



## UI GreenMetric

University : KARUNYA INSTITUTE OF TECHNOLOGY AND SCIENCES,  
COIMBATORE  
Country : INDIA  
Web Address : <https://www.karunya.edu/>

### [2] Energy and Climate Change (EC)

#### [2.14] Impactful university program(s) on climate change

##### 1. International Conference on Integrated Water Resources Management: Prospects and Challenges (ICIWRM)

<b>Name of the event</b>	International Conference on Integrated Water Resources Management: Prospects and Challenges (ICIWRM)
<b>Date</b>	Dec 8 - 10, 2022
<b>Venue</b>	Karunya Institute of Technology and Sciences (KITS), Coimbatore
<b>Organizers</b>	Department of Agriculture and Water Institute, KITS, Coimbatore
<b>Total No. participants</b>	<b>143</b>
<b>No. of external participants</b>	National Participants -79 ; International participants -1; Industries – 2: Research Scholars - 61
<b>Registration fees in Rs.</b>	Faculty - Rs. 2000/; Research Scholars Rs. 1000/- ; Industries – Rs. 2500/-
<b>Sponsors if any</b>	Jal Shakthi, Ministry of Water Resources, New Delhi

##### **Brief Description:**

Karunya Institute of Technology and Sciences, organized an International Conference on “Integrated Water Resources Management: Prospects and Challenges” from 8 to 9th December 2022 sponsored by Ministry of Jal Sakthi, Govt. of India. The conference deliberated diverse themes on hydrology, geospatial techniques, application of IoT and AI in water resources management, agriculture, water quality, water treatment technologies, wetland ecology, decision support system, water conservation and groundwater recharge, impact of climate change on water resources, water economics, governance, policies and capacity building. A total of 4 keynote lectures and 6 theme papers were presented. Around 120 contributed papers contributed by delegates of various institutes were presented across 12 technical sessions. There were 143 registered participants including 1 foreign delegate.



Around 43 % of the participants were from other reputed institutes including IITs, TNAU, CWRDM, VIT etc.

The inaugural session held on 8th December, 2022. A ‘Memorandum of Indent’ was exchanged between Karunya Deemed University, Coimbatore and Centre for Water Resources Development and Management (CWRDM), Kozhikode, Kerala for joint research projects and research consultancy, academic linkage and exchange of faculty and students on water resources development and management. The other keynote addresses were delivered by Dr. Girish Gopinath, Associate Professor, Kerala University of fisheries and ocean studies, Dr. Sajikumar, Emeritus Professor CEO, and WRPM Consultant on topics related to IWRM and Dr. Muralikrishna Iyyanki, Emeritus Professor and Director, JNTU, Hyderabad. Best research papers were awarded with cash prizes during the valedictory session. Several papers highlighted the importance of emerging technologies like isotopes, remote sensing and GIS and mathematical modelling for better management of natural resources like land, water and bio-resources. There was one unique session on application of AI, ML, IoT and sensors for efficient water management. The scientists from different organizations emphasized the need for efficient data management system and the need for resorting to computational techniques, mathematical modelling and system studies to efficiently manage the water resources. The interested participants were taken to a field trip in and around Pillur III drinking water project.

### Organising Committee

**Chief Patron:**  
Dr. Paul Dhinakaran  
Chancellor

**Patron:**  
Dr. P.Mannar Jawahar  
Vice-Chancellor

**Chairpersons:**  
Dr. E. J. James  
Pro-Vice Chancellor(R&C)

Dr. Ridling Margaret Waller  
Pro-Vice Chancellor(QS)

Dr. R. Elijah Blessing  
Registrar

**Co-Chairpersons:**  
1. Dr. Sajan Kurien, Dean (SAB)  
2. Dr. G.Prince Arulraj, Dean (E&T)  
3. Dr. C.Joseph Kennedy, Dean (SSAMM)  
4. Dr. K. R. S. Krishnan, Director (IE)  
5. Dr. D.Tensing, Director (IQAC)  
6. Dr. S. J.Vijay, Director, (R&C)  
7. Mr. A.Joseph Amulraj, Finance Officer

**Convener:**  
1. Dr. C. Mayilswami, Professor & Head, WI

**Members:**  
1. Dr. R. Philip Sridhar, Professor (Agri. Ent.)  
2. Dr. J. Brema, Professor (Civil Engg.)  
3. Dr. P. Jegathambal, Professor (WI)  
4. Dr. J. Dinesh Peter, Professor (CSE)  
5. Dr. S. Kavitha, Assoc. Professor (Biotech Engg.)

### Sponsorship

**Platinum sponsor fee: INR 2,00,000/- or above**

- Free registration for five delegates
- Logo display in the website, venue backdrop
- Promotion material like proceedings, volume, banner/signage
- A 15 min time slot for technical presentation
- Distribution of Literature/Brochures
- Exhibition Stall at 50 % Discounted Rate

**Diamond sponsor fee: INR 1,50,000/- or above**

- Free registration for three delegates
- Logo display in the website, venue backdrop
- Promotion material like proceedings, volume, banner/signage
- A 3-Minute Marketing Video
- Distribution of Literature/Brochures
- Exhibition Stall at 25 % Discounted Rate

**Gold sponsor fee: INR 1,00,000/- or above**

- Free registration for one delegate
- Logo display in the website, venue backdrop
- Promotion material like proceedings, volume, banner/signage
- A 2-Minute Marketing Video
- Distribution of Literature/Brochures
- Exhibition Stall at 25 % Discounted Rate

### Call for Papers

**Guidelines for Abstract**  
The abstract of the paper should be of 250 words, clearly stating the background, objectives and brief methodology of the work with salient findings.

**Guidelines for Paper submission**  
The abstract may be uploaded online. On acceptance, the full-length paper may be submitted on the prescribed template. After the review by the technical committee, the status will be intimated. For online registration, abstract and full paper submission, visit our website: [www.karunya.edu/dwi/iciwrms2022](http://www.karunya.edu/dwi/iciwrms2022)

### Publication

Selected papers will be published in the special issues of the following international scientific journals:

- International Journal of Hydrology Science and Technology (ISSN: 2042-7806) WoS/Scopus indexed
- Intelligent Decision Technologies (ISSN:1872-4981) WoS/Scopus indexed

### Key Dates

Submission of Abstract	: 25 October 2022
Acceptance of Abstract	: 05 November 2022
Early-bird Registration	: 10 November 2022
Submission of Full-Length Paper	: 20 November 2022
Late Registration	: 30 November 2022

### Accommodation

Accommodation would be available for delegates in different categories, in the University Guest House on payment basis.

### Venue

Karunya Institute of Technology and Sciences is located in Coimbatore, Tamilnadu, India, a city blessed with the best of nature's bounties. The clean air and picturesque tourism spots in and around Coimbatore make it a sought out destination.

**Contact us:**

**For Abstract and Full-length Paper:**  
Dr. J. Brema  
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**For General Information:**  
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Professor, Water Institute  
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2nd Announcement

**Karunya INSTITUTE OF TECHNOLOGY AND SCIENCES**  
(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)  
MoE, UGC & AICTE Approved; NAAC Accredited A++  
Karunya Nagar, Coimbatore - 641 114, Tamil Nadu, India

## ICIWRM 2022

International Conference  
on  
**Integrated Water Resources Management:  
Prospects and Challenges**

08-10 December 2022

Organized by  
**Water Institute - A Centre of Excellence**  
Karunya Institute of Technology and Sciences  
Coimbatore-641 114, INDIA





## Background

The water crisis at the global and national levels has opened the eyes of water managers world over to address the challenges in the water sector on a war footing. The problem has become more acute in the context of climate variation and the predicted changes in climate leading to frequent occurrence of hydrologic extremes, deglaciation and sea level rise.

The problems in the water sector are more pronounced in the arid and semi-arid zones. Some of the areas in these zones have already come under either water stress or scarcity. According to the World Bank, areas having water less than 1700 cubic meter per capita is considered to be under water stress, less than 1000 cubic meter per capita to be under acute water scarcity, and less than 500 cubic meters per capita to be under severe water scarcity. Several of the countries in the world are having large areas under water stress or scarcity. This condition leads to water crisis and disputes: culminating in unrest and litigations. In a country like India, there are several water disputes among the federal states, the examples being those of Cauvery and Krishna rivers in Southern India.

It is reported that there has been considerable deterioration in the quality of water in different parts of the globe. The untreated industrial effluents, sewage, excessive use of agrochemicals and lack of sanitation facilities are pointed out as some of the major reasons for water quality deterioration. This problem is all the more relevant in the context of developing countries. For example, a country like India has to still achieve several of the Sustainable Development Goals. There is a great need to improve the sanitation facilities, construct more sewage treatment plants, treat the industrial effluents and restrict the overuse of agrochemicals. India has around 70 million people affected by fluoride and 10 million people affected by arsenic. These figures illustrate the need for better sanitation and water quality standards.

The Dublin Conference held in 1992 had critically analysed the problems arising out of the water crisis and recommended Integrated Water Resources Management (IWRM) as an ideal solution to overcome the problem. IWRM is a process for sustainable development, allocation and monitoring of water resource use, considering social, economic, environmental and institutional objectives. The key issues to be addressed in the present context are: growing water crisis and need for urgent action, water governance crisis, securing water for people, gender disparities in the sector, and protection of vital ecosystems. The principles of IWRM may be narrated as: (i) fresh water is a finite and vulnerable source; (ii) water management is to be based on participatory approach; (iii) women have to play a central role in water management; and (iv) water is an economic good.

Though several sporadic initiatives have been reported on IWRM, no concerted effort has been made towards capacity building, integrated planning and implementation programmes. The need for reviewing the best practices followed and assessing the initiatives taken up has been recognized. Though there are a few academic exercises initiated by certain institutions, much progress has not been achieved in this direction. It is in this background that the Water Institute of Karunya Deemed University proposes to conduct an International Conference on Integrated Water Resources Management: Prospects and Challenges, at Coimbatore.

## Major Themes and Sub-Themes

1. Integrated Water Resources Management - Case Studies
2. Water and Changing Environment
  - Landuse and Landcover Dynamics
  - Watershed Management
  - Landscape Functionality and Conservation Management
  - Forest Hydrology
  - Wetland Hydrology
  - Urban Hydrology
  - Ecosystem Restoration and Management
  - Ecosystem Services for Human Needs
  - Agriculture Water Management
  - Soil and Water Conservation
  - Groundwater Exploration
3. Water Availability and Utilization
  - Water for Drinking
  - Water for Food
  - Water for Energy
  - Inland Navigation
  - Water and Biodiversity
  - Fisheries
  - Water for Sports and Recreation
  - Water Tourism
4. Water Treatment Technologies and Implementation
  - Electrochemical Technologies
  - Advanced Physico-Chemical Methods
  - Environmental and Eco-Friendly Technologies
  - Alternate Resources (Stormwater Use, Aquifer Recharge etc.)
  - Recovery and Reuse of Water from Industrial Effluents
  - Ecosanitation
5. Monitoring, Decision Support System, Modelling and Simulation
  - Sensor Development and IoT Application in Assessment and Management of Water Resources
  - Big Data and Cloud Computing in Water Resources Management
  - Data Mining and Machine Learning in Development of Decision Support System
  - Alternate Resources (Stormwater Use, Aquifer Recharge Etc.)
  - Recovery and Reuse of Water from Industrial Effluents
  - Water Supply and Demand Analysis
6. Impact of Climate Change on Water Resources, Adaptation and Mitigation
  - Drivers of Climate Change
  - Climate Change Models in Prediction and Forecasting
  - Global Warming and Sea Level Rise
  - Deglaciation and Snow-Melt
  - Alternate Sources of Energy for Mitigation of Global Warming
  - Disaster Management
  - Impact of Climate Change on Agriculture
7. Water Economics, Governance, Policies and Capacity Building
  - Stakeholder Participation
  - Public Private Partnership
  - Water as an Economic Good: Water Prices for Efficiency and Equity
  - Participatory Approach

- Institutional Mechanisms/Models
- Water Pricing
- Role of NGOs
- Capacity Building

## Objectives

- The major objectives of the Conference are:
1. To review the state-of-the-art of implementation of IWRM
  2. To learn from the case studies from different parts of the globe
  3. To provide a forum for interaction among the academicians, scientists, professionals and managers
  4. To highlight the modern methods and techniques in the area of water management
  5. To illustrate the application of emerging technologies such as AI, ML, Data Analytics and IoT in the water sector
  6. To bring to light the potential of advanced tools - RS, GIS and isotopes in water resources management studies.

## Registration Details

Registration	Early-bird Registration	Late Registration
Academicians, Scientists & Researchers	Indian/Foreign Rs. 2000/ \$150	Rs. 2500/ \$200
Industries and Govt. Organizations	Indian/Foreign Rs. 2500/ \$200	Rs. 3000/ \$250
Students and Scholars	Indian/Foreign Rs. 1000/ \$120	Rs. 1500/ \$190
Visitors/Sponse, Accompanying Delegates	Indian/Foreign Rs. 1000/ \$120	Rs. 1500/ \$190

## About Karunya and Water Institute

Karunya Deemed University, founded by Dr. D. G. S. Dhinakaran of revered memory and Dr. Paul Dhinakaran, is located in a vast and scenic campus in the foothills of the Western Ghats in Coimbatore. There are 450 faculty members from diverse disciplines and 7000 students across India and neighbouring countries pursuing their Bachelors, Masters and Ph.D. level studies in engineering, sciences, arts, media and management. Karunya has identified four thrust areas to focus on socially relevant research, these being Water, Food, Healthcare and Sustainable Energy. Recently, KITS was accredited with the highest grade in the NAAC Accreditation, A++.

The Water Institute - A Centre of Excellence was established in Karunya in 2008. The Institute has been offering Masters and Doctoral Programmes. The alumni of the institute are serving the nation as eminent scientists, consultants, administrators and managers. The Institute has carried out funded research projects with an outlay of Rs. 30 million, consultancy work to the tune of Rs. 20 million and has organized several national and international events aiming at technology transfer. The research output include hundreds of publications in Scopus and Web of Science journals, patents published and granted.



Glimpse of Inaugural Session on 8.12.2022





**Release of ICWRM 2022 Conference Proceedings**



**Key note address by President AGGC**



12/10/22, 5:45 PM

International conference on Integrated Water Resources Management | Business News This Week

## International conference on Integrated Water Resources Management

**Business News This Week**



Coimbatore, December 2022: The participants of the Conference from different countries and states of India deliberated for two days on different water problems faced in different parts of the world, especially in the arid zone, and solutions to these problems. Several methods and techniques and approaches were highlighted for successfully implementing the Integrated water resources management, considering the fact that the availability of fresh water is finite and there is a need for a participatory approach, particularly the involvement of women. The Conference highlighted the need for the application of AI, machine learning, IoT, and data analytics for the efficient development and management of water resources.

The keynote addresses in different sessions were delivered by Dr. Manoj Samuel, Executive Director, CWRDM; Mr. Theo Whitcomb, water expert, and journalist from California; Dr. Girish Gopinath, Associate Professor, Kerala University of Fisheries and Ocean Studies; Prof. Santosh Thampi, NITCalicut; Dr. Muralikrishnalyanki, Director, JNTU; Prof. L. Elango, Anna University, Chennai; Prof. N. Sajikumar, CEO, WRPM Consultants.

The major recommendations of the Conference are:

1. Water resources management has to focus on sustainable development, allocation, and monitoring of water resources, considering social, economic, environmental, and institutional objectives.
2. The need for a participatory approach in the planning and implementation of water resources projects was highlighted considering the fact that freshwater availability is limited and water is an economic good.
3. The importance of river basin/small watershed-based water resources development was brought to light and the need for water treatment, rainwater harvesting, and artificial recharge was highlighted.
4. The session on agricultural water management recommended that efficient use of water for agriculture has to be ensured using modern irrigation practices like drip and sprinkler; the need for estimating the actual crop water requirements and irrigation scheduling using modern computational techniques was emphasized.
5. There was one unique session on the application of AI, ML, IoT, and sensors for efficient water management.
6. The significance of protecting and conserving the ecosystems, the wetlands in particular was emphasized; the session highlighted the importance of maintaining the environmental flows despite the need for irrigation and drinking water purposes.
7. The experts felt that educational programs in WRM should be introduced in institutions of higher education and stress should be given to capacity building and awareness creation.
8. The scientists from different organizations emphasized the need for an efficient data management system and the need for resorting to computational techniques, mathematical modeling, and system studies to efficiently manage water resources.
9. Several papers highlighted the importance of emerging technologies like isotopes, remote sensing, and GIS, and mathematical modeling for better management of natural resources like land, water, and bio-resources.

### News Paper Clip

## 2. Seminar: Improving Energy Efficiency Using Computational Fluid Dynamics (CFD) - 16.11.2022

### 1. Executive summary:

This seminar is arranged for second-year BTech mechanical students to provide insight into the relevancy of the course they have been taught (Fluid Mechanics and Fluid Machinery). The seminar's main objective is to input the students with industry-oriented knowledge to be industry-ready at the end of their BTech programme. Through this seminar, the students learned the applications of fluid properties in industries and the role of continuity and momentum equations in the fluid flow modeling, which will be helpful for the students in their placements.





## **2. Technical content:**

The guest speaker Mr. Rajini, Director, Solid Trust Technologies, Chennai, joined the meeting around 9.50 am, and then around 34 students joined the forum. The seminar started at 10.10 am after the guest speaker was introduced to the students at 10 am by the subject teacher Dr. Brusly Solomon, Associate Professor, Dept. of Mechanical Engineering.

First, Mr. Rajini lectured about the basic fluid properties of fluids, such as density, viscosity, and surface tension, and their applications in fluid mechanics. Then Mr. Rajini gave inputs on the role of continuity and momentum equations, their fundamentals, and formulation for applying them in fluid flow analysis. Then the guest speaker talked about the various applications of CFD in industries and how to use CFD to enhance the efficiency of different fluid flow systems. The presentation includes many case studies, including drying, solar modeling, erosion modeling, etc.

The guest speaker completed his lecture at 11 am, and then the students interacted with the guest speaker. In the end, the subject teacher delivered a vote of thanks, and the lecture ended. There are 34 students attended the lecture. The feedback from the students was good.

## **3. Detailed Schedule**

Opening address : 10 am

Introduction of the Guest Speaker : 10.10 am

Lecture by Guest Speaker : 10.15 am to 11 am

Interaction with the speaker : 11 am to 11.10 am

Vote of thanks : 11:10 am



Picture in picture

Recording You're presenting to everyone Stop presenting

meet.google.com/obg-fea0-gvo?pli=1

10:14 AM | obg-fea0-gvo

28°C Cloudy 10:14 AM 14-11-2022

4:11 / 53:37

Activate V

This screenshot shows a Google Meet interface. The main window displays a presentation slide with a grid of participants on the right. The participants list includes NISHANTH.S, SAMUEL GLADSON J UT..., THIRUMURTHI S ULK21M..., EBINEZER R URK21ME1020, GEORGE SONY URK21M..., and 25 others. The bottom of the screen shows a video player with a play button and a progress bar at 4:11 / 53:37.

# IMPROVING ENERGY EFFICIENCY

## USING

### COMPUTATIONAL FLUID DYNAMICS (CFD)

Rajini R  
Director  
SolidTrust Technologies India

meet.google.com is sharing your screen. Stop sharing Hide

rajini r

4:35 / 53:37

Activate W

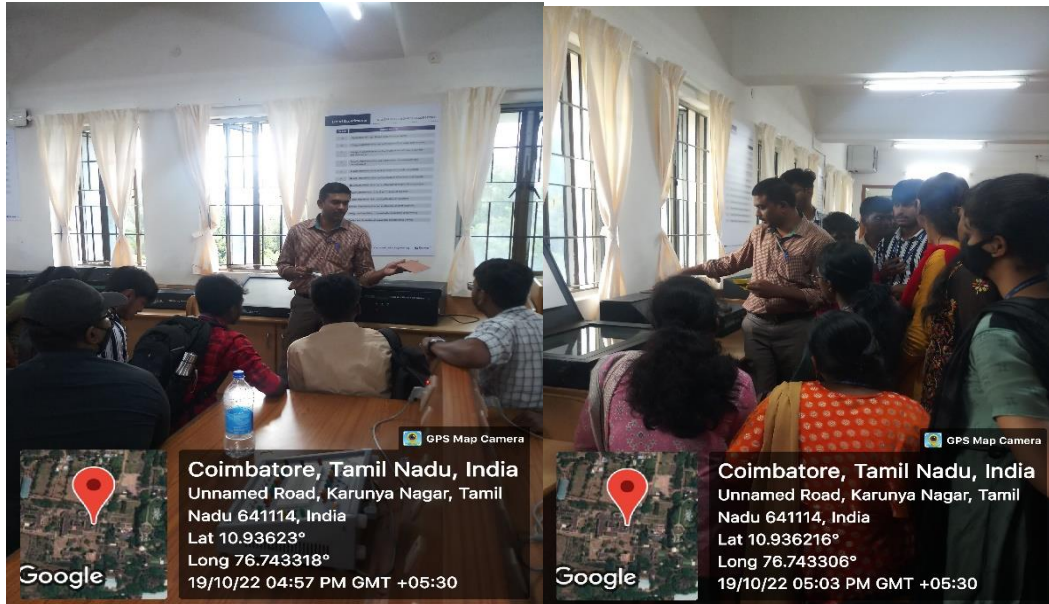
This screenshot shows a Google Meet interface displaying a presentation slide. The slide features the SolidTrust logo and the text 'IMPROVING ENERGY EFFICIENCY USING COMPUTATIONAL FLUID DYNAMICS (CFD)'. Below the text is a photo of Rajini R, Director of SolidTrust Technologies India. The bottom of the screen shows a video player with a play button and a progress bar at 4:35 / 53:37.



### 3. Two days demo/training of TINA V12 design suite for circuit simulation and PCB design. - 19<sup>th</sup> and 20<sup>th</sup> July 2022

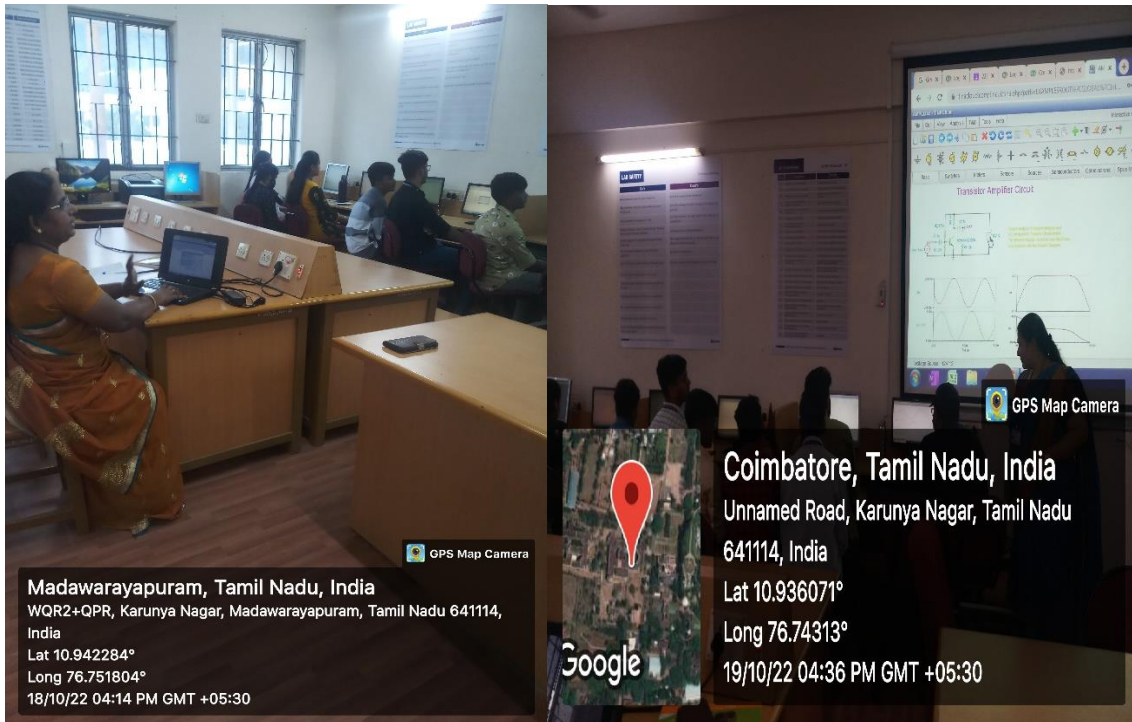
TINA Design Suite is a powerful yet affordable circuit simulator, circuit designer and PCB design software package for analyzing, designing, and real time testing of analog, digital, IBIS, HDL, MCU, and mixed electronic circuits and their PCB layouts. SMPS, RF, communication, and optoelectronic circuits; generate and debug MCU code using the integrated flowchart tool; and test microcontroller applications in a mixed circuit environment can be analysed. Off-line licenses of TINA include free private on-line licenses for one year. Circuits can be analysed through more than 20 different analysis modes or with 10 high tech virtual instruments. Present your results in TINA's sophisticated diagram windows, on virtual instruments, or in the live interactive mode where you can even edit your circuit during operation, develop, run, debug and test HDL & MCU applications. Electrical engineers will find TINA an easy to use, high performance tool, while educators will welcome its unique features for the training environment.

The features of the software were explored and explained to the students. Analog and digital circuits were simulated and analysed using the software. From component selection to Gerber file creation and 3D visualization of the PCB layout was taught to the students. Manual method of PCB layout preparation demo is shown to the students.



Demo on real time design of PCB by Mr.Manohar Livingston





Hands on session on Circuit simulation by TINA design suite Dr.Manimekalai and Dr.J.Anitha

#### 4. Introduction to Chip Design Ecosystem -14<sup>th</sup> October 2022

There is an increased demand in the VLSI Design ecosystem in India for the worldwide semiconductor industry. Mr. Vivek did M.S (Electrical Engineering) and he had an industrial experience of more than 17 years in the field of VLSI Design. Based on the emerging VLSI field Mr. Vivek explored in detail the basic concepts of VLSI Design including the Design Specifications, Architectural Design, Logic Design, Physical Design, and Fabrication. He added the history of the semiconductor industry in India dates back to the mid1980s when multinational giants from the U.S. started outsourcing chip design and SW development to India to take advantage of the low labor costs and talent pool. India's semiconductor market has seen significant growth over the last decade, which accounts for less than five percent of the global market that results in various applications.

The major companies spread around the world are Cadence, Synopsys, Mentor Graphics, ASML, Microchip, CEVA, arm, TELQualcomm, Analog Devices, and Texas Instruments.

The major segments in VLSI Design can be categorized as Chip Intellectual property Core (IP Core), Electronics Design Automation (EDA ) Tools, Materials and Chemicals, Specialized materials, Wafer Fab Equipment (WFE), and Chip Foundries. At present, there are around 170 companies in India that are working in the areas of chip design, embedded software development, and board design. India's VLSI design service market is driven by both captive and non-captive design centers. These design centers are designing chips in a factory model for all the major industry verticals including Telecommunications, Networking, Consumer Electronics, Industrial, Healthcare, Automotive, and others.

He gave a brief introduction about the Verilog starting from RTL to Layout Design and listed the airbag



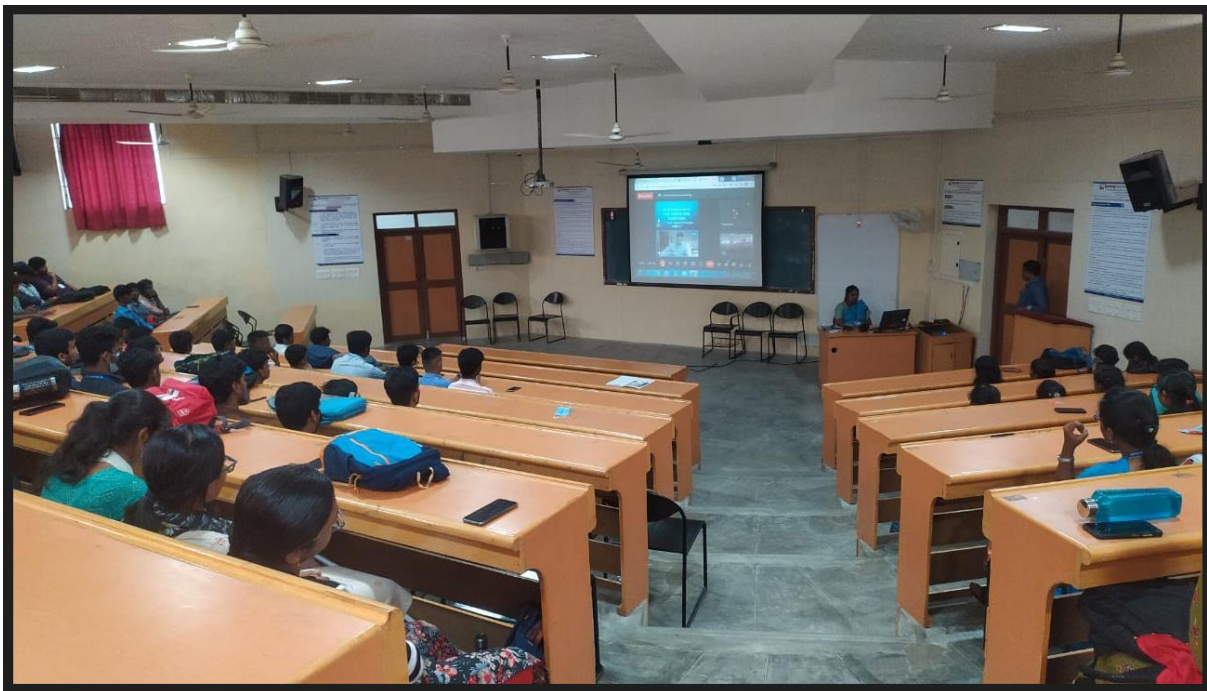
as an example for critical applications. He finally concluded with human values and examples.

“NO MATTER WHAT YOUR ABILITY IS

EFFORT IS WHAT IGNITES THAT ABILITY AND TURNS IT INTO ACCOMPLISHMENT”



Students participating in the Webinar



Mr. Vivek, Resource person giving lecture by online mode





# INTRODUCTION TO CHIP DESIGN ECO SYSTEM



**Karunya INSTITUTE OF TECHNOLOGY AND SCIENCES**

(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

MoE, UGC & AICTE Approved

NAAC A++ Accredited



In Associate with  
**AICTE - SPICES**



**DEPARTMENT OF ELECTRONICS &  
COMMUNICATIONS ENGINEERING**

WEBINAR ON

**"INTRODUCTION TO CHIP DESIGN ECO SYSTEM"  
FOR UG , PG STUDENTS AND FACULTY MEMBERS**

Resource person:

**Mr.Vivek Packiaraj**  
Manager-Design Engineering,  
New Product Development at  
Microchip Technology Inc.



Certificates will be given to the entire participant.

**OCTOBER 14  
2022  
3:00 PM**



**H FLOOR ECE  
DEPARTMENT  
VLSI LAB**



## 5. Hand on Training on “IoT Applications” in Food Industry from 19 September 2022

Title : Hands on Training IoT application to Food Industries

Coordinators :

1. Dr. J. Jayakumar, Professor/EEE
2. Dr. F. T. Josh, Asst. Professor/EEE

Resource Persons

1. Dr. Victor Du John, Asst. Professor/ECE
2. Dr. J. Jayakumar, Professor/EEE

Topics Covered

1. Introduction to IoT
2. Introductions to sensors used in Food Industry
3. Introduction to Embedded system
4. Processor Interfacing (Arduino & Raspberry Pi)
5. Smart Irrigation system
6. Servomotor Testing
7. Gas leakage Detection system
8. Detection of color of certain food materials
9. Food spoilage system detection
10. Automatic food product dispenser machine
11. Water turbidity analysis

Duration : 30 hours ( 09-09-2022 to 30-10-2022)

Number of Students Registered : 43





