



GOVERNMENT OF MALTA
MINISTRY FOR THE ENVIRONMENT, ENERGY
AND REGENERATION OF THE GRAND HARBOUR



INTERNATIONAL COURSE ON THE DESALINATION OF SEAWATER AND BRACKISH WATER

Malta's Water Services Corporation with the collaboration of the Energy and Water Agency will be holding an International Course on the Desalination of Seawater and Brackish Water between Monday 6th and Thursday 9th May 2024.

The course will be held in Malta and delivered by experts from the Water Services Corporation and Water Globe Consultants. Course content will focus on the review of the latest reverse osmosis (RO) and brackish membrane desalination plant technologies and will also include hand-on experience.

Attendance to the course is open for engineers and technicians from Mediterranean countries¹ working in the desalination sector. Further information on the course may be obtained from the website of the Water Services Corporation through the following link: www.wsc.com.mt/course

Applications for attending the course may be submitted up to the 28th February 2024 through the following link: www.wsc.com.mt/course. As part of the application process, applicants are required to submit the following documentation as pdf files through the same portal:

- (i) Motivation letter outlining the interest of the applicant in attending the course;
- (ii) Proof of at least 2 years experience working in the desalination sector (such as a reference letter); and
- (iii) Technical Qualification in Engineering, Water Management or equivalent at EQF² 5 level or higher.

All information is to be submitted in the English language. Should original documents be in another language an English translation should be provided.

The course will be delivered in English. Interpretation in French will be provided for the study sessions during the first three days of the course, but interpretation facilities will be limited during the hand-on session on the fourth day of the course. It is therefore desirable that applicants have at least a basic knowledge of the English language.

Submitted applications will be assessed by an evaluation board, and selection will be on the basis of the academic and technical experience of the applicants. Selected candidates will be informed by the Water Services Corporation by the first -half of March 2024.

The Government of Malta, as part of its commitment to the 5+5 Water Agenda, will be sponsoring up to 15 participants from non-EU Mediterranean countries to attend this course. Sponsorship will cover the cost of the course, as well as expenses related to travelling, accommodation (full-board

¹ The term "Mediterranean Countries" refers to all Mediterranean countries members of the Union for the Mediterranean, including Mauritania as a member country of the 5+5 Dialogue.

² European Qualifications Framework - <https://europa.eu/europass/en/europass-tools/european-qualifications-framework>

basis) and transfers in Malta. Participants selected for sponsorship will be contacted by the Water Services Corporation and guided through the logistical details.

Participation to the course for non-sponsored participants will cost Eur2,200. This cost covers attendance to the course, course material, transfers to technical and practical visits and accommodation in a 4* hotel on a full board basis over the whole duration of the course.

Course Contents:

The course will, over the four day period address the following technical and practical components:

Day 1 – Key Desalination Plant Components and Technologies

- Desalination Process Fundamentals
- RO System Overview
- Solutions for Planning and Design Challenges of RO Systems
- Source Water Intakes
- Source Water Conditioning/Pre-treatment Process Fundamentals

Day 2 – Desalination Plant Design and Operations

- Design Schemes And Considerations for Seawater and Brackish Water RO Systems
- Plant Performance Analysis, Optimization and Troubleshooting
- Post Treatment
- Concentrate Management and Brine Mining
- Desalination Plant Case Studies

Day 3 – Morning - Equipment Selection, Maintenance and Automation

- Selection of Equipment/Specifications
- Maintenance Strategies/Techniques
- Automation as a Management Tool

Afternoon: Site Visits

Day 4 – Hands-on Operations Training

Training Activities:

- SDI Test of Source Water and Pretreated Feedwater
- Cartridge Filter Replacement
- Conductivity Profiling of RO Vessels
- Membrane Replacement
- Membrane Rotation
- Membrane Weighing
- Starting Up and Shutting Down of RO Trains
- Train Flushing
- Dismantling and Assembling of Main Pumping And Energy Recovery Equipment

Organising Entities:

Water Services Corporation

The WSC is responsible for all aspects of the water cycle in the Maltese Islands and employs approximately 1,200 people. It is responsible for the extraction of groundwater, the production of

drinking water through reverse osmosis, and the collection, treatment, and safe disposal of wastewater.

The WSC is one of the most experienced operators of large-scale reverse osmosis plants, producing around 34 million cubic meters of potable water each year. Around 20 million cubic meters of this water is produced at the three reverse osmosis plants in Pembroke, Ċirkewwa, and Għar Lapsi. The rest is produced from underground sources and stored in 24 reservoirs with a total capacity of 400,000 cubic meters.

www.wsc.com.mt

Energy and Water Agency

The Energy & Water Agency is an organisation of the Government of Malta. Since starting in 2014, our mission has been to ensure the security, sustainability and affordability of energy and water in Malta. As a governmental agency, we formulate and coordinate the implementation of the Government's national policies for energy and water, as well as EU legislation for energy and water sustainability. We also act on laws and set in motion policies related to renewable energy, energy efficiency, water demand management, and the security of Malta's electricity, gas and water supply.

www.energywateragency.gov.mt

Technical Consultants:

Water Globe Consultants

Water Globe Consultants, LLC is a professional engineering company specialized in providing independent expert services in the field of seawater desalination and water reuse.

Our team has over 30 years of experience in planning, environmental review, permitting and implementation of large seawater desalination, water treatment and water reclamation projects worldwide.

Lecturers:

Mr. Nikolay Voutchkov

Mr. Voutchkov is an internationally recognized expert in the field of desalination and membrane application technology with over 35 years of experience in feasibility assessment, environmental review, development, procurement, financing, and implementation of desalination projects. He has an extensive experience with providing professional training services focused on desalination and water reuse technology.

Mr. Voutchkov serves as an expert technical advisor to public and private utilities, project developers, owners, lenders, and equity investors of over a dozen desalination projects in the Middle East, US, Mexico, Australia, and elsewhere, totaling more than US\$15 billion in value. Mr. Voutchkov has published over 50 technical articles, co-authored 11 books and has 10 patents in the field of desalination, brine mining, water and wastewater treatment, and reuse.

He is one of the principal authors of the American Water Works Association's Manual of Water Supply Practices (AWWA M46) on Reverse Osmosis and Nanofiltration, the Australia Guidelines for Pretreatment for Seawater Desalination Plants and of the World Health Organization Guidance for the Health and Environmental Aspects Applicable to Desalination.

Ing David Sacco

Ing David Sacco has been in the water sector for more than thirty five years . He is employed by Water Services Corporation which is the state owned company responsible for the whole water cycle in Malta. Ing D Sacco holds a Bachelors Degree in Engineering and a Masters in Business

Administration. He is also a Chartered Engineer and a member of the Institute of Engineering Technology of UK.

Ing Sacco has expertise in Desalination and membrane treatment projects ranging from design, project management as well as operations and maintenance. During his employment period with Water Services Corporation he was responsible for all RO plants' optimization programmes that included project financing , design, manufacturing and commissioning. He was also instrumental in the development of special tools to ensure production of water at high efficiency levels and hence lowest operational cost possible. He is currently also responsible for the management of all waste water and reclamation plants

Ing Ronald Pace

Ing. Ronald Pace is currently managing the four seawater reverse osmosis plants owned by the Water Services Corporation that produce 70% of the total water demand of the Maltese Islands. He has 20 years of experience in the desalination field and wide experience in RO operations, plant maintenance, design, testing and commissioning of new plant, and is also responsible for the upgrading of existing systems with innovative and more efficient equipment.

His managerial responsibilities include energy auditing, optimization of plant performance, quality and H&S management, procurement and stores management.