

REFRIGERATION TECHNOLOGY WITH NATURAL REFRIGERANTS, SPECIALIZATION ON R744 (CO₂)

Overview

The course deals with heat pumping processes and systems applied in different kinds of refrigeration and heat pump plants, from smaller plants in heat pumps, domestic units and supermarket, to industrial plants in food and process industry with focus on natural working fluids (NWF) and in particular R744 (CO₂, carbon dioxide). The course also highlights the potential of R744 in commercial refrigeration especially for supermarkets utilizing the necessary cycle modifications.

Dates for the Course	October 9 - 13, 2017
Host Institute	IIT Madras
No. of Credits	2
Maximum No. of Participants	30
Course Objectives	<ul style="list-style-type: none">• Introduction to refrigeration technology with NWFs (NH₃, HCs and CO₂)• Understand design challenges and opportunities related to the use of NWFs• Knowhow on system solutions for different kinds of applications• Practical training utilizing the CO₂ INDEE facility at IIT Madras
Course Registration Fees	<p>The participation fees for taking the course is as follows:</p> <p>Student Participants: Rs.1000 Faculty Participants: Rs.2000 Government Research Organization Participants: Rs.3000 Industry Participants: Rs.10000</p> <p>The above fee is towards participation in the course, the course material, computer use for tutorials and assignments, and laboratory equipment usage charges.</p> <p>Mode of payment: Demand draft in favor of "Registrar, IIT Madras" payable at Chennai</p>
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: http://hosteldine.iitm.ac.in/iitmhostel

Course Faculty



Dr. Armin Hafner received his Ph.D. degree in Energy and Process engineering from the Norwegian University of Science and Technology (NTNU). He currently serves as a Professor with Refrigeration Engineering, Norwegian University of Science and Technology, Trondheim, Norway. His research addresses the utilization of natural refrigerants such as CO₂ for various applications such as refrigeration, air conditioning and heat pumps and also system design and life cycle climate performance assessment. His research has led to about 100 international and national publications within the area of refrigeration and process engineering, numerous presentations in international and national meetings and conferences. He is also the co-author of 5 patents within CO₂ technology. He was a research scientist at SINTEF, the largest independent research organization in Scandinavia, for about 2 decades and has immense experience in computer modeling and system simulation.



Dr. MP Maiya received his Ph.D. degree in Mechanical Engineering from the Indian Institute of Technology (IIT) Bombay. He currently heads the Refrigeration and Air conditioning laboratory and serves as professor of Department of Mechanical Engineering at IIT Madras. His areas of expertise cover sorption technology, metal hydride systems, refrigeration, hybrid air conditioning and evaporative cooling. He has many years of teaching and research experience at the Institute and has over 150 research publications. He has undertaken many sponsored research and consultancy projects and actively associated with many professional societies such as ISHRAE, ISHMT, ISTE, SESI, ASHRAE and ASME.



Course Coordinator

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