

RESEARCH TEAM - HITS



Dr. Jessy Rooby, Professor
Structural Engineering

Dr. Angeline Prabhavathy, Professor
Structural Engineering



Dr. P.S. Joanna, Professor
Structural Engineering

Dr. Pratheeba Paul, Professor
Water Management



Dr. V. Preethi, Associate Professor
Environmental Engineering



HINDUSTAN
INSTITUTE OF TECHNOLOGY & SCIENCE

CENSTEC



**CENTRE FOR
SUSTAINABLE
TECHNOLOGIES**

ADVISORY BOARD



Dr. Prinya Chindaprasirt, Director, Sustainable Infrastructure Research and Development Center (SIRDC) KhonKaen University, KhonKaen, Thailand

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Dr. Ahmet Gokce, Assist Professor, Department of Civil Engineering, Yildiz Technical University, Istanbul, Turkey

Dr. S. Sakthivel, Scientist E, International Advanced Research Centre for Powder Metallurgy and New Materials, Hyderabad.



ABOUT HINDUSTAN INSTITUTE OF TECHNOLOGY AND SCIENCE

Hindustan Institute of Technology and Science is one of the most sought after Engineering Institutions in Tamil Nadu, reputed for its highly qualified and experienced faculty and excellent infrastructural facilities for curricular and extracurricular activities. The institution has collaborative partnerships with leading universities in USA, Singapore, Australia, etc. It has students and faculty exchange programs with leading international universities. The university has also received numerous accolades and awards over the years.

CENTRE FOR SUSTAINABLE TECHNOLOGIES (CENSTEC)

OBJECTIVES

- To promote interdisciplinary activities and initiatives that lead to sustainability associated with Built Environment.
- To develop and showcase cost effective solutions in the areas of green building materials, health monitoring of structural systems, water, air, solid waste management, renewable energy and other issues related to environmental resources using the state of art technologies.
- To develop technologies for cleaner production and help the industries for adoption.

FOCUS AREA

- Study on sustainable materials
- Health Monitoring of Structural Systems
- Recovery of clean energy – Hydrogen from Industrial Wastewater
- CO₂ Sequestration

SIGNIFICANT PUBLICATIONS

1. K.Saravanan,P.S.Joanna, A.Rajaraman 'Behaviour of Steel Concrete Composite Girder In A Signature Tower', Int.J. Earth Sciences and Engineering, 7 (2014) 906-909.
2. Bhuvaneshwari M, JessyRooby, 'Shear Behaviour of Plast-Fibre reinforced Concrete Beams' Int.J. Earth Sciences and Engg, 8 (2014) 532—539.
3. Joe Paulson A, Angeline Prabhavathy, 'Influence of ca/fa Ratio on the Performance of Silica Fume Concrete', Int.J. Advanced Information Science and Technology 35 (2015).
4. S. SaileyshSivaraja, R.AngelinePrabhavathy and T.S.Thandavamoorthy 'Seismic behaviour of single storey rat-trap bond masonry buildings retrofitted with GFRP', Journal of Structural Engg 41 (2015) 612-620.
5. V.Preethi and S.Kanmani, 'Photocatalytic hydrogen recovery using Fe₂O₃ core shell nano particles', Int.J. Hyd Energy 39 (2014) 1613-1622.
6. S.P.Sangeetha, P.S.Joanna, 'Behaviour of Reinforced Concrete Beams with GGBS Subjected to Bending', Int.J. Earth Sciences and Engg, 7 (2014) 158-160.
7. Susan Abraham, Joanna.P.S, 'Seismic Performance of ground granulated blast furnace slag reinforced concrete beam – columns', Int.J. Advanced Information Science and Technology, 30 (2014) 87-95.
8. JessyRooby, SundeepChowdaryDaggubati&Nazneen, 'Synthesis of Artificial Aggregates and the Analysis of their Suitability for various applications' Int.J. Innovative Research & Development, 3, (2014).
9. V. Preethi and S. Kanmani, 'Photocatalytic Hydrogen Production', Material Science in Semiconductor Processing, 16 (2013) 561–575.
10. Joanna.P.S, JessyRooby, R.Preetha, C.SivathanuPillai, 'Performance of Reinforced Concrete Beams with 40% Fly Ash', European Journal of Scientific Research, 96 (2013) 620-632.
11. Preethi V & Kanmani S, Photocatalytic hydrogen production over CuGa_{2-x}Fe_xO₄ spinel. International Journal of Hydrogen Energy, 37 (2012) 18740-18746.
12. Preethi V & Kanmani S, Optimization of operating parameters for gasphasephotocatalytic splitting of H₂S by novel vermiculate packed tubular reactor, Journal of Environmental Management, 181, 674-680, 2016.
13. Preethi V & Kanmani S, Performance of four various shapes of photocatalytic reactors with respect to hydrogen and sulphur recovery from sulphide containing waste streams, Journal of Cleaner Production, 133 (2016) 1218-1226.
14. Preethi V & Kanmani S, Performance of gasphase reactors on hydrogen recovery from industrial waste gases, Int. J Hyd. Energy, 2017, 1-6 (I.F: 3.205)



SEMINARS

Seminar on "Prefabricated Structures" by Mr.K.Kamalakaran, General Manager- Ultracon Structural System, Chennai on 17th February, 2017

Seminar on "Advanced Wastewater Treatment" by Dr.Ligy Phillip, EWRE, IIT Madras by 4th August, 2016

Seminar on "Cold form steel structures" by Mr. S Saravanan, Structural Consultant for PTK Architects, Chennai on 10th September 2015

Seminar on "Environmental Impact Assessment" by Dr. G. Janardhanan, Professor, Centre for Environmental Management, National Institute of Technical Teachers Training Institute , Taramani, Chennai on 26th August 2015

Seminar on "Sustainable Repair And Rehabilitation of Reinforced Concrete Structures" by Dr.V.Rajendran- Director, Concrete Quality Concepts Pvt.Ltd on 26th February, 2015

Seminar on "Construction of Industrial Structures " by Mr.K.Saravanan- General Manager, Eversendal Construction Pvt.Ltd on 30th January, 2015

Seminar on "Building Information Modelling for Next Generation Engineers " by Mr.Vetrivel- Manager HSS BIM Solution Pvt.Ltd on 10th January, 2015

Seminar on "Biological Treatment on Wastewater" by Dr. S. Seshadri-Murugappa Chettiar Resarch Centre, Tharamanai on 27th August, 2014

International Seminar on "Materials Flow Cost Accounting" by Hiroshi Tachikawa, MFCA expert for China on 16th July, 2014

Seminar on "Innovative Construction Materials" by Dr. Rahima Shabeen, Asst.Professor College of Guindy on 29th February, 2014

International seminar on " Solar Energy- Recent trends and Policy Issues" by Mr. Toine Van Megen - Co.Founder of AurovilleConsuting, Dr.R.Sethumadhavan-Prof.Centre for energy studies (Anna Univ), Mr.V.Karthikeyan-Deputy General Manager-TATA Power Solar on 17th February, 2014

Seminar on "Potable water from sea water using RO and RO reject management" by Mr.D.Sudhakar, National Consultant (water) on 31st January, 2014

Seminar on "Tall Buildings" by Mr.K.Saravanan General Manager, Eversendal Construction Pvt.Ltd by 23rd January, 2014

Seminar on "Environmental Engineering and technology" by Mr. Varun Sridharan, Director Green Environment India Pvt. Ltd.,Mr.Mohammed Dawood, Earth Recycler Pvt. Ltd. on 24th September, 2013

HIGHLIGHTS

- ❖ **External Funded Projects - 2**
(DAE - BRNS , DST-SERB)
- ❖ **Consultancy Projects – 2**
- ❖ **Patents filed – 12**
- ❖ **National Conferences – 2**
- ❖ **Young Scientist Award – 3**
- ❖ **Publications - 40**

EXTERNAL FUNDED RESEARCH PROJECTS

- **Development and characterization of high volume fly ash concrete for structural applications (DAE – BRNS)**
- **Recovery of Hydrogen from Industrial Sulphide Waste Streams (DST – SERB)**

**Photocatalytic Reactor
for Hydrogen Recovery**



**Tubular Furnace for the
Synthesis of
Photocatalysts**

RESEARCH ACTIVITIES

Green building materials

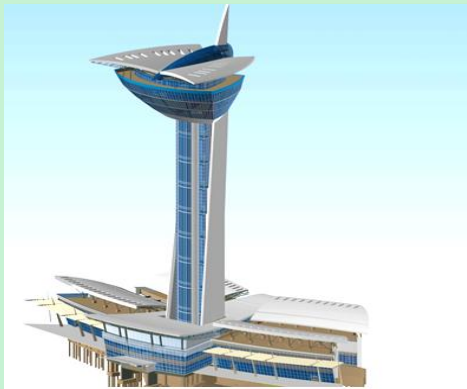
- Study on the behaviour of
 - High Volume fly ash concrete
 - High Volume GGBS concrete
 - Silica fume concrete
 - Geo Polymer Concrete
 - Crumb Rubber concrete
- Synthesize of artificial aggregates from ceramic waste, lathe waste, plastic waste, fly ash and GGBS

Health Monitoring of Structural Systems

- Health Monitoring of Signature Tower located at Chennai, using electrical strain gauges over a period of 550 days.

Renewable Energy

- Recovery of Hydrogen from wastewater containing Sulphide
- CO₂ Sequestration
- Techniques adopted for energy efficiency buildings



Signature Tower, Chennai



Study on High volume fly ash concrete

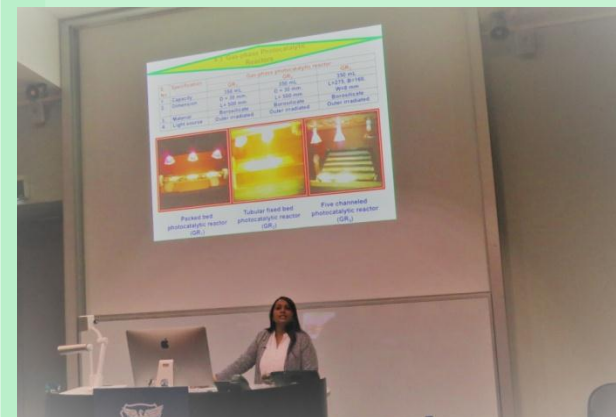
Paper presented in International Conferences



Paper presentation in the 15th World Conference on Earthquake Engineering at Portugal, 2012

Paper presentation International Conference at University Technology Malaysia, 2015.

Paper presentation and Session chair in an International Conference on Pollution Control Congress at Melbourne, Australia, 2017



Guest lecture Delivered at Melbourne University, Australia

RESEARCH FACILITIES



UV-Vis Spectrophotometer



Reversed Lateral Loading Frame



Vertical Loading Frame



Data Acquisition System



Column Testing Frame



Computerized UTM

Centre has sophisticated equipments such as

- Vertical loading frame
- Column testing frame
- Data acquisition system
- Reversed lateral loading frame
- Computerized UTM
- UV-Vis Spectrophotometer

CONFERENCES ORGANIZED



**National Conference on
'Sustainable Development in
Civil Engineering',
March 2014**

**National Conference on
'Advances in Construction
Technology & Innovative
Sustainable Materials',
Feb 2016**



**International Conference on
"Sustainable Environment
and Energy " (ICSEE 2017)
April, 2017**





Keynote by Chief Guest
Dr. Valerie Keller
Senior Scientist
University of Strasbourg
France

Keynote by Guest of Honour
Dr. Ajayan Vinu
Professor
University of South Australia



Valedictory Function
ICSEE 2017

RESEARCH COLLABORATION

- Indira Gandhi Centre for Atomic Research (IGCAR)
- Structural Engineering Research Centre (SERC)
- Eversendai Construction Pvt. Ltd. Chennai
- Yogi Vemana University, Andrapradesh
- Indian Institute of Science, Bangalore

MoU signing between
Hindustan University and
Eversendai Construction
Pvt. Ltd Chennai
August 2017



Inauguration of
Honda Fujishima Renewable
Energy Laboratory
August 2016

AWARD RECEIVED

Dr. V. Preethi
Young Scientist Award
4th National Convention on
Hydrogen Energy and
Advanced Material
MANIT, Bhopal

