSITY)

KL ACCREDITED BY NAAC WITH A++ GRADE

CATEGORY 1 UNIVERSITY BY MHRD, Govt. of India

nirf 2024 NATIONAL INSTITUTIONAL RANKING FRAMEWORK RANKED 22 AMONG ALL UNIVERSITIES

44 YEARS OF EDUCATIONAL LEADERSHIP