

## ENERGY AND ENVIRONMENTAL ENGINEERING LAB

### Faculty Details:



**Dr SARAVANATHAMIZHAN R**

Associate Professor

Department of Chemical Engineering

A.C.Tech Campus, Anna University

Tamil Nadu, India - 600025.

**Ph: 044 2235 9237**

**E-Mail: rsthamizhan@annauniv.edu**

---

### About the Laboratory:

Currently scholars are working on: Electrochemical technology for waste water Treatment- Electrochemical Engineering is a branch of Engineering and it is used for pollution treatment and Energy storage application. In the electrochemical technology for waste water treatment indirect electro oxidation of waste water is experimented in a batch and flow reactor. Materials for Energy storage application- Conversion of biomass waste, activated petroleum coke for super capacitor application and wastewater treatment. Nano materials synthesis and its Applications-Nanomaterial synthesis for the biomedical application is the latest improvement in nanotechnology. These nanomaterials can be used as therapeutic agent, drug carrier and also as activating agents. Since they are prepared from biological sources, they show better medical competence with fewer side effects. Ultrasound assisted green synthesis of iron oxide nano particle using *Coriandrum sativum* leaf extract as a reducing agent. Conversion of Biomass in to Biofuel – Biomass waste is pre-treated using different pre-treatment techniques. After pre-treatment the biomass is subjected to enzymatic hydrolysis. The hydrolyzed biomass is fermented using microorganism to produce bio ethanol.

---

**Accomplishment:****List of Project Completed/ Ongoing**

<b>S. No.</b>	<b>Title</b>	<b>Amount in Indian Rupees</b>	<b>Funding Agency</b>	<b>Role as PI/Co-PI</b>	<b>Completed year</b>
1	Recovery of Metals from spent NiMH battery using ultrasonic-assisted leaching process	49,000	Centre for Technology Development and Transfer (CTDT) Anna University	PI	2015-2016 Completed
2	Ultrasound studies on separation of food products from dairy sources	10,000	Tamil Nadu State Council for Science and Technology Under student project scheme	Supervisor	2016-2017 Completed
3	Development of Anode From Petroleum Pitch For High Temperature Electrolysis	9,02,000	DST/MWT	Co-PI	2017-2018 Completed
4	Ultrasonic assisted preparation of biomass carbon for electrochemical energy storage application	10,000	Tamil Nadu State Council for Science and Technology Under student project scheme	Supervisor	2017-2018 Completed
5	Design and Development of MnO <sub>2</sub> - Nitrogen Doped Biomass based Graphene-PEDOT as electrode materials for electrochemical energy storage Applications	5,00,000	Indian Institute of Chemical Engineers	PI	2018-2021 Ongoing
6	Capacitive Deionization for salt recovery from RO reject	2875400	DST	Co -PI	2020-2023 Ongoing
7	Electric Vehicle Technologies-Smart material Characterization, manufacturing and grid management"-Thematic Title Development of Cathode Materials in Lithium-sulfur battery for Electric vehicle applications"	90,00,000	RUSA 2.0	Team Member	2020-2022 (Ongoing)

Number of M.Tech students guided: 28

---

**List of Major Equipment:**

**S.No.            Name of the equipment**

---

**List of Research Scholars:**

<b>S.No</b>	<b>Name of the scholar</b>	<b>Title of the Research work</b>	<b>Year of Completed</b>
1	Ms. Suchithra Devi S J	Photo electrochemical Treatment Of Waste Water	In progress
2	Mr. Balaji N A	enhancement of energy efficiency in membrane separation process	In progress
3	Mr. Sai Achuth M	Catalytic Conversion Of Fruit And Vegetable Peel Biomass For Production Of Biohydrogen	In progress
4	Ms. Mubashera S M	Development Of Low Cost Adsorbent From Petroleum Coke For CO2 Adsorption	In progress
5	Mr. T.T.Isreal	Bio ethylene production form bio ethanol: Modeling using Aspen Plus	In progress
6	Ms. B.Rekha	Catalytic conversion of biomass in to biofuel	12.07.2022
7	Mrs. K.Sathya (ACRF)	Ultrasound Assisted Green Synthesis Of Iron Oxide, Fe/Zn Bimetallic Nanoparticles And Their Applications	10.01.2020
8	Mr. V.Manimozhi	Synthesis and characterization of Nano ferrites and their polymeric Composite for removal of heavy Metals	24.08.2018

---