Emerging Electrical Energy Storage Applications

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Overview

Energy storage provides a myriad of beneficial services and cost savings to our electric grid, and companies are deploying storage technologies for a number of different purposes. Large scale energy storage also allows today's electrical system to run significantly more efficiently, and that greater efficiency means lower prices, less emissions and more reliable power. Traditional energy sources like coal and natural gas power plants have to be turned on and off as demand fluctuate are almost never operating at peak performance. This means that energy not only costs more, but pollutes more, than our energy needs. With the widespread adoption of renewable energy resources, energy storage is equally useful. As is often noted, these energy sources are intermittent in nature, producing energy when the sun is shining and the wind is blowing. By storing the energy produced and delivering it on demand, these clean technologies can continue to power our grid even when the sun has set and the air is still - levelling out jumps in output to create a continuous, reliable stream of power throughout the day.

Through this coursework and lecture series, we would like to share the emerging strategies and the fundamental mechanism behind working of these energy systems with students and faculties of our institute as well as other premier institutes of India. This vastly interdisciplinary topic will find audience among the fields of chemical sciences, material sciences, mechanical, chemical, electrical engineering.

Academics, researchers having high international reputation with well proven record of experiences in teaching, research and consultancy in the above field will deliver lectures. Audience will also have an opportunity to interact closely with the experts. This will also open up a new window of international collaboration in teaching and research.

Modules	**The major objectives of the course are to provide an exposure to the audience in the following cutting edge area of energy systems and its applications through mutual interactions and sharing of knowledge during December 18-23, 2017:** **i) Fundamentals of electrical energy storage applications** **ii) Principles of battery and other electrochemical systems** **iii) Research and Development in Fuel Cell Technology** **iv) Nanomaterials challenges and opportunities for energy systems** **v) Environmental and social impact of applied energy storage applications** **Number of participants for the course will be limited to fifty.**
You Should Attend If…	▪ The faculty members from reputed academic and technical institutions ▪ Students at different levels (B.Tech/M.Tech/M.Sc./Ph.D.) ▪ Executives, engineers and researchers from manufacturing, service and government organizations including R&D laboratories
Fees	The participation fees for taking the course is as follows: **Foreign Participants: US$ 500** **Faculties from academic institutions/Govt. research organizations: Rs. 3,000/-** **Students (B.Tech/M.Tech/M.Sc.): Rs. 500/-** **Ph.D.: Rs. 1000/-** **Persons from Industry: Rs. 10,000/-** The above fee include all instructional materials, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

The Faculty

Prof. Arunachala Nadar Mada Kannan Professor at the Polytechnic School, Arizona State University. He has earned his Ph.D. degree in 1990 from the Indian Institute of Science, Bangalore with a focus on Metal/Air Batteries and Alkaline Fuel Cells. He has been involved in Fuel Cell and Battery research and development for the past 20 years.

Before joining the ASU, Dr. Kannan worked as Chief Scientist at Hoku Scientific Inc., Honolulu managing a scientific research group involved in developing low temperature Fuel Cells for automotive applications. His area of expertise and research interests include low temperature Fuel Cells including Bio-Fuel Cells, more specifically nano-scale electrocatalysts and electrode active materials, Carbon Nano-tubes, Gas diffusion layers, structure-property relationships through physicochemical characterization and fabrication, evaluation of single cells and multi-cell Proton Exchange Membrane Fuel Cell stacks.

Dr. Pamita Awasthi is an Associate Professor in Department of Chemistry at National Institute of Technology Hamirpur. She obtained her Ph.D. degree from Himachal Pradesh University and Post Doctaorate from Indian Insttute of Technology Roorkee. Her research interest include Synthesis and Drug Designing using NMR and Molecular Modeling Techniques

Dr. Leela Manohar is an Assistant Professor in Department of Chemical Engineering at National Institute of Technology Hamirpur. He obtained his Ph.D. degree from Indian Institute of Technology Guwahati, His research interest include Electroreduction of CO_2, Clean Energy – Fuel Cells, Solid Polymer Electrolytes, Chromatography.

Course Co-ordinators

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