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| <b>Programme Title</b> | <b>Reverse Osmosis – Design and Engineering</b>  |
| Date                   | 12 August – 14 August 2009 (3 Days)  |
| Time                   | 9am – 5pm  |
| Fee                    | SGD870 Nett (GST is not applicable). Light refreshments will be provided                   |
| Venue                  | WaterHub 80 Toh Guan Road East Singapore 608575  |
| Remarks                | This course is accredited under the Professional Engineering Board CPD Programme – 21 PDUs |

### Learning Outcomes:

To impart basic and fundamental knowledge of the RO technology to participants with emphasis on selection and operation of right RO technology and components. Participants of this course will have a deeper understanding of the RO process fundamentals, RO membranes and requirements for successfully operating and maintaining a RO plant. Participants will acquire knowledge on how to design and engineer RO systems and components and therefore will be able to check the current project designs for adequacy and correctness and plan for the future projects better. In addition, this course will enable the participants to:

- a check whether the current project design meets all the requirements of the RO process for smooth and trouble-free operation
- b understand operating and maintenance requirements and meet them by providing resources – manpower, tools, training
- c check completeness and correctness of the equipment installation and commissioning at the time of taking over of plants
- d review plant performance with respect to expected and actual requirements and take appropriate corrective and preventive actions
- e use the experience gained for benefiting in the future projects.

### Course Synopsis :

- \* An In-depth Knowledge of
  - Water Chemistry
  - RO Fundamentals and RO Membranes
  - RO Process Operating Parameters and RO System Construction
  - RO Process Performance and Process Design
  - RO Pre-treatment
  - Scaling, Fouling and Chemical Cleaning
  - RO Process Operation, Data Normalisation and Process Troubleshooting
- \* Group Project on Design and Engineer RO System
- \* Site Visit to NEWater Factory

**Registration Form** | Please fax to 65 65150813 or Email to : [cecilia@swa.org.sg](mailto:cecilia@swa.org.sg)

#### Participant Details

|          |                      |              |                      |
|----------|----------------------|--------------|----------------------|
| Name:    | <input type="text"/> | Designation: | <input type="text"/> |
| Company: | <input type="text"/> |              |                      |
| Address: | <input type="text"/> |              |                      |
| Country: | <input type="text"/> | Postal Code: | <input type="text"/> |
| E-Mail : | <input type="text"/> | Mobile:      | <input type="text"/> |
| Tel:     | <input type="text"/> | Fax:         | <input type="text"/> |

**Method of Payment:** All cheques should be made payable to **Singapore Water Association and mail to** WaterHub 80 Toh Guan Road East Singapore 608575

- Upon receipt of your registration form, SWA will issue a letter of confirmation. Cancellation or withdrawal will not be allowed upon confirmation from SWA.
- SWA reserves the rights to amend, postpone or cancel the event due to unforeseen circumstances.

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|------------------------|--|
| <b>Programme Title</b> | <b>Reverse Osmosis – Monitoring and Troubleshooting</b>                                    |
| Date                   | 17 August – 19 August 2009 (3 Days)  |
| Time                   | 9am – 5pm  |
| Fee                    | SGD715 Nett (GST is not applicable). Light refreshments will be provided                   |
| Venue                  | WaterHub 80 Toh Guan Road East Singapore 608575  |
| Remarks                | This course is accredited under the Professional Engineering Board CPD Programme – 21 PDUs |

**Learning Outcomes:**

To impart basic and fundamental knowledge of the RO technology to participants with emphasis on operation, maintenance and troubleshooting of RO process. Participants of this course will have a deeper understanding of the RO process fundamentals, RO membranes and requirements for successfully operating and maintaining a RO plant. Participants will acquire knowledge on how to evaluate performance of the current plants, identify problems and take corrective actions. In addition, this course will enable the participants to:

- a understand operating and maintenance requirements of current projects and meet them by taking appropriate actions
- b review plant performance with respect to expected and actual requirements and take appropriate corrective and preventive actions
- c use the experience gained for benefiting in the future

**Course Synopsis and Methodology:**

\* An Introduction to

- Water Chemistry
- RO Fundamentals and RO Membranes
- RO Process Operating Parameters and RO System Construction
- RO Process Performance and Process Design
- RO Pre-treatment

\* An In-depth Knowledge of

- Scaling, Fouling and Chemical Cleaning
- RO Process Operation, Data Normalisation and Process Troubleshooting

\* Hands-on Exercises at RO plant

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**Participant Details**

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|----------|----------------------|--------------|----------------------|
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| Company: | <input type="text"/> |              |                      |
| Address: | <input type="text"/> |              |                      |
| Country: | <input type="text"/> | Postal Code: | <input type="text"/> |
| E-Mail : | <input type="text"/> | Mobile:      | <input type="text"/> |
| Tel:     | <input type="text"/> | Fax:         | <input type="text"/> |

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