

PUMP 2010+ Seminar & Workshop Series

Concepts NREC (CN) will be offering 2 one-week sessions that will focus on the various topics surrounding advanced pump design. **PUMP 2010+ Seminar & Workshop Series** is intended for all levels of designers and will cover the fundamentals of advanced pump design as well as the use of state-of-the-art tools to meet the high efficiency and reliability requirements of modern applications. Each week-long session will consist of a 4-day Seminar and an optional 1-day **Design Software Workshop (DSW)**.

SESSION 1**May 24-28, 2010****\$1600**

Days 1–4: **Topics covered will include:** Advanced Impeller Design, Economical Machining, Diffuser Design, Multistage Pumps (return channel), Volute Design, Rapid Manufacturing

Day 5: **[OPTIONAL] Design Software Workshop — \$200***

SESSION 2**November 8-12, 2010 DATE CHANGE: Jan 31-Feb 4, 2011****\$1600**

Days 1–4: **Topics covered will include:** Inducer Design, Improved Suction Performance, Multistage Pumps (continuous crossover), Impeller FEA

Day 5: **[OPTIONAL] Design Software Workshop — \$200***

* The one-day DSW's are available to all attendees at a minimal additional cost which will include a one-month trial license of Agile Engineering Design System® software that can be customized to fit your specific design needs.

Gain a Better Understanding of the Fundamentals of Pump Design, Manufacture and Testing.

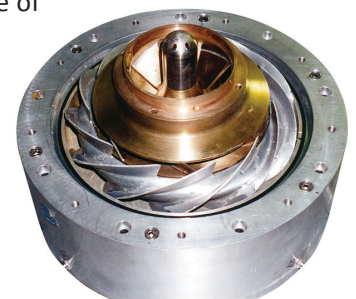
The **PUMP 2010+** sessions are designed to teach and demonstrate the critical design philosophy and procedures required to develop high performance pump stages. The first session in May 2010 focused on advanced impeller design techniques, application of diffusers in pump stages and volute design. During this session, two different impeller designs were developed. The first impeller was designed for application in a stage with a diffuser or return channel and the second, for use in a volute pump. Both stages were subsequently manufactured and tested by CN. The results of this testing will be reviewed in the second session in 2011. Also during this second session, CN will utilize the two designs as the basis to explore enhanced suction performance and component matching. The redesigned stages will be retested for comparison and to evaluate the effects on performance. Attendees are encouraged to pursue their own designs during the sessions and CN design engineers will be available to provide input and review.

The optional one-day Design Software Workshop focuses on the use of CN's design tools to solve problems similar to those discussed in the Seminar. DSW's are taught by CN's regular training instructors, with support from staff engineers. Individual work sessions with CN engineers can be scheduled

during the training to study specific cases provided by the attendees.

Seminars will be led by Dr. David Japikse, the Owner and Founder of *Concepts NREC*. Dr. Japikse received his B.S. in Engineering from Case Institute of Technology and then his M.A. and Ph.D. Degrees in Mechanical Engineering at Purdue University. 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 ASME's Potter Gold Medal in Thermodynamics and the SAE 2008 Cliff Garrett Turbomachinery Engineering Award, 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. Other CN staff will also contribute as appropriate.



Vertical Turbine Pump designed at Concepts NREC to investigate high performance limits.

PUMP 2010+ REGISTRATION INFORMATION

Please check all Seminars and Design Software Workshops (DSW) you would like to attend:

	<u>Seminar Dates</u>	<u>DSW Dates</u>	
Session 1	<input type="checkbox"/> May 24-27, 2010 (\$1600)	<input type="checkbox"/> May 28, 2010 (\$200)	Already Held
Session 2	<input type="checkbox"/> January 13 - February 3, 2011 (\$1600)	<input type="checkbox"/> February 4, 2011 (\$200)	Total _____

STUDENT INFORMATION

Mr. Ms. Mrs. Dr. Professor (Please print legibly.)

First Name _____ Last Name _____

Job Title _____

Company _____

Mailing Address (with Mailstop, if appropriate) _____

City _____ State _____ Country _____ Postal Code _____

Phone _____ Fax _____ E-mail _____

PRICING & PAYMENT INFORMATION

\$ _____ Total (from above) Check Visa Mastercard AmEx

Credit Card Number _____ Exp Date _____ Sec Code _____

Name as it appears on Credit Card _____

If you would like to pay via Wire Transfer, please call 802.296.2321, ask for Accounting and they will provide you with the necessary information.

GENERAL INFORMATION

Location — PUMP 2010+ Seminars and Workshops will be held at the *Concepts NREC* Corporate Headquarters in Wilder, VT. Hotel reservations should be made at least two weeks prior to the Workshop to ensure room availability. Please go to *CN's* website for a list of local hotels, directions and other travel information: www.ConceptsNREC.com.

Fees/Registration — Registration fees are in US Dollars and due in advance. *CN* will figure out any applicable taxes and send you final payment confirmation. Registration without payment will not reserve space, so if session is fully enrolled, registrants with payment will be given priority.

Cancellation Policy — Registered participants will be notified of any cancellations no later than two weeks prior to the event start date. The information provided above will be used for notification. Registered participants who wish to cancel may do so and receive a full refund if notice is received two weeks prior to the course start date. After this deadline, payment cannot be returned but the course fee may be applied toward *Concepts NREC* publications or training events.

Concepts NREC strives to provide courses as scheduled. However, it may be necessary to make modifications. Registrants will be notified of any changes as soon as possible. Please check our website for the most up-to-date information (www.ConceptsNREC.com) or CALL 802.296.2321 or EMAIL education@ConceptsNREC.com

FAX THIS REGISTRATION FORM TO: 802.296.2325