

RESUME

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Surname : Abdul-Hamid
Father name : Mostafa Kamal
First name : Radwan
Nationality : Egyptian
Birth day : 24-12 - 1958
Birthplace : Alexandria , Egypt.
Sex : Male
Marital Status : Married (3 daughters and son.)
Health Status : Very Good
Present title : General Manager of ECORD Co.

EDUCATION :

A- Under-Graduate Studies

- El-Manffalotti Primary School, Alexandria, Oct.1964 - May 1970, Degree 96.5%.
- El-Nadeem Prep. School , Alexandria, Oct. 1970 - May 1973 , Degree 96%.
- Mostafa Kamel Sec. School , Alexandria , Oct. 1973 - May 1976 , Degree 94.5%.
- Faculty of Engineering , Mechanical Power Dept. , Alexandria University , Oct. 1976 - May 1981, Degree : B.Sc. Very good degree with score 83%

B - Post-Graduate Studies

- M.Sc. , Mechanical Power Engineering Dept. , Zagazig University , Jan. (1989).
- Ph.D. , Mechanical Power Engineering Dept. , Alex. University , Oct (1997).

FUNCTIONS PROGRESSION :

- Address : Mechanical Power Engineering Dept. , Zagazig University ,Zagazig , Position : **Research Assistant** (Dec. 1982 - Feb. 1989).
- **Lecturer Assistant** (Feb.1989 - Jan. 1998).
- **Lecturer (assistant professor)** (Jan. 1998 - Until now).
- **Scope of Professional responsibilities, duties,etc. :**

Lecturer & supervision on doing exercises for under graduate students associated with the following courses:

1. Fluid mechanics (2nd & 3rd years Mech. power dept.)
2. Fluid mechanics (2nd year Elect power dept.)
3. Mobile (earth moving) equipments,(4th year Mech. Power dept.)
4. Engineering drawing (Prep. Year)
5. Mechanical Engineering drawing (1st Mech. & Elect. power depts.)
6. Desalination techniques (elective topic 3th. & postgraduate - Mech. power dept.)
7. Direct application of wind energy to water treatment processes (Post graduate)
8. Heat transfer (3rd year Mech. power dept.)
9. Engineering mechanics (Statics & dynamics) (Prep year)
10. Engineering mechanics (Statics & dynamics) (1st Mech. power)
11. Engineering mechanics (Statics & dynamics) (1st Elect power)
12. Hydraulic circuits and pneumatics (3rd year Mech. Power dept.)
13. Energy saving and energy policy programs (4th year Mech. Power dept.)
14. Thermodynamics (1st Mech. Power dept. and 2nd Civil dept.)
15. Compressors, Blowers and Fans (4th year Mech. Dept.)
16. **Design & Manufacturing of experimental test rigs for R,D&I**

Supervision on B.Sc. projects .

- **Surface aerator design** for wastewater treatment plants
- **Fall aeration** for Iron & Manganese treatment of potable water
- **Diffused aeration design** for wastewater treatment plants
- **Jet mixer aeration design** for wastewater treatment plants
- **Wind energy for aeration** for wastewater treatment plants
- **Solar energy desalination** for rural zones
- **Channels and drains aeration** for wastewater treatment
- **Advanced aeration technologies** for wastewater treatment
- **Energy saving models** for wastewater treatment plants
- **RO desalination portable plant** for brackish water
- **Ammonia , Iron & Manganese** removal from well water resources
- **Design of high capacity SWRO plant** for pilot governorate
- **Oily wastewater treatment (API – CPI for PW treatment)**

Lecturer & supervision on doing exercises for post graduate students associated with the following courses:

- 1 – Membrane systems for desalination
- 2 – Direct application of wind energy to water treatment processes

Supervision on M.Sc. and Ph.D. Students in the following fields:

- 1 – Energy recovery systems for RO desalination plants
- 2 – Surface aeration systems
- 3 – Oily wastewater separation systems
- 4 – Compressed Air Foam systems (CAFS) for firefighting
- 5 – Workplaces safety (safe operation in RO plants)

RESEARCH ACTIVITIES

- 1- Numerical solutions for compressible flow through axial cascades.
- 2- **Experimental investigation of multi - phase interfaces behavior ("Air -Water" systems - Flow Visualization Techniques)**
- 3- **Mass transfer studies of surface liquid drops and or layers.**
- 4- Different configurations of jet reattachment flow (Applications to combustion systems, dryers, ovens, metal cutting systems and hovercraft systems).
- 5- **Aeration process in water and wastewater treatment plants .**
- 6- Nozzles configurations for trickling filters and Aeration facilities .
- 7- **Suitable wind mills for Egyptian environmental applications.**
- 8- Channels and drains aeration
- 9 – **Renewable energy for water treatment**
- 10 - **Renewable energy for desalination**
- 11 – **Mech. treatment for under-ground water to remove Ammonia , Fe & Mn.**
- 12 – **Energy recovery devices in RO desalination plants**
- 13 – **PW treatment (CPI – Egg type oil separator)**

FIELD EXPERIENCE

- **June 1981 - Jan 1982:** Under training engineer maintenance dept. of both mechanical & earth moving equipments **Misr Co.**, for Engineering & Constructions. , Alexandria.
- **April 1982 - July 1983:** An officer - military service at vehicle dept. Degree : good model
- **October 1982 - October 1983: Head of construction equipments dept. - El HARRAM Co. , Alex.** Supervised repair & heavy maintenance of mobile equipments, both manual and automatic concrete mixer units, concrete pumps, diesel engines, workshop mechanical equipments.
- **June 1985 - Sept. 1985 :** Supervisor of the construction equipments dept. - Abdel - Kader Khattab Omar Co. Alex. and El-Ismailia.
- **Feb. 1989 - Sept. 1990 Cardex consultant engineer- local development II project which is financed by USAID. [CHEMONICS Co. , Egypt - Washington].**
The Functions are :
 1. Classification & arrangement of spare parts associated with all types of equipments delivered to different governorates in Egypt according to the Cardex system.
 2. Implementation of spare parts control system to identify the quantity & locations of these parts and to distribute them among the different city councils.
 3. Supervised the training for storekeepers on the above mentioned items.
 4. Preparing such Cardex system for the computerized stage.
- **Dec. 1990 - July 1991 Supervisor of the modern irrigation systems, El Ezza Co., Al Nobariya.** repair & heavy maintenance of pivot machines, mobile pipe lines and other different sprinkler systems. Reversed manufacturing for some mechanical parts such as the reducer speed unit which was modified to account for the hard service in Egyptian lands.
- **April 1997 - May 1997** Contract with El Safady group for an Auto Cad project. Associated with as build drawing for 31 factory, store & administrative buildings, 10th of Ramadan city, Egypt .
 - **Nov. 1996 – May 2001 Technical manager, Arab Get Co. Alexandria.** Export, Import and agents. Supervised the importation plan of both brand new

& used engineering equipments included the technical reports associated with such equipments.

- **October 2002 – April 2005, mechanical engng. Consultant of GK environmental engng. Office** , following some of the present tasks :

- 1 – Rehabilitation of wastewater treatment plant of Misr Elamria Co. (Alex.) capacity 12000 m³ / day
- 2 – Design of cooling tower system for **Fe-Si iron casting Co. (Edffo / Aswan**
- 3 – Rehabilitation of the main water pump station capacity 2500 m³ / hr for the iron casting Co.

- **September 2004 - April 2006 (with Prof. Hafez Salmawy), mechanical engng. Consultants of Euro co. for modern paints** – Borg Al-Aarab, following the task:

- 1 – Study for the optimum WWTP for the company
- 2 – Design of such WWTP
- 3 – Supervision on the installation of such WWTP

- **September 2006 – September 2007** – consultant of mechanical works in **Enviro-Civec consultant firm**

- 1 – Mechanical design of **SBR systems for WWTP** (6000-18000 M³/day)
- 2 – Mechanical design of **Al-Saff (Giza) PWTP** (700-1400 L/S)
- 3 – Mechanical design of **Brakat drain aeration system** (Abu-Rawash WWTP)
- 4 – Rehabilitation and extension study for **EL-Nobarya WWTP**
- 5 – Reviewer of the mechanical specifications of **Borg El-Arab WWTP**

- **August 2008 – March 2009** – consultation of the following

- Consultation work packages for **PETROMAINT** and **PETROBEL**
Design review of gas boot separator and heat exchangers re-tubing

February-2009 till now Mechaworks firm

Design of Al-Bassateen irrigation pumping station – capacity 9 cubic meter per second 15000 acres – Qalabsha – Naser lake – Aswan governorate

March – 2011 till now technical consultant of Alfanar Co. for exporting & importing

March – 2012 Supervision of WWTP (800 m³/D) for AlMeamari construction group (nice 3 village North coastal area)

March – 2014, tender doc. Preparation, offers assessment & Supervision of SWRO desalination plant (500 m³/D) for AlMeamari construction group (nice 3 village North coastal area)

Feb. 2014 contract with COMPUTEK-EDUTEK for design of mechanical test rigs for university and institutional educational laboratories

April 2014 contract with PETROMAINT for design of **oily wastewater treatment plant** of PetroShahd (oil production company) – Job done 2016 and now in tendering phase for execution

Organizer for RO seminar which is held in Zagazig University (19 & 20 April 2015) with participation of water desalination companies , consultants and responsible key figures in holding company for water and wastewater

Design of energy efficient programs that enables commercially attractive and feasible solutions.

Consultation and supervision of SWRO Safaga seaport plant from July 2015 till now (cooperation with Wadi Elnile, TECMERG , OKAPRO and SYCHEM)
Consultant for National Defense council

2016 (May) start proposal preparation for optimum solution handling San Elhajar underground water (Integrated project fish farm plus desalination plant and touristic artificial lakes)

2017 (till now) design auditing for Gemssa oil company for oily wastewater treatment plant (offshore oil production rig – Alain-Alsokhna)

2017 (till now) full engineering for ElSalam – Khalda produced water enhancement system (western desert – Pertomaint main contractor)

2017(till now) turn key research project for Scientific city-Burg Alarab (Intelligent green house – RO-MD hybrid desalination)

2018 (till now) Design of solar – power – MED projects for EJUST

2019 (till now) Design of Slaughterhouse wastewater treatment plant for Alamreya (Alexandria governorate)

2020 (till now) Design and build of RO test rig in the strategic unit (National Water Research Center – NWRC)

2020 (till now) Rehabilitation of ROBAlKEY tanneries (ZLD project) subconsultant for Moharam – Bakhoum consultation firm

19 feasibility studies in the industrial field.

General manager of Engineering Company for Research and Development (**ECORD**) . **ECORD** has been founded in 2010 as a leading company for engineering research and development . Activities for which includes:

**Design & Supervision – Consultation - Applied Research
Feasibility Studies -Technical Development – Training
Master plans - Condition & performance monitoring**

Fields in which **ECORD** works:

- Water Treatment
- Water Desalination
- Total Fluid Management
- Solid and Liquid Waste Recycling

- Renewable Energy
- Energy Saving
- Rotating Equipment Condition & performance monitoring
- Environmental Compatibility
- Sustainable Development

ECORD now is a major consultant for BEDO company in the field of test rigs design , research , development and innovation associated with water treatment

COMPUTER SKILLS

Windows , Graph4win , Word , Office application , Internet R&D applications
 Visio , Smart draw , Epanet , WaterCAD , InfoWater, EPANET2
 Programming Languages: Basic, Fortran IV, 77
 Language skills English Toefl range : 526
 User for Rosa , Koch , Hydronautics , Toray programs for RO desalination
 Good user for EPANET2 (water network software)
 Good user for WaterCAD(water network software)

REFERENCES

1- Prof. Faten Faheem Mahmoud

Mechanical Design Dept. , Zagazig Univ., Zagazig.
 EGYPT. (Supervisor M.Sc. thesis).

2- Prof. Mohamed Raafat Shaalan

Mechanical Design Dept. , Zagazig Univ., Zagazig.
 EGYPT. (Supervisor Ph.D. thesis).

3- Prof. Kamel Abdel Azim El-Shorbagy

Mechanical Power Department, Alexandria Univ., Alex.
 EGYPT. (Supervisor Ph.D. thesis).

4- Prof. Ahmed Fayz Abdel-Azim El Sayed

Mechanical Design Dept. , Zagazig Univ., Zagazig.
 EGYPT. (Supervisor M.Sc. thesis).

5- Prof. Mohamed Farid Khalil

Mechanical Power Department, Alexandria Univ., Alex.

6- Prof. Sadek Zakarya Kassab

Mechanical Power Department, Alexandria Univ., Alex.

7- Prof. Hassan El-Banna Saad Fath

Mechanical Power Department , Alexandria Univ. , Alex.

8 - Prof. Daa El - Moneiry

Head of environmental dept. , Zagazig Univ.

9 - Prof. Khalid Ibraheem Nabil

Professor of Architecture & Building Technology
 Faculty of Engineering, Omm AlQura University. Holly Mekkah

10 – Eng. Fathy Abdul-Razek Amin

Head of evaluation and pricing dept., Unispect company

11 – Prof. Dr. Gasser Gad Elrab Hussain

Associate Professor Scientific City – Burag Alarab – Alexandria

12 – Prof. Dr. AbdulHady Qashute

Professor Scientific City – Burag Alarab – Alexandria

13 – Prof. Dr. Abdul-Azim Negm

Professor - Water and Irrigation Dept. Faculty of Engineering , Zagazig University

14 – Prof. Dr. Alaa Abdul-Hamid Atta

Faculty of Engineering Dean, Zagazig University

LIST OF PUBLICATIONS:

A : Theses

• M.Sc. Thesis

- “ **Finite element application to compressible flow in axial cascades** “,
 - Mechanical power dept., Zagazig Univ., Zagazig, Egypt , 1989.

• Ph.D Thesis

- “ **Plane air jet / Surface Liquid drop. interaction** “,
 - Mechanical Power Dept., Alexandria Univ., Alex. , Egypt , 1997.

B : Technical Papers

- “ **Finite element application to compressible flow in axial cascade** “
Engineering Bulletin, Ain Shams University, Cairo, EGYPT, 1989.
- “ **Dominant structures associated with plane jet surface drop interface**” 1st
Pacific symposium on flow visualization and image processing (PSFVIP-1),
feb23-26, 1997, Honolulu, Hawaii, Sponsored by Pacific center of thermal-fluids
engineering (PCTFE).
- “ **Evaporation from surface liquid water drop** “ 8th. Int. symposium of flow
visualization and image processing , Sept. 1999 Sorrento , Italy .
- “ **Flow characteristics around an elliptic cylinder placed in focus of parabolic
solar concentrator** “ Alex. Univ. Journal (AEJ) , 2001 .
- “**Forced convection heat transfer to an elliptic cylinder placed in focus of
parabolic solar concentrator** “ in AEJ 2003.
- “**Enhancement of Oxygen transfer rate in trickling filter using radial jet
nozzle** ” 8th Int. water tech. conf. Alexandria – Egypt 2004
- “ **Effect of nozzles configurations on the trickling filter performance** ” 9th Int.
water tech. conf. Sharm El-Sheikh – Egypt 2006
- “ **An experimental study of an oblique multiple circular air jets impingement
on a flat plate** ” Radwan M. Kamal , Mahmoud El sayed Mostafa , Salem S.
Abdel Aziz 8th Int. Congress of fluid dynamics and propulsion - Egypt 2006
- “ **Unsteady aerodynamics and aero acoustics of a fan rotor of a high-bypass
ratio turbofan engine**” Ahmed F. El-Sayed, Radwan M. Kamal and Hamdy A.
Ahmed (Received: 14 May 2014; Revised: 19 October 2014; Accepted: 3 November
2014) Noise Control Engr. J. 62 (6), November-December 2014
“**A comparative study of different configurations of mechanical surface
aerators**” Mohamed R. Shaalan, Diaan S. El-Monayeri, Radwan M. Kamal &
Mohamed Adel El-Hady – 20th International water technology conference IWTC20 -
Paper ID 108- Hurghada, 18-20 May 2017
“ **Energy saving using new configuration of mechanical surface aerator with
higher aeration efficiency**” Mohamed R. Shaalan, Diaan S. El-Monayeri, Radwan M.
Kamal & Mohamed Adel El-Hady – 20th International water technology conference
IWTC20 – Paper ID 107-Hurghada, 18-20 May 2017

“Experimental Study for Pressure Exchanger Applied to Brackish Water” Sameh Hassan Elbana, Radwan Mostafa Kamal, Ahmed Farouk Abdel Gawad. Experimental Study for Pressure Exchanger Applied to Brackish Water. *American Journal of Mechanical and Industrial Engineering*. Vol. 3, No. 1, 2018, pp. 15-26.

“Risk assessment and control for main hazards in reverse osmosis desalination plants” Ahmed A.F. Awwad, Mohamed .H. Gobran, Radwan M. Kamal, Mohamed A. Boraey -2018

TECHNICAL REPORTS

" Marriott lake rehabilitation " association of environment friends – Alex.-2000

" Bagas for paper industry " Egyptian association of water and energy –Alex-2002

“ Master plan for ADS in Egypt “ Egyptian association of water and energy-2007

The present master plan stresses the renewable energy usage (mainly Solar , Wind or hybrid systems) in producing potable water through desalination processes. Such plan was done under the research project **ADIRA** with European Union

FUNDED RESEARCH PROJECTS

Share in research , design and supervision of erection of some experimental work packages for the following funded projects in the field of water desalination

- **ADIRA** (desalination by RE , **EU& EWE**- EGYPT)
- **HEEPF** (desalination labs. - ALEX. Univ. & **EWE** – EGYPT)
- **ADURES** (desalination awareness **EU & EWE** – EGYPT)
- **RE-NF-MSF** (ALEX. UNIV-**EWE**-EGYPT)
- **MD-RO-RE** (Moubark scientific city – Egypt)
- **GH-SD – RE** (Moubark scientific city – Egypt)
- **RE – MED- RC** (EJUST – Egypt)

Mainly for desalinated water through renewable energy utilization.

TRAINING COURSES which had been instructed by DR. RADWAN

- 1 – Dryers technologies , types , design , operation and maintenance
- 2 – Rotary & reciprocating compressors , types , design , O&M
- 3 – Centrifugal pumps , selection , design , operation and maintenance
- 4 – Hydraulic & pneumatic circuits , components , design , O & M
- 5 – Aeration technologies for water & wastewater treatment
- 6 – Mechanical equipment for water & wastewater treatment
- 7 – Sequencing Batch Reactor (SBR) for wastewater treatment
- 8 – Wind energy application to aeration process in water treatment
- 9 – Mechanical design of water and wastewater plants
- 10 – Chlorination systems for water treatment plants
- 11 – Lime stone water treatment plants for desalination post treatment
- 12 – Heat exchangers , types , design , operation and maintenance
- 13 – Acid and ball cleaning for MSF desalination plants
- 14 – Oily water treatment technology
- 15 – Multi-stages flash desalination plants
- 16 – Mechanical equipments , pumps and valves
- 17 – Gear boxes , selection , operation and maintenance

- 18 – Fundamentals of engineering drawing
- 19 – Water desalination technologies
- 20 – DPU operation and maintenance (Distillate Potablization Unit)
- 21 – Water networks and pumping stations
- 22 – Best practices in sewage wastewater treatment plants
- 23 - Best practices in industrial wastewater treatment plants
- 24 – Water systems security- vulnerability assessment
- 25 – Heat Recovery Steam Generator HRSG
- 26 – Gas Turbine auxiliary systems
- 27 – Gas power plant fuel handling systems
- 28 – Power plant performance monitoring
- 29 – Shaft alignment and couplings
- 30 – Handling of Oily Water for Oil Production Fields
- 31 – Maintenance planning and scheduling
- 32 – Centrifugal compressors design , O & M and troubleshooting
- 33 – On site sea/salt chlorination plants , operation and maintenance
- 34 – Rotating equipment for process industry
- 35 – Water network operation
- 36 – Water network design
- 37 – Heat Balance for MSF desalination plant
- 38 – Piping and Instrumentation Diagrams (P&ID)
- 39 – Plant layout, P&ID codes and standards
- 40 – Water pipeline maintenance & field connections
- 41 – Engineering drawing codes and standards
- 42 – Reverse Osmosis desalination plants (operation and maintenance)
- 43 – Codes and standards for industrial plants
- 44 – Water distribution systems and pumping stations
- 45 – Hydraulic Modeling of Water Networks
- 46 – Oily wastewater treatment
- 47 – Sea water intakes for thermal power plants
- 48 – Waste management planning in oil and gas sector
- 49 – RO plants: design, operation, maintenance and troubleshooting
- 50 - Corrosion in MSF plants
- 51 - MSF shutdown procedures and precautions
- 52 – Operational problems in water distribution networks
- 53 – Water distribution systems: planning , design , operation and maintenance
- 54 – Industrial wastewater treatment technologies
- 55 – Advanced centrifugal pumps for water pumping stations
- 56 – Advanced wastewater pumps (selection, sizing, O&M and troubleshooting)
- 57 – Zero Liquid Discharge (ZLD) for industrial mega projects
- 58 – Pressurized water networks for treated water distribution
- 59 – Asset management and mechanical equipment life cycle calculations
- 60 – Safe operation in RO desalination plants **(new)**
- 61 – Hybrid GIS – SIS for asset management enhancement **(new)**
- 62 – Introduction to RO desalination plants
- 63 – Advanced techniques for industrial water treatment
- 64 – Optimization program for RO pretreatment processing **(new)**
- 65 – RO desalination: design, operation , maintenance and troubleshooting
- 66 – STP : design, operation , maintenance and troubleshooting

Cooperation with the following training providers

HAWARD – APEX DUBAI – INTELLEGNCE – TADREEB – SUCCESS STEPS – ECOMAN – MESK – ECORD – MERIC – EGYCET – ICTD – BTS – ECOMAN – PEIE

Instruction of in house courses in the following organizations

ARAMCO , KJO , SEC , SWCC , Altwarqi (K.S.A)
RAS-GAS , KAHRAMAA , QP , QAPCO (QATAR)
GASCO, N.P.C.C., ZADCO, ESI , BROUGE (U.A.E.)
GPIC (BAHRAIN)
PETROMAINT , Holding Co. for W&WW , AbuQir Fert. (EGYPT)
Red Sea & Alexandria Water and WasteWater Co. (EGYPT)
OMIFCO , Gubra for Water & Power , HAYA , PEIE, SembCorp (OMAN)

Instruction of public courses in the following countries

Egypt , K.S.A. , U.A.E. Qatar , Bahrain, Oman

MEMBER OF

Alexandria engineering syndicate (AES)
Environment friends association (EFA)
Mechanical power & energy research – consultation center (MPERCC)
GS - member BOD of (EWE)
EWE (Egyptian Association for Water and Energy) is an active NGO in the field of water and energy
Association of Egyptian Scientific Business Men (ESBA)

**Certified Environmental Consultant – Liquid waste management
(Egyptian Ministry for Environmental affairs)**

**Certified Environmental Consultant – Environmental security plans
preparation for industrial firms
(Egyptian Ministry for Environmental affairs)**

**General secretary of The Egyptian Association of Water & Energy
(EWE) From 2001 – until 2005 & From 2009 – until now**

MSF and RO relating experience

Basic knowledge

LECTURER FOR UNIVERSITY STUDENTS IN THE FOLLOWING COURSES

1. Fluid mechanics
2. Thermodynamics
3. Heat & Mass transfer
4. Energy saving programs
5. Energy efficient systems
6. Water treatment technologies
7. Desalination techniques
8. Wind energy application to water treatment sectors

RESEARCH ACTIVITIES M.Sc. & Ph.D.

- 1 - Experimental investigation of multi - phase interfaces behavior
(Air –Water systems - Flow Visualization Techniques)
- 2 - Mass transfer studies of surface liquid drops and or layers.
- 3 - Energy recovery techniques
- 4 – Suitable wind mills for low speed zones
- 5 – Energy recovery devices for RO desalination plants
- 6 – Oily wastewater treatment processes
- 7 – Safety in water, wastewater and desalination plants

FUNDED RESEARCH PROJECTS

Research , design and supervision of erection of some experimental work packages for the following funded projects in the **field of water desalination with prof.**

Dr. Hassan Al-Banna Saad

- **ADIRA (desalination using renewable energy)**
With the Egyptian association for Water and Energy(EWE - EGYPT)

- **HEEPF** project

- **RE-NF-MSF** project

- (desalination labs. MSF , RO & other technologies)

Reviewer of **Desalination e-learning course**

(MSF , RO & other technologies)

Supervision of **Desalination laboratory**

in Mechanical Dept. (ALEX. UNIV. & EWE – EGYPT)

TRAINING COURSES related to MSF and RO desalination technologies

- 1 – MSF desalination technology (public & in house RAS-GAS)
- 2 – Chlorination systems (pre & post treatment KJO)
- 3 – Lime stone water treatment (post treatment to MSF plant product)

- 4 – Heat exchangers (main equipment)
- 5 – Acid and ball cleaning (maintenance equipment)
- 6 – Centrifugal pumps (main equipment)
- 7 – Water desalination technologies
- 8 – DPU operation and maintenance (Distillate Potablization Unit)
- 9 - On site sea/salt chlorination plants, operation and maintenance
- 10 – Water network operation
- 11 – Heat Balance in MSF desalination plant
- 12 – Reverse Osmosis desalination plants (operation and maintenance)
- 13 - Zero Liquid Discharge (ZLD) for industrial mega projects
- 14 – Pressurized water networks for treated water distribution
- 15 – Asset management and mechanical equipment life cycle calculations
- 16 – Safe operation in RO desalination plants (new)
- 17 – Hybrid GIS – SIS for asset management enhancement (new)
- 18 - RO desalination: design, operation, maintenance and troubleshooting

FIELD TRIPS TO DESALINATION PLANTS IN THE FOLLOWING SITES:

- KHAFJI (K.J.O. – K.S.A.)
- AL-TAWEELA (TAPCO – U.A.E.)
- ABU-DHABI (RO – U.A.E.)
- AGMAN (RO – U.A.E.)
- Hurgada , Al-Qusair , Safaga and North coastal (RO plants)
- Industrial RO plants in different factories