Hamdy Ahmed Abd El-Latif El-Ghandour

Position: Associate Professor
Address: Dept. of Irrigation and Hydraulic Eng., Mansoura University
Mansoura – Egypt
Mobile: +201228179892 & +201025354349
E-mail: Hamdy_Elghandour@yahoo.com
Eng_hamd@yahoo.com
Hamdy_a@mans.edu.eg

1. QUALIFICATION HIGHLIGHTS:

- Strong research background on water distribution system topics such as pipe network hydraulic analysis, new design, rehabilitation, calibration, optimal pump operation in the presence of water elevated tanks, leakage reduction, and water hammer control.
- Fairly experience on the design of irrigation systems.
- Fairly experience on the practical implementation.
- Strong research background for controlling of saltwater intrusion in coastal aquifers and determination of the optimum location of discharge wells in coastal locations.
- Expertise on rehabilitation for Damanhur water distribution network, Egypt.
- Several modifications related to pump operation and leakage reduction for Damanhur water distribution network, Egypt are carried out.

2. EDUCATION:

Feb 2006 – May 2010:	**PhD.** in Engineering of Irrigation and Hydraulic, **Thesis**: "Modeling of Flow in Water Distribution Networks". Mansoura University, Mansoura, EGYPT.
Sep 2001 – Sep 2005:	**MSc.** in Engineering of Irrigation and Hydraulic, **Thesis**: "Analysis and Optimization of Saltwater Intrusion in Coastal Aquifers", Mansoura University, Mansoura, EGYPT.
Sep 1996 – Jun 2001:	**B.Sc.** in Civil Engineering, Very Good with Honor's Degree, Rank = 2.

3. EMPLOYMENT HISTORY AND EXPERIENCE:

Feb 2018 – Present:	**Vice-Dean for Education and Student,** Higher Institute of Engineering and Technology in New Damietta, EGYPT.
Apr 2018 – Aug 2018:	**Head of Civil Engineering Dept.,** Higher Institute of Engineering and Technology in New Damietta, EGYPT.
Aug 2016 – Present:	**Associate Professor** – Civil Engineering Department, Higher Institute of Engineering and Technology in New Damietta, EGYPT.
Feb 2016 – Jul 2016:	**Associate Professor** – Civil Engineering Department, Faculty of Engineering, Delta University for Science and Technology, EGYPT.
Sep 2015 – Jan 2016:	**Associate Professor** – Irrigation and Hydraulic Engineering Department, Faculty of Engineering, Mansoura University, EGYPT.
Feb 2014 – Aug 2015:	**Assistant Professor** – Irrigation and Hydraulic Engineering Department, Faculty of Engineering, Mansoura University, EGYPT.
Aug 2013 – Jan 2014:	**Assistant Professor** – Civil Engineering Department, Faculty of Engineering, Delta University for Science and Technology, EGYPT.
Jul 2010 – Jul 2013:	**Assistant Professor** – Irrigation and Hydraulic Engineering Department, Faculty of Engineering, Mansoura University, EGYPT.
Dec 2005 – May 2010:	**Assistant Lecturer** – Irrigation and Hydraulic Engineering Department, Faculty of Engineering, Mansoura University, EGYPT.
Dec 2001 – Dec 2005:	**Demonstrator**– Irrigation and Hydraulic Engineering Department, Faculty of Engineering, Mansoura University, EGYPT.
Mar 2002 - Dec 2002:	**Civil/Structural Engineer** (Part-time) – Dr. Saher El-Khorepy Consulting Office, Mansoura, EGYPT. Duties

include the structural design of a variety of concrete multi-story buildings.

Jun 1999 – Dec 2001: **Assistant Civil/Structural Engineer** (Part-time) – Dr. Osami Rageh Consulting Office, Mansoura, EGYPT. Duties include the design and supervision on construction of many projects. This includes the preparation of structural design drawings for projects.

4. ACADEMIC TEACHING SKILLS

UNDERGRADUATE COURSES

Course name	Course contents
Fluid mechanics	Fluid properties – Dimensions and Units – Pressure – Buoyancy – Continuity equation – Bernoulli Equation – Flow through orifices – Flow over weirs – Steady and unsteady flow in pipe lines – Momentum equation – Kinematics.
Open channel hydraulics	Sections of open channels – Section properties – Classification of flow – Saint-Venant equations – Velocity coefficients – Boundary layers – Specific energy – Transition problem – Control sections – Hydraulic jump – Surge in Open channel – Flow Roughness – Gradually varied flow – Design of Cross sections – Hydraulic machinery.
Hydrology	Surface hydrology: Hydrologic cycle – Precipitation – Evaporation – Transpiration – Infiltration – Surface runoff – Hydrograph – S-curve- Flood routing. Groundwater hydrology: Types of aquifers – Soil properties – Darcy law – Groundwater recharge – Seepage – Steady and Unsteady flow towards wells – well design and constructions – saltwater intrusion in coastal aquifers.
Irrigation and drainage engineering	Introduction in irrigation engineering – Water recourses – Relationships between water and plant – Water requirements – Planning and design of irrigation and drainage networks – Management and distribution of irrigation water – Sprinkler irrigation – Drip irrigation – Subsurface drainage.
Design of Irrigation Structures	Hydraulic design of water irrigation constructions: Bridges - Culverts – Regulators – Syphons – Tail Escape – Aqueducts.
Harbor Engineering	Coastal hydrodynamics: Wind – Tides – Currents – Waves – Port planning – Breakwaters – Berth structures.
Civil engineering	Irrigation structure: Channel and drain sections – Road

drawing	crossing – walls – Bridges – Culverts – Regulators – Syphons – Tail Escape – Aqueducts. Reinforced concrete structures: Slabs – Beams – columns – Stairs. Steel structure: Connections

GRADUATE COURSES

Course name	Course contents
Groundwater Hydrology	Groundwater recourses – Management of groundwater – groundwater models – contaminations
Surface Water Hydrology	Hydrologic cycle **–** Rainfall data analysis – Rainfall runoff relation – Hydrograph analysis – Relationships between direct and indirect income and storage reveres and reservoir flood – Frequency analysis – Storage capacity calculations of reservoirs – Hydrology of River Nile.
Design of Irrigation and Drainage systems	Introduction in irrigation engineering – Water recourses – Water requirements – Planning and design of irrigation and drainage networks – Management and distribution of irrigation water – Sprinkler irrigation – Drip irrigation – Subsurface drainage.
Computer application	Classification of partial differential equations – General equation of seepage flow through porous media – Methods of solving Laplace's equation – confined seepage – Numerical methods (Finite element Method) – Case studies.

5. SUPERVISED THESIS

MASTER THESIS

Thesis title	Status
Effect of Contraction in Drinking Water Network on Water Distribution	Finished
Unsteady State Studying of Saltwater Intrusion in Coastal Aquifers	Finished
The Environmental Effects of saltwater Intrusion into Fresh Water	Finished

PH. D. THESIS

Thesis title	Status
Numerical Analysis of Pressure Culvert Pipelines against Partial Plugging	Finished

6. ADMINISTRATION EXPERIENCE

2010- 2011 Member of the faculty Education and Student Committee.

2010- 2011 Member of the faculty laboratories Committee.

2011- 2013 Member of the faculty Cultural Relations Committee.

2014- 2015 Member of the faculty library committee.

2012- 2013 Supervisor of the Irrigation & Hydraulics lab of the academic department.

7. AWARDS:

The best Master thesis in Mansoura University for the year of 2006.

8. PROFESSIONAL AFFILIATIONS:

Member of the Egyptian Engineers Syndicate

9. COMPUTER RELATED SKILLS:

- Good programming ability using **MATLAB** programming.
- Excellent programming ability using **FORTRAN**.
- Experienced in EPANET ((Water Distribution Hydraulic Analysis).
- Experienced in Sap2000 (Structural Analysis).
- Fair working knowledge of AutoCAD (computer-aided drawing).
- Fair working knowledge of WaterGEM (Water Distribution Hydraulic Analysis).
- Fair working knowledge of WaterCad (Water Distribution Hydraulic Analysis).
- Familiar with the following software packages:
  - Microsoft Word (word processing)
  - Microsoft Excel (spreadsheet) and
  - Microsoft PowerPoint (presentation)

10. PUBLICATIONS AND SCHOLARLY ACHIEVEMENTS:

JOURNALS:

El-Ghandour, H.A., Gabr, M., and Elbeltagi, E., (2019). "Irrigation Canals Design with Minimum Overall Cost ". Journal of Hydraulics Research, Under Review.

El-Ghandour, H.A., and Elbeltagi, E., (2019). "Pumping Optimization of Coastal Aquifers Using Probabilistic Search Case Study: Quaternary Aquifer of El-Arish Rafah, Egypt". Journal of Hydrology Research, IWA, Under Review.

El-Ghandour, H.A., and Elansary, A.S., (2019). "Optimal Selection of Pressure Relief Valve Parameters for Surge Pressure Control in Water Distribution Systems". Urban Water Journal, Accepted, Published online.

El-Ghandour, H.A., and Elansary, A.S., (2018). "Optimal Transient Network Rehabilitation Using Multi-Objective Ant Colony Optimization Algorithm". Urban Water Journal, Vol. 15(7), pp. 645 – 653.

El-Ghandour, H.A., and Elbeltagi, E., (2018). "Developing Four Metaheuristic Algorithms for Multiple-Objective Management of Groundwater", Journal of Soft Computing in Civil Engineering, (SCCE), Vol. 2(4), pp. 1 – 22.

El-Ghandour, H.A., and Elbeltagi, E., (2018). "Comparison of Five Evolutionary Algorithms for Optimization of Water Distribution Networks", Journal of Computing in Civil Engineering, (ASCE), Vol. 32(1), pp. 04017066-1 – 04017066-10.

Zidan, A.R., Elansary, A.S., and **El-Ghandour, H.A.**, (2017). "Pressure Management in Water Distribution Network by Multi-Objective Genetic Algorithm", International Water Technology Journal, (IWTJ), Vol. 7(4).

AL-Fraidawi, A.S., **El-Ghandour, H.A.**, El-Alfy, K.S., and EL-Nimr, A.A., (2015). "Effect of Contraction in Drinking Water Networks on Water Distribution", Journal of Environmental Sciences, Mansoura University, Vol. 44(2).

El-Ghandour, H.A., and Elabd, S.M., (2015). "Studying the Reliability in Multi-Objective Management of Groundwater under Uncertainty of Hydraulic Conductivity values", Mansoura Engineering Journal, (MEJ), Vol. 40(1), pp. C:58 – C:73

El-Alfy, K.S., **El-Ghandour, H.A.**, and Abd-Elmaboud, M.E. (2015). “Controlling of Saltwater Intrusion Using Injection wells (Case Study: Quaternary Aquifer of Delta Wadi El-Arish, Sinai)", Mansoura Engineering Journal, (MEJ), Vol. 40(1), pp. C:74 – C:92

Ghonim, M.T., Mowafy, M.H., Elansary, A.S., and **El-Ghandour, H.A.**, (2015). "The Effect of Plugging Storm Pipe Culvert on Head Loss (II)", The Egyptian International Journal of Engineering Sciences and Technology, Vol. 18(1), pp. 2291 – 2300.

Ghonim, M.T., Mowafy, M.H., Elansary, A.S., and **El-Ghandour, H.A.**, (2015). "The Effect of Plugging Storm Pipe Culvert on Head Loss (I)", The Egyptian International Journal of Engineering Sciences and Technology, pp. 2279 – 2290.

Hashish, H.A., **El-Ghandour, H.A.**, and El-Nimr, A.A., (2014). "Simulating the Effects of Spatial Layout and Pumping/Recharging Rates of Wells on Saltwater Intrusion", International Water Technology Journal, (IWTJ), Vol. 4(3), pp. 152 – 166.

El-Alfy, K.S., **El-Ghandour, H.A.**, and Abd-Elmaboud, M.E., (2014). "Tidal Effect on Groundwater Fluctuations and Saltwater Intrusion in Coastal Heterogeneous Aquifers", Mansoura Engineering Journal, (MEJ), Vol. 39(1), pp. C:1 – C:22.

Elabd, S.M., and **El-Ghandour, H.A.**, (2014). "Multiobjective Optimization of Bigge Reservoir Operation in Dry Seasons", Journal of Hydrologic Engineering, (ASCE), Vol. 19(9), pp. 05014008-1 – 05014008-7.

El-Ghandour, H.A., and Elbeltagi, E., (2014). "Optimal Groundwater Management Using Multiobjective Particle Swarm with a New Evolution Strategy". Journal of Hydrologic Engineering, (ASCE), Vol. 19(6), pp. 1141 – 1149.

El-Ghandour, H.A., and Elsaid, A., (2013). "Groundwater Management Using a New Coupled Model of Flow Analytical Solution and Particle Swarm Optimization". International Journal of Water Resources and Environmental Engineering, (IJWREE), Vol. 5(1), pp. 1 – 11.

El-Ghandour, H.A., and Elansary, A.S., (2011). "Optimal Location and Regulation of Flow Control Valves for Leakage Reduction in Water Pipe Networks". Journal of Engineering and Applied Science, Vol. 58(6), pp. 479 – 494.

El-Ghandour, H.A., El-Gamal, M., Saafan, T., and Abdel-Gawad, H., (2010). "Effect of Heterogeneity on the Maximum Pumped Fresh Ground Water from Coastal Aquifers". International journal of Water Resources and Environmental Management, Vol. 1 (2), pp. 149 – 172.

Elansary, A.S., Zidan, A.R., El-Gamal, M.M., and **El-Ghandour, H.A.**, (2009). "Hydraulic Calibration of Pipe Network Model Using an Improved Genetic Algorithm Technique". Mansoura Engineering Journal, (MEJ), Vol. 34(4), pp. c 1 – c 21.

Zidan, A.R., El-Gamal, M.M., Elansary, A.S., and **El-Ghandour, H.A.**, (2009). "Pipe Network Analysis Using a New Technique". Mansoura Engineering Journal, (MEJ), Vol. 34(2), pp. c 72 – c 86.

CONFERENCES

El-Ghandour, H. A., Zidan, A.R., Elansary, A.S., and El-Gamal, M.M., (2019). " Multi-objective Solution: Pumps Operation Cost and Leakage Reduction". Twenty second International Water Technology Conference (IWTC2019), International Water Technology Association (IWTA).

Zidan, A.R., El-Gamal, M.M., Elansary, A.S., and **El-Ghandour, H.A.**, (2008) "A Minimum Cost Design of Water Distribution Networks Using an Improved Genetic Algorithm Technique" 6th International Engineering Conference, Mansoura/Sharm El-Sheikh, pp. 441 – 460.

El-Ghandour, H.A., El-Gamal, M., Saafan, T., and Abdel-Gawad, H., (2008). "Optimal Management of Saltwater Intrusion in Costal Aquifers Using Genetic Algorithm Technique". Twelfth International Water Technology Conference, IWTC12, Alexandria, Egypt. pp. 1317 – 1343.

El-Ghandour, H.A., El-Gamal, M., Saafan, T., and Abdel-Gawad, H., (2006). "Effect of Different Patterns of Injection Well Systems on Saltwater Intrusion in Costal Aquifers". Tenth International Water Technology Conference, IWTC10, Alexandria, Egypt, pp. 1019 – 1048.

El-Ghandour, H.A., El-Gamal, M., Saafan, T., and Abdel-Gawad, H., (2006). "Steady-State Effect of Pumping Well Systems on Saltwater Intrusion". 5th International Engineering Conference, Mansoura/Sharm El-Sheikh, pp. c-647 – c-667.

PREPARED LECTURE NOTES

- **El-Ghandour, H.A.** “Fluid Mechanics”. Second Year Civil Engineering, Faculty of Engineering, Mansoura University.
- **El-Ghandour, H.A.** “Principles of Hydrology”. Second Year Civil Engineering, Faculty of Engineering, Mansoura University.
- **El-Ghandour, H.A.**, and Elabd, S.M. “Irrigation and Drainage Engineering”. Second Year Civil Engineering, Faculty of Engineering, Mansoura University.
- **El-Ghandour, H.A.**, and Elabd, S.M. “Groundwater Hydrology”. Second Year Civil Engineering, Faculty of Engineering, Mansoura University.

- Zidan, A.A., and **El-Ghandour, H.A.** “Lecture Notes on HYDRAULICS (2): Open Channel Hydraulics”. Third Year Civil Engineering, Faculty of Engineering, Mansoura University.