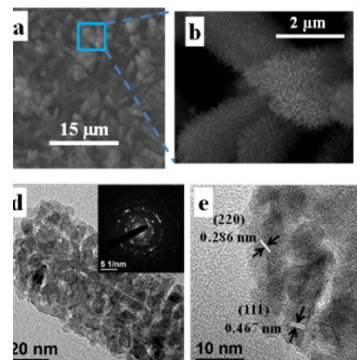


# Electrochemical Energy Conversion and Storage: Materials and Methods

## Overview

Rapid increase in global energy use and growing environmental concerns have prompted intensive worldwide activities on the development of clean, sustainable, alternative energy technologies. The electrochemical energy conversion and storage technologies – fuel cells, batteries, and supercapacitors – are appealing for a variety of energy needs including portable electronic devices, transportation, and stationary generation/storage, but their widespread commercialization for large-scale applications is hampered by high cost, durability, and safety issues, which are linked to severe materials challenges. Accordingly, this course focuses on materials and methods involved in electrochemical energy conversion and storage.



## Objectives

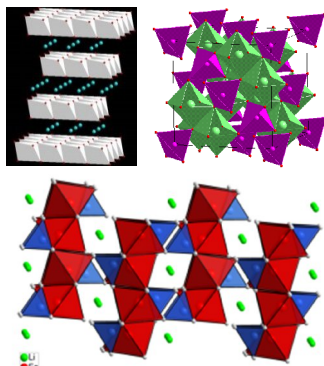
Design and development of low-cost, efficient, safer, environmentally benign materials for electrochemical energy conversion and storage need a firm basic science understanding of the materials chemistry involved and the electrochemical methods employed. Therefore, the course will first give the basic electrochemical concepts and methods involved, and then an overview of the existing materials and the issues associated with them, followed by the development of next-generation materials.

Dates	August 8-17, 2016
Host Institute	Indian Institute of Technology-Madras
No. of Credits	2 (28 lecture hours)
No. of Participants	Limited to 40
Who Should Attend	Undergraduate, Post-graduate or Research Students of both Science and Engineering streams as well as from Industry
Course Registration Fee	Participants from IIT-Madras or other approved institutes of GIAN Students : Rs. 2,000; Faculty : Rs. 6,000 Government Research Organization Participants : Rs. 10,000 Industry Participants : Rs. 20,000
Mode of Payment	Demand draft in favour of "Registrar, IIT Madras" payable at Chennai
Accommodation	The participants may be provided with hostel accommodation, depending on the availability, on payment basis. Request for hostel accommodation may be submitted through the link: <a href="http://hosteldine.iitm.ac.in/iitmhostel">http://hosteldine.iitm.ac.in/iitmhostel</a>

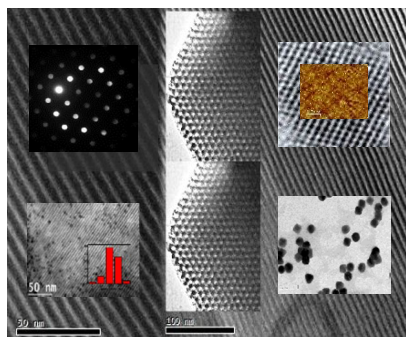
## Course Faculty



Professor A. Manthiram is currently the Cockrell Family Regents Chair in Engineering and the Director of the Texas Materials Institute and the Materials Science and Engineering Program at the University of Texas at Austin (UT-Austin). He was a recipient of the Distinguished Alumnus Award from IIT-Madras in 2015. Dr. Manthiram's current research is focused on materials for rechargeable batteries, fuel cells, supercapacitors, and solar cells. For details see link: [www.me.utexas.edu/~manthiram](http://www.me.utexas.edu/~manthiram)



Professor P. Selvam is in the Faculty of IIT-Madras. His research interest is on the development of nanoporous, nano and bulk materials / catalysts for a variety of applications, including Fuel Cells, Solar Fuels, Batteries, Hydrogen Energy, Heterogeneous Catalysis, Photocatalysis and Biomass Conversion. For details see link: <http://chem.iitm.ac.in/faculty/selvam/>



## Course Coordinator

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