Course Description

This course provides an extensive introduction to fluid sealing and is designed to meet the needs of equipment designers, plant and maintenance engineers, and technical sales engineers.

The course has been presented at Georgia Tech since 1988. It utilizes the fluid sealing and tribology expertise of Georgia Tech and independent consultants.

A sound understanding of the complex factors involved in successful fluid sealing is essential for engineers who specify, design, operate and maintain machinery and mechanical equipment. Seals specialists will show how an understanding of basic engineering factors can be used to solve practical sealing problems.

Fluid sealing technology is based on disciplines as diverse as lubrication, friction, wear, properties of materials, mechanical design, fluid mechanics, and heat transfer. All of these factors are considered in the discussion of different types of seals, seal materials, and sealing applications.

Time is allowed for discussion of individual problems. A visit to Georgia Tech laboratories and a review of some current activities is included.

Course participants receive a comprehensive set of lecture notes.

Who Should Attend

This course is designed to help:

- Project and design engineers involved in the design and specification of equipment that requires seals.
- Plant and maintenance engineers who are concerned with the operation and maintenance of seals.
- Engineers entering the fluid sealing industry.
- Senior technical staff members who need to be familiar with this specialist field.
- Technical marketing staff members who require a broad background knowledge of fluid sealing techniques.

Register today at www.dlpe.gatech.edu/seals
Fluid Sealing Technology | Monday-Tuesday, April 13-14, 2009 | 1.4 CEUs | Atlanta

Topics

1. Introduction – Basic engineering concepts applicable to seals in general, including friction, lubrication, and heat transfer
2. Fluid Flow and Heat Transfer – Fundamentals required for seal analysis
3. O-rings and Rotary Lip Seals – Static seal designs; rotating seal designs; housing design; selection and specification; performance: leakage, friction, wear, life; operating limits: temperature, pressure, speed, fluid compatibility
4. Fluid Film Lubrication – Load support, friction, leakage
5. Mechanical Seals – Mechanical seals design: balanced and unbalanced; design procedure; sealing face finish; housing and auxiliary equipment; selection and specification; performance; operating limits
6. Rotordynamics – Vibration diagnostics and condition-based maintenance
7. Static Seals and Gaskets – Sealing mechanisms of gaskets; discussion of flange design; gasket materials; effects of clamping forces, mechanical deflections, vibration, temperature, and chemicals
8. Boundary Lubrication, Friction and Wear – Wear mechanisms, friction mechanisms, lubrication
9. Reciprocating Seals – Seal types, operation, applications
10. Seal Materials: Elastomeric and Plastic – Properties of elastomers and plastics; manufacture, fluid compatibility and selection of materials; applications of seal elastomers and plastics
11. Seal Materials: Non-elastomeric – Seal face materials: carbons, bronzes, ferrous, hard facings, carbides, ceramics, etc.; physical and chemical properties; selecting the right seal face material
12. Computer Aided Design – Use of computer programs to predict seal performance and optimize design
13. Soft Packings – Construction and lubricants; housing design: creep and stress-strain behavior; performance: leakage, power consumption, shaft wear, life; operating limits: temperature pressure, speed, fluid compatibility
14. Failure Analysis and Seal Economics – First costs, running costs; failure modes: mechanical seals, rubber seals, soft packings, etc.; causes and cures to increase the mean time between maintenance and to reduce plant operating costs
15. Case Studies – Details of industrial problems will be discussed

(The organizers reserve the right to make appropriate alterations to the program.)

Four Easy Ways to Register

ONLINE:  www.dlpe.gatech.edu/seals
FAX:  404-894-8925
MAIL:  Georgia Institute of Technology Professional Education—R
P.O. Box 93686 • Atlanta, GA 30377-0686
PHONE:  404-385-3500
9 a.m.-4 p.m. EST Monday-Friday

To register by fax or mail, download a registration form at www.dlpe.gatech.edu/pe.

After you register, you receive a confirmation letter with detailed instructions.

Course Times and Location

Monday-Tuesday, April 13-14, 2009
Georgia Tech Global Learning Center

Course Fee

The course fee of $1,375 includes all necessary classroom materials. An early registration fee of $1,250 is available until Monday, March 16, 2008. A 10% discount is available for 3 or more people from the same company attending as a group. Call 404-385-3501 to register your group at the discounted rate.

Course Accommodations

Hotel accommodations are available at the Georgia Tech Hotel, located at Technology Square, 800 Spring St. N.W., attached to the Georgia Tech Global Learning Center. Mention you are attending a Georgia Tech program for a special room rate. For hotel reservations, call 800-706-BUZZ (2899). For additional lodging options, visit www.dlpe.gatech.edu/pe and click on Technology Square.

Georgia Tech Professional Education is not responsible for any hotel cancellation charges, penalties, nor billing discrepancies. MARTA trains provide an easy connection from the airport to the Georgia Tech Global Learning Center. Take MARTA to the Midtown Station then catch the free Tech Trolley to the Center.

Continuing Education Units

This program meets criteria for the nationally accepted Continuing Education Unit. Each participant completing the program with earn 1.4 CEUs. A certificate of completion showing the accumulated CEUs earned can be requested by e-mailing ceu-request@dlpe.gatech.edu.

Cancellations and Refunds

DLPE’s Cancellation • Transfer • Substitution Policy may be found at www.dlpe.gatech.edu/pe, then click on the Policies link.

Transfer or substitution requests must be made using the Cancellation • Substitution • Transfer Request Form and submitted by:

E-mail: dlpeinfo@mail.gatech.edu
Fax: 404-894-8925
Mail: Georgia Institute of Technology Professional Education
P.O. Box 93686
Atlanta, GA 30377-0686

Georgia Institute of Technology reserves the right to cancel a course for any reason, including insufficient enrollment. If a course is canceled, all registration fees will be refunded or can be transferred to another course.

Sponsors and Staff

This course is sponsored by the George W. Woodruff School of Mechanical Engineering at the Georgia Institute of Technology. The course administrator is Dr. Itzhak Green of Georgia Tech. The staff is composed of:

- Dr. Itzhak Green, Professor
- Dr. Richard F. Salant, Professor
- Dr. Ward O. Winer, Chair Emeritus, School of Mechanical Engineering

Independent Consultant:

Mr. Jim Netzel, Senior Consulting Engineer

Any questions about the technical content of the course should be directed to Dr. Itzhak Green at 404-894-6779 or via e-mail at itzhak.green@me.gatech.edu