

Organized by the
Separations Sciences Program
Food Protein Research & Development Center
 Texas A&M Engineering Experiment Station
 The Texas A&M University System
 2476 TAMU
 College Station, TX 77843

25th Annual Practical Short Course on

Membrane & Other Separation Technologies

Applications in food, dairy, beverage, and bioprocessing

A Practical Workshop with Daily Pilot Plant Demonstrations

May 3-7, 2015

ACCOMMODATIONS

Lodging reservations should be made directly by the attendees by calling (979) 693-7500. A block of rooms has been reserved at the Hilton College Station for the short course participants. Room rates are **\$115 (single or double)** plus tax per night (rooms available at 4 p.m. Ask for the rate specifically and mention the **Group Code “MEMB15”**. Shuttle service is provided from Easterwood Airport to and from the Hilton Hotel. Shuttle service can be arranged by calling the Hilton at (979) 693-7500. **Hotel reservations must be received before April 12, 2015.**

Hilton College Station & Conference Center
 801 University Dr. East, College Station, Texas 77840, USA
 Tel: 979-693-7500
 Fax: 979-260-1931
<http://hiltoncs.com>

A Practical, “Hands-On” Workshop

Upcoming Short Course

For details, visit <http://foodprotein.tamu.edu/separations>

6th Annual Functional Beverages
 August 23-25, 2015

11th Annual WATER Technologies
 October 4-6, 2015

2nd Annual Food Protein:
 Extraction & Separation
 TBA, 2015



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

LOCATION AND FACILITIES

All lectures will be held at **TIPS (Texas A&M Institute for Preclinical Studies) building** on the Texas A&M University Campus, **Monday through Thursday.**

Pilot plant demonstrations will be in the pilot plant facilities at the Food Protein R&D Center, Texas A&M University-River Side campus. Participants will be taken by bus from TIPS to River Side campus for daily afternoon demonstrations and return to the Hilton Hotel.

REGISTRATION

The registration fee for the short course and pilot plant demonstrations is **\$1,395.00 if paid in full by April 12, 2015, After this date, registration fee is \$1,495.00.** The fee includes an eBook Manual, daily breakfast and lunch, graduation luncheon, refreshments, certificates of completion, and daily pilot plant demonstrations.

There is a 15% discount if two or more individuals from the same organization register for the short course. Academic discounts may be applicable if space is available.

Make checks payable to **TEES (Texas A&M Engineering Experiment Station)** and mail to **TEES Fiscal Office, 3124 TAMU, College Station, TX 77843-3124.** You may pay the fee by credit card (American Express, Visa, or Master Card). **Registration fees are not refundable** but substitute personnel may be sent by the same firm. Mail the registration form and a copy of your check to **Marcy Bundick**, Short Course Coordinator (See address on registration application form). Space is limited; therefore, applications will be accepted on a first-come, first-serve basis.

INSTRUCTORS

Peter Allan, Managing Partner, Membrane Specialists LLC

Steven Anderson, Membrane Specialist, Eco Lab Food & Beverage Division

Bob Atlas, President, Aqua EWP, LLC

Daniel H. Bar, Vice President/General Manager, Amerida, Division of Eurodia Industrie

Lucy M. Camacho, Assistant Professor of Environmental Engineering, Texas A&M University Kingsville

Munir Cheryan, Founder and President, Munir Cheryan LLC

Daniel Christodoss, Principal Municipal Engineer, URS Corporation

Joshua Goplin, Sales Engineer, GEA Process Engineering INC

Carl Hoffman, Market Manager, Food & Beverage, KOCH Membrane Systems

Bill Irvine, President, Engineering Fluid Solutions, LLC

Yongjae Lee, Program Head, Separation Sciences Program, Food Protein R&D Center, Texas A&M University

Gerald Luss, Technical Director, Complete Filtration Resources Inc.

Ted Neuman, Market Manager, GEA Mechanical Equipment

Franciscus M. Velterop, Managing Director, Pervatech BV

Scott Wittwer, Product Manager, Graver Technologies

Jeff Yeh, President, Synder Filtration.

John Zibrida, President, Zibex, INC.

Sunday, May 3, 2015

5:00 p.m. Registration, CS Hilton Hotel Lobby
Welcome and Announcements

Concepts and Principles

Monday, May 4, 2015

8:00 a.m. Bus leaves hotel for TIPS building, Texas A&M University Campus

8:30 a.m. Welcome, Introduction, and Announcements—YongJae Lee

9:00 a.m. “Basic Principles of Membrane Filtration Separations”- Munir Cheryan

10:40 a.m. Refreshments and Group Photo Session

11:00 a.m. “Fundamentals of Membrane Filtration System Engineering”- Joshua Goplin

12:00 p.m. Lunch

1:30 p.m. “Polymeric Membranes & Spiral Wound Membrane Element Design, Construction, and Operation”- Jeff Yeh

2:10 p.m. “Optimizing Process Variables”- Munir Cheryan

3:10 p.m. Refreshments

3:30 p.m. “New and Novel Applications for Tubular Membranes”- Peter Allan

4:30 p.m. Demonstrations

- Review Examples of Membrane Filtration Types, Modules & Systems - YongJae Lee
- Spiral Membrane Filtration System—Review, Discussion, Demo GEA Filtration—Joshua Goplin
- Synder Spiral Membrane Filtration—Jeff Yeh
- Spiral Membrane Filtration - Peter Allan

Applications in Food, Dairy, Beverage & Bioprocessing

Tuesday, May 5, 2015

8:00 a.m. Bus leaves hotel for TIPS building, Texas A&M University Campus

8:30 a.m. “Membrane Products for the Food and Beverage Industry”- Carl Hoffman

9:20 a.m. “Stainless Steel Membranes and Their Applications” - Scott Wittwer

10:10 a.m.Refreshments

10:30 a.m. “Food Process Waste Stream Membrane Filtration Applications”- Joshua Goplin

11:20 a.m.“What’s New in Membrane Technology”- Munir Cheryan

12:00 p.m. Lunch

1:30 p.m. “New Developments in Electrodialysis-Examples in Food, Industrial & Chemical Industries” - Daniel H. Bar

2:30 p.m. Refreshments

2:50 p.m. “Reverse Osmosis (RO) Systems: Recent Developments in Scale and Deposit Control Agents”- John Zibrida

3:30 p.m. Demonstrations

- Graver Stainless Steel Membrane—Scott Wittwer
- Tubular Membrane Filtration System - Peter Allan
- Continuous Three Phase Vertical Centrifuge System—Ted Neuman

Applications & New and Emerging Separations

Wednesday, May 6, 2015

8:00 a.m. Bus leaves hotel for TIPS building, Texas A&M University Campus

8:30 a.m. “HydraKleen—Liquid/Solid Separations Technology” - Bill Irvine

9:30 a.m. “How to Treat Food Processing Salinity Water Using Capacitive Deionization”- Bob Atlas

10:40 a.m. Refreshments

11:00 a.m.“Recovery of Aggressive Solvents, Which are Difficult to Separate”- Franciscus M. Velterop

12:00 p.m.Graduation Lunch

1:30 p.m. “Brackish Ground and Surface Water Source Treatment to Offset Drought Related Supply Shortages to Food, Dairy, Beverages, and Bioprocessing Industries”- Daniel Christodoss

2:10 p.m. Refreshments

2:30 p.m. “Electrodialysis: Principles and Applications”- Lucy M. Camacho

3:30 p.m. Demonstrations

- Capacitive Deionization (CDI) Demo—Bob Atlas
- Ceramic Membrane Demo—Franciscus M. Velterop
- Discussion, Demonstration of Cleaning & Sanitizing Membranes & Systems—Steven Anderson

Register on the Web: <http://foodprotein.tamu.edu/separations>

Membrane Fouling & Cleaning

Thursday, May 7, 2015

8:00 a.m. Bus leaves hotel for TIPS building, Texas A&M University Campus

8:30 a.m. “Causes of Membrane Fouling and Cleaning Protocols to Promote Membrane Longevity” - Daniel Christodoss

9:10 a.m. “Reclamation of Cleaning Solutions by Membranes”- Gerald Luss

10:00 a.m.Refreshments

10:20 a.m.“Membrane Filtration Cleaning & Sanitizing”- Steven Anderson

11:00 a.m.“Use of Continuous Centrifuges in the Food, Dairy, and Beverage Industry”- Ted Neuman

12:00 p.m.Short Course Adjourns



The Separation Sciences Pilot Plant is available for contract research.

You Will Receive the Following:

- Group Photo
- Course eManual
- List of Speakers, Presentations, and Attendees
- Certificate of Completion

Practical Short Course on Membrane & Other Separations:
May 3-7, 2015
Texas A&M University
College Station, Texas
(Please Type or Print Neatly)

Name	
Job Title	
Company	
Mailing Address	
Phone	Fax
Email	
Name for Nametag	
Contact in case of emergency	
Special diet requirements	
Method of Payment (mark one)	
<input type="checkbox"/> Check Payable to TEES	
<input type="checkbox"/> If paying with credit card please include type of card:	
<input type="checkbox"/> Visa	
<input type="checkbox"/> American Express	
<input type="checkbox"/> MasterCard	
Credit Card #	Exp. date
Name on Credit Card	Total Amount
Verification Code on back of Card	
Billing Address	
Signature	

Texas A&M University

Food Protein R&D Center

Return this application to:

Marcy Bundick,
Short Course Coordinator

The Texas A&M University
2476 TAMU
College Station, TX 77843

Phone: 979-845-2741
Fax: 979-845-2744
E-mail: shortcourse@tamu.edu