



OEM Pump Redesigned at CN

— **Professional Development Course on Pumps** —

**CENTRIFUGAL PUMPS:
Advances in Design, Performance, and Problem Solving**

WHEN: February 27 - March 1, 2012
4 days / 9:00 AM - 5:00 PM

WHERE: PD Solutions Pte Ltd
305 Alexandra Road
#05-01/02 Vantage Automotive Centre
Singapore 59942

COST: US\$ 1,600.00 / student

Course Information

This Course is designed to help engineers design, test, and run more effective, more economical, and more reliable pumps. Engineers will come to understand the best state-of-the-art design practices and learn the latest theories on performance and cavitation. The course will review the latest advances in design tools and will provide designers with expert and relevant instruction on pump design optimization.

Beginning with an extensive survey of the current technology base for pump design, Course Topics include impellers, diffusers, volutes, and other flow elements. The limitations on pump operation and range due to stall and other instabilities are described. Special attention is given to problems and design issues specifically associated with pump flows, namely cavitation, unsteady flow, and vibration.

Emphasis is placed on modern methods available to the pump designer for blade layout and design, using flexible geometric techniques associated with hydrodynamic loading calculations and the computational fluid dynamic analysis of pump flows. The advantages and limitations of such analyses are reviewed thoroughly by the instructor.

Instructor Information

Dr. David Japikse is CEO, Owner, and Founder of Concepts NREC, the world's leading full-service turbomachinery design and development organization, based in Wilder, VT, USA. Dr. Japikse received his B.S. in Engineering from Case Institute of Technology, his M.Sc. and Ph.D. Degrees in Mechanical Engineering at Purdue University and conducted post-doctoral research as a Fulbright Scholar/NSF Fellow at Technische Hochschule in Aachen, Germany. He has received extensive recognition for his work in the design of pumps, compressors, and turbines, as well as the development of design tools. A recipient of the 2010 Henry R. Worthington Medal for eminent achievement in pumping machinery, as well as other prestigious awards, he is also an elected member of the National Academy of Engineering and the Vermont Academy of Science and Engineering. Dr. Japikse is also an author/editor of ten books and has written/presented 300+ reports on turbomachinery design and development.



For questions or further information, please contact:

Dr. David Byrne
PD Solutions Pte Ltd
305 Alexandra Road
#05-01/02 Vantage
Automotive Centre
Singapore 159942

PH: +65-6732-9818
FAX +65-6736-2028
david@pdsol.com

CENTRIFUGAL PUMPS: Advances in Design, Performance, and Problem Solving

Registration Information

To obtain a detailed outline/schedule of the Course, please contact PD Solutions (see information below).

Course fee includes lunch and daytime refreshments and is due in advance, as attendance is limited. Registering without payment does not reserve space. Enrollment priority will be given in the order of payment received.

DISCOUNTS: Register and pay 3 weeks (21 days) prior to Course start date to receive an early-bird discount. Group discounts are available for 3 or more students registering from the same company.

CANCELLATION POLICY: Cancellations received less than two weeks prior to the Course start date will be charged 15% of Course Fee as a Service Charge.

A list of hotels and local travel information is available upon request.

Registrant Information

Mr. Ms. Mrs. Dr. Professor

First Name

Last Name

Job Title

Company

Mailing Address (with Mailstop, if appropriate)

City

State/Province

Country

Postal Code

Phone

Fax

E-mail

Payment Information

Make payment to PD Solutions, Pte Ltd

Check Draft Visa Mastercard

US \$ _____ Total
(include discounts)

Credit Card Number

Exp Date (mm/yy)

Sec Code

Name as it appears on Credit Card

Fill-out and Fax or E-mail this form to:

Dr. David Byrne

PD Solutions, Pte Ltd

305 Alexandra Road, #05-01/02 Vantage Automotive Centre

Singapore 159942

PH: +65-6732-9818 · FAX +65-6736-2028

david@pdsol.com