**SCHEDULE**

**Sunday, May 19, 2019**
5:00 PM Registration, TownPlace Suites Bryan College Station, Welcome and Announcements

**Monday, May 20, 2019**
7:40 AM Bus leaves hotel for Rudder Tower, Room 701, Texas A&M University Campus
8:00 AM "Basic Principles of Membrane Filtration Separations" – Munir Cheryan
9:30 AM Break
9:45 AM “Membrane Pretreatment” – Gerold Luss
11:00 AM “Monitoring carbon in industrial water” – Gary Erickson
12:00 PM Class Picture and Lunch, Memorial Student Center Cafeteria
1:00 PM "Optimizing Process Variables" – Munir Cheryan
2:00 PM "Electrodialysis for Applications in Food, Chemicals, Biotech, Brine Treatment, and other Industries" – Daniel Bar
3:00 PM “Bag Filter Application and Maintenance” – Carl Berthold
4:00 PM Bus departs to RELLIS campus building 8525 for demos
4:30 PM Demonstrations:
   - Review examples of Membrane filtration Types, modules and Systems – Carl Vavra

**Tuesday, May 21, 2019**
7:40 AM Bus leaves hotel for Rudder Tower, Room 701 Texas A&M University Campus
8:00 AM "What’s New in Membrane Technology" – Gerold Luss
9:00 AM "Fluid Process Optimization" – Bill Toomey
9:45 AM Break
10:00 AM "Advanced water analytics" – Keith McLeroy
11:00 AM “Critical Parameters in Selecting Membranes and Systems for Food and Beverage Applications" – Carl Hoffman
12:00 PM Lunch
1:00 PM Use of Continuous Centrifuges in the Food, Dairy, and Beverage Industry” – Ted Neuman
2:30 PM Bus departs to RELLIS Campus building 8525 for demos
3:00 PM Demonstrations:
   - Continuous Three Phase Vertical Centrifuge System – Ted Neuman
   - RO System – Bill Toomey

**Wednesday, May 22, 2019**
7:40 AM Bus leaves hotel for Rudder Tower, Room 701, Texas A&M University Campus
8:00 AM “New and Novel Applications for Tubular Membranes” – Ryan Cage
9:00 AM “Reverse Osmosis (RO) Systems: Recent developments in scale and Deposit Control Agents” – John Zibrida
10:00 AM “Stainless Steel Membranes and Their Applications” – Doug Knigge
11:00 AM “Pre-treatment Technology for RO” – David Bromley
12:00 PM Graduation Lunch, University Club, MSC 11th floor
2:00 PM “Membrane Filtration Cleaning & Sanitizing” – Paul Schacht
3:30 PM Bus departs to RELLIS campus building 8525 for demos
4:00 PM Demonstrations:
   - Graver Stainless Steel Membrane – Doug Knigge
   - Multi-Purpose Benchtop Filter Demonstration – Peter Allan
   - Tubular Membrane Filtration System – Ryan Cage
   - Discussion, Demonstration of Cleaning & Sanitizing Membranes & Systems – Paul Schacht

**Thursday, May 23, 2019**
7:40 AM Bus leaves hotel for Rudder Tower, Room 701, Texas A&M University Campus
8:00 AM “How to Investigate Separations Technologies for New Products, Processes and troubleshoot” – Peter Allan
9:00 AM “Polymeric membrane system retrofits” – Grady Coberly
9:45 AM Break
10:00 AM “Direct and Crossflow Filtration Technologies Used in Food and Dairy Processing” – Rusty Stone/Bob Tyler
11:00 AM “Be Your Own Detective! Discover New Products and Processes, As Well As Troubleshoot Problems” – Peter Allan
12:00 PM Short course adjourns, bus returns to hotel

You can register online at https://perdc.tamu.edu/separations/
OBJECTIVES OF SHORT COURSE

- Review basic principles of membrane filtration & separations processing including system design, membrane & equipment selection costs, economics, and practical applications
- Orient new product formulators, food, dairy & beverage scientist, chemist, chemical engineers, environmental engineers, and students to processing and products of separations technologies
- Review major applications of microfiltration, ultrafiltration, nanofiltration, reverse osmosis, pervaporation, chromatography, centrifugation, and other technologies in food processing, dairy processing, beverage processing
- Review fundamentals and practical aspects of membrane fouling and cleaning
- Provide daily “hands-on” demonstrations and familiarize attendees with the practical aspects in processing industries
- Review new technologies, developments and applications in food processing, functional ingredients, dairy & beverage industries, and biotechnology
- Review case studies, success stories, new systems designs, industrial/commercial applications and economics of membrane systems, pre- and post-treatment technologies

ACCOMMODATIONS

Reservations for lodging should be made directly by the attendees by calling (979) 260-8500. A block of rooms has been reserved at the TownePlace Suites Bryan College Station, for the short course participants. Room rates are $99 plus tax per night. Ask for the rate received before May 5, 2019 in order to get special rate.

TownePlace Suites Bryan College Station, 1300 University Dr. East College Station, TX 77840, USA Tel: 979.260.8500 Fax: 979.260.0907

TRANSPORTATION

Easterwood Airport at College Station is easily reached by about eight flights daily. From Dallas/ Ft. Worth International Airport connect via American Airlines. From Houston Intercontinental Airport connect via United Airlines. The airport code for Easterwood Airport is CLL. To get to the hotel in College Station, participants can call the TownePlace Suites (979.260.8500) upon arrival at Easterwood Airport for courtesy van service or schedule a pickup with GroundShuttle.com (855.303.4415) from George Bush Intercontinental airport (IAH) or Houston Hobby airport (HOB).

REGISTRATION

The registration fee for the short course and pilot plant demonstrations include daily lunch, refreshments at breaks, local transportation, a short course eBook manual, and certificate of completion. Registration fee is $1395 if paid in full by May 5, 2019. After this date, registration fee is $1495. Continuing Education Units (CEUs) are available upon request. There is a 10% registration discount if three or more individuals from the same organization register for the short course. Academic discounts may be applicable if space is available. Registration fees are not refundable, but substitute personnel may be sent by the same firm. Space is limited; therefore, applications will be accepted on a first come, first-served basis.

You can register online at https://perdc.tamu.edu/separations/

For additional technical information, contact: Dr. Rich Clough
Process Engineering R&D Center
Texas A&M University System
Tel: 979.862.2262 Email: rclough@tamu.edu

You can pay by credit card (American Express, Visa, or Master Card) online.

If paying by check, make payable to TEES (Texas A&M Engineering Experiment Station) and mail to TEES Fiscal Office c/o TEES Edge Program 7607 Eastmark Dr., Suite 250 D College Station, TX 77840.

For registration inquiries, contact: Cyndi Casanova
Short Course Coordinator Process Engineering R&D Center 2476 TAMU College Station, Texas 77843-2476 U.S.A.
Tel: 979.845-2741 Fax: 979.845-2744
Email: shortcourse@tamu.edu

LOCATION AND FACILITIES

All lectures will be held at Rudder Tower, Texas A&M University Campus. Pilot plant demonstrations will be held in the pilot plant facilities at the Process Engineering R&D Center, RELLIS Campus. Participants will be taken by shuttle from Rudder Tower to the RELLIS campus for daily demonstrations and returned to the hotel. College Station temperatures in May are around 85 ºF (29 ºC). Manuals and lectures will be in English. Translation equipment is available by prior arrangement for organized groups willing to provide their own translators.

SHORT COURSE CONDUCT

All short course sessions will be informal. Insurance policies do not allow non-university personnel, other than original manufacturers, to operate equipment. Questions are encouraged during the lectures, breaks, and social periods. Laptops are allowed in the classroom to follow the presentations in the short course eBook manual. If you require WiFi access during the conference, please inform the Short Course Coordinator when you register (the hotel has its own WiFi access and is separate from the conference). Rights to cancel this course with refund, to deny service, to substitute speakers, and to change schedules, as necessary to expedite the course, are reserved. Texas A&M University System policy does not allow inclusion of alcoholic beverages in registration fees.

INSTRUCTORS

Peter Allan, Vice President Sales and Marketing, Tangent Membranes, Inc.
Paul Schacht, Manager, Membrane Innovation Deployment, Ecolab
David Bromley, David Bromley Engineering LTD
Ryan Cage, Membrane Specialists LLC, Rowe Court
Grady Coberly, Nanostone Water
Munir Cheryan, Founder and President, Membrane Consultants
Gary Erickson, GE Analytical
Carl Hoffman, Market Manager, Food & Beverage, KOCH
Gerold Luss, Technical Director, Complete Filtration Resources Inc.
Keith McLeroy, Retigo
Ted Neuman, Market Manager, GEA Mechanical Equipment
Rusty Stone, Mid-South Sales Engineer, Pall Corporation
Bob Tyler, Pall Corporation
Doug Knigge, Applications Engineer, GEA Mechanical Equipment
John Zibrida, President, Zibex, INC.
Carl Vavra, Senior Research Associate, Separation Sciences Program, Process Engineering R&D Center, Texas A&M University
Daniel Bar, Ameridina Innovative Solutions, Inc., VP, Sales and Business Development

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