4-Day Master Course on Pre-treatment, Membrane Fouling and Scaling

Lecturer Prof. Jan C. Schippers, PhD, MSc
16 – 19 September 2019, Rome, Italy

Jan Schippers, Professor Em Water Supply Technology at IHE Institute for Water Education, UNESCO in Delft and consultant will give this interactive course. He has extensive professional experience in drinking and industrial water supply projects in Morocco, Qatar, United Emirates, Gabon, Cabo Verde, Namibia, Uzbekistan, France, Chile and The Netherlands.

His specializations are: Consultancy, research, training and education in the field of integral drinking and industrial water treatment and desalination/membrane related technologies.

Gave courses on Membrane Technology, Fouling, scaling and pre-treatment in membrane technology, Aquatic Chemistry, Conventional filtration Techniques and Membrane Bio Reactors in Cyprus, Morocco, China, Jordan, Yemen, Bahrain, Iran, Oman, Saudi Arabia, Chile, Italy and The Netherlands.
# PROGRAM

## Monday 16 September 2019

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<th>Time</th>
<th>Session</th>
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<tr>
<td>08.30–9.00</td>
<td>Registration and Workbook</td>
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<tr>
<td>09.40–10.45</td>
<td>1. Introduction membrane technology</td>
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<td></td>
<td>2. Principles micro- and ultrafiltration</td>
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<td>10.45–11.00</td>
<td>Coffee</td>
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<td>11.00–12.30</td>
<td>3. Overview MF/UF elements and system</td>
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<td>12.30–13.30</td>
<td>Lunch</td>
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<td>13.30–15.00</td>
<td>4. Fouling MF/UF fouling control and pre-treatment</td>
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<td>5. Principles of reverse osmosis and nanofiltration</td>
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<td>15.00–15.15</td>
<td>Tea</td>
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<tr>
<td>15.15 – 17.00</td>
<td>5. Principles of reverse osmosis and nanofiltration</td>
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<td>6. Overview RO and NF membranes and elements</td>
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## Tuesday 17 September 2019

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<th>Time</th>
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<tr>
<td>09.00–11.00</td>
<td>7. Process design RO systems with spiral wound elements</td>
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<tr>
<td>11.00–11.15</td>
<td>Coffee</td>
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<tr>
<td>11.15–12.30</td>
<td>8. Normalizing data in RO/NF systems</td>
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<td>12.30–13.30</td>
<td>Lunch</td>
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<td>13.30–15.00</td>
<td>9. Fouling in RO/NF systems</td>
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<td>10. Conventional pre-treatment techniques for RO/NF</td>
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<td>10. Conventional pre-treatment techniques for RO/NF</td>
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<td>11. Fouling due to particulate matter. SDI and MFI</td>
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Wednesday 18 September 2019

09.00–11.00  11. Fouling due to particulate matter. SDI and MFI
11.00–11.15 Coffee
11.15–12.30  12. MFI-UF; prediction fouling rate
13. Fouling due to algae and transparent exo-polymers
14. Fouling due to coagulants
12.30–13.30 Lunch
13.30–15.00  15. Removal of particulate matter in practice
16. Removal of iron and manganese
15.00–15.15 Tea
15.15–17.00  16. Removal of iron and manganese
17. Biofouling: Principles, prediction and pre-treatment

Thursday 19 September 2019

09.00–11.00  17. Biofouling: Principles, prediction and pre-treatment
11.00–11.15 Coffee
11.15–12.30  18. Organic fouling
19. Fouling and control in membrane bioreactors
20. Principles of scaling
12.30–13.30 Lunch
22. Calcium carbonate; Langelier and Stiff & Davis Index
23. Scaling predictions with computer program
15.00–15.15 Tea
15.15–16.45  24. Scaling in seawater reverse osmosis
25. Scaling control, monitoring, and antiscalants
26. Cleaning RO/NF membranes
16.45–17.00 Closing and Certificates
REGISTRATION FORM

Surname __________________________ Name __________________________

Affiliation _________________________________________________________

Address ____________________________________________________________

Country __________________________ Telephone __________________________

Fax __________________________ Email _________________________________

Registration fee: €2,700
The fee includes 5 nights accommodation, lunches, coffee, dinners and course workbook.

Payment can be made by:

Credit card

Bank Transfer to be sent to the address below and a copy emailed to us.

Account name: Miriam Balaban
Account No. 10849.36
Banca Monte dei Paschi di Siena
67100 L’Aquila, Italy
ABI: 01030 CAB: 03600
Swift code: PASCITMMAQU
IBAN code: IT 16 N 01030 03600 000001084936

Card No. __________________________ Exp. date ___ Security code _______

Cardholder name __________________________

Signature __________________________

Please fill in the form and send as an attachment to: balabanmiriam@gmail.com or fax to: +1 928 543 3066