

Adsorption Science and Technology for Cooling and Desalination Applications

Overview

Thermally powered adsorption cycle employs low temperature waste-heat sources that are available in abundance from industrial processes, exhaust of engines, micro-turbines etc. can effectively produce cooling energy and/or potable water. In this course, participants will become acquainted with the roots and the prospective paths branching out of a figurative tree that the field of adsorption science and technology represents.

This course is organized in two modules that should be taken together. The topics in Module A will be based on the energy policy and utilization trend, introduction to various energy conversion systems and fundamental aspects of adsorption science where the topics such as general aspects and history of adsorption cooling science and technology, basic concepts, measurement and data analysis techniques relevant to adsorption isotherms, kinetics and isosteric heat of adsorption will be covered. Module B will deal with the application aspects of adsorption systems, introduction to basic and advanced low grade thermal energy driven adsorption cooling, heat pump and/or desalination systems, why this technology should be considered as the sustainable technology, its advantages and drawbacks.

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| Modules | <p>A: Energy Perspective : September 11 - September 15</p> <p>B: Application Aspects : September 16 - September 21</p> <p>Number of participants for the course will be limited to fifty.</p> |
| You Should Attend If... | <ul style="list-style-type: none"> ➤ Undergraduates, M.Tech./M.Sc. and Ph.D. science stream students. Any student with a basic background in thermodynamics/refrigeration will be able to follow these lectures and gain valuable information. ➤ B.Tech./B.Sc. and M.Tech./M.Sc. level teachers who wish to update their knowledge in an important special field of adsorption refrigeration. ➤ Executives, engineers and researchers from industry, service and government organizations including R&D laboratories who are engaged in adsorption cooling/refrigeration, desalination. |
| Fees | <p>The participation fees for taking the course is as follows:</p> <p>Students (UG/PG): INR 4000/-</p> <p>Research Scholars: INR 6000/-</p> <p>Faculty Members: INR 10000/-</p> <p>Foreigners: USD 300</p> <p>Industry and Others: INR 15000/-</p> <p>The above fees include all instructional materials, tutorials and assignments, 24 hrs free internet facility.</p> |
| Accommodation | <p>Paid accommodation will be provided to participants on first-come-first-serve basis.</p> |

The Faculty



Prof. Bidyut Baran Saha obtained his B.Sc. (Hons.) and M.Sc. degrees from Dhaka University of Bangladesh in 1987 and 1990, respectively. He received his Ph.D. in 1997 from the Tokyo University of Agriculture and Technology, Japan and joined as an Assistant Professor. He joined the Kyushu University Program for Leading Graduate School, Green Asia Education Center in March 2013 as a professor. Since January 2016, he has been working as a Professor and Principal Investigator at the International Institute for Carbon-Neutral Energy Research (WPI-I2CNER) in the Division of Thermal Science and Engineering. His research interests include thermally powered adsorption systems, heat and mass transfer analysis, and energy efficiency assessment. He has published more than 350 articles in peer-reviewed journals and international conference proceedings. He has edited five books and holds fifteen patents. Recently, he served as managing Guest Editor for Applied Thermal Engineering and Heat Transfer Engineering Journals. He serves as the editorial advisory board member of Applied Thermal Engineering, Thermal Science and Engineering Progress Journals; Editor-in-Chief of Evergreen Journal.



E. Anil Kumar is an Associate Professor in the Discipline of Mechanical Engineering, IIT Indore. He obtained his Ph.D. Degree from the Department of Mechanical Engineering, IIT Madras. His research interests are measurement of Thermodynamic and Thermophysical properties of solid state hydrogen storage materials, Carbon dioxide capture and sequestration. He has published more than fifty papers in peer reviewed International Journals and Proceedings of International and National Conferences.

Course Co-ordinator

For any information regarding eligibility fee payment, travel information, accommodation, etc., please contact the course coordinator via e-mail or phone

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