

ANNOUNCEMENT

SHORT COURSES

on

MULTIPHASE FLOW AND HEAT TRANSFER: BASES AND APPLICATIONS IN (A) THE NUCLEAR POWER INDUSTRY AND (B) THE PROCESS INDUSTRIES

Hosted by

Swiss Federal Institute of Technology (ETH),
Zurich, Switzerland

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The modular courses feature coordinated, comprehensive series of lectures by experts and are of interest to practising engineers and to researchers who wish to obtain a condensed and critical view of present basic knowledge (Part I) or information on the state-of-the-art regarding applications in specialized industries (Parts IIA and IIB).

The courses aim at an interdisciplinary transfer of knowledge. Applications cover nuclear and chemical plant safety, steam generators, pipelines etc.

The lecturers

Sanjoy Banerjee, Professor and Chairman of the Department of Chemical and Nuclear Engineering, University of California, Santa Barbara, U.S.A.

Gad Hetsroni, Danciger Professor of Engineering at Technion—Israel Institute of Technology. Currently, a Visiting Professor at the University of California, Santa Barbara, U.S.A.

Geoffrey F. Hewitt, Head of the Thermal Hydraulics Division at the Harwell Laboratory and Professor of Chemical Engineering at the Imperial College of Science and Technology, London, England.

George Yadigaroglu, Professor of Nuclear Engineering at the Swiss Federal Institute of Technology in Zurich (ETHZ) and head of the Thermal-Hydraulics Laboratory at the Paul-Scherrer Institute (formerly EIR), Switzerland.

Contents of lectures

Part I. Bases

1. Introduction
2. Basic equations I
3. Flow regimes
4. Measurement and correlation of void fractions
5. Measurement and correlation of pressure gradient
6. Two-phase flow in vertical pipes
7. Two-phase flow in horizontal and inclined pipes
8. Basic equations II
9. Two-phase heat transfer I
10. Two-phase heat transfer II
11. Closure relationships
12. Numerical methods

Part IIA. Water Reactor Applications

- 13A. Steady-state operation
- 14A. Large break LOCAs
- 15A. Small break LOCAs
- 16A. Codes for transient and accident analysis
- 17A. Severe accidents
- 18A. Steam generators

Part IIB. Process and Petroleum Industry Applications

- 13B. Multicomponent heat and mass transfer
- 14B. Emergency relief system vent sizing
- 15B. Process boilers and condensers
- 16B. Relief ducting and treatment
- 17B. Pipelines
- 18B. Dense gas and mist dispersions

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