

## Preface

A three day International Conference on “Energy Efficient Technologies for Sustainability” (ICEETS - 2013) was organized by the Mechanical Engineering Department of St. Xavier’s Catholic College of Engineering, Chunkankadai from 10<sup>th</sup> of April to 12<sup>th</sup> of April, 2013. Resource persons from highly reputed institutions shared their knowledge in energy efficient technologies to the august gathering of researchers, academicians, industrialists and students. The topics for deliberation for the conference were demarcated into six technical tracks as Alternate Energy, Building Technologies, Automotive Technologies, Modelling and Design, Manufacturing Systems and Power Systems. Wide publicity of the conference within our nation and abroad has brought people from all regions, especially delegates from Delhi, Uttarkhand, West Bengal, Gujarat, Punjab, Uttar Pradesh, Bihar, Madhya Pradesh, Maharashtra, Odhisa, etc representing most of the prestigious institution like IIT’s and NIT’s of our country. Foreign delegates from Canada, Iran, Australia, and Bangladesh added the international flavour to the conference.

The quality of the submitted papers and diversity in participation, geographically and professionally, has made ICEETS 2013, the great success. The conference featured 12 invited keynote speeches. The details of invited speeches are as follows: “ Doing Research” is the opening talk on the opening day done by Dr. Joshi C. Haran, Professor, Amirtha School of Engineering, Coimbatore followed by a talk on “Zeotrophic Mixure - Biomass” by Dr. T. Srinivas, Professor, VIT, Vellore. Dr. S. Vasudevan, Principal Scientist from Central Electrochemical Research Institute, Karaikudi gave a talk on “H<sub>2</sub> Fuel Generation System” followed by Dr. V. Kirubakaran, Professor, Gandigram University, Dindigul on “Biomass Gasification Technologies”.

On the penultimate day, Dr. Bale V Reddy, Professor, University of Ontario, Canada delievered a lecture on “Trigeneration Cycle on Biomass Power Generation” followed by Dr. D. Mohanlal, Professor, Anna University Chennai on “Alternatives to HCF22 refrigerant for Air-conditioning Application”. An interesting talk on “Energy Efficient Automotive Technologies” was presented by Dr. G. Nagarajan, Professor, Anna University Chennai and Dr. V. Antony Arul Raj, Professor of Easwari Engineering College, Chennai presented a talk on “Green Building & Solar Power Cooling”. Dr. M. Sreekumar, Professor, IIITDM, Chennai delivered a talk on the topic “Smart Materials for Smart Applications” on the final day followed by Dr. R. Saravanan, Professor, Anna University Chennai on the topic “Combined Power & Cooling System”. An exquisite talk on “Nanotechnology for Energy Efficient Technologies” was given by Dr. B.S.S. Daniel, Professor, IIT Roorkee followed by Dr. Ashok Kumar, Professor, College of Engineering Trivandrum’s lecture on “HVAC Systems”.

A ship without a rudder will not reach the destination that is the role the Conference Chair and Principal Dr. S. Joseph Sekhar did for the conference. Meticulous planning for technical presentation simultaneously at ten venues with each venues having five sessions, accounting to 50 sessions, chaired by 100 chairs persons, who are eminent Professors from

various institutions in and around Tamilnadu and abroad made this conference a great knowledge sharing forum.

Dedicated and committed efforts of ICEETS TEAM, consisting of faculty members, research scholars and UG & PG students, backed by the management along with their entire machinery, especially by the Correspondent Rev. Fr. A. Jesumarian and Bursar Rev. Fr. Dr. A.S. Michael Raj made this conference a successful one. The conference was well coordinated by the Organizing Secretary, Dr. R. Edwin Raj, Coordinator of Research & Development Center of St. Xavier's Catholic College of Engineering, Chunkankadai, Nagercoil, Tamilnadu.

# Committees

## Patrons

Rev. Fr. A. Jesumarian, *Correspondent*

Rev. Fr. Dr. A. S. Michael Raj, *Bursar*

## Organizing Chair

Dr. S. Joseph Sekhar, *Principal*

## Organizing Secretary

Dr. R. Edwin Raj

## Joint Secretaries

Mr. S. Julyes Jaisingh

Mr. V. Christus Jeya Singh

## Publication Chair

Mr. G. Antony Miraculas

## Finance Chair

Mr. Y. Balto

## Technical Advisors

Mr. T. S. Rangarajan, *Chairman, IEEE Madras Section.*

Dr. Ramalatha Marimuthu, *Chair, IEEE WIE Affinity Group, IEEE Madras Section.*

Mr. A. Darwin Jose Raju, *Chairman, IEEE Gold Affinity Group, IEEE Madras Section.*

Mr. C. John Moses, *Chairman, IEEE Madras Section Education Society Chapter.*

## Organizing Committee

Dr. C. Ganapathy Chettiar

Dr. S. Balakrishnan

Dr. Shajulin Benedict

Dr. C. Seldev Christopher

Dr. M. Carolin Mabel

Dr. J. Mohanalin

Dr. C. Helen Sulochana

Dr. T. Latha

Dr. M. Marsaline Beno

Dr. D. Jeraldin Auxillia

Dr. S. Carmel Jawahar

## Advisory Committee

Dr. Ananth Kumar M., *Bharathiyar College of Engg. & Tech., Karaikal*  
Dr. Anil Lal S., *College of Engg. Trivandrum, Thiruvananthapuram*  
Dr. Antony Aroul Raj V., *Easwari Engg. College, Chennai*  
Dr. Arokia Jaswin M., *Aksheyaa College of Engineering, Chennai*  
Dr. Ashok Kumar N., *College of Engg. Trivandrum, Thiruvananthapuram*  
Dr. Athijayamani, *Alagappa Chettiar College of Engg., Karaikudi*  
Dr. Bale V. Reddy, *Institute of Tech., University of Ontario, Canada*  
Dr. Bose N., *MEPCO Schlenk Engineering College, Sivakasi*  
Dr. Daniel B.S.S., *Indian Institute of Technology Roorkee, Uttarakhand.*  
Dr. Ganapathy T., *Shri Krishna College of Engg & Tech, Puduchery*  
Dr. John Selvakumar Lawrence, *Grain Management School, USA*  
Dr. Joshi C. Haran, *Amirtha School of Engineering, Coimbatore*  
Dr. Kalaiselvam S., *CEG, Anna University, Chennai*  
Dr. Kamaraj S., *Dept. of Bio Energy, TNAU, Coimbatore*  
Dr. Kingsly A. R. P., *Kansas State University, USA*  
Dr. Kirubhakaran V., *Gandhigram University, Dindigul*  
Dr. Klein E. Ieleji, *Purdue University, USA*  
Dr. KunwarLaiq Ahmed Khan, *Krishna Institute of Engg. & Tech., Ghaziabad, U.P.*  
Dr. Mala R., *MEPCO Schlenk Engineering College, Sivakasi*  
Dr. Mohanlal D., *CEG, Anna University, Chennai*  
Dr. Muthukumarappan K., *South Dokota State University, USA*  
Dr. Nagaraj P., *MEPCO Schlenk Engineering College, Sivakasi*  
Dr. Nagarajan G., *CEG, Anna University, Chennai*  
Dr. Nagarajan T., *Kamaraj College of Engg. & Tech., Virudhunagar*  
Dr. Nagarajan V. A., *University College of Engg, Nagercoil*  
Dr. Nithiarasu P., *Swansea University, UK*  
Dr. Pavlo Davim J., *University of Aveiro, Portugal*  
Dr. Prakash S., *Udaya School of Engg., Vellamodi*  
Dr. Prince M., *Park Engineering College, Coimbatore*  
Dr. Reby Roy K. E., *TKM College of Engg., Trivandrum*  
Dr. Saranana N., *PSG College of Tech., Coimbatore*  
Dr. Saravanan R., *CEG, Anna University, Chennai*  
Dr. Sarvoththama Jothi T.J., *NIT Calicut, Kerala*  
Dr. Senbaga Vinayagamoorthy S., *Anna University Regional Centre, Tirunelveli*  
Dr. Senthil Kumar B., *CEG, Anna University, Chennai*  
Dr. Senthil Kumar D., *Sona College of Technology, Salem*  
Dr. Shankar Sharma, *IIT Bombay, Maharastra*  
Dr. Sivakumar V.R., *RVS College of Engg. & Tech., Coimbatore*  
Dr. Sivaprakash M., *NI University, Kumarakoil, Tamilnadu*  
Dr. Sree Kumar M., *IIITDM, Chennai*  
Dr. Srinivas T., *VIT University, Vellore*  
Dr. Suresh S., *NIT Trichy, Trichy*  
Dr. Suresha B., *NEI, Mysore*  
Dr. Thankaraj C., *IIT Roorkee, Uttarakand*  
Dr. Venkatachalam P., *Dept. of Bio Energy, TNAU, Coimbatore*  
Dr. Winowlin Jappes J.T., *Cape Institute of Technology, Levengipuram*