

ANNOUNCEMENTS

SHORT COURSE ON MULTIPHASE FLOW IN PIPES

Five-day short course to be held at The University of Calgary, 27 April-1 May 1981. Information: The Faculty of Continuing Education. Area Code 403, 284-5431.

SHORT COURSE ON DESIGN AND MODELING OF NATURAL GAS PROCESSES

Four-day short course to be held at The University of Calgary, 25-28 May 1981. Information: The Faculty of Continuing Education. Area Code 403, 284-5431.

MULTIPHASE FLOW IN PIPES

ITS APPLICATION TO PRODUCTION AND TRANSPORTATION OF OIL AND GAS

A five-day short course to be held at The University of Calgary, 27 April-1 May 1981.

The course is designed for engineers and other professionals in the oil and gas industry who are engaged in the design of production, gathering and transportation facilities.

It will present a detailed treatment of the available methods for:

- Prediction of fluid properties for oil, gas, oil-gas, condensate-gas and dense phase systems.
- Single phase (gas, oil, dense phase) and multiphase (gas-oil, gas-condensate) flow calculations in pipelines.
- Gathering system design.
- Well tubing design for single phase (gas, oil, dense phase), and multiphase (gas-oil, gas-condensate) flow.
- Generation and use of gradient curves.
- Metering of multiphase flows.
- Production batching in pipelines.

The applications of the computer programs:

- (1) INPROP (fluid properties calculation)
- (2) PIPEFLO (pipeline design and analysis calculations)
- (3) WELLFO (wellbore design and analysis calculations)
- (4) FLOMAP (generation of flow pattern maps)

will be discussed in detail. Problem solving sessions are included in which registrants will have opportunities to apply material presented in the course to actual field situations, both with hand calculations, and with the use of the above programs. No previous knowledge of computers, or computer programming is required. It will be assumed that all registrants have a knowledge of basic fluid mechanics.

All registrants will be provided with a set of comprehensive course notes, and User Guides for each of the above computer programs. Instructors for the course will be: Dr. K. Aziz, Dr. G. A. Gregory, Mrs. M. Fogarasi, from the Department of Chemical and Petroleum Engineering, The University of Calgary.

Information regarding course fee and registration procedures can be obtained from: The Faculty of Continuing Education, The University of Calgary, Calgary, Alberta, Canada T2N 1N4. Telephone: Area Code 403, 284-5431.

SHORT COURSE ON DESIGN AND MODELING OF NATURAL GAS PROCESSES

Four-day short course to be held at The University of Calgary, 25–28 May 1981.

The course is designed for engineers and other professionals who are engaged in the design, and/or processing of natural gases, and will deal with physical, chemical and engineering principles used in the recovery of natural gas liquids from natural gases. Application of these principles to the design of various processes will be stressed. Example calculations based on recommended design methods will be included.

The structure and use of comprehensive design programs, HYPROP, HYDIS and HYSIM will be discussed in detail. Problem solving sessions are included in which registrants will have opportunities to make use of these programs. No previous knowledge of computers or computer programming is required.

Topic Outline: Introduction; Course objectives and overview of a typical gas processing facility. Phase Behavior and Physical Properties of Natural Gas Systems; Phase diagrams, *K*-Factor calculation methods, thermodynamic and transport properties of natural gases required in gas plant design. NGL Recovery Processes/Design of Distillation and Absorption Units; Discussion of lean oil, turbo expander, and fractionation processes, Sizing calculations for absorption and distillation columns. Process Configurations for Gas Plants; Heat and material balance calculations for various gas plant flow sheets. Gas Plant Design Problem.

Instructions for the course will be: Dr. P. R. Bishnoi, Dr. W. Y. Svrcek, Department of Chemical and Petroleum Engineering, The University of Calgary; Mr. C. G. Morris, Hypotech Ltd., Calgary, Alberta.

Information regarding course fee and registration procedures can be obtained from: The Faculty of Continuing Education, The University of Calgary, Calgary, Alberta, Canada T2N 1N4. Telephone: Area Code (403) 284-5431.

TWO PHASE FLOW IN EQUIPMENT

Department of Chemical Engineering
Stanford University

Two-phase flow and heat transfer continue to focus the attention of researchers, and to frustrate and thwart the engineer, in the nuclear, chemical, and other industries. New data and information, ideas and hypothesis, facts and erroneous theories, continue to be produced.

The purpose of this course is to provide the practicing engineer with:

- An up-to-date condensed and critical view of the state of knowledge.
- Highlight of salient points.
- Sources of data and correlations.
- Design philosophy and methods.
- The outstanding areas of uncertainties.

The course will consist of:

- A series of coordinated lectures by well known experts.
- Lecture notes to be distributed prior to the course discussions.
- Selected movies and slides to illustrate physical phenomena.
- Excellent and convenient accommodations on Stanford Campus.
- Limited attendance.